

# Behavioral Risk Factor Surveillance System

## History



In 1984, the Centers for Disease Control and Prevention (CDC) established the Behavioral Risk Factor Surveillance System (BRFSS). BRFSS is the nation's premier system of health surveys that collect state data about U.S. residents regarding their health-related risk behaviors and events, chronic health conditions, and use of preventive services.

For most states, BRFSS is the only source of state-based health risk behavior data related to chronic disease prevalence. These data help monitor progress toward Healthy People 2020 objectives for both the states and the nation.

Currently, BRFSS collects data in all 50 states as well as the District of Columbia and three U.S. territories. BRFSS completes more than 400,000 adult interviews each year, making it the largest continuously conducted multi-mode (mail, landline phone, and cell phone) health survey system in the world.

The survey is administered by the Division of Behavioral Surveillance in CDC's Public Health Surveillance and Informatics Program Office; Office of Surveillance, Epidemiology, and Laboratory Services.



## A Powerful Tool for Behavioral Surveillance

BRFSS has a long history in behavioral and chronic disease surveillance. Fifteen states participated in the first BRFSS, conducted in 1984. In this survey, BRFSS collected data on the six individual-level behavioral health risk factors associated with the leading causes of premature mortality and morbidity among adults: 1) cigarette smoking, 2) alcohol use, 3) physical activity, 4) diet, 5) hypertension, and 6) safety belt use. By 1993, BRFSS had become a nationwide system and the total sample size exceeded 100,000.

By collecting behavioral health risk data at the state and local level, BRFSS has become a powerful tool for targeting and building health promotion activities. As a result, BRFSS users have increasingly demanded more data and asked for more questions on the survey.

Currently, there is a wide sponsorship of the BRFSS survey, including most divisions in the CDC National Center for Chronic Disease Prevention and Health Promotion; other CDC centers; and federal agencies, such as the Health Resources and Services Administration, Administration on Aging, Department of Veterans Affairs, and Substance Abuse and Mental Health Services Administration.

In addition, countries eager to develop similar surveillance systems have requested technical assistance from BRFSS staff. These countries include Australia, Brazil, Canada, China, Egypt, Italy, Jordan, South Korea, Mexico, nations in the Caribbean, and Vietnam.

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## BRFSS In Action

Federal, state, and local health officials use BRFSS as a flexible and timely tool for monitoring and responding to public health emergencies, such as the seasonal influenza vaccine shortage of 2004–2005 and the effects of hurricanes Katrina, Rita, and Wilma in 2005. In addition, since September 2009, federal, state, and local health agencies have used BRFSS to monitor the prevalence rates of influenza-like illness and the uptake of the H1N1 vaccine to help with pandemic planning. Most recently, BRFSS data are being considered as part of CDC's response to drought-related threats to public health.

BRFSS branch staff also provide technical assistance and support to public health intervention initiatives such as the Communities Putting Prevention to Work (CPPW) project. CPPW is a locally driven American Recovery and Reinvestment Act of 2009 initiative that, along with other federal legislation, helps 50 participating communities tackle obesity and tobacco use—two leading preventable causes of death and disability in the United States.

BRFSS also collects data on important emerging health issues such as mental illness and provides surveillance data by state on depression, anxiety, and other mental health topics. Most recently, CDC used the existing capacity and infrastructure of BRFSS to conduct a separate stand-alone survey designed to monitor the mental and behavioral health status of the population affected by the Deepwater Horizon oil spill in April 2010. The Gulf States Population Survey collected about 40,000 surveys during the 12-month data collection period. Survey results are expected to be released in 2012.

## Core and Customized Survey Products

In addition to using a BRFSS core survey, where some core questions are asked every year (fixed core) and others are asked every other year (rotating core), states have the option to use additional modules, which are standardized sets of questions on specific topics. In 2000, for example, BRFSS offered states 19 optional modules that could be added to a core survey of approximately 86 questions. By 2011, CDC had increased the number of available optional modules to 34 topic areas, including anxiety and depression, adverse childhood experiences, cancer screening, and general preparedness.

Since 1993, BRFSS also has included space for as many as four emerging core questions for high-priority topics such as vaccine shortage, H1N1, and influenza-like illness.

## Legislation Supported by BRFSS Data

Currently, all states collect BRFSS data to help them establish and track state and local health objectives, plan health programs, implement disease prevention and health promotion activities, and monitor trends. Nearly two thirds of states use BRFSS data to support health-related legislative efforts, including the following examples:

- Delaware: BRFSS data informed the passage of a bill creating the Healthy Lifestyle and Tobacco-Related Disease Prevention Fund.
- Illinois: BRFSS data supported two successful legislative initiatives: one requiring no-smoking areas in public buildings and one requiring the inclusion of mammography screening in all health insurance coverage packages.
- Nevada: BRFSS data documenting the state's high rates of chronic and binge drinking were used to support legislation to place a per-gallon tax on distilled alcohol at the wholesale level. These efforts succeeded only because the data were state specific.

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## Local Area Data

As BRFSS has become more useful, users have demanded more localized data at the district, county, or city level. Although CDC designed BRFSS to produce state-level estimates, growth in the sample size has helped BRFSS produce local estimates.

The need for prevalence estimates at the local level has led to Selected Metropolitan/Micropolitan Area Risk Trends (SMART) BRFSS. With SMART BRFSS, data from the 1997–2000 BRFSS surveys are used to calculate estimates for selected urban areas in the United States with at least 250 completed interviews. This new use of BRFSS data has yielded estimates for nearly 200 metropolitan areas for the 1997–1999 combined data. Sharp increases in sample size since 2000 have allowed for more city- and county-level estimates, ranging from 100 metropolitan/micropolitan statistical areas (MMSAs) in 2002 to 194 MMSAs in 2010.

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Preliminary results have shown that the prevalence rates of certain behavioral health risks and chronic conditions vary across cities, not unlike the differences found across states. Variation in prevalence rates is also observed when cities are compared with their surrounding metropolitan areas and with the rest of the state. This new use of BRFSS data fills a critical public health need for local area surveillance data to support targeted program implementation and evaluation. These data should help cities to better plan and direct their prevention efforts.

In addition to these achievements, there have been many analyses of BRFSS data and hundreds of published articles and reports by CDC, state health departments, nonprofit institutions, journalists, and others. Many topics have been examined and a number of methodological investigations have been conducted by using BRFSS data.

## BRFSS Future Directions

Over time, BRFSS has evolved in many ways to respond to the need for timely and reliable public health data, adapt to changes in telecommunications technology, and address challenges related to conducting the surveys.

Notable BRFSS innovations that have been tested, implemented, and evaluated include a new weighting methodology that is more representative of the population within states and enhanced data collection by alternative modes such as cell phones.

CDC's future plans for BRFSS include these goals:

- working closely with state and federal partners to ensure that BRFSS continues to provide data that are useful for public health research and practice and for state and local health policy decisions;
- increasing cell phone interviews as a proportion of total completed BRFSS interviews;
- making BRFSS more representative by exploring new ways to interview hard-to-reach respondents;
- building upon existing BRFSS infrastructure to assess important emerging health issues such as access to care, preventive services, and mental health; and
- piloting other data collection modes, including mail and Web surveys.

**Access BRFSS data, reports, methodology, and questionnaires at <http://www.cdc.gov/brfss>.**

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