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Rehabilitation Research and Training Center
on Disability Demographics and Statistics

Disability Statistics User Guide Series

A Guide to Disability Statistics from the Behavioral Risk Factors Surveillance System

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Introduction

The mission of the Cornell StatsRRTC is to bridge the divide between the sources of disability data and the users of disability statistics. One product of this effort is a set of *User Guides* to national survey data that collect information on the disability population. The purpose of each of the *User Guides* is to provide disability data users with:

- An easily-accessible guide to the disability information available in the nationally-representative survey;
- A set of estimates on persons with disabilities from the survey, including estimates on the size of the population, the prevalence rate, the employment rate and measures of economic well-being;
- A description of the unique features of the survey;
- A set of estimates that highlight the unique features of the survey; and
- A description of how estimates from the survey compare to other national surveys that are used to describe the population with disabilities.

This *User Guide* contains information on the Behavioral Risk Factors Surveillance System (BRFSS). The BRFSS is a state-based system of health surveys that collects information on health risk behaviors, preventive health practices, and health care access primarily related to chronic disease and injury. The survey is conducted by the state health departments with technical and methodological assistance provided by the U.S. Centers for Disease Control and Prevention (CDC). The BRFSS is an annual cross-sectional telephone-based survey that provides national, state, and limited county-level data. It is designed to allow the CDC, state health departments, and other health and education agencies to monitor risk behaviors related to chronic diseases, injuries and death, identify emerging health problems, establish and track health objectives, and develop and evaluate public health policies and programs. The core

survey includes two questions that are used to identify the population with disabilities with other optional modules that target disability-related issues.

There are many features of the BRFSS that are useful to disability policymakers, disability service providers, and the disability advocacy community. First, the guide demonstrates that the BRFSS contains a unique combination of data on disability, demographic characteristics, health issues, behaviors and health care. Second, the sample size and the design of the BRFSS allows users to examine a variety of annual disability statistics at the national, state, as well as a limited number of metropolitan and micropolitan statistical areas (MMSA) and counties. The BRFSS is also used in several of the U.S. territories including Puerto Rico, Guam,[1] and the U.S. Virgin Islands, the latter two of which are not represented in any other available source of disability information, including surveys such as the American Community Survey. Third, the BRFSS contains some questions regarding the diagnosis of specific conditions potentially related to disability including arthritis, asthma, cardiovascular disease and prostate cancer. Fourth, individual state health departments can decide to include optional BRFSS modules to include in their survey, many of which are relevant disability issues including the following: number of "healthy days," asthma, visual impairments, diabetes, anxiety, depression and mental health.

While the BRFSS can provide information on a wide variety of topics, it has some limitations. First, the BRFSS core survey contains only two basic questions to identify the disability population, both of which are broad and do not contain a minimum reference time period. This results in the disability population derived from the BRFSS potentially including

[1] The BRFSS is not fielded in Guam every year.

individuals with temporary impairments or conditions along with those with longer-term or chronic disabilities.

Second, the BRFSS disability definition does not include important societal and environmental factors that may contribute to a disability, such as discrimination and lack of reasonable accommodations.

Third, the BRFSS is strictly a phone-based survey. Although overall 95 percent of U.S. households have telephones, the coverage varies from 87 percent to 98 percent across states. Households without traditional telephone lines, including cellular-telephone only households, are presently not in the sampling frame for the BRFSS. This may bias the survey results, especially if the percentage of cellular-telephone-only households continues to increase. Also certain groups such as minorities and those with lower socio-economic status have reduced telephone coverage.[2] This could potentially result in under-representation of these groups in the BRFSS. As persons with disabilities are over-represented in lower socio-economic groups, they may be less likely to have access to phone service and as a result may be underrepresented in the BRFSS data. Note that although the BRFSS does not directly compensate for telephone coverage, it does utilize a weight adjustment factor for non-telephone households or interruption of service which may partially address this issue (http://www.cdc.gov/brfss/technical_infodata/surveydata/2006/overview_06.rtf).

Fourth, as the BRFSS is primarily a health survey, the economic indicators collected are very limited. Finally, the BRFSS is limited to the household population, adults ages 18 and older; it does not include the population living in "group quarters." Group quarters include such places as institutions, college dormitories, residential treatment centers, group homes, correctional

[2] Analysis of 2006 American Community Survey Public Use Microdata Sample (PUMS).

facilities and other places where people live that is normally owned or managed by an entity providing housing and or services for the residents. This is an important limitation as according to analysis of the 2006 American Community Survey PUMS data, 8.4 percent of the population with disabilities ages 18 and older live in group quarters.

Conceptual Model of Disability

One purpose of the *User Guides* is to describe the information on disability available in the various national surveys. An operational definition of disability is required to fulfill this purpose. Unlike age and gender, which are for the most part readily-identifiable individual attributes, disability is usually defined as a complex interaction between a person's health condition and the social and physical environment. An environment that provides accommodation may allow a person with a health condition to function at the same level as a person without a health condition. In this instance, the person may not consider her health condition a disability.

The two major conceptual models of disability are the World Health Organization's (WHO, 2001) International Classification of Functioning, Disability and Health (ICF) and the disability model developed by Saad Nagi (1965, 1979). Both conceptual models recognize disability as a dynamic process that involves the interaction of a person's health condition, personal characteristics, the physical environment and the social environment. Changes to any one of these factors over time can have an impact on a person's ability to function and participate in activities. A detailed description of these models, as well as a comparison of these models, is in Jette and Badley (1998).

We use ICF concepts to create operational definitions of disability. The concepts used include *impairment, activity limitation, participation restriction,* and *disability* (see WHO,

2001). A prerequisite to each of these concepts is the presence of a health condition. Examples of health conditions are listed in the International Classification of Diseases, Tenth Edition (ICD-10) and they encompass diseases, injuries, health disorders, and other health related conditions. An *impairment* is defined as a significant deviation or loss in body function or structure. For example, the loss of a limb or vision may be classified as an impairment. In some surveys, impairments are defined as long-lasting health conditions that limit a person's ability to see or hear, limit a person's physical activity, or limit a person's mental capabilities. An *activity limitation* is defined as a difficulty an individual may have in executing activities. For example, a person who experiences difficulty dressing, bathing or performing other activities of daily living due to a health condition may be classified as having an activity limitation. Activity limitations are identified based upon a standard set of activities of daily living questions (ADLs). A *participation restriction* is defined as a problem that an individual may experience in involvement in life situations. For example, a working-age person with a severe health condition may have difficulty participating in employment as a result of the physical environment (e.g., lack of reasonable employer accommodations) and/or the social environment (e.g., discrimination). In some surveys, participation restrictions are identified by questions that ask whether the person has a long-lasting health condition that limits his or her ability to work, or whether a health condition affects his or her ability to go outside his or her home to go shopping, to church or to the doctor's office.

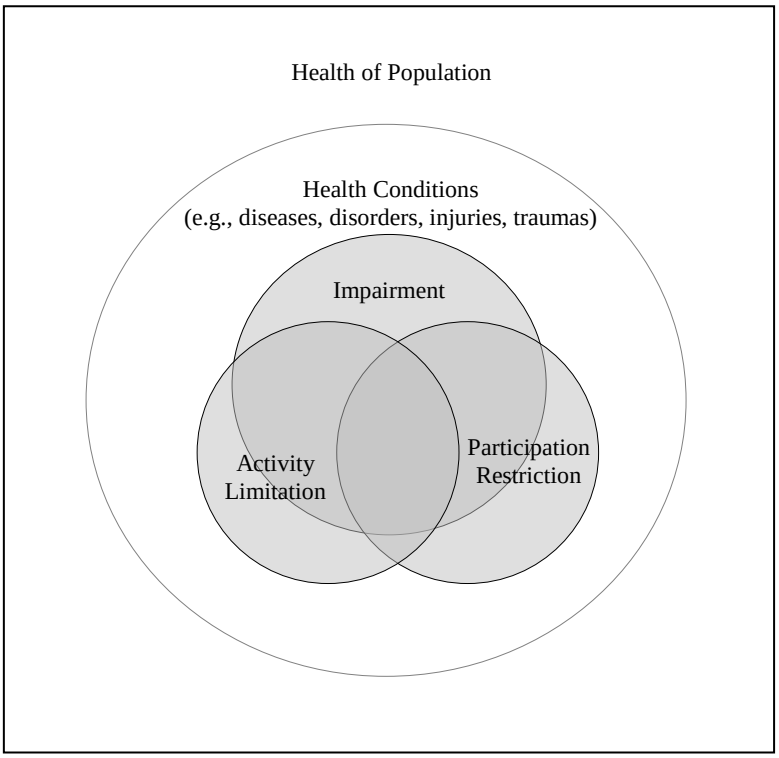
The final ICF concept that we use is a *disability*. The term disability is used to describe the presence of an impairment, an activity limitation, and/or a participation restriction. This concept is similar to the definition used in the Americans with Disabilities Act of 1990 (ADA). The ADA defines a disability as "a *physical or mental impairment that substantially limits one*

or more of the major life activities, a record of such an impairment, or being regarded as having such an impairment."

While these concepts may seem to follow a progression—that is, an impairment leading to an activity limitation leading to a participation restriction—it is not necessarily the case. It is possible that a person may have a participation restriction without an activity limitation or impairment. For example, a person diagnosed as HIV positive may not have an evident impairment or activity limitation but may not be able to find employment due to discrimination resulting from his health condition. Similarly, a person with a history of mental illness, but who no longer has a loss in capacity or activity limitation, may also be unable to find employment due to discrimination resulting from his health condition.

Figure 1 provides a useful summary of the ICF concepts. It illustrates that while these concepts overlap, it is possible that one of them can occur independently of the others. The universe of the ICF is the health of the population as a whole. The shaded area of Figure 1 illustrates the ICF concept of a disability.

Figure 1. Simplified Conceptual Model of Disability Using ICF Concepts



Operational Issues

Translating the ICF concepts into operational definitions in surveys is not a straightforward task. Decisions to classify the questions into one of the three specific ICF categories are made based upon judgments and are not based upon well-defined rules from the ICF. In some cases, the classification is straightforward. In other cases, for example, the survey questions may be interpreted as both an activity limitation and participation restriction. Our approach in these cases is to make clear and consistent judgments so that it may be possible to make comparisons across the datasets. Using this approach provides a framework for comparisons across surveys and for comparisons to ICF concepts.

BRFSS Background, Methodology and Definitions

The survey methodology can have an important impact on the information that a survey collects on the population with disabilities. Mathiowitz (1998) provides a good review of the general methodological issues as well as those specific to the population with disabilities. The purpose of this section is to describe the development of the BRFSS, the methods used by the BRFSS to collect information on the population, and the definitions used to describe the population with disabilities.

Purpose of the BRFSS

The BRFSS is the largest continuously conducted telephone health surveillance system and involves more than 350,000 interviews annually (2005-2007). It is a unique state-based telephone survey conducted by the individual state health departments in close collaboration with the CDC providing technical and methodological support. The BRFSS is designed to provide timely and accurate data to identify emerging health issues, evaluate health policies and programs and establish and track progress towards health objectives. The survey is fielded in all 50 states as well as the District of Columbia, Puerto Rico, Guam,[3] and the U.S. Virgin Islands.

The BRFSS is the primary source for national, state/territory and local level information regarding the health behaviors of adults ages 18 and older. The BRFSS includes questions related to behaviors associated with injuries, preventable chronic and infectious diseases, as well as health care access and use. Data collected in the BRFSS provide policymakers, public health officials and health departments with information regarding the adult population's health behavioral information in their area. Public health officials can combine the BRFSS data with

[3] The BRFSS is not fielded in Guam every year.

statistics on mortality and morbidity to help determine health priorities and effective policies as well as health promotion strategies.

Development of the BRFSS

In the early 1980s, research revealed that health behaviors play an important role in mortality and morbidity. At that time, some national-level data were periodically collected by the National Center for Health Statistics (NCHS). However, national data were not necessarily useful or applicable at the individual state level, whose health agencies ultimately have the principal role of targeting resources designed to reduce behavioral risks and potential illnesses.

To address this need, surveys were designed to collect and monitor uniform state-specific data regarding health behaviors across all participating states and territories. The surveys were designed to assess actual behaviors rather than attitudes or knowledge that could then be used to help plan, support, and evaluate disease prevention and health promotion programs targeting high risk behaviors. In the early 1980s, telephone surveys became recognized as an acceptable method of data collection for this topical area. Issues regarding limited state-level expertise and resources required for in-person interviews made telephone-based surveys more practical. Between 1981 and 1983, 29 states participated in the initial behavioral surveillance survey to determine the feasibility of such a program.

In 1984, the BRFSS project officially began with 15 states collecting risk behavior surveillance through an annual telephone survey. Over time, additional states became involved. By 1994, all 50 states were participating, as well as the District of Columbia, Guam, Puerto Rico and the U.S. Virgin Islands. The survey is administered by the CDC's Behavioral Surveillance Branch (BSB) with the field operations managed by the state health departments following CDC guidelines. The CDC and state entities collaborate on developing the survey instrument.

The BRFSS questionnaire is comprised of three distinct parts: 1) the core component; 2) optional modules; and 3) state-added questions. The core component is a standardized set of questions asked by all states and includes demographic questions as well as those regarding current health-related perceptions, conditions, and behaviors. The core component consists of a fixed core, rotating core, and emerging core. The fixed core contains questions regarding demographics and current behaviors that affect health and, since 2003, two disability-related questions. The rotating core is comprised of two distinct sets of questions addressing different topics and are asked of all participants in alternating years by all states. In odd-numbered years, Rotating Core I is used and includes questions regarding hypertension, injury, alcohol, vaccinations, colorectal screening, and cholesterol. Rotating Core II is used in even-numbered years and includes questions regarding physical activity, diet, and weight control. In years where a set is not included in the rotating core, it is included as one of the optional modules. The *emerging core* is a set of up to five questions that focus on health issues of a "late breaking" nature.

The *optional CDC modules* are sets of questions that address specific topics that a state can decide to include in their questionnaires. In the 2006 version of the BRFSS, 17 optional modules supported by the CDC included such topics as: Anxiety and Depression (36 states included this module), Childhood Asthma Prevalence (38 states), Diabetes (44 states), Healthy Days – Symptoms (4 states), and Visual Impairment and Access to Eye Care (8 states). For a list of all modules used in the BRFSS see http://apps.nccd.cdc.gov/BRFSSModules/ModByCat.asp. The third component, the *state-added questions*, are developed by the participating states and supplement their questionnaires, but are not evaluated or edited by the CDC.

Many of the questions used in the core and optional modules are taken from existing national surveys that have already been tested. New questions must go through cognitive and field testing before inclusion in the survey. The BRFSS requires that all participating states ask the core questions without modification and can choose to include any, all, or none of the optional modules. Due to time and cost constraints, states are selective of the optional modules and state-specific questions that are included. New questionnaires are implemented in January and typically are unchanged throughout the year, although occasional mid-year changes do occur in the state-added questions. The order of the questionnaire components is always the same, beginning with the core, followed by the optional modules and the state-added questions last. These CDC guidelines allow comparability of the core question data between states.

Once a state has determined the content of its survey (core, selected optional modules, and state-added questions) it is sent to the CDC. That document is then used for developing the Computer Assisted Telephone Interview (CATI) programming. In 2006, 53 states/territories used CATI systems. Currently the CDC only provides English and Spanish versions of the BRFSS core and optional modules, although states may translate the survey into other languages.

Universe and Sample Design

The BRFSS universe is the set of all active telephone numbers in a state that could possibly be assigned to households. The numbers are provided by a telephone vendor in each state.

In 2006, all 50 states and the District of Columbia used a disproportionate stratified sample design (DSS). Puerto Rico and the U.S. Virgin Islands used a simple random sample design. For the DSS design, used by most participating states, telephone numbers are divided into two stratum, high-density (listed numbers) and medium density (unlisted numbers), that are

expected to primarily belong to households. The two stratum are then sampled to obtain a probability sample of all households.

The CDC's goal is to complete at least 4,000 interviews for each state annually. In 2006, all but 5 states/territories successfully achieved this goal. A number of states (38 in 2006) elected to sample disproportionately from the stratum to provide adequate samples to support estimates for smaller specific sub-state regions such as counties or MSAs. This resulted in a median number of 6,080 completed surveys per state with six states having over 10,000 completed surveys with a range of 23,000 completed surveys in Washington to 2,140 completed surveys in Alaska in 2006.

Data Collection Methodology

The BRFSS is strictly a telephone-based survey with 53 states and territories using Computer Assisted Telephone Interviewing (CATI) in 2006. Fourteen states used state health personnel to conduct interviews with the remainder contracting university survey research centers or commercial companies. All interviewers are required to follow the guidelines outlined by the CDC. Surveys are conducted every calendar month, seven days a week, over both daytime and evening hours. Typically, the core portion of the survey lasts 10 minutes. Depending on the number of additional questions, the optional modules and state selected questions used may extend the interview time by an additional 5 to 10 minutes.

Once a residence is contacted, the number of eligible adult (ages 18 and older) males and females living in the household is determined and one is randomly selected to be the respondent. No proxy responses for the selected respondent are allowed by the BRFSS protocol which calls for a minimum of 15 contact attempts per respondent. Once successful contact is made with an eligible respondent, the median refusal rate is low (averaging 15.3 percent with a range of 8.9 to

22.5 percent). Once the survey is initiated, the BRFSS interview completion rate is high with an average of 76.5 percent completing the survey in 2006 (with a range of 65.8 to 87.3 percent).

Interviewer monitoring or verification call-backs are required as part of the CDC's quality control process. All states are required to perform verification call-backs to a sample of completed interviews in addition to interviewer monitoring. See the BRFSS Summary Data Quality Report for additional information regarding these rates, potential sample biases and item non-response (ftp://ftp.cdc.gov/pub/Data/Brfss/2006SummaryDataQualityReport.pdf) The Behavioral Risk Factor Surveillance System Operational and User's Guides contain further details regarding the survey and interview methodology (ftp://ftp.cdc.gov/pub/Data/Brfss/userguide.pdf).

Data Processing

At the end of every month, each state sends their data to the CDC. The CDC then runs editing programs and cumulative data quality checks and works with the state to resolve any identified issues. Response rate data quality reports are shared with the states. Year-end programs are run that perform additional limited data cleanup and fixes and identify potential analytic problems with the dataset.

Definitions

A description of the survey questions and a description of the methods used to produce data on disability, demographics, employment, health behavior and economic well-being are presented in Tables 1a-1g.

Disability. (Table 1a.) The CDC uses two questions located in the core section of the 2006 BRFSS to determine disability status. The first is focused on general activity limitations,

the second is in relation to a current health problem that requires the use of special equipment. The current (used in 2003-2008) versions of the BRFSS include the following two questions to identify individuals with disabilities:

> The following questions are about health problems or impairments you may have.
> 9.1 Are you limited in any way in any activities because of physical, mental, or emotional problems?
> 9.2. Do you now have any health problem that requires you to use special equipment, such as a cane, a wheel chair, a special bed, or a special telephone? **Include occasional use or use in certain circumstances.**

The four response categories for each question are: Yes, No, Don't know/Not sure, and Refused.

It is important to note that both questions are quite broad with few restrictions. This is particularly apparent with regards to the activity limitation question: "limited in *any way* in *any activities*" (emphasis added). Although the question inquiring about the use of special equipment provides equipment examples, it is also made broader by the use of the follow-up statement, "Include occasional use or use in certain circumstances," and the term "health problem" is undefined. Another important point is that neither question contains a time reference to qualify the severity of the disability, such as the use of the phrases "long lasting condition" or "a condition lasting 6 months or more" in the American Community Survey's (ACS) disability questions. A person with a temporary disability such as broken leg who uses a crutch would likely respond "yes" to both the activity limitation and the health problem requiring the use of special equipment. Given the nature of the two BRFSS disability questions, it is not possible to differentiate between those with a temporary impairment and persons with longer-term impairments. Depending on the nature of the research question, the potential inclusion of these "temporary" impairments and/or special equipment use may be viewed as either an advantage or a drawback.

Table 1a. Disability Definitions from the 2006 BRFSS

BRFSS Term	Question
Disability question Prologue:	The following questions are about health problems or impairments you may have.
Activity Limitation	9.1 Are you limited in any way in any activities because of physical, mental, or emotional problems? *Yes, No, Don't know / Not Sure, Refused.*
Special Equipment Use	9.2 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? Include occasional use or use in certain circumstances. *Yes, No, Don't know / Not Sure, Refused.*
Disability	Responding positively to either the Activity Limitation or the Special Equipment Use questions will classify the respondent as disabled. Missing values are generated when the response to either question is Don't know / Not Sure, Refused, or is left blank.
Activity Limitation AND Special Equipment Use	Respondents are classified as both having both an Activity Limitation *and* a health problem requiring Special Equipment Use when they respond positively to both questions 9.1 and 9.2.

Demographics. (Table 1b) Data on demographics are drawn from the demographics section of the BRFSS and include age, gender, race, ethnic origin, education attainment, employment status, and household income. Question 11.1 identifies a respondent's age from the question, "What is your age?" Question 11.2 identifies whether a respondent is Hispanic or Latino from the question, "Are you Hispanic/Latino?" Question 11.3 identifies the respondent's race by inquiring, "Which one or more of the following would you say is your race? (check all that apply)." If more than one race is indicated, Question 11.4 is subsequently asked: "Which one of these groups would you say best represents your race?" Question 11.17 identifies a household member's gender from the question, "Indicate sex of the respondent. (Ask only if necessary)."

Information regarding educational attainment is determined by Question 11.7, "What is the highest grade or year of school you completed?" The seven response categories are: Never attended school or only attended kindergarten; Grades 1 through 8 (Elementary); Grades 9 through 11 (Some high school); Grade 12 or GED (High school graduate); College 1 year to 3 years (Some college or technical school); College 4 years or more (College graduate); Refused.

Table 1b. Demographic Definitions from the 2006 BRFSS

BRFSS Term	Question
Reported Age in Years	11.1 What is your age? *Code age in years, Don't know / Not Sure, Refused.* *Ages are reported from 18-99*
Hispanic/Latino	11.2 Are you Hispanic or Latino? *Yes, No, Don't know / Not Sure, Refused.*
Multiple Race	Which one or more of the following would you say is your race? [Mark all that apply.] This is then recoded by the CDC as Multiracial race categorization, differentiating between respondents who chose one race and those who chose multiple. This included: *White only, Black or African American only, Asian Only, Native Hawaiian or other Pacific Islander only, American Indian or Alaskan Native only, Other race only, Multiracial, Don't know/Not sure, Refused.*
Race Recode	This *User Guide* recodes the Multiracial race categorization provided by the CDC to collapse the groups into the following: *White only, Black or African American only, Asian Only, Native American only, and Other. Native Hawaiian or other Pacific Islander only, Other race only, and Multiracial are collapsed into the Other category.*
Education Level	11.7 What is the highest grade or year of school you completed? *Never attended school or only attended kindergarten, Grades 1 through 8 (Elementary), Grades 9 through 11 (Some high school), Grade 12 or GED (High school graduate), College 1 year to 3 years (Some college or technical school), College 4 years or more (College graduate), Refused.*
Education Level Recodes	This *User Guide* uses two recodes of the Education Level provided by the CDC. The first recode collapses the education groups into the following: Less than High School, High School/GED, Some College, and Four Year College Grad or Higher. The second recode collapses the education groups into the following: Less Than High School, High School/GED, and Greater Than High School.

Source: Author's adaptation from BRFSS website http://www.cdc.gov/brfss/questionnaires/pdf-ques/2006brfss.pdf

Employment Measures. (Table 1c.) The BRFSS definition of employment status is drawn from Question 11.8 and its respective response categories, "Are you currently…? Employed for

wages; Self-employed; Out of work for more than 1 year; Out of work for less than 1 year; A Homemaker; A Student; Retired; Unable to work; Refused."

Table 1c. Employment Definitions from the 2006 BRFSS

BRFSS Term	Question
Employment Status	11.8 Are you currently…? *Employed for wages, Self-employed, Out of work for more than 1 year, Out of work for less than 1 year, A Homemaker, A Student, Retired, Unable to work, Refused*
Employed: Reference Period	Respondent is considered employed in the Reference Period if they indicate they are currently employed for wages or self-employed. Refused or blank responses are considered missing and their observations are eliminated from the sample.
Employed: Sometime in Previous Year	Respondent is considered employed Sometime in the Previous Year if they indicate they are currently out of work for less than 1 year. Refused or blank responses are considered missing and their observations are eliminated from the sample.
Employed: Either Reference Period or Sometime in Previous Year	This recode includes both those who are considered employed in the Reference Period and those who are employed Sometime in the Previous Year.

Income Data. (Table 1d.) The economic well-being measures use information derived from Question 11.9 in the demographics section. For household income, individuals are asked, "Is your annual household income from all sources":

Less than $10,000
Less than $15,000 ($10,000 to less than $15,000)
Less than $20,000 ($15,000 to less than $20,000)
Less than $25,000 ($20,000 to less than $25,000)
Less than $35,000 ($25,000 to less than $35,000)
Less than $50,000 ($35,000 to less than $50,000)
Less than $75,000 ($50,000 to less than $75,000)
$75,000 or More
Don't know/Not sure
Refused

Note the inconsistency of the categories with relatively fine gradations between $10,000-25,000 ($5,000), jumping to $10,000, $15,000, and finally to a $25,000 increment. This is the question

that is most frequently not answered, with about 14 percent of the respondents in 2006 responding Don't know/Not sure or refusing to answer. Due to the nature of the income categories and the large number of missing values, the CDC does not calculate poverty estimates from the BRFSS at this time.

Table 1d. Economic Well-Being Definitions from the 2006 BRFSS

BRFSS Term	Question
Income Level	11.9 Is your annual household income from all sources— *Less than $25,000 If "no," ask 05; if "yes," ask 03 ($20,000 to less than $25,000),* *03 Less than $20,000 If "no," code 04; if "yes," ask 02 ($15,000 to less than $20,000),* *02 Less than $15,000 If "no," code 03; if "yes," ask 01 ($10,000 to less than $15,000),* *01 Less than $10,000 If "no," code 02* *05 Less than $35,000 If "no," ask 06 ($25,000 to less than $35,000)* *06 Less than $50,000 If "no," ask 07 ($35,000 to less than $50,000)* *07 Less than $75,000 If "no," code 08 ($50,000 to less than $75,000),* *08 $75,000 or M ore* *77 Don't know / Not sure* *99 Refused*
Income Level Recode	This *User Guide* uses a recode of the Income Level provided by the CDC. The recode includes the following income levels: Less than $10,000, From $10,000 to $25,000, From $25,000 to $50,000, From $50,000 to $75,000, $75,000 or More. Don't know/Not sure, Refused, or blank responses are recoded to missing values and their observations removed from the sample.

Source: Author's adaptation from BRFSS website http://www.cdc.gov/brfss/questionnaires/pdf-ques/2006brfss.pdf

Other Definitions from the 2006 BRFSS. (Tables 1e-1g.) Statistics on health-related quality of life are derived from the Healthy Days – Health-Related Quality of Life core section of the survey. This section records the number of days the respondent experienced poor health physically and mentally, and if this health deficiency limited usual activities. The physical health question (2.1) reads, "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?" The mental health question (2.2) parallels the physical, asking, "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?" For Questions 2.1 and 2.2, the possible responses are any number of days from 1 through 30, None, Don't know/Not sure, and Refused. If any number of days is indicated in either Question 2.1 or 2.2, then a final question (2.3) with the same possible responses is 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?"

Information regarding depression is determined through a scale created using the Anxiety and Depression module (Module 14, Questions 1 through 8) of the BRFSS. This scale is an adaptation of the primary health questionnaire (PHQ). The PHQ originated as a simple 9-question self-administered version of the primary care evaluation of mental disorders (PRIME-MD), a clinical instrument developed a decade ago to diagnose depression in patients. The PHQ's results have proven comparable to its clinical predecessor through various studies (Kroenke & Spitzer, 2002). This paper employs the PHQ-8 scale, dropping the ninth question of the PHQ regarding suicide since surveys do not have the same luxury as in-patient interviews to follow-up with patients, nor is depression the sole concern of a broader health survey such as the BRFSS.

In 2006, the BRFSS Anxiety and Depression module was used in the following 36 states/territories: Alabama, Alaska, Arkansas, California, Delaware, District of Columbia, Florida, Georgia, Hawaii, Indiana, Iowa, Louisiana, Maine, Michigan, Minnesota, Mississippi, Missouri, Montana, Nevada, New Hampshire, New Mexico, North Dakota, Oklahoma, Oregon, Rhode Island, South Carolina, Tennessee, Texas, Utah, Vermont, Virginia, West Virginia, Wisconsin, Wyoming, Puerto Rico, and the U.S. Virgin Islands. The BRFSS module on Anxiety

and Depression consists of ten questions, eight of which are used to create the PHQ-8 scale.

Module 14 is designed as follows:

> Now, I am going to ask you some questions about your mood. When answering these questions, please think about how many days each of the following has occurred in the past 2 weeks.
>
> 1. Over the last 2 weeks, how many days have you had little interest or pleasure in things?
> 2. Over the last 2 weeks, how many days have you felt down, depressed or hopeless?
> 3. Over the last 2 weeks, how many days have you had trouble falling asleep or staying asleep or sleeping too much?
> 4. Over the last 2 weeks, how many days have you felt tired or had little energy?
> 5. Over the last 2 weeks, how many days have you had a poor appetite or eaten too much?
> 6. Over the last 2 weeks, how many days have you felt bad about yourself or that you were a failure or had let yourself or your family down?
> 7. Over the last 2 weeks, how many days have you had trouble concentrating on things, such as reading the newspaper or watching the TV?
> 8. Over the last 2 weeks, how many days have you moved or spoken so slowly that people could have noticed? Or the opposite – being so fidgety or restless that you moving around a lot more than usual?

For each question the possible responses are anywhere between 1 and 14 days as well as None, Don't know/Not sure, and Refused.

The respondent rates on the PHQ-8 scale are determined by combining the responses of individuals to these questions. Points are awarded for each category according to the number of days indicated, refer to the accompanying "Depression Severity Scale" in Table 1e for details. These points are then summed over the eight questions. The sum of the points is then translated into the PHQ-8 0 to 5 scale equivalent, as indicated in the "Depression Status by Depressive Symptoms Severity Score," Table 1f.

Table 1e. Depression Severity Scale

# of Days had Symptoms	Points
0-1	0
2-6	1
7-11	2
12-14	3

Source:
Kansas Department of Health and Environment, 2008

Table 1f. Depression Status by Depressive Symptoms Severity Score

Points	Depression Status
0-4	No depression
5-9	Mild depression
10-14	Moderate depression
15-19	Moderately severe depression
20 +	Severe depression

Source:
Kansas Department of Health and Environment, 2008

Two core sections discuss general health, support, and life satisfaction: the Self-Reported Health Status section and the Emotional Support and Life Satisfaction section. Question 1.1 asks, “Would you say that in general your health is—” with proposed responses as Excellent, Very good, Good, Fair, or Poor and unstated options of Don’t know/Not sure and Refused. Questions 22.1 and 22.2 deal with emotional support and life satisfaction, asking respectively, “How often do you get the social and emotional support you need?” and, “In general, how satisfied are you with your life?” The possible responses are Always, Usually, Sometimes, Rarely, Never, Don't know/Not sure, and Refused.

The final sections of other measures offered by the BRFSS that are included in this paper are Health Insurance Coverage and Vaccinations. The data regarding health insurance are derived from Question 3.1 in the Health Care Access section of the BRFSS, “Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare?” The remaining data on vaccinations come from the Vaccinations section of the BRFSS. The first question (14.1) addresses flu vaccines, “A flu shot is an influenza vaccine injected into your arm. During the past 12 months, have you had a flu shot?” Pneumonia vaccine data comes from Question 14.9, “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?” Possible responses to all three questions are Yes, No, Don’t know/Not sure, and Refused.

Table 1g. Other Definitions from the 2006 BRFSS

BRFSS Term	Question
Healthy Days — Health-Related Quality of Life Questions:	
Number of Days Physical Health Not Good	2.1 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? *Number of days, None, Don't know / Not sure, Refused.* For the purposes of this *User Guide*, the days were grouped into the following categories: 0 Days, 1-2 Days, 3-13 Days, 14-29 Days, 30 Days.
Number of Days Mental Health Not Good	2.2 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? *Number of days, None, Don't know / Not sure, Refused.* For the purposes of this *User Guide*, the days were grouped into the following categories: 0 Days, 1-2 Days, 3-13 Days, 14-29 Days, 30 Days.
Number of Days with Activity Limitations	2.3 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? *Number of days, None, Don't know / Not sure, Refused.* For the purposes of this *User Guide*, the days were grouped into the following categories: 0 Days, 1-2 Days, 3-13 Days, 14-29 Days, 30 Days.
Depression (PHQ-8)	PHQ-8 scale calculated from Anxiety and Depression module 14 questions 1-8. Refer to pages 20 and 21 for the full questions and methodology.
Self-Reported Health Status, Emotional Support, and Life Satisfaction	
General Health	1.1 Would you say that in general your health is: *Excellent, Very good, Good, Fair, Poor, Don't know / Not sure, Refused.* Responses of Don't know / Not sure, Refused, or those left blank are recoded to be missing values.
Emotional Support	22.1 How often do you get the social and emotional support you need? *Always, Usually, Sometimes, Rarely, Never, Don't know / Not sure, Refused.* Responses of Don't know / Not sure, Refused, or those left blank are recoded to be missing values.
Life Satisfaction	22.2 In general, how satisfied are you with your life? *Very satisfied, Satisfied, Dissatisfied, Very dissatisfied, Don't know / Not sure, Refused.* Responses of Don't know / Not sure, Refused, or those left blank are recoded to be missing values.

(Continued)

Table 1g. (Continued) Other Definitions from the 2006 BRFSS

BRFSS Term	Question
Health Insurance Coverage and Vaccinations	
Health Insurance Coverage	3.1 Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare? *Yes, No, Don't know / Not sure, Refused.* Responses of Don't know / Not sure, Refused, or those left blank are recoded to be missing values.
Received Flu Vaccine	14.1 A flu shot is an influenza vaccine injected into your arm. During the past 12 months, have you had a flu shot? *Yes, No, Don't know / Not sure, Refused.* Responses of Don't know / Not sure, Refused, or those left blank are recoded to be missing values.
Received Pneumonia Vaccine	14.9 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? *Yes, No, Don't know / Not sure, Refused.* Responses of Don't know / Not sure, Refused, or those left blank are recoded to be missing values.

Source: Author's adaptation from BRFSS website http://www.cdc.gov/brfss/questionnaires/pdf-ques/2006brfss.pdf

Dissemination

The CDC disseminates a wide variety of information including documentation, raw data, estimates, and reports on the BRFSS website (http://www.cdc.gov/brfss/index.htm). They provide interactive charts, maps, and tables, some of which allow longitudinal examination of data as well as comparisons between different geographical entities and a variety of demographic characteristics including age, race, gender, education, and income. Many state health departments also make BRFSS data and reports available in different formats on their individual state websites. The actual datasets can also be downloaded from the site from 1984 to the latest available year of data.

Selected Metropolitan/Micropolitan Area Risk Trends (SMART) is a documented and verified subset of the 2006 BRFSS, designed to provide local area estimates for certain

metropolitan or micropolitan statistical areas (MMSA) and counties. In 2006, 145 MMSAs met the CDC's BRFSS weighting criteria. County-level estimates can also be produced from the BRFSS data for 234 counties within the 145 MSAs that have met the weighting criteria for the 2006 data year (see www.cdc.gov/brfss/smart/2006/2006_SMART_BRFSS_County_Methodology.rtf).

Changes to the BRFSS and Implications

The BRFSS has changed over time and will likely undergo further changes as the BRFSS core and the optional modules evolve. Changes include alterations in the core questions as well as state-level inclusion of optional modules, changes in sampling at the state levels, and the resultant state-to-state differences in the final questionnaire used.

Changes to the Disability Questions

The wording of the two disability questions, their prologues, their locations, and the related questions have changed over several years. The first time a variation of the activity limitation question appeared was within the BRFSS Activity Limitations optional module offered from 1993 to 1995:

> 8. Are you limited in any way in any activities because of any impairment or health problem?

This module also contained other questions specific to work limitations, housework limitations, and the need for assistance with personal and routine needs.

During 1996-1999, the activity limitation question was slightly altered and located within the Quality of Life optional module:

> These next questions are about limitations you may have in your daily life.
> 1. Are you limited in any way in any activities because of any impairment or health problem?

This module also contained follow-up questions including the "major impairment or health condition that led to this limitation" (given a list of 13 specific conditions), the duration of the activity limitation, and whether they required assistance with personal care needs or routine needs due to any impairment or health problem.

In 2000, the module name was changed to "Quality of Life and Care Giving" and the wording of the prologue to the activity limitation question was altered:

> These next questions are about physical, mental, or emotional problems or limitations you may have in your daily life.
> 1. Are you limited in any way in any activities because of any impairment or health problem?

The 2000 module included additional follow-up questions regarding assistance, similar to the 1996-1999 version, with additional questions regarding who provided the assistance and its adequacy.

The first year in which a disability section was integrated into the "core" survey was in 2001. This section included both the activity limitation question, and for the first time, the "special equipment" question. Note that the wording of the prologue and the activity limitation was changed from earlier versions. The prologue references the "health problems or impairment" while the activity limitation question contains "because of physical, mental, or emotional problems" – swapping out those terms between the prologue and the question versions used in 2000.

> The following questions are about health problems or impairments you may have.
> 14.1. Are you limited in any way in any activities because of physical, mental, or emotional problems?
> 14.2. 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? **Include occasional use or use in certain circumstances.**

In 2002, the two disability questions were dropped or rotated out of the core and placed in the Quality of Life module. Note that the prologue was dropped from the beginning of the activity limitation question but the 2001 question wording was retained.

1. Are you limited in any way in any activities because of physical, mental, or emotional problems?
2. Do you now have any health problem that requires you to use special equipment, such as a cane, a wheel chair, a special bed, or a special telephone? **Include occasional use or use in certain circumstances.**

In 2003, the two disability questions were reintegrated into the core survey and the activity limitation question prologue was reinserted. The disability section has remained in this form and retained this wording up to the current year (2008).

The following questions are about health problems or impairments you may have.

17.1 Are you limited in any way in any activities because of physical, mental, or emotional problems?

17.2 Do you now have any health problem that requires you to use special equipment, such as a cane, a wheel chair, a special bed, or a special telephone? **Include occasional use or use in certain circumstances.**

Note that although the question wording has stabilized in the past five years, there have been many changes to the locations of these questions within the BRFSS core survey from year to year. The position has varied between section 9 of the core in 2006 to section 17 in 2003. This shifting of the location of the question set, and especially changes in the types and topics of the questions asked prior to the disability items, may impact on how respondents answer the questions. This effect was discovered by researchers from Statistics Canada,[4] who used identical disability screener questions in several different national surveys (Rietschlin and MacKenzie, 2004). They found a wide range of disability rates (from 14 percent-31 percent) depending on

[4] Statistics Canada is the Canadian federal government's central statistical agency whose mission is to produce statistics that help Canadians better understand their country—its population, resources, economy, society and culture. http://www.statcan.gc.ca

the survey topic despite using the same questions (higher for health related surveys and lower for other surveys). To view all years and versions of the BRFSS survey see http://www.cdc.gov/brfss/questionnaires/english.htm

Future Changes

The BRFSS is constantly evolving and users must carefully read all the related documentation for the year(s) they plan to analyze. Users should pay special attention to the structure of the disability questions in the BRFSS and be aware that there may be slight changes in the question prologue and the question wording as well as the content preceding the disability questions. These changes may influence how individuals respond to the disability questions. Frequently, the optional modules contain questions related to specific conditions, several of which are rarely addressed in other surveys that may be of special interest to disability researchers including diabetes, asthma, cancer, and visual disabilities. Note that these modules are optional and not all states may choose to include them so there may be limitations regarding geographic coverage and sample sizes.

Although the CDC attempts to minimize state-level deviations, such deviations do exist. In 2006, there were some deviations in sampling and weighting protocols, sample size, response rates, and collection or processing procedures according to the CDC's comparability of data documentation provided for each BRFSS survey year. The CDC also asks that no alterations be made to either the core survey or the optional modules. Despite this, some states do alter the questions and response categories as well as the order of the questions. For example, in 2006, "California modified the wording and/or response categories of core questions addressing health plans, diabetes, Hispanic ethnicity, educational attainment, household income. California also inserted additional questions into the core of the survey and reordered sections of the core" (pg.

1, National Center for Chronic Disease Prevention and Health Promotion., Comparability of Data: BRFSS 2006. 2007). Changes such as these can have an impact on the final results and comparability between states. These types of changes are noted for each survey year in the Comparability of Data documentation, available for downloading at http://www.cdc.gov/brfss/technical_infodata/surveydata/2006.htm.

BRFSS Description of Disability Population

Disability may have unique implications for employment and economic well-being at different ages. In this paper, we first identify age groups that represent various stages in life. These age groups are: school-to-work transition age persons between the ages of 18 and 24, working-age persons between the ages of 25 to 61, early Social Security retirement age persons between the ages of 62 and 64, and normal Social Security retirement age persons ages 65 and older. In this paper, estimates of the employment rate and economic well-being of the population are based upon working-age persons between the ages of 25 and 61. This age group avoids most of the potential college age student population and those who may be taking early retirement, neither of which would be expected to be actively involved in the workforce.

Note that unlike most of the datasets included in the *User Guide* series, the BRFSS does not provide imputed values for variables with missing responses, including Refused, Don't know/Not sure, or blank responses. In the interest of providing tables based on a consistent sample, the data included in the following tables is limited to only those respondents with complete data for the primary variables of interest in the main tables. These variables include gender, age, activity limitation, special equipment use, Hispanic/Latino, race, education, employment status and income level. These limitations exclude 15.8 percent of the total sample (56,183 observations with missing values out of 355,710). The vast majority of the excluded

sample (91 percent) was a result of missing the household income data. See Appendix A, Table 1 for the national and state level sample sizes for the working-age population (ages 25-61) by disability type in the limited sample.

Limiting the sample in this way has little effect on the overall U.S. prevalence rate estimate. The overall BRFSS prevalence rate in 2006 for persons ages 18 and older was slightly higher for the full sample at 21.7 percent as compared to 21.5 percent for the limited sample. This is a change of -0.2, or a percent change of -0.9 percent. The prevalence rate for working-age persons (25-61) was 19.3 percent for the full sample, as compared to 19.2 percent based on the limited sample (percent decrease of 0.5 percent). Individual state prevalence rates between the two samples showed slightly greater variation. For the 25 to 61 age group, Louisiana had the largest change in prevalence rates: 20 percent full sample to 19.1 limited sample (a difference of -0.9 percent, or percentage decrease of 4.5 percent). For 35 of the 50 states there was a ±2.0 percent or less change in the prevalence rates between the two samples (see Appendix A, Table 2). Given these relatively small differences, estimates using the limited sample are not expected to vary greatly from the full sample and provide information based on a consistent sample throughout the tables in this document.

Population estimates, prevalence estimates, and sample sizes from the 2006 BRFSS are presented in Table 2. The rows are subdivided into sections for the population ages 18 and older and by age categories. The columns identify persons without a disability, those with a disability, those who reported an activity limitation, those who reported a requirement for special equipment use, and finally those who reported both an activity limitation *and* requirement for special equipment use. As the two disability questions are not mutually exclusive, the disability

totals from the two separate questions will not sum to the total population with a disability. In summary, the five categories are:

1. **No Disability**: responded "no" to both the activity limitation and the special equipment questions
2. **Disability**: responded "yes" to the activity limitation and/or special equipment use
3. **Activity Limitation**: responded "yes" to the activity limitation question
4. **Special Equipment Use**: responded "yes" to having a health problem that required the use of special equipment (includes occasional use or use in certain circumstances.
5. **Activity Limitation & Special Equipment Use**: responded "yes" to ***both*** the activity limitation *and* to having a health problem that requires the use of special equipment

Table 2. 2006 BRFSS Population Estimates, Prevalence Estimates, and Sample Sizes by BRFSS Disability Categories

Characteristic	No Disability	Disability	Activity Limitation	Special Equipment Use	Activity Limitation AND Special Equipment Use
Summary					
Ages 18 and older					
Population Estimate	148,978,000	40,793,000	37,841,000	12,627,000	9,675,000
Prevalence rate	78.5	21.5	19.9	6.7	5.1
Sample Size	216,029	76,840	71,307	25,727	20,194
Detailed Age Breakdowns					
Ages 18-24					
Population Estimate	19,581,000	2,412,000	2,277,000	358,000	222,000
Prevalence rate	89.0	11.0	10.4	1.6	1.0
Sample Size	10,074	1,276	1,217	169	110
Ages 25-61					
Population Estimate	107,102,000	25,373,000	24,152,000	6,531,000	5,310,000
Prevalence rate	80.9	19.2	18.2	4.9	4.0
Sample Size	153,340	43,488	41,565	11,364	9,441
Ages 62-64					
Population Estimate	4,619,000	2,131,000	2,017,000	675,000	562,000
Prevalence rate	68.4	31.6	29.9	10.0	8.3
Sample Size	10,273	5,325	5,062	1,719	1,456
Ages 65 and older					
Population Estimate	17,676,000	10,877,000	9,395,000	5,063,000	3,581,000
Prevalence rate	61.9	38.1	32.9	17.7	12.5
Sample Size	42,342	26,751	23,463	12,475	9,187

Source: Author's calculation from the 2006 BRFSS
Standard Errors for this table are in Appendix C Table C-2

The column labeled “Disability” shows that in 2006 an estimated 40,793,000 people ages 18 and older, or 21.5 percent of that population, reported a disability (either activity limitation and/or a health condition that requires the use of special equipment such as a cane, wheelchair, special bed or telephone). The majority, 19.9 percent, reported an activity limitation while 6.7 percent reported having a health problem that requires them to use special equipment. Slightly less than one-quarter of persons with a disability (5.1 percent of the total population) reported both an activity limitation and special equipment use.

The age group categories in Table 2 reveal that the group with largest number of people with a disability, approximately 25,373,000, was the working-age population between the ages of 25 and 61. This is to be expected, given that this is the age group with the largest population. The table indicates, however, that the prevalence of disability increases with age from 11.0 percent of the population between the ages 18-24 to 38.1 percent of the population ages 65 and older.

Finally, the table presents age-related changes in the composition of disability types. As would be expected given the preponderance of those reporting activity limitations, the overall disability category closely parallels the prevalence of activity limitations. The use of special equipment varies greatly by age group. Special equipment use was quite low for the youngest group (1.6 percent), rose to nearly 5 percent for the working-age population, and was twice that (10 percent) for those ages 62-64. The use of special equipment increased to 17.7 percent for those ages 65 and older.

It is interesting to note that a number of persons who reported the need for special equipment for a health problem did not report an activity limitation. This can be seen in the

discrepancy between the special equipment use column and the combination of both categories in the far right column. The share of people who reported using special equipment for a health problem, but no activity limitation was small for the 18-24 age group (1.6 percent), but steadily increases to 5.2 percent of the population ages 65 and older. The proportion of the overall disability category that reported the use of special equipment (Disability/Special Equipment Use) increases with age. Only 15 percent of those ages 18-24 who reported a disability reported also using special equipment, as compared to 26 percent ages 25-61, 32 percent of those aged 62-64, and nearly half (47 percent) of those ages 65 and older.

Table 3 shows the distribution of age, gender, race, and education characteristics within each disability group. The first section of the table indicates that the population without disabilities tended to be younger in 2006 than the population with disabilities. The first column shows that a majority of the population without a disability was 44 years old or younger, with 13.1 percent of the population between ages 18 and 24, 21.5 percent between ages 25 and 34, and 22.3 percent between age 35 and 44. Altogether, 56.9 percent of persons without a disability were between ages 18 and 44. The corresponding percent of the population with disabilities in the 18-44 age range was only 31.3 percent (5.9 percent + 10.2 percent +15.2 percent). The use of special equipment was far higher for the older ages. Persons aged 55 and older accounted for 24.1 of the population without disabilities and 47.1 percent of the population with disabilities. They also accounted for 60.9 percent of the population with a health condition that requires special equipment.

The next section of Table 3 shows differences by gender. Approximately 51 percent of the population without disabilities in 2006 was male compared to 46.3 percent of the population with disabilities. As Table 3 shows, although women made up 49.2 percent of the population

with no disabilities (less than half), they constituted a larger proportion of each of the disability categories – 53.7 percent of the overall disability category, 54.0 percent of the activity limitations disability and 52.6 percent of those who reported a health problem that required the use of special equipment.

Table 3. 2006 BRFSS Estimates of the Distribution of Demographic Characteristics for Persons With and Without Disabilities

Characteristic	Percent without Disability	Percent with Disability	Percent with Activity Limitation	Percent with Special Equipment Use	Percent with Activity Limitation AND Special Equipment Use
Age					
18-24	13.1	5.9	6.0	2.8	2.3
25-34	21.5	10.2	10.5	5.5	5.3
35-44	22.3	15.2	15.6	11.3	11.7
45-54	19.0	21.7	22.2	19.5	21.0
55-64	12.2	20.4	20.9	20.7	22.6
65-74	6.9	12.7	12.3	15.6	15.1
75-84	4.3	11.0	10.1	18.0	16.4
85+	0.7	3.0	2.5	6.6	5.6
Total	100.0	100.0	100.0	100.0	100.0
Gender					
Male	50.8	46.3	46.1	47.4	46.8
Female	49.2	53.7	54.0	52.6	53.3
Total	100.0	100.0	100.0	100.0	100.0
Race					
White only	76.9	80.6	80.9	77.2	77.2
Black or African American only	9.9	9.5	9.1	12.8	12.4
Asian only	3.0	1.4	1.4	1.0	0.8
Native American only	1.5	2.0	2.0	2.2	2.5
Other	8.7	6.6	6.6	6.8	7.1
Total	100.0	100.0	100.0	100.0	100.0
Ethnicity					
Not Hispanic	85.2	91.8	91.8	92.0	92.3
Hispanic	14.8	8.2	8.2	8.0	7.7
Total	100.0	100.0	100.0	100.0	100.0
Education (25-61)					
Less than High School	8.8	12.1	12.2	14.3	15.2
High School/GED	24.8	28.2	28.4	29.5	30.5
Some College	25.3	30.1	30.1	31.0	31.3
Four Year College Graduate or more	41.1	29.7	29.4	25.2	23.0
Total	100.0	100.0	100.0	100.0	100.0

Source: Author's calculation from the 2006 BRFSS
Standard Errors for this table are in Appendix C, Table C-3

The BRFSS data reveal that, compared to the population without a disability, the population with disabilities has a slightly greater share of whites and Native Americans and a smaller share of Asians and black/African American individuals. In 2006, approximately 80.6 percent of disabled individuals were white and 2.0 percent were Native Americans as compared to 76.9 and 1.5 percent of the population without a disability, respectively. The population with disabilities that are Asian was 1.4 percent compared to the 3.0 percent of the population without disabilities who are Asian; blacks or African Americans comprised 9.5 percent of the population with disabilities and 9.9 percent of the population without disabilities. The share of persons with a disability who report Hispanic ethnicity was 8.2 percent, considerably smaller than the 14.8 percent of the population without a disability that reports Hispanic ethnicity.

Finally, the table shows that the population with a disability consists of a greater share of people with low levels of education compared to the population without disabilities. In order to minimize age-related differences in educational level and provide a context for the working-age population tables in the next section, this portion of the table is limited to the working-age population (ages 25 to 61). An estimated 12.1 percent of the working-age population in 2006 with disabilities had less than high school education and another 28.2 percent had only a high school education, as compared to 8.8 percent and 24.8 percent, respectively, of those without a disability. Persons with disabilities were less likely to have a four year college degree or more, with only 29.7 percent as compared to 41.1 percent of those without disabilities completing college.

BRFSS Employment and Economic Well Being Estimates

The 2006 BRFSS reveals that the employment rates for persons with a disability were lower than those of persons without a disability. Table 4 describes these results for the two employment measures for the working-age population, those currently employed and those who were employed sometime in the previous year (which includes those currently employed). The first section shows that while 83.1 percent of the population without a disability was currently employed, only 54.0 percent of the population with a disability was currently employed. Higher percentages of both populations were employed sometime in the previous year, 85.8 percent of persons without a disability and 57.8 percent of persons with a disability. Among the two disability types, the highest employment rates were for the population with an activity limitation (53.2 percent of people with an activity limitation were currently employed at the time of the survey). Those with a health condition requiring the use of special equipment were employed at a much lower rate (34.5 percent), and those who reported both activity limitation *and* special equipment use had a current employment rate of only 26.1 percent, just less than half the rate of those with an activity limitation.

The remainder of the table shows differences across all of the disability categories for gender, race, and education subgroups. The employment rates in 2006 were lowest for women, Native Americans, and for those with the least amount of schooling. The largest employment gaps between those with and without disabilities were for the black/African American population (82.1 - 41.5 = 40.6 percent gap) and the population with less than a high school education (73.8 - 30.4 = 43.5 percent gap) who were currently employed.

Table 4. 2006 BRFSS Employment Rate, Ages 25 to 61

Characteristic	No Disability	Disability	Activity Limitation	Special Equipment Use	Activity Limitation AND Special Equipment Use
All					
Currently Employed	83.1	54.0	53.2	34.5	26.1
Sometime Previous Year	85.7	57.8	57.0	37.8	29.6
Male					
Currently Employed	91.3	58.4	57.0	38.2	27.2
Sometime Previous Year	94.0	62.6	61.5	41.9	31.8
Female					
Currently Employed	74.5	50.0	49.7	29.8	24.8
Sometime Previous Year	77.2	53.4	53.1	32.7	27.1
White					
Currently Employed	83.5	56.1	55.0	37.6	27.9
Sometime Previous Year	85.6	59.8	58.8	41.1	31.6
Black/African American					
Currently Employed	82.1	41.5	41.8	21.0	17.8
Sometime Previous Year	87.2	45.9	46.1	23.9	20.5
Asian					
Currently Employed	84.9	65.4	64.8	54.4	48.0
Sometime Previous Year	87.4	68.3	67.9	59.6	54.6
Native American					
Reference Period	79.8	47.0	45.9	20.9	14.4
Sometime Previous Year	84.5	50.8	49.8	24.3	18.0
Other					
Currently Employed	80.8	48.9	48.5	31.2	26.6
Sometime Previous Year	85.1	53.3	53.2	32.9	28.5
Non-Hispanic					
Currently Employed	83.9	54.7	53.8	35.1	26.4
Sometime Previous Year	86.3	58.5	57.6	38.4	30.1
Hispanic					
Currently Employed	78.6	46.9	46.7	28.8	23.3
Sometime Previous Year	82.8	51.3	50.9	31.9	24.7
Less than High School					
Currently Employed	73.8	30.4	30.1	13.1	9.3
Sometime Previous Year	78.7	35.8	35.6	16.5	12.9

(Continued)

Table 4. (Continued) 2006 BRFSS Employment Rates, Ages 25 to 61

Characteristic	No Disability	Disability	Activity Limitation	Special Equipment Use	Activity Limitation AND Special Equipment Use
High School					
Currently Employed	81.3	46.0	45.4	24.5	17.9
Sometime Previous Year	84.9	50.0	49.3	28.1	20.8
More Than High School					
Currently Employed	85.0	62.6	61.6	45.1	35.4
Sometime Previous Year	87.0	66.0	65.1	48.4	39.2

Source: Author's calculation from the 2006 BRFSS

Standard Errors for this table are in Appendix C Table C-4

The household income of respondents with disabilities was substantially lower that that of respondents without disabilities based upon the distributions presented in Table 5. Given the manner in which the BRFSS brackets the income levels, there is no appropriate way of estimating median incomes. Therefore, Table 5 follows the CDC's lead in providing the income distributions instead. As evidenced by the table, respondents with disabilities are considerably worse off in 2006 with regard to household income. Only 2.6 percent of respondents without a disability reported a household income of less than $10,000 as compared to slightly over 1 out of ten (10.2 percent) of respondents with a disability. Over one-third of respondents without a disability (36.9 percent) reported a household income of $75,000 or more as compared to only 23.0 percent of households of respondents with a disability. Households with respondents who reported both an activity limitation and special equipment use had the lowest household incomes, with over half (15.7 + 36.1 = 51.8 percent) reporting incomes of less than $25,000.

The remainder of the table presents the distribution of household income within subpopulations by respondent gender, race, ethnicity and educational attainment. Across all

subgroups, the household incomes of respondents with a disability were below the household incomes of those without a disability. Women reported lower household incomes than men, Asians and white racial groups were better off than black/African Americans and Native Americans. There was a large gap in household income between the Hispanics and non-Hispanics respondents with disabilities. Greater proportions of persons with higher educational attainment were located in the upper household income ranges; while respondents with disabilities reported a comparatively lower proportion of households at the upper end.

Table 5. 2006 BRFSS Household Income Estimates by Respondent Characteristics, Ages 25 to 61

Respondent Characteristic	No Disability	Disability	Activity Limitation	Special Equipment Use	Activity Limitation AND Special Equipment Use
All Respondents					
Less than $10,000	2.6	10.2	10.4	13.8	15.7
$10,000 to $24,999	14.1	26.0	26.2	33.4	36.1
$25,000 to $49,999	25.8	25.0	25.1	23.8	24.1
$50,000 to $74,999	20.5	15.8	15.8	12.9	11.9
$75,000 or More	36.9	23.0	22.5	16.1	12.1
Male					
Less than $10,000	2.0	8.7	9.1	12.4	14.8
$10,000 to $24,999	13.1	25.5	26.1	31.3	35.3
$25,000 to $49,999	25.6	24.0	24.1	23.6	24.0
$50,000 to $74,999	20.7	16.1	15.9	13.2	11.6
$75,000 or More	38.7	25.7	24.8	19.5	14.3
Female					
Less than $10,000	3.3	11.6	11.7	15.5	16.8
$10,000 to $24,999	15.2	26.5	26.4	36.1	37.1
$25,000 to $49,999	26.1	25.8	25.9	24.1	24.2
$50,000 to $74,999	20.4	15.5	15.6	12.5	12.3
$75,000 or More	35.1	20.6	20.4	11.9	9.6

(Continued)

Table 5. (Continued) 2006 BRFSS Household Income Estimates, Ages 25 to 61

	No Disability	Disability	Activity Limitation	Special Equipment Use	Activity Limitation AND Special Equipment Use
White					
Less than $10,000	1.8	8.5	8.7	12.2	14.5
$10,000 to $24,999	10.8	23.6	24.0	30.1	33.7
$25,000 to $49,999	24.7	25.1	25.3	24.3	25.0
$50,000 to $74,999	21.8	17.2	17.1	14.2	12.7
$75,000 or More	41.0	25.6	24.9	19.1	14.2
Black/African American					
Less than $10,000	6.2	18.9	18.8	20.7	20.8
$10,000 to $24,999	24.3	38.2	38.0	45.5	46.2
$25,000 to $49,999	32.3	23.1	23.1	19.6	18.9
$50,000 to $74,999	17.3	9.9	10.2	8.8	9.7
$75,000 or More	19.9	9.9	9.9	5.4	4.5
Asian					
Less than $10,000	1.5	9.1	9.4	0.9	1.0
$10,000 to $24,999	8.1	16.8	15.5	43.9	42.9
$25,000 to $49,999	21.4	21.6	21.8	23.2	24.5
$50,000 to $74,999	19.8	9.1	9.4	1.7	1.8
$75,000 or More	49.2	43.4	43.9	30.3	29.8
Native American					
Less than $10,000	5.5	22.1	22.8	23.8	26.3
$10,000 to $24,999	27.1	36.5	36.4	44.2	44.8
$25,000 to $49,999	28.7	20.3	19.8	17.9	16.0
$50,000 to $74,999	16.0	9.3	9.6	9.4	10.3
$75,000 or More	22.7	11.9	11.5	4.8	2.7
Other					
Less than $10,000	5.6	13.4	13.8	14.3	16.0
$10,000 to $24,999	32.1	33.6	33.1	37.2	36.1
$25,000 to $49,999	29.9	28.0	27.8	28.8	28.0
$50,000 to $74,999	14.4	12.5	12.8	11.1	11.6
$75,000 or More	18.1	12.5	12.5	8.7	8.3

(Continued)

Table 5. (Continued) 2006 BRFSS Household Income Estimates Ages 25 to 61

	No Disability	Disability	Activity Limitation	Special Equipment Use	Activity Limitation AND Special Equipment Use
Non-Hispanic					
Less than $10,000	1.8	9.4	9.6	13.6	15.5
$10,000 to $24,999	10.0	24.3	24.7	31.5	34.7
$25,000 to $49,999	25.3	25.5	25.6	24.8	25.1
$50,000 to $74,999	22.1	16.6	16.5	13.3	12.1
$75,000 or More	40.9	24.2	23.6	16.9	12.6
Hispanic					
Less than $10,000	7.2	17.8	18.6	15.4	18.4
$10,000 to $24,999	37.6	42.9	42.0	52.2	50.5
$25,000 to $49,999	29.0	19.4	19.5	14.8	13.7
$50,000 to $74,999	11.4	8.3	8.6	9.0	10.4
$75,000 or More	14.8	11.6	11.4	8.6	7.0
Less than High School					
Less than $10,000	12.4	27.1	27.5	28.8	30.7
$10,000 to $24,999	48.7	50.6	50.1	54.7	53.6
$25,000 to $49,999	28.3	17.3	17.3	13.6	13.0
$50,000 to $74,999	5.7	2.9	3.0	1.3	1.4
$75,000 or More	4.9	2.1	2.1	1.6	1.2
High School					
Less than $10,000	3.3	12.0	12.1	15.7	16.7
$10,000 to $24,999	21.3	33.7	33.8	41.5	43.6
$25,000 to $49,999	36.3	28.8	28.6	25.5	24.2
$50,000 to $74,999	20.1	14.8	14.9	10.3	9.9
$75,000 or More	19.1	10.7	10.6	7.1	5.7
More than High School					
Less than $10,000	1.1	5.9	6.2	9.0	11.0
$10,000 to $24,999	6.9	17.4	17.8	23.8	27.1
$25,000 to $49,999	21.6	24.7	25.0	25.6	27.1
$50,000 to $74,999	22.7	18.9	18.8	17.2	16.0
$75,000 or More	47.8	33.0	32.4	24.5	18.8

Source: Author's calculation from the 2006 BRFSS

Standard Errors for this table are in Appendix C, Table C-5

BRFSS State Level Estimates

An advantage of the BRFSS is the ability to produce state-level estimates of disability prevalence rates and employment rates. Sample sizes for each state by disability type are provided in Appendix D. The BRFSS state-level estimates point to significant differences in the disability population across states. State policymakers can use the BRFSS data to track the progress of the population with disabilities within their state. They may also use the data to make comparisons across states and over time.

Table 6 presents state-level prevalence rates for the BRFSS disability categories for those between the ages of 25 and 61. The table reveals that that the prevalence of disability was highest in Kentucky (27.7 percent), West Virginia (26.9 percent), and Alabama (25.2 percent). The states with the lowest disability prevalence rate include Hawaii (13.9 percent), North Dakota (14.4 percent), and Iowa (14.7 percent). The U.S. Virgin Islands has the lowest prevalence rate (9.9 percent) of all the areas participating in the BRFSS. South Carolina has the median prevalence rate of 18.9 percent.

Table 6. 2006 BRFSS State Level Prevalence Rate Estimates, Ages 25-61

	No Disability	Disability	Activity Limitation	Special Equipment Use	Activity Limitation AND Special Equipment Use
Alabama	74.8	25.2	24.1	8.3	7.2
Alaska	79.4	20.6	19.5	5.1	4.0
Arizona	81.8	18.2	17.6	4.2	3.7
Arkansas	77.7	22.4	21.4	6.6	5.7
California	80.3	19.7	18.9	4.7	3.9
Colorado	82.7	17.3	16.7	3.6	3.0
Connecticut	83.5	16.5	15.6	4.0	3.1
Delaware	78.4	21.7	20.3	4.6	3.2
District of Columbia	84.8	15.2	14.3	5.1	4.2
Florida	80.7	19.3	18.4	5.3	4.4
Georgia	81.6	18.5	17.2	5.2	4.0
Hawaii	86.1	13.9	13.1	3.3	2.5
Idaho	80.7	19.3	18.8	3.5	2.9
Illinois	83.9	16.1	15.4	4.5	3.8
Indiana	82.3	17.7	17.1	4.4	3.8
Iowa	85.3	14.7	13.5	4.1	2.8
Kansas	82.3	17.7	17.1	3.9	3.2
Kentucky	72.3	27.7	26.7	7.5	6.5
Louisiana	80.9	19.1	17.8	5.2	3.9
Maine	77.7	22.3	21.1	5.3	4.1
Maryland	83.1	16.9	15.8	4.7	3.6
Massachusetts	82.7	17.3	16.6	3.5	2.8
Michigan	78.9	21.1	20.1	5.4	4.3
Minnesota	81.6	18.4	17.0	4.4	2.9
Mississippi	77.9	22.2	21.3	6.1	5.3
Missouri	77.4	22.6	21.8	5.7	4.9
Montana	78.8	21.2	20.1	4.6	3.5
Nebraska	83.8	16.2	15.3	3.9	3.0
Nevada	79.9	20.2	19.0	5.4	4.3
New Hampshire	82.4	17.6	17.1	4.0	3.5
New Jersey	84.6	15.4	14.7	3.7	3.0
New Mexico	79.7	20.3	19.3	6.0	5.0
New York	83.8	16.2	15.3	4.1	3.2
North Carolina	80.3	19.7	18.8	5.2	4.3

(Continued)

Table 6. (Continued) 2006 BRFSS State Level Prevalence Rate Estimates, Age 25-61

	No Disability	Disability	Activity Limitation	Special Equipment Use	Activity Limitation AND Special Equipment Use
North Dakota	85.6	14.4	13.2	3.1	1.9
Ohio	77.3	22.7	21.8	6.0	5.1
Oklahoma	75.1	24.9	24.2	7.1	6.4
Oregon	75.8	24.2	23.2	5.8	4.8
Pennsylvania	81.6	18.4	17.7	5.0	4.2
Rhode Island	81.9	18.2	17.3	4.5	3.7
South Carolina	81.1	18.9	18.1	5.4	4.7
South Dakota	83.4	16.6	15.9	3.5	2.7
Tennessee	80.4	19.6	18.2	6.2	4.8
Texas	81.5	18.5	17.6	4.6	3.7
Utah	82.7	17.3	16.3	3.9	2.9
Vermont	80.0	20.1	19.3	3.6	2.9
Virginia	81.8	18.2	16.9	4.5	3.2
Washington	76.5	23.5	22.3	5.5	4.4
West Virginia	73.1	26.9	25.8	8.4	7.3
Wisconsin	83.9	16.2	14.9	4.3	3.1
Wyoming	80.6	19.4	18.4	4.3	3.3
Puerto Rico	78.7	21.4	20.7	5.7	5.0
U.S. Virgin Islands	90.1	9.9	9.2	2.5	1.8

Source: Author's calculation from the 2006 BRFSS

Standard Errors for this table are in Appendix C, Table C-6

State-level employment rates are contained within Table 7. For persons with disabilities in 2006, the employment rate was highest in North Dakota (72.9 percent), the U.S. Virgin Islands (70.0 percent), Minnesota (69.2 percent), and South Dakota (67.7 percent). Employment was lowest in Puerto Rico (36.8 percent), Mississippi (38.1 percent), Kentucky (40.0 percent), and West Virginia (40.8 percent). Maine had the median employment rate of 56.2 percent. Differences across states also exist for the population without disabilities, as shown in the first column of Table 7. The column shows that state employment rates for those without disabilities

also have a substantial range from lows of 75.3 percent in Puerto Rico and 79.0 percent in Kentucky, to highs of 90.1 percent in South Dakota and 89.4 percent in North Dakota.

To account for the differences that might arise across states due to the labor market environment, the relative employment rates are shown in the third column. The relative rate is the employment rate for the population with disability divided by the employment rate for the population without disabilities. It provides a measure of the disparity within a state between these employment rates, with values of unity representing equivalent rates. A relative rate value of 0.40 indicates that the employment rate for those with disabilities was only 40 percent of the employment rate for those without disabilities. The table indicates that substantial differences exist in the relative employment rates across states. The following seven states/territories had relative employment rates below 0.55: Mississippi, Puerto Rico, West Virginia, Kentucky, Alabama, Tennessee, and Oklahoma. Areas with the highest relative employment rates included: Utah (0.83), U.S. Virgin Islands (0.82), North Dakota (0.81), Minnesota (0.79), and Nebraska (0.76).

Table 7. 2006 BRFSS State Level Employment Rate Estimates, Ages 25 to 61

	No Disability	Disability	Relative Employment Rate	Activity Limitation	Special Equipment Use	Activity Limitation AND Special Equipment Use
Alabama	80.1	41.6	0.52	40.5	22.1	15.8
Alaska	81.8	62.3	0.76	60.9	50.7	40.8
Arizona	81.3	48.1	0.59	48.8	25.3	25.1
Arkansas	83.5	47.9	0.57	46.4	29.6	21.0
California	80.2	56.0	0.70	55.3	31.4	23.3
Colorado	83.4	60.5	0.73	60.1	40.5	34.4
Connecticut	85.7	61.7	0.72	60.6	45.3	34.7
Delaware	88.1	64.3	0.73	62.9	50.0	35.4
District of Columbia	84.5	53.6	0.63	53.5	37.6	33.6
Florida	85.0	55.1	0.65	54.3	33.4	25.3
Georgia	83.4	49.6	0.59	48.6	33.5	24.3
Hawaii	85.2	56.6	0.66	57.0	34.5	29.3
Idaho	84.5	57.7	0.68	56.9	41.9	33.5
Illinois	83.4	54.0	0.65	54.0	35.1	31.3
Indiana	82.5	51.1	0.62	51.3	29.7	27.4
Iowa	88.5	63.4	0.72	60.8	54.4	37.9
Kansas	86.3	62.2	0.72	61.9	36.0	29.8
Kentucky	79.0	40.0	0.51	39.8	25.1	21.9
Louisiana	81.6	45.6	0.56	44.6	25.4	14.2
Maine	87.4	56.2	0.64	55.5	41.9	33.8
Maryland	87.1	63.8	0.73	63.6	41.3	33.4
Massachusetts	85.7	56.0	0.65	55.8	37.4	31.2
Michigan	81.6	49.9	0.61	49.1	28.4	19.8
Minnesota	87.8	69.2	0.79	67.9	56.2	42.2
Mississippi	83.7	38.1	0.46	37.8	22.1	18.0
Missouri	82.9	51.1	0.62	49.9	25.3	15.9
Montana	85.4	61.1	0.72	60.1	42.6	30.9
Nebraska	88.5	67.5	0.76	67.3	47.7	40.9
Nevada	83.2	59.2	0.71	58.9	35.0	26.9
New Hampshire	87.4	65.3	0.75	64.5	45.9	39.2
New Jersey	84.4	56.9	0.67	56.9	38.7	34.0
New Mexico	79.9	55.2	0.69	54.5	36.4	29.6
New York	83.9	53.4	0.64	52.6	36.8	28.7

(Continued)

Table 7. (Continued) 2006 BRFSS State Level Employment Rate Estimates, Ages 25 to 61

	No Disability	Disability	Relative Employment Rate	Activity Limitation	Special Equipment Use	Activity Limitation AND Special Equipment Use
North Carolina	85.0	50.9	0.60	50.4	33.2	26.9
North Dakota	89.4	72.9	0.81	71.7	60.1	44.2
Ohio	82.3	54.8	0.67	53.1	38.2	28.2
Oklahoma	80.8	43.8	0.54	43.5	21.6	17.9
Oregon	82.3	58.0	0.71	57.3	39.7	32.2
Pennsylvania	83.7	51.1	0.61	49.8	40.6	33.1
Rhode Island	86.8	56.3	0.65	56.7	33.6	30.0
South Carolina	84.1	51.2	0.61	50.3	27.9	20.4
South Dakota	90.1	67.7	0.75	66.8	50.6	40.5
Tennessee	82.7	44.6	0.54	43.0	28.5	17.8
Texas	79.6	52.2	0.66	50.6	28.7	15.3
Utah	80.6	67.0	0.83	65.9	62.1	54.1
Vermont	88.5	65.0	0.73	64.0	52.4	42.9
Virginia	85.6	64.5	0.75	63.6	55.1	46.6
Washington	80.6	58.9	0.73	58.0	43.0	34.2
West Virginia	81.5	40.8	0.50	40.0	20.1	13.9
Wisconsin	87.5	62.6	0.71	60.7	43.9	27.8
Wyoming	87.3	64.2	0.74	63.5	45.8	36.0
Puerto Rico	75.3	36.8	0.49	37.0	18.2	16.8
U.S. Virgin Islands	85.6	70.0	0.82	70.5	53.2	49.5

Source: 2006 BRFSS

Standard Errors for this table are in Appendix C, Table C-7

Table 8 presents additional information related to health available from the BRFSS that may be of interest to disability researchers. Three health status questions were included in the 2006 core survey. Persons with disabilities were more likely to report poor physical health than those without disabilities. The majority of those without a disability (71.2 percent) reported zero days in the past 30 where their physical health was not good as compared to 32.7 percent of those with disabilities. Over one-third (33.8 percent) of those with disabilities reported 14 or

more days of not good physical health as compared to only 3.7 percent of those without disabilities. Persons with disabilities were also more likely to report a larger number of days where their mental health was not good. More than half (55.8 percent) reported at least one day of poor mental health as compared to about one-third (31.7 percent) of those without disabilities. Over one-quarter (26.5 percent) of persons with disabilities reported 14 or more days of poor mental health over the past 30 days as compared to 6.8 percent of those without disabilities.

This section also included a follow-up question regarding the number of days with an activity limitation over the past 30 days if a person reported one day or more of not good physical or mental health. This question is more specific than the basic activity limitation question used for disability determination:

> 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?

It is interesting to note that although persons with disabilities were more likely to report at least one day of activity limitation than those without disabilities, 19.9 percent did not report any poor physical or mental health days. An additional 27.1 percent who *did* report at least one day of either poor physical or mental health reported zero days of activity limitation over the past 30 days. Still over half of those with disabilities (51.8 percent) reported at least one day of activity limitation as compared to only 14.6 percent of those without disabilities. Over one-quarter (26.6 percent) of those with disabilities reported 14 or more days of activity limitations as compared to 1.5 percent of those without disabilities. Persons who reported special equipment use and those who reported both disability types consistently had more days of poor physical and mental health as well as more days of activity limitations due to those poor health days.

In 2006, 36 regions, including Puerto Rico and the U.S. Virgin Islands, fielded the Anxiety and Depression module. Only respondents in those states are included in the

percentages in this portion of Table 8. The percent missing value includes only those from participating states that should have completed this question. Less than one-fifth (17.1 percent) of those without disabilities fell in or above the mild category of the PHQ-9 depression scale range, while persons with disabilities had nearly three times that rate (47.2 percent). Many more persons with disabilities fell into the moderate to severe depression range (25.5 percent) as compared to only 4.5 percent of those without disabilities.

Table 8. 2006 BRFSS Statistics for Quality of Life and Healthy Days Distribution

	Percent without Disability	Percent with Disability	Percent with Activity Limitation	Percent with Special Equipment Use	Percent with Activity Limitation AND Special Equipment Use
Number of Days in Past 30 days: Physical Health Not Good					
Missing (within sample)	0.6	1.6	1.6	1.7	1.7
0 Days	72.1	32.7	31.7	21.6	14.2
1-2 Days	12.9	10.9	10.9	6.7	5.4
3-13 Days	10.7	20.9	21.2	17.0	17.3
14-29 Days	2.4	13.6	13.9	18.7	21.4
30 Days	1.3	20.2	20.8	34.4	40.0
Total	100.0	100.0	100.0	100.0	100.0
Number of Days in Past 30 days: Mental Health Not Good					
Missing (within sample)	0.7	1.5	1.5	1.4	1.5
0 Days	67.6	42.8	41.8	40.1	34.8
1-2 Days	10.9	9.4	9.4	8.6	8.4
3-13 Days	13.9	19.8	20.1	17.4	17.9
14-29 Days	4.1	11.8	12.1	14.0	15.7
30 Days	2.7	14.7	15.2	18.6	21.7
Total	100.0	100.0	100.0	100.0	100.0

(Continued)

Table 8. (Continued) 2006 BRFSS Statistics for Quality of Life and Healthy Days Distribution

	Percent without Disability	Percent with Disability	Percent with Activity Limitation	Percent with Special Equipment Use	Percent with Activity Limitation AND Special Equipment Use
Number of Days in Past 30 days: Activity Limitation					
Missing (within sample)	0.3	1.2	1.2	1.8	1.9
Not Applicable (no physical or mental days)	53.4	19.9	18.9	15.1	9.4
0 Days	31.7	27.1	26.9	21.8	19.5
1-2 Days	7.1	8.7	8.7	5.5	5.0
3-13 Days	6.0	16.5	16.9	13.6	14.5
14-29 Days	1.0	12.6	13.0	17.7	20.7
30 Days	0.5	14.0	14.5	24.5	28.9
Total	100.0	100.0	100.0	100.0	100.0
Depression (PHQ-8)*					
Missing (within sample)	8.4	8.7	8.6	11.3	11.2
No Depression	74.5	44.1	43.2	35.5	29.2
Mild Depression	12.6	21.7	22.0	20.5	21.7
Moderate Depression	2.9	12.0	12.3	14.7	16.8
Moderately Severe Depression	1.2	8.3	8.5	10.9	12.6
Severe Depression	0.4	5.2	5.4	7.2	8.5
Total	100.0	100.0	100.0	100.0	100.0

Source: 2006 BRFSS

Standard Errors for this table are in Appendix C, Table C-8

* Only represents the respondents in the 36 regions that included the Anxiety and Depression module in 2006.

Table 9 provides the distribution of several BRFSS core questions regarding general health, social and emotional support, and life satisfaction, all of which were lower for persons with disabilities in 2006. Over half (64.4 percent) of those without disabilities reported excellent or very good general health as compared to about one-quarter of those with disabilities (28.6 percent). Four out of ten (38.7 percent) persons with disabilities reported fair or poor health as

compared to fewer than one in ten of those without disabilities (7.5 percent). More than one in four persons using special equipment (27.5 percent) reported poor general health. About two-thirds (66.4 percent) of persons with disabilities always or usually had social or emotional support as compared to three quarters (78.9 percent) of those without disabilities. Persons with disabilities were almost twice as likely as those without disabilities to say that they rarely or never had the social and emotional support they needed (6.0 as compared to 11.8 percent). More persons with disabilities were less satisfied with their life, with 14.4 percent being dissatisfied or very dissatisfied as compared to only 2.9 percent of those without disabilities.

Table 9. 2006 BRFSS Self-Reported Health Status Emotional Support and Life Satisfaction

	Percent without Disability	Percent with Disability	Percent with Activity Limitation	Percent with Special Equipment Use	Percent with Activity Limitation AND Special Equipment Use
General Health					
Missing (within sample)	0.1	0.4	0.4	0.3	0.3
Excellent	26.5	7.3	7.0	5.8	4.3
Very Good	37.9	21.4	21.0	13.1	9.6
Good	28.0	32.3	32.1	24.3	21.5
Fair	6.8	24.4	24.9	29.1	32.4
Poor	0.7	14.3	14.7	27.5	32.0
Total	100.0	100.0	100.0	100.0	100.0
Have Social & Emotional Support					
Missing (within sample)	4.8	3.8	3.7	3.9	3.4
Always	47.9	35.6	35.3	37.1	36.1
Usually	31.0	30.8	30.7	27.3	26.2
Sometimes	10.2	17.9	18.1	18.5	19.7
Rarely	2.4	7.2	7.4	7.4	8.4
Never	3.6	4.6	4.7	5.8	6.3
Total	100.0	100.0	100.0	100.0	100.0
Life Satisfaction					
Missing (within sample)	4.2	4.0	3.9	4.3	3.9
Very Satisfied	47.3	28.1	27.6	24.3	21.5
Satisfied	45.5	53.6	53.7	52.9	53.6
Dissatisfied	2.5	10.8	11.1	13.6	15.5
Very Dissatisfied	0.4	3.6	3.6	4.9	5.5
Total	100.0	100.0	100.0	100.0	100.0

Source: 2006 BRFSS

Standard Errors for this table are in Appendix C, Table C-9

Table 10 reveals the health care and health behavior measures available in the BRFSS by disability status. The first section shows estimates for persons with and without health care coverage. There was virtually no difference between those with and without disabilities with

around 84 percent of both groups reported some type of health care coverage. There were some interesting differences in vaccine usage as a much larger proportion of persons with disabilities (30.9 percent) received the vaccine for influenza than those without a disability (22.8 percent). The same situation can be seen with regards to the vaccine for pneumonia, with 22.0 of those with a disability reported having received it, as compared to only 9.0 percent of those without a disability.

Table 10. 2006 BRFSS Health Insurance Coverage and Vaccinations

	Percent without Disability	Percent with Disability	Percent with Activity Limitation	Percent with Special Equipment Use	Percent with Activity Limitation AND Special Equipment Use
Health Care Coverage					
Missing	0.1	0.2	0.2	0.4	0.5
No coverage	15.5	16.4	16.5	14.9	14.7
Coverage	84.5	83.4	83.3	84.7	84.8
Total	100.0	100.0	100.0	100.0	100.0
Received Flu Vaccine					
Missing	1.3	1.0	1.0	1.1	1.0
Unvaccinated	75.9	68.1	68.2	61.1	60.3
Vaccinated	22.8	30.9	30.8	37.8	38.8
Total	100.0	100.0	100.0	100.0	100.0
Received Pneumonia Vaccine					
Missing	10.1	8.9	8.8	8.4	7.9
Unvaccinated	80.9	69.1	69.2	59.1	57.1
Vaccinated	9.0	22.0	22.0	32.5	35.0
Total	100.0	100.0	100.0	100.0	100.0

Source: 2006 BRFSS

Standard Errors for this table are in Appendix C, Table C-10

Comparisons to Other Data Sources

The BRFSS is one of several nationally-representative datasets that may be used to estimate the number of people with disabilities, the prevalence of persons with disabilities and the employment rate of persons with disabilities. Surveys use unique methods and questions to collect information on persons with disabilities, which can lead to variability in estimates. This section shows how the BRFSS estimates of the population compare to estimates from other nationally-representative surveys.

The national datasets used for the comparison include: the 2003 American Community Survey (ACS), the 2000 Decennial Census (Census 2000), the March 2004 Current Population Survey (CPS), the 2002 National Health Interview Survey (NHIS), the 1994 National Health Interview Survey-Disability Supplement (NHIS-D), the 2001 Panel Study of Income Dynamics (PSID), and the 2002 Survey of Income and Program Participation (SIPP).[5] The year associated with each dataset represents the actual year that the survey was administered. The March 2004 CPS collects annual income and annual labor supply information for the 2003 calendar year. Details on the methods used to collect information on persons with disabilities in each of these surveys may be found in the corresponding Cornell StatsRRTC *User Guides*.

Variations in estimates may be related to changes in the population over time. Thus, it is important to pay special attention to the survey year when comparing estimates across the surveys. Shifts in the population, the labor market, and the economic environment between the survey years can affect estimates of the population, prevalence, employment, and economic well-being.

[5] The results for the 2002 SIPP are obtained from a 2002 wave of the 2001 SIPP panel.

Each comparison table defines disability as the presence of a participation restriction, an activity limitation, or impairment. It is important to note that the second participation restriction is now is referred to as Instrumental Activities of Daily Living (IADLs). This term captures a broader set of participation restrictions than the ACS "go-outside-the-home" definition, for example. It also includes participation restrictions that affect a person's ability to manage money and keep track of bills, prepare meals, and do work around the house. Note that the BRFSS "activity limitation" question was determined to be too broad and general relative to the other instruments in the comparison to be considered an appropriate measure of IADLs.

It is also important to note that some datasets are limited to identifying a disability based upon a participation restriction. This is evident in the tables when examining the columns that identify the ICF disability concepts. A "NA" entry indicates that specific information on the particular ICF concept is not available in the survey. Disability is defined in these cases only based upon the information that is available in the survey. As the individual BRFSS disability questions do not align with the ICF disability categories used for the other surveys in a meaningful way, only the general disability category (persons who responded positively to either the activity limitation or the health problem that requires special equipment) is used for the BRFSS dataset.

The comparisons are made across the working-age population. There are two reasons for this decision. First, most of the nationally-representative surveys focus on the working-age population. Second, among the subset of surveys that identify children with disabilities, there are relatively large differences in the methods used to define and identify disability, and it is difficult to make meaningful comparisons. Further research on methods used to identify children with disabilities is needed.

Population and Prevalence Estimates

The BRFSS population and prevalence rate estimates are the highest in relation to the other comparison datasets. Table 11 on the following pages shows differences across surveys in the size of the population with disabilities. The first section of the table shows the BRFSS estimate of approximately 3,155,000 persons between the ages of 18 and 24 with a disability. It is the highest estimate out of all the surveys, compared to the 2,426,000 estimate from the SIPP, the 2,126,000 estimate from the NHIS, and the estimates from the 2003 ACS, the Census 2000, the March 2004 CPS, and the 2001 PSID. The rest of the table shows comparisons for other age groups. The 2006 BRFSS shows 28,399,000 persons with disabilities ages 25 to 61. It is again the largest of the surveys, greater than the 26,620,000 in the 2002 SIPP and the 23,192,000 in the NHIS. It is significantly higher than the PSID estimate of 20,054,000, the 2003 ACS estimate, the March 2004 CPS and the Census 2000 long form. In all but one of the age categories in Table 11, the BRFSS estimates are the highest out of the surveys, with the exception of the 62 to 64 age group in which the BRFSS estimate is higher than all but the 2002 SIPP survey.

Table 11. Estimated Population of Persons with Disabilities, By Age

			Participation Restriction		Activity Limitation		Impairment	
	No Disability	**Disability**	**Employment**	**IADL**	**Self-Care**	**Mental**	**Physical**	**Sensory**
Ages 18 to 24								
Behavioral Risk Factor Surveillance Survey , 2006	**26,107,000**	**3,155,000**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
American Community Survey, 2003	24,194,401	1,667,355	714,229	399,423	187,904	953,448	535,666	356,820
Census 2000	24,790,000	1,442,000	NA	NA	207,000	883,000	456,000	326,000
Current Population Survey, March 2004	26,803,529	816,662	816,662	NA	NA	NA	NA	NA
National Health Interview Survey, 2002	25,225,000	2,126,000	927,000	228,000	147,000	786,000	859,000	78,000
Panel Study on Income Dynamics, 2001 / (1)	9,123,000	690,000	690,000	NA	NA	NA	NA	NA
Survey of Income and Program Participation, 2002	24,820,000	2,426,337	1,209,000	366,000	146,000	1,076,000	982,000	533,000
Ages 25 to 61								
Behavioral Risk Factor Surveillance Survey , 2006	**118,997,000**	**28,399,000**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
American Community Survey, 2003	126,649,510	17,146,845	9,854,223	4,227,427	2,925,715	5,745,569	10,819,521	3,944,388
Census 2000	124,493,000	14,005,000	NA	NA	2,627,000	5,218,000	9,447,000	3,346,000
Current Population Survey, March 2004	132,649,606	12,102,093	12,102,093	NA	NA	NA	NA	NA
National Health Interview Survey, 2002	115,934,000	23,192,000	13,725,000	3,169,000	1,350,000	4,627,000	14,545,000	2,730,000
Panel Study on Income Dynamics, 2001	117,273,000	20,054,000	20,054,000	NA	NA	NA	NA	NA
Survey of Income and Program Participation, 2002	115,900,000	26,620,000	14,420,000	4,931,000	3,362,000	4,394,000	18,790,000	6,490,000

(Continued)

Table 11 (continued). Estimated Population of Persons with Disabilities, By Age

			Participation Restriction		Activity Limitation		Impairment	
	No Disability	**Disability**	**Employment**	**IADL/(3)**	**Self-Care**	**Mental**	**Physical**	**Sensory**
Ages 62 to 64								
Behavioral Risk Factor Surveillance Survey , 2006	**5,506,000**	**2,552,000**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
American Community Survey, 2003	4,941,802	1,795,533	1,111,762	404,875	293,507	393,782	1,292,381	455,364
Census 2000	4,806,000	1,413,000	NA	NA	257,000	348,000	1,134,000	373,000
Current Population Survey, March 2004	5,482,126	1,278,528	1,278,528	NA	NA	NA	NA	NA
National Health Interview Survey, 2002	4,239,000	2,045,000	1,281,000	300,000	127,000	144,000	1,466,000	310,000
Panel Study on Income Dynamics, 2001	3,911,000	1,684,000	1,684,000	NA	NA	NA	NA	NA
Survey of Income and Program Participation, 2002	3,958,000	2,581,000	1,496,000	567,000	376,000	252,000	2,165,000	672,000
Ages 18 to 64								
Behavioral Risk Factor Surveillance Survey , 2006	**150,610,000**	**34,106,000**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
American Community Survey, 2003	155,785,713	20,609,733	11,680,214	5,031,725	3,407,126	7,092,799	12,647,568	4,756,572
Census 2000	154,091,000	16,861,000	NA	NA	3,093,000	6,450,000	11,039,000	4,046,000
Current Population Survey, March 2004	164,935,261	14,197,283	14,197,283	NA	NA	NA	NA	NA
National Health Interview Survey, 2002	145,399,000	27,363,000	15,934,000	3,697,000	1,626,000	5,558,000	16,871,000	3,119,000
Panel Study on Income Dynamics, 2001	130,309,000	22,429,000	22,429,000	NA	NA	NA	NA	NA
Survey of Income and Program Participation, 2002	144,678,000	31,627,000	17,126,000	5,864,000	3,885,000	5,723,000	21,938,000	7,695,000

Source: Authors' Calculations from various data sources.

Note: (1) The PSID only asks this question for the Head and Wife of the Household. Children of the Head and Wife are not asked this question, and the PSID assigns missing values to children for this question. As a result, the population with and without a work limitation is small relative to the other national surveys.

Note: (2) The March 2004 Current Population Supplement collects 2003 calendar year information on Poverty, Median Household Income, and Household Size Adjusted Income. Population and prevalence estimates are collected in March 2004.

Note: (3) Instrumental Activities of Daily Living (IADLs) include a broader set of participation restrictions than the "go-outside-the home" definition in the American Community Survey. It also includes participation restrictions that affect the ability to: manage money and keep track of bills, prepare meals, and do work around the house.

Note: Standard errors for BRFSS estimates are in Appendix C, Table C-2. Standard errors for other datasets available in respective *User Guides*.

Table 12 on the following page shows estimates for prevalence rates. The first section of the table shows the 2006 BRFSS disability prevalence rate estimate of 10.8 percent for the population between the ages of 18 and 24. It is higher than all the other dataset estimates including the SIPP estimate of 8.9 percent, and the NHIS estimate of 7.8 percent, and the estimates based upon the Census 2000, the CPS, and the PSID. For the working-age population between the ages of 25 and 61, the 2006 BRFSS data indicates that 19.3 percent of the population reports a disability. The BRFSS estimate is greater than the 18.7 percent reported in the SIPP, the 16.7 percent reported in the NHIS, the 14.6 percent reported in the PSID, the 11.9 reported in the 2003 ACS, the 10.1 percent reported in the Census 2000, and the 8.2 percent reported in the CPS.

For the population age 62 to 64, the BRFSS data show a prevalence rate estimate of 31.7 percent. The BRFSS estimate is lower than the SIPP estimate of 39.5 percent, but higher than the NHIS estimate of 32.5 percent, the PSID estimate of 30.1 percent, the 2003 ACS of 26.7 percent, the Census 2000 estimate of 22.7 percent, and the March 2004 CPS estimate of 18.9 percent. For the population ages 18 to 64, the BRFSS data shows a prevalence rate of 18.5 percent. This is higher than all the other datasets including the 17.9 percent estimate in the SIPP, the 15.8 percent estimate in the NHIS, the 14.7 percent estimate in the PSID, the 2003 ACS estimate of 11.7, the Census 2000 estimate of 9.9 percent, and the March 2004 CPS estimate of 7.9 percent.

Table 12. Estimated Disability Prevalence Rates, By Data Source

		Participation Restriction	Activity Limitation		Impairment		
	Disability	**Employment**	**IADL**	**Self-Care**	**Mental**	**Physical**	**Sensory**
Ages 18 to 24							
BRFSS, 2006	**10.8**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
ACS, 2003	6.5	2.8	1.5	0.7	3.7	2.1	1.4
Census 2000	5.5	NA	NA	0.8	3.4	1.7	1.2
CPS, March 2004	3	3	NA	NA	NA	NA	NA
NHIS, 2002	7.8	3.4	0.8	0.5	2.9	3.1	0.3
PSID, 2001	7	7	NA	NA	NA	NA	NA
SIPP, 2002	8.9	4.4	1.3	0.5	4	3.6	2
Ages 25 to 61							
BRFSS, 2006	**19.3**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
ACS, 2003	11.9	6.9	2.9	2	4	7.5	2.7
Census 2000	10.1	NA	NA	1.9	3.8	6.8	2.4
CPS, March 2004	8.4	8.4	NA	NA	NA	NA	NA
NHIS, 2002	16.7	9.9	2.3	1	3.3	10.5	2
PSID, 2001	14.6	14.6	NA	NA	NA	NA	NA
SIPP, 2002	18.7	10.1	3.5	2.4	3.1	13.2	4.6
Ages 62 to 64							
BRFSS, 2006	**31.7**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
ACS, 2003	26.7	16.5	6	4.4	5.8	19.2	6.8
Census 2000	22.7	NA	NA	4.1	5.6	18.2	6
CPS, March 2004	18.9	18.9	NA	NA	NA	NA	NA
NHIS, 2002	32.5	20.4	4.8	2	2.3	23.3	4.9
PSID, 2001	30.1	30.1	NA	NA	NA	NA	NA
SIPP, 2002	39.5	22.9	8.7	5.8	3.9	33.1	10.3
Ages 18 to 64							
BRFSS, 2006	**18.5**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
ACS, 2003	11.7	6.6	2.9	1.9	4	7.2	2.7
Census 2000	9.9	NA	NA	1.8	3.8	6.5	2.4
CPS, March 2004	7.9	7.9	NA	NA	NA	NA	NA
NHIS, 2002	15.8	9.2	2.1	0.9	3.2	9.8	1.8
PSID, 2001	14.7	14.7	NA	NA	NA	NA	NA
SIPP, 2002	17.9	9.7	3.3	2.2	3.2	12.4	4.4

Source: Authors' calculations from various data sources.

Note: (1) The PSID only asks this question for the Head and Wife of the Household. Children of the Head and Wife are not asked this question, and the PSID assigns missing values to children for this question. As a result, the population with and without a work limitation is small relative to the other national surveys.

Note: (2) The March 2004 Current Population Supplement collects 2003 calendar year information on Poverty, Median Household Income, and Household Size Adjusted Income. Population and prevalence estimates are collected in March 2004.

Note: (3) Instrumental Activities of Daily Living (IADLs) include a broader set of participation restrictions than the "go-outside-the home" definition in the American Community Survey. It also includes participation restrictions that affect the ability to: manage money and keep track of bills, prepare meals, and do work around the house.

Note: Standard errors for are in Appendix C, Table C-2 for the BRFSS and in the respective *User Guides*.

Employment Rate Estimates

Due to the limited employment information available in the BRFSS, employment rate estimates in the BRFSS can only be calculated for the reference week and fall in the upper-end of the range of estimates from national surveys. The 2006 BRFSS reference period measure shows an employment rate of 81.9 percent for persons without disabilities and 52.2 percent for persons with a disability (see Table 13 on following page). For those without a disability, the BRFSS is relatively lower than estimates from the SIPP, PSID, and NHIS and higher than those from the CPS, Census 2000, and the 2003 ACS. For those with a disability, it is lower than the PSID estimate of 53.2 percent, but higher the SIPP estimate of 48.9 percent, the NHIS estimate of 47.3 percent, and the Census 2000 estimate of 41.8 percent. The BRFSS employment rate is substantially higher than the March 2004 CPS estimate of 19.6 percent.

Table 13. Estimated Employment Rates for Persons With Disabilities Ages 25 to 61, By Data Source

			Participation Restriction		Activity Limitation	Impairment		
	No Disability	Disability	Employment	IADL	Self-Care	Mental	Physical	Sensory
Reference Period, Ages 25 to 61								
BRFSS, 2006	**81.9**	**52.2**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
ACS, 2003	79.5	39.3	18.9	17.9	18.3	28.2	33.8	49.9
Census 2000	78.8	41.8	NA	NA	21.7	30.2	35.6	52.1
CPS, March 2004	81.4	19.6	19.6	NA	NA	NA	NA	NA
NHIS, 2002	83.3	47.3	29.8	18.3	14.1	37.1	43.8	58.6
PSID, 2001	83.8	53.2	53.2	NA	NA	NA	NA	NA
SIPP, 2002	82.4	48.9	27.7	20.3	22.8	37	46.4	53.5
Some Attachment, Ages 25 to 61								
BRFSS, 2006	**84.6**	**56.2**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
ACS, 2003	87.1	48.9	28.3	25.8	26.2	37.2	42.8	58.1
Census 2000	86.3	51.9	NA	NA	31.9	40.4	45.4	61.1
CPS, March 2004	86.2	27.9	27.9	NA	NA	NA	NA	NA
NHIS, 2002	88.3	57.9	42	25.7	19.9	51.8	53.8	66.6
PSID, 2001	91.9	67.8	67.8	NA	NA	NA	NA	NA
SIPP, 2002	90.6	61.1	41	34.1	38.8	46.3	59	63.7
Full-Year Full-Time, Ages 25 to 61								
BRFSS, 2006	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
ACS, 2003	59.6	24.5	9.1	9	9.4	15	20.3	34.5
Census 2000	58.8	27.1	NA	NA	13.1	16.7	22.6	37.4
CPS, March 2004	65.3	9.4	9.4	NA	NA	NA	NA	NA
NHIS, 2002	62.8	29.8	16.3	9.3	6.2	21.3	27.2	43.4
PSID, 2001	70.5	45.1	45.1	NA	NA	NA	NA	NA
SIPP, 2002	58.1	31.2	15.3	12	15	20.3	29.6	35.6

Source: Authors' calculations from various data sources.
Note: (1) The PSID only asks this question for the Head and Wife of the Household. Children of the Head and Wife are not asked this question, and the PSID assigns missing values to children for this question. Thus, the population with and without a work limitation is small relative to the other national surveys.
Note: (2) The March 2004 Current Population Supplement collects 2003 calendar year information on Poverty, Median Household Income, and Household Size Adjusted Income. Population and prevalence estimates are collected in March 2004.
Note: (3) Instrumental Activities of Daily Living (IADLs) include participation restrictions that affect the ability to: manage money and keep track of bills, prepare meals, and do work around the house.
Note: Standard errors for ACS estimates are in Appendix C, Table C-4. Standard errors for other datasets available in respective *User Guides*.

Summary and Conclusions

This *User Guide* describes some of the information available on the disability population from the CDC's Behavioral Risk Factors Surveillance Survey. The design of the BRFSS provides some advantages over other data collection efforts. First, it is an annual survey and can provide yearly estimates of disability as well as several conditions that can lead to disability. The BRFSS sample design supports estimates at the national and state levels, as well as limited numbers of Metropolitan Statistical Areas and counties. Finally, the BRFSS can provide unique insights into health behavior differences between those with and without disabilities. The paper focuses on indicators commonly used in the literature, but there are a number of other variables that may be of interest to disability researchers.

The utility of the BRFSS was presented using estimates from the BRFSS data on the population with disabilities, including the size of the population, the prevalence rate, the demographic composition, the employment rate, household income, as well as a several other health measures and behaviors. Estimates are presented at both the national and at the state level. At the national level, the BRFSS estimates that of the U.S. population ages 18 and older not residing in group quarters, approximately 40.8 million have a disability, indicating a 21.5 percent disability prevalence rate. The population with disabilities tends to be older and is more likely to have a lower level of education when compared to the population without disabilities. According to the limited BRFSS employment and economic well-being measures, major disparities exist between the population with disabilities and that without disabilities. The BRFSS estimates show significant disparities at the state level in the prevalence of disability and employment rate. The differences exist both in absolute terms and relative to the population within the state without a disability.

Finally, this *User Guide* compared estimates from the BRFSS to other national surveys that collect information on the population with disabilities. The BRFSS is unique as it only asks two disability questions yet has disability prevalence rates that are among the highest relative to the other surveys. There are several potential reasons for this result. First, the questions used to identify disability are far broader than those used in most other surveys. They inquire whether an individual is "limited in *any way* in *any activities*" (emphasis added), leaving the question open for interpretation. The same is true for the question regarding special equipment use, which asks about "*any* health problem that requires you to use special equipment, such as a cane, a wheelchair, a special bed, or a special telephone" (emphasis added). Second, the absence of time constraints in either of the BRFSS disability questions may result in including persons with temporary and short-term disabilities along with those who may have longer-term disabilities or health issues. Third, the BRFSS is primarily a health survey, a type of survey that is known to have higher levels of disability reporting than those focused on economic indicators. This effect may in part be due to "priming" or increasing a respondent's awareness of their health issues, potentially increasing the likelihood to report a disability.

In conclusion, while there are limitations to the disability data collected in the BRFSS and potential state-to-state and year-to-year inconsistencies in subject matter coverage, it provides insights into health behaviors that are not collected in any other national survey. As the BRFSS data collection efforts continues, researchers and policymakers will be able to examine changes in prevalence and health behaviors as well as certain conditions across states and over time. The use of the BRFSS to monitor the progress of the population with disabilities and health behaviors will help to inform and advance strategies and programs to improve the health and well-being of those with and without disabilities in the future.

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Appendix A

Table A-1. Size of 2006 Limited Sample (non-missing values*) for Each State by Disability Type, Ages 25 to 61

	No Disability	Disability	Activity Limitation	Special Equipment Use	Activity Limitation AND Special Equipment Use
U.S.	153,340	43,488	41,565	11,364	9,441
Alabama	1,309	514	489	164	139
Alaska	1,079	299	287	64	52
Arizona	1,949	525	509	145	129
Arkansas	2,281	769	738	228	197
California	2,691	793	760	191	158
Colorado	3,028	720	697	162	139
Connecticut	3,714	889	844	224	179
Delaware	1,708	528	495	133	100
District of Columbia	1,999	390	369	119	98
Florida	4,363	1,269	1,214	354	299
Georgia	3,503	974	920	279	225
Hawaii	3,142	667	632	162	127
Idaho	2,498	681	662	135	116
Illinois	2,530	559	534	142	117
Indiana	3,044	757	728	211	182
Iowa	2,577	510	467	148	105
Kansas	3,897	980	945	226	191
Kentucky	2,194	1,062	1,033	293	264
Louisiana	3,156	881	837	232	188
Maine	1,846	567	537	137	107
Maryland	4,086	991	935	248	192
Massachusetts	5,559	1,547	1,472	419	344
Michigan	2,444	769	733	206	170
Minnesota	2,096	559	520	135	96
Mississippi	2,501	884	853	254	223
Missouri	2,170	785	755	221	191
Montana	2,692	825	795	182	152
Nebraska	3,687	852	817	210	175
Nevada	1,559	457	432	115	90
New Hampshire	2,819	750	728	190	168

(Continued)

Table A-1 (Continued) Size of 2006 Limited Sample (non-missing values*) for Each State by Disability Type, Ages 25 to 61

	No Disability	Disability	Activity Limitation	Special Equipment Use	Activity Limitation AND Special Equipment Use
New Jersey	5,821	1,272	1,215	321	264
New Mexico	2,998	874	831	274	231
New York	2,664	631	600	163	132
North Carolina	6,856	2,010	1,918	548	456
North Dakota	2,225	422	395	92	65
Ohio	2,405	817	780	245	208
Oklahoma	2,733	1,007	973	291	257
Oregon	2,053	748	721	188	161
Pennsylvania	5,646	1,655	1,593	492	430
Rhode Island	1,972	514	494	128	108
South Carolina	3,847	1,106	1,066	327	287
South Dakota	3,006	697	667	154	124
Tennessee	1,891	557	522	164	129
Texas	2,978	795	751	234	190
Utah	2,651	649	623	133	107
Vermont	3,231	898	867	172	141
Virginia	2,451	655	612	159	116
Washington	9,549	3,591	3,444	860	713
West Virginia	1,533	637	611	200	174
Wisconsin	2,366	586	553	155	122
Wyoming	2,343	614	592	135	113
Puerto Rico	1,898	596	574	167	145
U.S. Virgin Islands	1,812	198	188	43	33

*Limited BRFSS sample excludes observations missing one or more of the following variables: gender, age, activity limitation, special equipment use, Hispanic/Latino, race, education, employment status or income level.

Appendix A

Table A-2. Comparison of BRFSS 2006 Prevalence Rates Between Full Sample and Limited Sample (non-missing values*), Ages 25-61

State	Percent with Disability			
	Full BRFSS Sample	Limited BRFSS Sample	Difference	Percent Change
U.S.	19.3	19.2	-0.1	-0.5%
Alabama	25.0	25.2	0.2	0.8%
Alaska	21.3	20.6	-0.7	-3.3%
Arizona	17.4	18.2	0.8	4.6%
Arkansas	22.4	22.4	0.0	0.0%
California	19.1	19.7	0.6	3.1%
Colorado	16.8	17.3	0.5	3.0%
Connecticut	16.7	16.5	-0.2	-1.2%
Delaware	21.4	21.7	0.3	1.4%
District of Columbia	15.2	15.2	0.0	0.0%
Florida	19.5	19.3	-0.2	-1.0%
Georgia	18.5	18.5	0.0	0.0%
Hawaii	14.0	13.9	-0.1	-0.7%
Idaho	20.1	19.3	-0.8	-4.0%
Illinois	16.1	16.1	0.0	0.0%
Indiana	18.3	17.7	-0.6	-3.3%
Iowa	14.7	14.7	0.0	0.0%
Kansas	17.8	17.7	-0.1	-0.6%
Kentucky	28.3	27.7	-0.6	-2.1%
Louisiana	20.0	19.1	-0.9	-4.5%
Maine	22.0	22.3	0.3	1.4%
Maryland	17.0	16.9	-0.1	-0.6%
Massachusetts	17.5	17.3	-0.2	-1.1%
Michigan	21.3	21.1	-0.2	-0.9%
Minnesota	18.7	18.4	-0.3	-1.6%
Mississippi	22.4	22.2	-0.2	-0.9%
Missouri	23.0	22.6	-0.4	-1.7%
Montana	21.6	21.2	-0.4	-1.9%
Nebraska	16.1	16.2	0.1	0.6%
Nevada	19.8	20.2	0.4	2.0%
New Hampshire	18.0	17.6	-0.4	-2.2%
New Jersey	15.9	15.4	-0.5	-3.1%
New Mexico	20.6	20.3	-0.3	-1.5%
New York	16.6	16.2	-0.4	-2.4%

(Continued)

Table A-2. (continued) Comparison of BRFSS 2006 Prevalence Rates Between Full Sample and Limited Sample Ages 25-61 (non-missing values*)

State	Percent with Disability		Difference	Percent Change
	Full BRFSS Sample	Limited BRFSS Sample		
North Carolina	19.8	19.7	-0.1	-0.5%
North Dakota	14.6	14.4	-0.2	-1.4%
Ohio	23.1	22.7	-0.4	-1.7%
Oklahoma	25.1	24.9	-0.2	-0.8%
Oregon	24.0	24.2	0.2	0.8%
Pennsylvania	18.6	18.4	-0.2	-1.1%
Rhode Island	18.7	18.2	-0.5	-2.7%
South Carolina	19.6	18.9	-0.7	-3.6%
South Dakota	16.6	16.6	0.0	0.0%
Tennessee	20.1	19.6	-0.5	-2.5%
Texas	18.8	18.5	-0.3	-1.6%
Utah	17.1	17.3	0.2	1.2%
Vermont	20.1	20.1	0.0	0.0%
Virginia	19.0	18.2	-0.8	-4.2%
Washington	23.5	23.5	0.0	0.0%
West Virginia	27.6	26.9	-0.7	-2.5%
Wisconsin	16.5	16.2	-0.3	-1.8%
Wyoming	19.8	19.4	-0.4	-2.0%

*Limited BRFSS sample excludes observations missing one or more of the following variables: gender, age, activity limitation, special equipment use, Hispanic/Latino, race, education, employment status or income level.

Appendix B: Analytical Issues

The population estimates reported in the paper are drawn from a sample and, as is the case with any sample, are subject to both sampling error and non-sampling error. Standard errors and confidence intervals are used to describe the magnitude of sampling error and some forms of non-sampling error. The BRFSS estimate derivation and standard error computation must take into account the sample design. The purpose of the technical appendix is to provide a brief description of the important analytical issues to be aware of when working with the BRFSS data.

Standard procedures for estimating variances used in most statistical software packages assume simple random sampling, however the BRFSS utilizes a complex sample design. This means that these using programs that assume simple random sampling can lead to incorrect or misleading results. Because of this BRFSS analysis requires the use of programs that can take the complex sample design into account:

> SAS Version 8's SURVEYMEANS and SURVEYREG procedures, SUDAAN, and Epi Info's C-Sample are among those suitable for analyzing BRFSS data SAS and SUDAAN can be used for tabular and regression analyses; SUDAAN has these and additional options (4). Epi Info's C-sample can be used to calculate simple frequencies and two-way cross-tabulations. When using these software products, users must know the stratum, the primary sampling units, and the record weight—all of which are on the public use data file.
>
> For more information see:
> www.cdc.gov/brfss/technical_infodata/surveydata/2006/compare_06.rtf

SAS Proc Surveymeans was used to produce all the estimates and standard errors contained in this report.

Sampling and Non-Sampling Error

Both sampling error and non-sampling errors introduce some degree of uncertainty into estimates. Sampling error occurs when population characteristics are estimated based upon a

sample and are not based upon the entire population. Because many samples may be drawn from a population, and each sample can produce a different estimate, there is always some degree of uncertainty when samples are used to estimate characteristics of a population. The variability of estimates drawn from samples, sometimes referred to as uncertainty, is described by standard errors. Standard errors are used to construct confidence intervals, which describe the likelihood that a particular estimate falls within a certain range of estimates.

Non-sampling error results from other forms of error and includes errors keying in data, errors editing the data, misinterpretation of questions by respondents, non-random non-response to the survey or survey questions, and other factors. To the degree that the error occurs at random, additional variability will arise in the estimates and the standard errors will describe the variability due to this non-sampling error. However, non-sampling errors may occur in a systematic manner (i.e., non-random errors). Systematic errors that arise in the data collection process are not described by standard errors. Thus, it is important to assess the role of systematic non-sampling errors that may arise in an estimate. One of the methods the CDC utilizes to minimize systematic error in the BRFSS is the intensive non-respondent follow up over a period of time and attempted contact over a variety of days and times.

As with all nationally representative surveys data weighting helps reduce bias in the sample. The BRFSS weights correct for differences in the probability of selection as a result of non-response and non-coverage errors and adjust for differences in age, sex, and race between the sample and the population. Utilization of the weights provides estimates representative of the entire population rather than only to the survey respondents.

Confidence Intervals

The standard error calculations are used to construct 95 percent confidence intervals around the population estimates. A confidence interval may be interpreted as the level of certainty that an estimate falls between a lower-bound and an upper-bound estimate.

The lower bound of the confidence interval is approximately 1.96 times the standard error subtracted from the estimate. The upper bound of the confidence interval is approximately 1.96 times the standard error added to the point estimate. The confidence interval may be interpreted as, "We are 95 percent certain that the estimate falls between the lower-bound estimate and the upper-bound estimate."

Estimated Standard Error Calculations

Standard Errors estimated in this User Guide are calculated using the SAS (version 9.1.3) built-in Surveymeans Procedure. The procedure accounts for complex sample designs, such as that of the BRFSS, through the Taylor expansion method. This method estimates sampling errors of estimators by finding a linear approximation for the estimator and then estimating the variance of the estimate itself from the variance estimate of this approximation.

Because most states use a disproportionate stratified sampling (DSS) sample design, a variable was created in the BRFSS to differentiate between stratum. This variable must be input into the Surveymeans Procedure in order to calculate standard errors; otherwise, the procedure assumes simple random sampling. In addition, each state in a given year must be treated as a separate cluster since they are collected individually, designated by the Primary Sampling Unit (PSU). The PSU is an indicator in the BRFSS data which is unique for each state each year and provided in the BRFSS data.

Therefore, the Taylor expansion method is used to account for variation introduced by employing both clustering and stratifying. The procedure produces standard error estimates by estimating the variance from the variation among PSUs and from pooling stratum variance estimates.

Below is an example of how the Surveymeans Procedure is used in SAS code:

```
PROC SURVEYMEANS;
VAR   USEEQUIP;
      WEIGHT      _FINALWT;
      ods output DOMAIN= NATIONAL_STATS;
      STRATA      _STSTR;
      CLUSTER     _PSU;
      DOMAIN      AGE;
RUN;
```

In this example, the variable is an indicator of use of special equipment. The final weight is being that the CDC calculated for the BRFSS. An output dataset is being created with default variables, including the sample size, mean, sum, and standard error. The strata and PSU variables are input as the strata and cluster indicators respectively. Finally, a domain statement is used as a categorical variable to specify subgroups being analyzed. A by-statement can be used, but the calculation will be different since by-groups will treat each subgroup individually rather than part of the larger sample.

For more information on the Surveymeans Procedure refer to SAS's Help and Documentation in the SAS interface or SAS documentation online at http://support.sas.com/documentation/onlinedoc/91pdf/index.html.

Appendix C. Standard Error Tables

Table C-2. Standard Errors for 2006 BRFSS Population and Prevalence Estimates by BRFSS Disability Categories

Characteristic	No Disability	Disability	Activity Limitation	Special Equipment Use	Activity Limitation AND Special Equipment Use
Summary					
Ages 18 and older					
Population Estimate	523,400	301,000	293,000	171,000	150,000
Prevalence rate	0.16	0.16	0.16	0.09	0.08
Detailed Age Breakdowns					
Ages 18-24					
Population Estimate	391,500	137,000	132,000	57,000	44,000
Prevalence rate	0.59	0.59	0.57	0.26	0.20
Ages 25-61					
Population Estimate	441,500	246,000	242,000	131,000	121,000
Prevalence rate	0.18	0.18	0.18	0.10	0.09
Ages 62-64					
Population Estimate	92,100	56,000	55,000	33,000	30,000
Prevalence rate	0.72	0.72	0.71	0.46	0.43
Ages 65 and older					
Population Estimate	160,300	134,000	123,000	93,000	75,000
Prevalence rate	0.38	0.38	0.36	0.30	0.25

Source: Author's calculation from the 2006 BRFSS

Appendix C.

Table C-3. Standard Errors for 2006 BRFSS Estimates of the Distribution of Demographic Characteristics for Persons With and Without Disabilities

Characteristic	No Disability	Disability	Activity Limitation	Special Equipment Use	Activity Limitation AND Special Equipment Use
Age					
18-24	0.24	0.32	0.33	0.44	0.44
25-34	0.21	0.29	0.30	0.40	0.45
35-44	0.19	0.30	0.32	0.47	0.56
45-54	0.17	0.32	0.34	0.57	0.68
55-64	0.13	0.29	0.3	0.53	0.64
65-74	0.09	0.22	0.22	0.45	0.48
75-84	0.07	0.21	0.21	0.45	0.46
85+	0.03	0.12	0.12	0.31	0.36
Gender					
Male	0.24	0.41	0.43	0.70	0.81
Female	0.24	0.41	0.43	0.70	0.81
Race					
White only	0.23	0.35	0.37	0.63	0.73
Black or African American only	0.14	0.24	0.25	0.48	0.54
Asian Only	0.11	0.14	0.15	0.25	0.28
Native American only	0.07	0.14	0.15	0.22	0.28
Other	0.17	0.24	0.25	0.41	0.48
Ethnicity					
Not Hispanic	0.23	0.31	0.33	0.51	0.57
Hispanic	0.23	0.31	0.33	0.51	0.57
Education (25-61)					
Less than High School	0.21	0.37	0.39	0.77	0.89
High School/GED	0.22	0.44	0.46	0.85	0.94
Some College	0.22	0.47	0.48	0.93	1.05
Four Year College Grad or Higher	0.26	0.46	0.48	0.87	0.98

Source: Author's calculation from the 2006 BRFSS

Appendix C.

Table C-4. Standard Errors for 2006 BRFSS Employment Rate, Ages 25 to 61

Characteristic	No Disability	Disability	Activity Limitation	Special Equipment Use	Activity Limitation AND Special Equipment Use
All					
Currently Employed	0.20	0.48	0.53	0.94	0.97
Sometime Previous Year	0.09	0.23	0.52	1.00	1.10
Male					
Currently Employed	0.24	0.80	0.84	1.40	1.49
Sometime Previous Year	0.20	0.78	0.82	1.52	1.77
Female					
Currently Employed	0.30	0.65	0.66	1.10	1.12
Sometime Previous Year	0.29	0.65	0.66	1.15	1.16
White					
Currently Employed	0.22	0.55	0.57	1.06	1.07
Sometime Previous Year	0.20	0.55	0.56	1.16	1.28
Black/African American					
Currently Employed	0.68	1.68	1.76	1.90	2.08
Sometime Previous Year	0.58	1.66	1.73	1.99	2.19
Asian					
Currently Employed	1.13	6.22	6.43	17.09	20.16
Sometime Previous Year	1.01	6.24	6.46	17.63	21.02
Native American					
Reference Period	2.06	4.22	4.38	5.21	5.38
Sometime Previous Year	1.88	4.09	4.24	5.36	5.57
Other					
Currently Employed	0.85	2.11	2.16	3.83	4.02
Sometime Previous Year	0.73	2.12	2.17	3.86	4.07
Non-Hispanic					
Currently Employed	0.19	0.51	0.53	0.94	0.98
Sometime Previous Year	0.18	0.50	0.52	1.02	1.13
Hispanic					
Currently Employed	0.80	2.30	2.38	3.53	3.48
Sometime Previous Year	0.71	2.30	2.37	3.74	3.54
Less than High School					
Currently Employed	1.06	1.67	1.72	1.82	1.75
Sometime Previous Year	0.98	1.70	1.75	2.25	2.36

(Continued)

Appendix C.

Table C-4. Standard Errors for 2006 BRFSS Employment Rate, Ages 25 to 61 (continued)

Characteristic	No Disability	Disability	Activity Limitation	Special Equipment Use	Activity Limitation AND Special Equipment Use
High School					
Currently Employed	0.40	0.92	0.94	1.45	1.34
Sometime Previous Year	0.36	0.92	0.94	1.55	1.43
More Than High School					
Currently Employed	0.22	0.64	0.66	1.30	1.43
Sometime Previous Year	0.20	0.62	0.64	1.37	1.61

Source: Author's calculation from the 2006 BRFSS

Appendix C.

Table C-5. Standard Errors for 2006 BRFSS Household Income Estimates by Respondent Characteristics, Ages 25 to 61

Respondent Characteristic	No Disability	Disability	Activity Limitation	Special Equipment Use	Activity Limitation AND Special Equipment Use
All Respondents					
Less than $10,000	0.11	0.35	0.37	0.74	0.88
$10,000 to $24,999	0.21	0.45	0.47	0.92	1.05
$25,000 to $49,999	0.23	0.42	0.44	0.84	0.95
$50,000 to $74,999	0.20	0.35	0.36	0.66	0.72
$75,000 or More	0.25	0.44	0.46	0.78	0.84
Male					
Less than $10,000	0.16	0.50	0.53	1.19	1.48
$10,000 to $24,999	0.34	0.71	0.74	1.33	1.59
$25,000 to $49,999	0.37	0.67	0.70	1.26	1.47
$50,000 to $74,999	0.31	0.57	0.59	1.00	1.10
$75,000 or More	0.40	0.73	0.75	1.27	1.43
Female					
Less than $10,000	0.15	0.49	0.51	0.76	0.85
$10,000 to $24,999	0.26	0.58	0.58	1.26	1.34
$25,000 to $49,999	0.28	0.53	0.54	1.06	1.15
$50,000 to $74,999	0.26	0.42	0.43	0.82	0.92
$75,000 or More	0.31	0.54	0.55	0.73	0.67
White					
Less than $10,000	0.11	0.37	0.38	0.90	1.09
$10,000 to $24,999	0.22	0.48	0.50	1.03	1.19
$25,000 to $49,999	0.25	0.45	0.46	0.88	0.99
$50,000 to $74,999	0.22	0.40	0.40	0.78	0.84
$75,000 or More	0.28	0.50	0.51	0.96	1.03
Black/African American					
Less than $10,000	0.44	1.31	1.36	1.7	1.84
$10,000 to $24,999	0.76	1.56	1.63	2.34	2.63
$25,000 to $49,999	0.77	1.31	1.37	1.93	2.17
$50,000 to $74,999	0.64	1.04	1.09	1.64	1.92
$75,000 or More	0.72	1.12	1.18	1.09	1.19

(Continued)

Appendix C.

Table C-5. (Continued) 2006 BRFSS Household Income Estimates, Ages 25 to 61

	No Disability	Disability	Activity Limitation	Special Equipment Use	Activity Limitation AND Special Equipment Use
Asian	0.37	4.46	4.64	0.77	0.98
Less than $10,000	0.92	4.91	5.05	17.27	21.42
$10,000 to $24,999	1.57	4.73	4.90	12.05	15.05
$25,000 to $49,999	1.52	2.45	2.55	1.06	1.32
$50,000 to $74,999	1.86	6.09	6.29	14.12	16.98
$75,000 or More					
Native American	1.07	3.70	3.82	5.32	5.87
Less than $10,000	2.42	3.61	3.70	5.94	6.42
$10,000 to $24,999	2.45	3.90	4.02	3.87	4.01
$25,000 to $49,999	1.78	2.22	2.30	4.89	5.43
$50,000 to $74,999	2.89	2.62	2.69	1.53	1.18
$75,000 or More					
Other					
Less than $10,000	0.63	1.30	1.36	2.02	2.37
$10,000 to $24,999	1.09	1.95	1.98	3.89	4.18
$25,000 to $49,999	1.07	2.07	2.13	4.50	5.08
$50,000 to $74,999	0.78	1.37	1.42	2.15	2.46
$75,000 or More	0.86	1.25	1.30	2.36	2.65
Non-Hispanic					
Less than $10,000	0.07	0.34	0.36	0.77	0.92
$10,000 to $24,999	0.15	0.42	0.44	0.87	1.01
$25,000 to $49,999	0.22	0.43	0.45	0.88	1.00
$50,000 to $74,999	0.21	0.37	0.37	0.68	0.73
$75,000 or More	0.26	0.46	0.47	0.83	0.89
Hispanic					
Less than $10,000	0.58	1.78	1.87	2.36	2.91
$10,000 to $24,999	1.00	2.33	2.40	4.15	4.73
$25,000 to $49,999	0.92	1.68	1.74	2.59	2.68
$50,000 to $74,999	0.56	1.08	1.14	2.62	3.26
$75,000 or More	0.65	1.42	1.47	2.00	2.13

(Continued)

Appendix C.

Table C-5. (Continued) 2006 BRFSS Household Income Estimates Ages 25 to 61

	No Disability	Disability	Activity Limitation	Special Equipment Use	Activity Limitation AND Special Equipment Use
Less than High School					
Less than $10,000	0.92	1.53	1.59	2.50	2.83
$10,000 to $24,999	1.33	1.69	1.75	2.84	3.17
$25,000 to $49,999	1.15	1.23	1.27	1.63	1.79
$50,000 to $74,999	0.43	0.36	0.38	0.39	0.45
$75,000 or More	0.65	0.32	0.31	0.57	0.52
High School					
Less than $10,000	0.21	0.63	0.65	1.13	1.27
$10,000 to $24,999	0.44	0.86	0.88	1.65	1.76
$25,000 to $49,999	0.49	0.81	0.83	1.44	1.50
$50,000 to $74,999	0.38	0.66	0.68	1.15	1.24
$75,000 or More	0.39	0.61	0.63	0.84	0.81
More than High School					
Less than $10,000	0.07	0.39	0.41	0.98	1.23
$10,000 to $24,999	0.16	0.48	0.50	1.02	1.20
$25,000 to $49,999	0.25	0.54	0.56	1.19	1.41
$50,000 to $74,999	0.26	0.48	0.50	0.99	1.12
$75,000 or More	0.31	0.64	0.66	1.23	1.40

Source: Author's calculation from the 2006 BRFSS

Appendix C.

Table C-6. Standard Errors for 2006 BRFSS State Level Prevalence Rate Estimates, Ages 25-61

State	No Disability	Disability	Activity Limitation	Special Equipment Use	Activity Limitation AND Special Equipment Use
Alabama	1.20	1.20	1.19	0.82	0.78
Alaska	1.49	1.49	1.42	0.90	0.72
Arizona	1.30	1.30	1.26	0.63	0.55
Arkansas	0.83	0.83	0.82	0.48	0.45
California	0.81	0.81	0.80	0.44	0.41
Colorado	0.67	0.67	0.66	0.31	0.28
Connecticut	0.66	0.66	0.64	0.34	0.29
Delaware	1.17	1.17	1.15	0.50	0.41
District of Columbia	0.91	0.91	0.89	0.58	0.55
Florida	0.71	0.71	0.69	0.40	0.37
Georgia	0.74	0.74	0.71	0.42	0.36
Hawaii	0.67	0.67	0.66	0.36	0.31
Idaho	0.84	0.84	0.83	0.35	0.31
Illinois	0.78	0.78	0.77	0.48	0.45
Indiana	0.70	0.70	0.69	0.35	0.33
Iowa	0.70	0.70	0.67	0.38	0.32
Kansas	0.59	0.59	0.58	0.29	0.27
Kentucky	1.15	1.15	1.14	0.68	0.64
Louisiana	0.71	0.71	0.68	0.41	0.34
Maine	0.95	0.95	0.94	0.51	0.45
Maryland	0.67	0.67	0.65	0.39	0.34
Massachusetts	0.62	0.62	0.61	0.27	0.23
Michigan	0.83	0.83	0.81	0.44	0.40
Minnesota	0.80	0.80	0.77	0.42	0.33
Mississippi	0.80	0.80	0.79	0.44	0.41
Missouri	1.10	1.10	1.09	0.55	0.52
Montana	0.81	0.81	0.79	0.43	0.35
Nebraska	0.68	0.68	0.65	0.36	0.30
Nevada	1.27	1.27	1.25	0.71	0.65
New Hampshire	0.71	0.71	0.70	0.34	0.31
New Jersey	0.53	0.53	0.52	0.27	0.24
New Mexico	0.78	0.78	0.77	0.45	0.41
New York	0.74	0.74	0.72	0.38	0.35
North Carolina	0.53	0.53	0.52	0.30	0.28
North Dakota	0.78	0.78	0.75	0.36	0.27

(Continued)

Appendix C.

Table C-6. (Continued) Standard Errors for 2006 BRFSS State Level Prevalence Rate Estimates, Ages 25-61

State	No Disability	Disability	Activity Limitation	Special Equipment Use	Activity Limitation AND Special Equipment Use
Ohio	1.38	1.38	1.35	0.84	0.78
Oklahoma	0.81	0.81	0.80	0.48	0.46
Oregon	0.93	0.93	0.92	0.51	0.46
Pennsylvania	0.81	0.81	0.80	0.45	0.42
Rhode Island	0.89	0.89	0.87	0.49	0.44
South Carolina	0.68	0.68	0.67	0.39	0.35
South Dakota	0.71	0.71	0.70	0.34	0.30
Tennessee	1.02	1.02	0.99	0.64	0.57
Texas	1.03	1.03	1.02	0.49	0.45
Utah	0.78	0.78	0.75	0.42	0.36
Vermont	0.68	0.68	0.68	0.31	0.28
Virginia	1.13	1.13	1.11	0.66	0.61
Washington	0.48	0.48	0.47	0.26	0.23
West Virginia	1.04	1.04	1.03	0.65	0.62
Wisconsin	0.76	0.76	0.73	0.43	0.36
Wyoming	0.81	0.81	0.78	0.44	0.36
Puerto Rico	0.92	0.92	0.91	0.50	0.48
U.S. Virgin Islands	0.81	0.81	0.78	0.46	0.39

Source: Author's calculation from the 2006 BRFSS

Appendix C.

Table C-7. Standard Errors for 2006 BRFSS State Level Employment Rate Estimates, Ages 25-61

State	No Disability	Disability	Activity Limitation	Special Equipment Use	Activity Limitation AND Special Equipment Use
Alabama	1.22	2.66	2.72	4.03	3.88
Alaska	1.72	3.85	3.91	9.12	9.51
Arizona	1.53	3.82	3.84	6.56	7.03
Arkansas	0.86	2.08	2.12	3.46	3.23
California	0.93	2.22	2.28	3.99	4.06
Colorado	0.74	2.05	2.09	4.32	4.58
Connecticut	0.69	2.08	2.15	4.40	4.62
Delaware	1.07	2.77	2.92	5.43	6.06
District of Columbia	1.08	3.23	3.35	5.81	6.57
Florida	0.72	1.99	2.05	3.70	3.72
Georgia	0.82	2.15	2.22	3.80	3.90
Hawaii	0.85	2.50	2.58	5.11	6.05
Idaho	0.81	2.39	2.44	5.29	5.37
Illinois	0.87	2.64	2.71	5.15	5.72
Indiana	0.80	2.14	2.18	3.58	3.73
Iowa	0.70	2.38	2.53	4.50	5.04
Kansas	0.59	1.72	1.75	3.60	3.63
Kentucky	1.28	2.43	2.48	4.41	4.60
Louisiana	0.85	2.00	2.05	3.41	2.69
Maine	0.86	2.39	2.46	5.04	5.50
Maryland	0.68	2.04	2.10	4.20	4.60
Massachusetts	0.65	1.91	1.94	3.81	3.96
Michigan	0.90	2.17	2.23	3.84	3.85
Minnesota	0.78	2.14	2.24	4.77	5.84
Mississippi	0.85	1.95	1.98	3.24	3.27
Missouri	1.23	2.67	2.75	3.90	3.67
Montana	0.79	2.02	2.07	5.00	5.09
Nebraska	0.69	2.03	2.05	4.94	5.10
Nevada	1.35	3.49	3.62	6.27	6.76
New Hampshire	0.72	1.97	2.02	4.36	4.51
New Jersey	0.62	1.80	1.85	3.78	4.16
New Mexico	0.92	2.05	2.11	3.53	3.62
New York	0.86	2.42	2.49	4.79	5.35
North Carolina	0.52	1.47	1.51	2.89	3.12
North Dakota	0.77	2.50	2.63	5.82	7.40

(Continued)

Appendix C.

Table C-7. (continued) Standard Errors for 2006 BRFSS State Level Employment Rate Estimates, Ages 25-61

State	No Disability	Disability	Activity Limitation	Special Equipment Use	Activity Limitation AND Special Equipment Use
Ohio	1.48	3.45	3.52	7.07	6.83
Oklahoma	0.83	1.82	1.85	2.73	2.65
Oregon	0.91	2.17	2.21	4.51	4.75
Pennsylvania	0.82	2.38	2.45	4.59	5.02
Rhode Island	0.87	2.63	2.68	5.04	5.31
South Carolina	0.73	1.95	1.99	3.46	3.29
South Dakota	0.62	2.06	2.13	4.76	5.17
Tennessee	1.11	2.81	2.91	4.59	4.45
Texas	1.21	3.10	3.22	4.08	2.93
Utah	0.91	2.24	2.32	5.05	6.10
Vermont	0.62	1.77	1.82	4.33	4.94
Virginia	1.09	2.27	2.39	5.39	7.49
Washington	0.52	1.09	1.12	2.27	2.51
West Virginia	1.10	2.24	2.29	3.16	2.90
Wisconsin	0.82	2.42	2.54	4.97	4.67
Wyoming	0.73	2.20	2.22	5.34	5.36
Puerto Rico	1.08	2.39	2.44	3.85	4.11
U.S. Virgin Islands	0.96	3.84	3.89	9.25	11.18

Source: Author's calculation from the 2006 BRFSS

Appendix C.

Table C-8. Standard Errors for 2006 BRFSS Statistics for Quality of Life and Healthy Days Distribution

	Percent without Disability	Percent with Disability	Percent with Activity Limitation	Percent with Special Equipment Use	Percent with Activity Limitation AND Special Equipment Use
Number of Days in Past 30 days: Physical Health Not Good					
% Missing	0.04	0.11	0.11	0.18	0.19
% 0 Days	0.24	0.49	0.49	0.81	0.77
% 1-2 Days	0.18	0.31	0.32	0.55	0.60
% 3-13 Days	0.17	0.41	0.43	0.76	0.88
% 14-29 Days	0.09	0.36	0.38	0.78	0.91
% 30 Days	0.06	0.40	0.41	0.96	1.11
Number of Days in Past 30 days: Mental Health Not Good					
% Missing	0.04	0.11	0.11	0.16	0.18
% 0 Days	0.25	0.51	0.53	0.96	1.04
% 1-2 Days	0.17	0.30	0.31	0.70	0.82
% 3-13 Days	0.19	0.41	0.42	0.74	0.84
% 14-29 Days	0.11	0.34	0.35	0.75	0.89
% 30 Days	0.08	0.36	0.38	0.80	0.96
Number of Days in Past 30 days: Activity Limitation					
% Missing	0.04	0.10	0.11	0.22	0.26
% N/A (no physical or mental days)	0.27	0.43	0.43	0.74	0.69
% 0 Days	0.25	0.44	0.46	0.83	0.93
% 1-2 Days	0.14	0.31	0.32	0.62	0.71
% 3-13 Days	0.14	0.38	0.40	0.65	0.75
% 14-29 Days	0.05	0.33	0.34	0.77	0.92
% 30 Days	0.04	0.36	0.37	0.84	1.00
Depression (PHQ-8)*					
% Missing (within sample)	0.22	0.35	0.35	0.73	0.77
% No Depression	0.32	0.68	0.70	1.3	1.46
% Mild Depression	0.22	0.55	0.56	0.95	1.07
% Moderate Depression	0.12	0.42	0.44	0.89	1.07
% Moderately Severe Depression	0.09	0.39	0.40	0.87	1.05
% Severe Depression	0.05	0.35	0.36	0.78	0.94

Source: Author's calculation from the 2006 BRFSS

* Only represents the respondents in the 36 regions that included the Anxiety and Depression module in 2006.

Appendix C.

Table C-9. Standard Errors for 2006 BRFSS Self-Reported Health Status, Emotional Support and Life Satisfaction

	Percent without Disability	Percent with Disability	Percent with Activity Limitation	Percent with Special Equipment Use	Percent with Activity Limitation AND Special Equipment Use
General Health					
% Missing	0.02	0.05	0.05	0.07	0.09
% Excellent	0.23	0.31	0.32	0.47	0.45
% Very Good	0.25	0.43	0.44	0.84	0.92
% Good	0.25	0.48	0.49	0.87	0.96
% Fair	0.17	0.42	0.44	0.86	0.99
% Poor	0.05	0.35	0.37	0.91	1.07
Have Social & Emotional Support					
% Missing	0.15	0.24	0.24	0.42	0.40
% Always	0.27	0.49	0.51	1.00	1.13
% Usually	0.24	0.44	0.45	0.85	0.92
% Sometimes	0.18	0.41	0.42	0.78	0.90
% Rarely	0.09	0.3	0.31	0.56	0.67
% Never	0.12	0.22	0.23	0.56	0.67
Life Satisfaction					
% Missing	0.13	0.24	0.24	0.44	0.43
% Very satisfied	0.27	0.45	0.46	0.83	0.90
% Satisfied	0.27	0.51	0.53	1.02	1.15
% Dissatisfied	0.08	0.30	0.31	0.70	0.84
% Very dissatisfied	0.04	0.18	0.18	0.39	0.44

Source: Author's calculation from the 2006 BRFSS

Appendix C.

Table C-10. Standard Errors for 2006 BRFSS Health Insurance Coverage and Vaccinations

	Percent without Disability	Percent with Disability	Percent with Activity Limitation	Percent with Special Equipment Use	Percent with Activity Limitation AND Special Equipment Use
Health Care Coverage					
% Missing	0.02	0.06	0.06	0.21	0.25
% Uncovered	0.22	0.42	0.43	0.88	1.00
% Covered	0.22	0.42	0.43	0.90	1.02
Received Flu Vaccine					
% Missing	0.07	0.13	0.12	0.23	0.18
% Unvaccinated	0.22	0.47	0.49	0.99	1.13
% Vaccinated	0.21	0.47	0.48	0.98	1.12
Received Pneumonia Vaccine					
% Missing	0.17	0.31	0.32	0.61	0.64
% Unvaccinated	0.21	0.46	0.48	0.95	1.07
% Vaccinated	0.15	0.40	0.41	0.87	0.99

Source: Author's calculation from the 2006 BRFSS

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