



Behavioral Risk Factor Surveillance System

Operational and User's Guide

Version 3.0

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1. Introduction

In 1984, the Centers for Disease Control and Prevention (CDC) initiated the state-based Behavioral Risk Factor Surveillance System (BRFSS) to collect prevalence data on risk behaviors and preventive health practices that affect health status.

The BRFSS is a cross-sectional telephone survey conducted by state health departments with technical and methodologic assistance provided by CDC. States conduct monthly telephone surveillance using a standardized questionnaire to determine the distribution of risk behaviors and health practices among adults. Responses are forwarded to CDC, where the monthly data are aggregated for each state, returned with standard tabulations, and published at the year's end by each state.

The BRFSS questionnaire was developed jointly by CDC's Behavioral Surveillance Branch (BSB) and the states. Data derived from the questionnaire provide health departments, public health officials, and policymakers with necessary behavioral information. When combined with mortality and morbidity statistics, these data enable public health officials to establish policies and priorities and to initiate and assess health promotion strategies.

2. About This Guide

This section provides information about using and navigating this document once you have opened it in Adobe Acrobat. Providing the guide as a PDF (portable document format) document allows it to be entirely navigable online as well as formatted for clean, continuous printing.

Using the Table of Contents

The table of contents page provides a listing for each of the topics in the BRFSS site. Clicking on a section title in the Table of Contents will link you to that section. Please note that clicking the **Back** arrow button in your browser (at the top of your screen) will return you to the Web page you were viewing before you accessed this guide.

Using the Bookmarks Tab

On the left of your screen, there should be a tab labeled **Bookmarks**. Clicking that tab will present you with a full, linked list of this document's sections at the left of your screen. Click the titles to navigate throughout the document. Click the plus sign (+) to expand the menus or the minus sign (-) to collapse them. To close the Bookmarks menu, click the X at the top right corner of the window containing the Bookmarks menu.

If you do not see the Bookmarks tab, you can visit <http://www.cdc.gov/nccdphp/shared/pdfinfo.htm> to download a recent version of Adobe's free Acrobat Reader software.

3. BRFSS Process

Annual questionnaire construction and distribution

1. At the BRFSS Working Group annual meeting in February, program representatives from National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP) and other parts of CDC are given an opportunity to propose to BSB additional and emerging BRFSS questions for consideration during the annual conference.
2. At the annual conference, states provide input and feedback on the proposed content of the core components and optional modules.
3. After the conference, taking into consideration state priorities, potential funding and other practical aspects, BSB designs core components and optional modules, produces data processing layouts and sends them to the states. States add questions that they have designed or acquired.

Sample selection and screening

1. States obtain samples of telephone numbers from BSB.
2. States review sampling methodology with a state statistician and BSB to make sure data collection procedures are in place to follow the methodology. If any change in sampling methodology is considered, states MUST consult with BSB before making changes.

Monthly data collection

1. States conduct interviews during each month in accordance with a prescribed protocol, and incorporate surveillance results into computer-assisted telephone interviewing (CATI) computer files.
2. States edit and correct completed interviews each month.

Data management and reporting

1. States submit data.
2. BSB weights data annually according to state-specific population estimates provided for each state.
3. BSB produces and distributes yearly, state-specific, standard cross-tabulations of responses and risk-factor prevalence estimates for statewide core and optional module data, nationwide summaries of state-specific risk-factor prevalence estimates, and nationwide summaries of state-specific response rates.
4. BSB and states publish analyses of data.

4. Survey Protocol

The following is the BRFSS survey protocol:

1. All states must ask the core component questions without modification. States may choose to add any, all, or none of the optional modules and state-added questions after the core component.
2. Systematic, unobtrusive electronic monitoring should be a routine and integral part of monthly survey procedures for all interviewers.
3. An eligible household is a housing unit that has a separate entrance, where occupants eat separately from other persons on the property, and that is occupied by its members as their principal or secondary place of residence.

Noneligible households are (1) vacation homes not occupied by household members for more than 30 days per year, (2) group homes, and (3) institutions.

4. Eligible household members include all related adults (aged 18 years or older), unrelated adults, roomers, and domestic workers who consider the household their home, even though they may not be home at the time of the call.

Household members do not include adult family members who are currently living elsewhere.

5. Proxy interviews are not conducted within the BRFSS. Individual respondents are randomly selected from all adults aged 18 years and older living in a household and are interviewed in accordance with BRFSS protocol.
6. An interview is considered complete if data are collected for age, race, and sex. If values on age or race are not entered, imputed values will be generated and used only to assign post-stratification weights.
7. Unless electronic monitoring of interviewers is being routinely conducted, a 5% random sample of each month's interviews must be called back to verify selected responses for quality assurance. (See Verification Callbacks in the Quality Assurance section.)
8. With the exception of verbally abusive respondents, eligible persons who initially refuse to be interviewed will be contacted at least one additional time and given the opportunity to be interviewed. Preferably, this second contact will be made by a supervisor or a different interviewer.
9. Call attempts on all sample pieces should be completed during the calendar month of the sample selection. However, if there are unresolved sample pieces remaining without the required call-backs at the end of the month, calls should continue until each sample piece can be given a final disposition according to the BRFSS disposition rules. If it is repeatedly necessary to make additional calls after the end of the month, steps should be taken to accelerate calling earlier in the month by increasing interviewer hours. (See the Data Collection and Submission Schedule in the Calendar section.)

5. Staff

This section provides information about the following topics:

- [Managing](#)
- [Recruiting](#)
- [Training](#)
- [BSB Role](#)
- [BRFSS Working Group](#)

Managing

Coordinator Responsibilities

The BRFSS coordinator is responsible for the overall administration of the BRFSS Questionnaire and ensuring data integrity through all steps of the BRFSS process. These responsibilities include the following:

1. Management and Staffing:

- Select appropriate staff to perform all necessary roles.
- Monitor performance of in-house staff and contractors.
- Ensure adequate training and retraining for all BRFSS staff.

2. Questionnaire Development:

- Develop or acquire state-added questions and oversee selection of optional modules that meet the needs of the state.

3. Survey Methodology:

- Ensure that survey design and implementation follow BRFSS guidelines and BSB requirements.

4. Data Collection:


- Ensure that telephone interviews are conducted according to protocol.
- Ensure that data are properly edited, corrected, and submitted on time.
- Ensure that quality assurance statistics are monitored and quality assurance procedures are followed.


5. Funding:

- Manage the budget.
- Identify and secure sources of additional funding.

6. Data Analysis, Use, and Promotion:


- Promote the use of BRFSS DATA among Public Health Programs.
- Encourage the use of data for
 - policy development
 - program planning
 - program evaluation
 - priority setting
 - intervention design
 - trend assessment
 - risk group identification

	<p>North Carolina</p> <p>The most important responsibility of a BRFSS coordinator is to find time to devote to the analyses of the data once they are collected, and thus, to get the data used. Research assistants can compile draft versions of fact sheets, but can't do the statistical analyses.</p> <p>Advice: If possible, suggest a mutually beneficial relationship with another program in which the program shares the expertise of an in-house statistician in exchange for access to BRFSS data. For example, a Center for Health Statistics may have enough resources and interest in the BRFSS data to assign the part-time role of "BRFSS Liaison" to one of their statisticians. Another possibility would be to use the services of a statistician funded by a grant. (One statistician working with the Disability Program spends <25% time on BRFSS.)</p> <p>Advice for New Coordinators: Network and share information with other BRFSS Coordinators. The yearly conference is a must and will result in an abundance of useful information.</p>
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	<p>Alabama</p> <p>The most difficult responsibility as a BRFSS coordinator is securing enough funding to support the BRFSS unit each year. Funding received from CDC does not come close to covering the costs of operating the program so each year there is a struggle to find funding to supplement the federal funds.</p> <p>The most important responsibility of a coordinator is to make sure the BRFSS activities meet the needs of the health department in monitoring both the health status of the citizens in the state and the state's overall progress toward the Healthy People 2010 objectives. It is vital that the BRFSS unit collects and provides the data needed by the various programs within the health department.</p> <p>Advice: A coordinator needs to have good management skills as well as analysis skills. Good management skills are necessary to manage and solve annual funding problems and analysis skills, and are necessary to ensure that the BRFSS data are used to the fullest extent.</p>
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In addition to the six responsibilities mentioned earlier, coordinators must perform the following duties:

- Manage BRFSS staff
- Administer the BRFSS survey
- Ensure adherence to protocol
- Select optional modules
- Acquire, test, and secure funding for state-added questions
- Oversee data collection and management
- Oversee staff training
- Ensure respondent confidentiality
- Secure additional funding
- Encourage data use and promotion
- Perform data analysis
- Follow quality assurance procedures

	<p>Coordinators sometimes need to be creative in their staffing. In Colorado, staff roles are flexible and depend upon availability of staff from other areas of the health department. For example, Colorado has the following staff:</p> <ul style="list-style-type: none"> • Two supervisors — one responsible for all the interviewers, called the "Office Manager" and the second, a bilingual supervisor to assist with the Spanish survey • A communications specialist who compiles and publishes a 4-page newsletter containing BRFSS results • Researchers who perform various functions, such as one who was funded through a grant and is handling a small area analysis by county • A researcher who performs the role of CATI manager and statistician, and who runs quality control reports and edits data • Up to 20 interviewers
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Primary Supervisor Responsibility: In-house Data Collection

A supervisor generally assumes responsibility for the day-to-day operations of survey administration. Most states will need more than one supervisor.

The supervisor is generally responsible for sample management. Sample management refers to controlling the release of telephone numbers to interviewers, tracking appointments made to complete the survey, and assigning proper disposition codes to interviews. Usually, the supervisor performs the following duties:

- Retrieval and entry of the sample
- Manual over-riding of the CATI system when necessary
- Rescheduling of missed appointments

The following are additional supervisor duties and responsibilities:

1. Survey Supervision:

- Schedules data collection activities
- Schedules re-calls and appointment calls
- Ensures adherence to prescribed procedures and protocols
- Attempts or assigns refusal conversion
- Makes decisions on unusual responses or coding problems
- Ensures that staff maintain respondent confidentiality
- Performs initial and refresher training for interviewers

2. Quality Assurance:

- Monitors interviews and evaluates interviewer performance
- Performs verification callbacks
- Assesses interviewing statistics
- Evaluates question-response frequencies
- Assesses quality assurance indicators

3. Procedure Adherence:

- Rules of replacement
- Disposition codes and calling rules
- Respondent selection
- Questionnaire administration
- Calling sequence
- Reassigning telephone numbers
- Converting refused interviews to completed interviews

Interviewing: Gathering the Data

Interviewers form the core of the BRFSS staff and are an essential part of survey research. BRFSS interviewers are the only link between the persons being surveyed and the public health officials who use the data. Competent interviewers help insure the integrity of the data.

The interviewer's job is to follow protocol and complete interviews honestly and accurately.

Interviewers must be able to do the following:

- Understand the nature and content of the questions.
- Ensure respondent confidentiality.
- Perform respondent selection procedures.
- Record responses properly.
- Ensure that the correct respondents are interviewed.
- Make quality a priority in all aspects of interviewing. Follow BRFSS protocol.
- Appropriately deal with interview problems.
- Attempt to convert refusals into complete interviews.

Data Processing: Making the Data Usable

All data collected must be properly processed before submission to BSB. A **CATI manager** usually performs this function in addition to keeping the CATI system running. All or parts of the data processing role can be filled by supervisors.

A CATI manager must be able to do the following:

- Set up and program CATI.
- Edit and correct monthly data.
- Submit data to BSB.
- Generate monthly quality assurance reports.
- Generate data reports.

Statistical Support



Any changes in the sampling design must be made in consultation with BSB.

- Statistical consultation is strongly recommended throughout the surveillance process, particularly during data analysis.
- BSB staff members are available to provide assistance with both sampling design and the data collection process.
- Health departments should enlist the aid of their own statisticians for analysis of state data. However, BSB may provide some support when staffing is available and warranted.

Recruiting

This subsection provides information about the following topics: recruitment sources, interviewers, supervisors, and CATI managers.

Recruitment Sources

BRFSS staff can be recruited from a variety of sources, such as

- Job placement services in community organizations
- Temporary service agencies
- Local marketing research firms that subcontract
- Health department personnel working for extra pay
- College students
- Retired persons

Interviewers

Interviewing is part-time or temporary work, usually 10 to 30 hours a month, primarily nights and weekends.



Many Fortune 500 companies conduct telephone interviews to recruit employees who will have contact with customers over the telephone.

Skills:

- Strong social, interpersonal, and communication skills
- Computer proficiency
- Ability to follow detailed instructions
- Self-motivation
- Good telephone demeanor
- Ability to work well with the public
- Fluency in languages spoken by the target audience (optional)

Aptitude:

Assess the applicant's level of comfort in asking highly sensitive questions to persons over the telephone — for example, questions about sexual behavior. Assess applicant's attitude toward refusals and rejection.

Voice quality rating:

Listen to the applicant's voice on the telephone. Neutral, even tones are the best.

Demeanor:

- Conscientious
- Courteous
- Persistent
- Patient
- Friendly
- Self-confident

Supervisors

Supervisors oversee daily data collection activities and are responsible for ensuring quality interviews and adherence to protocol. Supervisors are usually recruited from among interviewers.

Most states will need the following supervisors:

- One supervisor should be in charge of the overall BRFSS operation.
- A few supervisors should monitor interviews for consistency and accuracy.
- Both a day and a night supervisor are normally necessary.

Skills:

- Strong organizational and managerial skills
- Computer proficiency
- Ability to follow detailed instructions
- Self-motivation
- Good telephone demeanor
- Ability to work well with the public
- Fluency in languages spoken by the target audience (optional)

CATI Managers

CATI managers need to have strong computer and programming skills. Supervisors often fill this role. CATI management is part-time or temporary work that requires more hours at the beginning and at the end of the monthly data collection cycle.

Skills:

- Knowledge of computer networks
- Ability to follow programming logic and formulate queries for reports using CATI software
- Ability to follow BRFSS protocol
- Ability to meet deadlines

Training

The following is a brief overview of interviewer training:

Topic	Discussion Points
Overview	<ul style="list-style-type: none"> • BRFSS background • Elements of a surveillance system • Surveillance procedures • BRFSS roles • Interviewer responsibilities
Questionnaire	<ul style="list-style-type: none"> • Review of survey questions • Pronunciation of medical terms • Disposition codes • CATI training • Respondent selection process • Refusal conversion
Quality Assurance	<ul style="list-style-type: none"> • Quality control procedures • BRFSS protocol
Administration	<ul style="list-style-type: none"> • Work scheduling • Refusals and appointment assignments • Legitimacy verification calls

Ensuring Comfort With Questions

An important issue that should be addressed during training is the interviewers' comfort with the questions. Each year, the interviewers in North Carolina are given a copy of the new questionnaire to take home and read. They are instructed to report any questions that make them uncomfortable.

Reasons for discomfort have included the following:

- **Unfamiliar terms:** For example, questions about "myocardial infarction," and "glycosilated hemoglobin" may be intimidating. When callers respond with "What does that mean?" an interviewer response such as "I don't know; I'm just an interviewer," does not inspire much respondent confidence.

Solution: One of the interviewers in North Carolina is a nurse, and she reviews the questionnaire to define any terms that might be unfamiliar to the other interviewers.

- **Sexual assault questions:** Sometimes respondents believe that the interviewers are trained health department nurses, and they may become emotional describing what happened to them. This response occurs at least a few times each year.

Solution: Prior to the interview, the supervisor contacted the local Rape Crisis Center and collected a list of phone numbers of local centers and hotlines, so that these could be provided when needed.

- **Intimidating question wording:**
1) For example, to elderly respondents, some questions (e.g., those regarding hypertension) seem to be like a test in which their answers are either right or wrong.

Solution: Reassure the respondents that this is not a test and there are no right or wrong answers.

2) Another example is a question about driving while intoxicated. Some respondents are suspicious about how the information will be used (e.g., for prosecution).

Solution: Let the respondents know that the information being collected will remain confidential, and that their behavior is not being judged. The statistics are important for the "social good," or the health of people throughout the state.



Refresher Training

Training interviewers so that the information they collect is accurate is one of the most important duties or components of a coordinator's or supervisor's job. Refresher training for interviewers should be an ongoing process. After initial training, refresher training should occur:

- Yearly for each new questionnaire.
- Monthly for state-added questions that have changed or been added.
- As indicated by the interviewer monitoring or by interviewer statistics.

Refresher Training, North Carolina

In addition to formal training for every new question or module, interviewers in North Carolina are also given informal, on-the-spot training whenever a problem arises.

For example, interviewers are presented with a scenario like the following: An interviewer has just been hung up on after listening to some verbal abuse from someone she hoped would be a potential respondent. Should that person be called back by another interviewer attempting to convert a refusal to a completed interview? What's the best way to handle this when it happens again?

Making a hands-on example of a real situation — especially one that has just happened — is a great way to provide training for interviewers. In North Carolina, when the above situation occurred, all the interviewers went on "standby" and discussed the situation as a group, according to the BRFSS supervisor there. (If the incident had happened in the evening, she might have opted instead to provide the informal training the first thing the next morning, before everyone logged on to the system). Not only does this on-the-spot training result in procedural consistency, it also allows for the sharing of the group's collective knowledge.



The Tables are Turned

In one recent case, an interviewer was uncertain how to handle a situation when a respondent began to share his political views after the interview was over. When the interviewers shared this example, the supervisor stopped everyone and gathered them together for a discussion. Her advice was to be courteous but not to give any personal political opinions. Her suggested example response was: "I'll be glad to listen to you, but my job relates just to this questionnaire. I'm not sure I can help you..." [after no more than 5-7 minutes, continue:] "Thank you for sharing your thoughts. I wish I could help. We appreciate your willingness to answer our questions, but now I really have to get back to work." An interviewer should respond in a similar manner if a respondent wants to discuss his or her religious convictions.

Refresher Training, North Carolina, continued

Group Learning

Refusal conversions are another great opportunity for informal, on-the-spot training. Interviewers can stop and tell the group, "I just got an interesting response to my attempt at a refusal conversion." The interviewer should then explain what happened and ask for advice and feedback from the group about better ways to handle a similar situation in the future. Using this type of group learning in the past, the interviewers in North Carolina have developed their own technique for refusal conversions. They have decided to play up the social conscience angle by saying something like: "Have you ever been watching the evening news, and heard Tom Brokaw or Peter Jennings say something like 'the CDC reports that such and such a number of people do such and such, which is bad for their health?'" (The respondent usually says "Yes.") "Well, this questionnaire and people like you are where they get that information." It works every time.

Handling the Unexpected

It is quite common for respondents to assume that interviewers are trained public health professionals, and will sometimes confide highly sensitive information. For example, when asking questions about sexual assault, interviewers in North Carolina are often faced with respondents who break down in tears. If this response occurs, interviewers have a readily available list of telephone numbers from the state's Rape Crisis Center to provide to the respondent. The Florida coordinator, in fact, created a guide that interviewers can use for such referrals.


Refresher Training, New Mexico

In New Mexico, the topics for the ongoing monthly training depend on needs. Refresher training is done on a monthly basis for all interviewers, and new interviewers get trained in three evenings. (This new hire training happens three to four times a year, when batches of new interviewers are hired at one time.) Monthly refresher training precedes a shift, lasts for about an hour, and is usually attended by seven or eight people who are scheduled to work that shift. Those interviewers who cannot make it to the group training (if they are on other shifts) get one-on-one training from supervisors.



Bias

The topics for the on-going monthly training depend on needs. A recent training session focused on the topic of bias because the supervisor had heard several conversations getting "chatty." For example, if a respondent says that they recently had a leg amputated, it is a natural, human inclination to provide sympathy and commiseration. Likewise, if a respondent says that they just quit smoking, it is a natural, human inclination to provide approval. However, this response by the interviewer introduces an element of bias. Rather than responding with a statement like "Oh, I can't imagine. That must be truly awful," praising them, or sharing a mention of one's own struggle to quit smoking, an interviewer can say something like "thank you...that is very important information." After the interview is over, an interviewer may share personal thoughts, but should simply thank the respondent.

	<p>Refresher Training, Florida</p> <p>In Florida, interviewers found that a high percentage of respondents were contemplating suicide at the time of the call. As a result of this finding, the Florida coordinator developed policies and training to address the issue of respondents in crisis.</p>
	<p>Respondents in Crisis</p> <p>The Florida coordinator created a policy to properly handle respondents in crisis situations: the interviewer must not hang up without first following procedure to ensure the health and well-being of the respondent on the telephone.</p> <p>Crisis situations include, but are not limited to, suicide attempts, emotional breakdowns when responding to questions (most commonly on topics of domestic violence, child abuse, or rape), and medical crises. All Florida interviewers have a reference book that they can use to refer respondents to local crisis centers, counseling services, help lines, or support groups.</p> <p>The goal of BRFSS on this issue is not to provide counseling or assistance on the telephone, but rather to provide respondents in crisis with the information that they need to see them through the crisis. All states must defer to local policy on this matter.</p>

BSB Role

State health departments conduct the annual BRFSS surveys with technical and methodologic assistance provided by CDC; therefore, those involved with BRFSS at the state level are encouraged to use the expertise of CDC's BSB staff in matters of training, technical assistance, and data management.

Coordinating with BSB

BSB provides the following support:

- BRFSS administration
- Ci3 CATI programming for Core questions
- Programming for state-based editing
- Telephone samples
- Data collection and sampling methodology

Call your project officer for help with the following:

- Providing annual questionnaire content
- Determining sample design and size
- Obtaining the surveillance sample
- Scheduling data collection activities
- Coordinating data management and analysis
- Training issues
- Developing the cooperative agreement application
- Quality assurance issues

BSB produces and distributes the following to states:

- Yearly state-specific standard cross-tabulations of responses and risk-factor prevalence estimates for statewide core and optional module data
- Nationwide summaries of state-specific risk-factor prevalence estimates
- Nationwide summaries of state-specific response rates

For states with stratified samples, BSB will also provide

- Weights calculated by region
- Programming that can be used to produce standard cross-tabulations and prevalence estimates by stratum

BRFSS Project Officer

The project officer serves as your primary point of contact, and as the liaison between the states and BSB.

The project officer conveys the state's needs, goals, and operations to BSB, and conveys protocols, availability of resources, and long-term goals of BSB to the states.

Your project officer is your first point of contact for the following:

- Guidance on the cooperative agreement application process.
- Coordinating the interchange of information among states.
- Information on sampling design, weighting issues, survey administration, and question development.
- Assistance with data sampling, data collection, and data processing problems. Strategies for data use, analysis, and promotion.
- Recommending approval of states' requests to amend program activities. Proposals to reallocate funds.
- Changes in state coordinator assignments.
- Monitoring of quality assurance indicators.
- Information on standard BRFSS protocols and procedures for data collection and submission.
- Identifying and obtaining funding and other resources for the states.
- Requests for assistance.

BRFSS Working Group

The BRFSS Working Group provides consultation on the surveillance system's maintenance and development. The Working Group is the forum in which states and CDC staff can provide input regarding the survey.

State Representatives

BRFSS participants from five states are selected to serve a two-year term. The terms overlap to provide continuity. The purpose of the representatives is to provide a collective voice for all states.

CDC Representatives

A representative from each division of the National Center for Chronic Disease Prevention and Health Promotion and representatives from other CDC centers and programs with an interest in behavioral risks provide input on data needs in their areas of public health expertise.

BSB Staff

The branch chief, deputy branch chief, and team leaders convene the working group, determine meeting agendas, and provide administrative and staff support. The staff provides support on operational and resource issues in the branch.

BRFSS Working Group Participation

Selection of new working group members usually occurs in March or April of each year. If you are interested in serving on the BRFSS Working Group for a two-year term, please complete the Working Group self-nomination form and return it to BSB. A sample of this form is on the following page. To print the form, click the printer icon in your browser, and print only that page. See the bottom of your screen for the page number.

Serving on the BRFSS working group is an opportunity to contribute your views and ideas and those of your state colleagues to deliberations on questionnaire development and operational issues. The next year will be especially critical because the redesign of the questionnaire for the next ten years will be addressed.

The time commitment consists of the following:

- Attending approximately three meetings each year.
- One meeting is the afternoon before each annual conference, and the other two are for one to two days in both February and August in Atlanta (travel is paid by the CDC).
- Participating in three or four teleconferences each year.
- Occasionally reviewing materials.
- Participating in dialogues with our office and your state counterparts via e-mail.

Previous state representatives have found the experience to be both gratifying and enlightening. If someone other than yourself serves as the project director in your state, please share this opportunity with them. The forms received will be reviewed with the assistance of the current state representatives on the BRFSS Working Group. The new representatives will be notified by the end of March.

6. Questionnaire Development

This section provides information about the following topics:

- [BRFSS Questionnaire](#)
- [Annual Conference](#)
- [Choosing Optional Modules](#)
- [Including State-Added Questions](#)
- [Questionnaire Construction](#)

BRFSS Questionnaire

BRFSS uses a standardized questionnaire with three parts:

1. [Core component](#), asked by all states:
 - Fixed core
 - Rotating core
 - Emerging issues
2. [Optional modules](#), chosen by the states.
3. [State-added questions](#) developed or acquired by the states.



BRFSS Protocol:

All states must ask the core component questions without modification. States may choose to add any, all, or none of the optional modules and state-added questions after asking the core component questions. Deviation from protocol will be addressed by the chief, survey operations, or the branch chief.

Core Component

- Core questions are considered and discussed during the Annual BRFSS Conference. (See more information about the annual conference later in this section.)
- Organizations can submit core questions to be added through the Core Question Proposal System.
- New questions can be proposed for inclusion in the fixed core, the rotating core, or the emerging issues section. More information about question requirements is provided in the [Proposing New Questions](#) area of the Reference Material section.



States that modify the wording or order of core questions will not be included in the annual BRFSS Summary Prevalence Report, *MMWR* Surveillance Summaries, or their corresponding electronic formats.

Core Component: Fixed Core

Fixed core component questions must be asked by all states.

Core Component: Rotating Core

Rotating core component questions are asked every other year.

Core Component: Emerging Issues

There are up to 10 emerging issues questions included within the core component. After one year, these questions are either discontinued or incorporated into the fixed core, rotating core, or optional modules. Emerging core questions typically focus on "late breaking" health issues. They are evaluated each year to determine their potential value in future surveys.

Optional Modules

The Optional Modules section of the Questionnaire comprises modules (standardized questions on various topics) from which a state may select to include as part of their questionnaire. A selected module must be used in its entirety and asked of all eligible respondents. If an optional module is modified in any way (e.g., if a question is omitted), then the questions will be treated as state-added questions. See the [Proposing New Questions](#) section of this guide for information on proposing questions or modules.

State-Added Questions

States are encouraged to gather data on additional topics related to their specific health priorities through the use of state-added questions.

Annual Conference

The BRFSS is further supported by the BRFSS Annual Conference. The purposes of the conference are to improve the BRFSS data collection process and help to develop the BRFSS questionnaire. CDC program staff, state BRFSS coordinators, analysts, data contractors, and BRFSS data users are encouraged to participate. Attendees of the annual conference can


- Share and compare methodologies and research.
- Present and refine techniques for uniform data collection.
- Discuss effective methods of data analysis, application, and dissemination.
- Discuss next year's draft questionnaire, modules, and emerging issues.
- Meet with the state working group representatives.
- Meet with representatives from states, CDC health program areas, and the CDC's Behavioral Surveillance Branch, as well as other data users.

Benefits	Attendees of the annual conference can participate in discussion groups on the development of the questionnaire; receive new information on BRFSS research; attend sessions on problem solving, data collection, and analysis, along with other topics; and participate in training sessions on specific topics.
Location	Atlanta and selected cities.
Cost	TBD-Conference registration fee and any pre-conference training fees will apply.

Request information about the annual conference using the online submission form found at <http://www.cdc.gov/brfss/comment.htm>.


Choosing Optional Modules

- A list of supported optional modules is sent to the states.
- The states must report their optional module selection to BSB by the deadline given for that year.
- Once chosen, optional modules must be used in their entirety and asked of all respondents.
- If the optional modules are modified in any way (for example, if a question is omitted) then they are treated as state-added questions.

	<p>Deciding On Optional Modules: Alabama</p> <p>The Alabama coordinator chooses optional modules based on the priorities of the Alabama health department and the needs of specific state programs.</p> <p>The Alabama Diabetes program is required to collect certain data, so collaboration with BRFSS can supply what they need. Likewise, some CDC-funded programs encourage using the BRFSS to collect data, so these programs allot some of their grant funds to the BRFSS for this purpose.</p> <p>Each year as plans are made for the survey layout for the upcoming year, the BRFSS coordinator distributes a memo to all departments and programs within the health department listing all available optional modules. Program directors are asked to contact the BRFSS if they are interested in using any of these modules to talk about their needs and available funding for data collection.</p> <p>In most cases, the other units within the health department contact the BRFSS to initiate a partnership. They are aware of the BRFSS through word-of-mouth, BRFSS reports, the <i>Healthy People 2010</i> initiative, and CDC.</p>
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Including State-Added Questions

States are encouraged to gather data on additional topics concerning their specific health priorities by using state-added questions. Questions should be evaluated for reliability, validity, and suitability for use in a telephone survey. Often, pre-tested questions from other surveys are available.


	The state coordinator for North Carolina offers this great piece of advice regarding state-added questions: Start early so you won't be in a crunch at the last minute!
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Process

1. Identify health data needs within your state.
2. Develop, identify, or solicit appropriate questions.
3. Be aware of limitations on the number of questions that you can use.
 - Length limitation (long surveys may result in premature call termination)
 - Administrative costs
 - Analysis costs
 - CATI programming costs
4. Proposed state-added questions should be carefully evaluated by using the question appraisal system, pre-testing, or both. Questions from existing instruments that have already been tested can also be used.
5. State-added questions must adhere to the BRFSS question layout and be restricted to the columns reserved for state-added questions. If the state does not follow the BRFSS question layout, BSB will not process the state data.
6. States must notify BSB to discuss the impact of modifications before making any changes to the questionnaire during the year.

	BSB does not provide PC-EDITS programming or standard tabulations for state-added questions.
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Examples

	<p>State-Added Questions, Delaware Example for 2000 questionnaire</p> <p>The state coordinator for Delaware has the policies and procedures online for requesting optional modules or submitting state-added questions.</p> <p>DELAWARE HEALTH AND SOCIAL SERVICES, DIVISION OF PUBLIC HEALTH</p> <p>Criteria and Procedures for Addition of Data Items to the Delaware Behavioral Risk Factor Surveillance System (BRFSS)</p> <p>The Delaware Division of Public Health (DPH) receives funds from a cooperative agreement with the Centers for Disease Control and Prevention (CDC) to operate a state-based Behavioral Risk Factor Surveillance System (BRFSS). Surveillance is conducted by the Center for Applied Demography and Survey Research of the University of Delaware, under contract with DPH. As part of the cooperative agreement, CDC requires that a specified core questionnaire be used each year.</p> <p>However, the system has a significant amount of flexibility to meet state needs. CDC annually provides the state with a set of approved modules that can be added to the core questionnaire. If the state uses any of these modules, CDC provides basic analysis and tabulation of the data, as they do for the core questionnaire.</p> <p>Delaware also has the opportunity to add local questions that can provide data to meet our specific needs. Locally-added questions, however, will not be analyzed by CDC. To add local questions, the DPH or the requesting program must provide resources to analyze the data.</p> <p>This document defines the procedures and criteria that were used to determine which questions and/or modules were added to the Delaware BRFSS. To facilitate the process of adding questions to the BRFSS in Delaware, the BRFSS program has established a BRFSS Advisory Committee.</p>
	<p>Limitations on Added Questions:</p> <p>Time - Research on telephone interview surveillance indicated that there is a time limit beyond which refusal rates increase (and survey quality decreases). Therefore, it was the goal of the Delaware BRFSS to restrict the length of the average interview to 15 or fewer minutes. To accomplish this goal, we strove for an average questionnaire length of about 90 questions, with 100 questions as an absolute maximum.</p> <p>Cost - The DPH agreement with the University of Delaware covered the cost of administering the core questionnaire and approximately one additional module per year (depending on length of the module and skip patterns). Each additional question resulted in additional cost, and programs requesting additional questions had to identify available funding to cover the added costs.</p> <p>Procedures for Requesting Added Data Items (Questions or Modules):</p> <p>Requests for the inclusion of additional data items, whether local questions or CDC-</p>

supported modules, were reviewed and acted on by the BRFSS coordinator, in consultation with the BRFSS Advisory Committee, the Center for Applied Demography and Survey Research staff, and the Behavioral Surveillance Branch of the CDC. If necessary to determine priorities, the committee and the BRFSS coordinator deferred to the division director for the final recommendation.

Decisions regarding which questions or modules were included in the survey were made by December 1 of the year preceding the survey. Surveillance was done on a calendar year basis.

Requests for additional data items were made to the BRFSS state coordinator during the summer of the year preceding the survey. (See calendar for approximate deadlines.) Late requests were considered only for the division's high-priority issues or for questions relating to timely or emergency issues, and were required to have the approval of the division director.

All requests for added data items were required to contain the following information for review:

1. Reason for the request, with a statement of its relationship to the *Healthy Delaware 2000* objectives.
2. How the data was to be used by the program or agency, and who was to benefit.
3. What other sources were considered for obtaining the data, and the reasons for choosing BRFSS.
4. If the request is not for a CDC-approved module, the number of questions to be asked and a draft of the proposed questions.
5. Amount and source of available funds to cover the request.
6. How frequently would the questions need to be asked (every year, every other year, every five years, and so forth) and justification.
7. Type of additional analysis the requesting program would conduct, and data needed for that analysis.
8. Prior use of the questions. (Had they been used in other states, other surveys? Had they been field tested?)

For locally developed questions, once accepted, the BRFSS coordinator would work with the requester, CDC, and the University of Delaware on question wording, question ordering and pilot testing. Whenever possible, questions were submitted for review to the appropriate center at CDC or to a question lab for cognitive testing. Cost of locally added questions was determined in negotiations with the University of Delaware.

Point-in-time surveys also may be considered if the request is for a large number of questions or a specific target audience and if funds are available.

Criteria for Selecting Modules:

- Was the module or set of questions necessary to provide baseline data or to track progress toward achievement of a *Healthy Delaware 2000* objective?
- How much length (in terms of both the number of questions and the time to ask them) would the questions add to the survey?
- How much would the questions cost? Was funding available to support the addition?

- Were other sources for the data available, or was there a more appropriate resource for collecting it?
- What was the feasibility of collecting an adequate sample size for the desired use?
- Did the request originate within the Department of Health and Social Services? Would the data received potentially benefit the division and the department?

Modules and locally-added questions were appended at the end of the core questionnaire to avoid biasing any responses to the core questions. Core questions take precedence, and **no questions could be added that might adversely affect the response or the refusal rates of the survey.**

State-Added Questions, North Carolina

Please note that these dates and costs applied to the example year 1999. Consult your current year's calendar for current deadlines.

North Carolina solicits questions by email. The state coordinator for North Carolina offers this great piece of advice regarding state-added questions: Start early so you won't be in a crunch situation at the last minute! An "ideal" schedule for state-added questions would look like this:

Late July/early August:

The coordinator sends a memo (see the sample on following page) to program managers containing both the draft version of the core questions with optional modules, and the time frame for getting questions added to the questionnaire. For 1999, North Carolina's solicitation included input from three public health divisions: Communicable Diseases, Women and Children's Health, and Community Health, along with input from several public health professionals at the University of North Carolina, Chapel Hill. (See the following memo example.)



Early September:

Each question costs an average \$600, regardless of the percentage of the population to which the question is asked. Unless grant funding is available to them, the programs usually submit only 2 to 5 questions each. For example, North Carolina was one of the states participating in CDC's disability program; consequently, the states added approximately 35 questions were added about disabilities. Likewise, additional funding from a cardiovascular disease grant allows the state to add approximately 25 questions on CVD.

Some questions might be added even if the program can't pay for it. For example, a question about sexual assault, a topic for which the state in question may currently have no data, might be added.

Mid-September:

A committee of epidemiologists and health department managers select questions based on lack of recent data on the topic and good question design.

Early October:

Selected questions are submitted to the BSB.



A sample memo is provided on the following page. This is a sample of the memo that the North Carolina coordinator sends via e-mail to public health program managers to solicit input on optional modules, and to solicit state-added questions.

Sample Memo

Subject: Proposals for (year)* BRFSS questionnaire
Date: month/day/year

CDC's final version of the required portions of the (year) BRFSS questionnaire, along with documents describing questionnaire content, can now be found on the Division of Community Health's electronic Epidemiology Bulletin Board. (If you are unable to access this bulletin board and would like to receive copies of these documents through another means, please feel free to contact me.)

As in past years, North Carolina has the opportunity to include additional questions of state interest in the (year) survey. If you would like to submit proposed questions to be considered for inclusion in the (year) North Carolina BRFSS questionnaire, please submit electronic or hard copies of the attached form (filename) to me by (month/day/year).

The second attachment to this message (filename) contains the text of all optional CDC-developed modules that states may choose to include in their BRFSS questionnaires. If you would like to propose the inclusion of one of these optional modules, please follow the instructions for doing so on the attached proposal form (filename). Optional modules on the following topics are available through CDC: diabetes, sexual behavior, family planning, health care coverage, health care utilization, preventive counseling services, cardiovascular disease, arthritis, folic acid, social context, tobacco use prevention, smokeless tobacco, asthma, skin cancer, fruit and vegetable consumption, exercise, and weight control.

The timeline for developing the (year) NC BRFSS questionnaire is as follows:

(Month/Day):

Draft of proposed questions (with justification, general plans for data analysis and dissemination, and funding availability) due

(Month/Day):

BRFSS Working Group will provide comments back to question proposers

(Month/Day):

Final versions of proposed (year) questions due back to me

(Month/Day):

Final version of (year) NC BRFSS questionnaire due to CDC

As was the case for the (year) questionnaire, we are again asking everyone whose proposed questions are selected for inclusion in the (year) questionnaire to provide \$(cost) per question to help cover the costs of operating the BRFSS system (which are only partly covered by the funds we receive from CDC). We do not want funding availability to be the sole or primary determinant of question inclusion, however. If you would like to propose questions on a topic of significant public health importance for North Carolina, but for which no funds are available to support their inclusion in the BRFSS questionnaire, please complete the question proposal form anyway. We have reserved a small amount of space in the (year) questionnaire for including questions of public health importance for which no supporting funds are available.

Thank you very much for your interest in BRFSS. Please feel free to contact me if you have any questions or would like further information about BRFSS or about the (year) questionnaire.

Signed,

North Carolina Coordinator

*For these instances, insert the date and/or filename information that is appropriate to the memo being sent.

State-Added Questions, Washington State

Please note that these dates applied to the example year only. See your current year’s calendar for current timelines.

Washington State has a multi-stage process for selecting state-added questions, and requires submitters to perform all testing and secure funding of these additional questions.

In Washington State, the BRFSS coordinator solicits state-added questions from a variety of local health organizations. The responsibility of question testing and funding falls on those submitting questions. The Washington State Department of Health (DOH) rotates survey topics (even years, odd years, one-time emerging issues). All submitted questions go through a collaborative, multi-stage selection process before being chosen for the BRFSS survey.

June:

The Washington State coordinator sends a solicitation letter to DOH programs that have previously submitted questions or have indicated an interest. Additional memos include topic selection criteria, item selection criteria, and a submission form. Examples of these letters and forms are provided on the following pages.

August:

All questions meeting the criteria are selected for the next review phase.



September:

Those who submitted questions that meet the criteria gather to scrutinize all questions. Continuing topics and emerging issue topics that pass the judgment of participants move to the next level for approval. Submitters are allowed to revise selected questions as needed. The survey contractor estimates the amount of time that each topic will take.

October:

The Assessment Operations Group (AOG) of the DOH meets to review topics. The AOG makes final choices of topics to include in next year’s questionnaire. Topics and questions are selected based on importance of topic and health department priority. The DOH and the Department of Social Services jointly sponsor the Human Research Review Board. The BRFSS coordinator submits all questions approved by the AOG to the Human Research Review Board. The Board may request changes before it approves the questionnaire.

November:

The BRFSS coordinator verifies funding for each of the topics approved by the AOG and the Human Research Review Board. All questions are formatted into a final version of the questionnaire and sent to the contractor.

December:

The contractor tests the questionnaire and the CATI system programming. The contractor confers with the BRFSS coordinator to revise questions and transitions as needed.

Sample Solicitation Letter

The following is a sample letter used to solicit state-added questions in Washington State.

Washington State Department of Health
 Center for Health Statistics
 Behavioral Risk Factor Surveillance System

Call for State-Added Questions BRFSS (year)

The Washington State Department of Health, Center for Health Statistics, receives cooperative agreement funds from the Centers for Disease Control and Prevention (CDC) to operate a state-based Behavioral Risk Factor Surveillance System (BRFSS). As part of the cooperative agreement, CDC requires that states use a specified core questionnaire each year. CDC also provides basic data analysis and tabulation. The CDC Core topics for (year) include:

Health Status	Demographics
Health Care Access	Women's Health
Hypertension Awareness	Immunization
Cholesterol Awareness	Colorectal Cancer Screening
Diabetes	Injury Control
Tobacco Use (Smoking)	HIV/AIDS
Alcohol Consumption	Skin Cancer

The system has a significant amount of flexibility to meet state needs. States may add topics from a list of optional modules or design their own topics.

CDC annually provides the state with a set of approved modules that can be added to the core questionnaire. If the state uses any of these modules with no changes, CDC also provides basic analysis and tabulation of the data. The (year) Optional Module Topics include the following:

Arthritis	Health Care Utilization
Asthma	Oral health
Cardiovascular Disease	Preventive Counseling Services
Diabetes	Quality of Life
Exercise	Sexual Behavior
Family Planning	Smokeless Tobacco
Firearms	Social Context
Folic Acid	Tobacco Use Prevention
Fruits and Vegetables	Weight Control
Health Care Coverage	

The system is also flexible enough to provide for needs for specific questions from each state. Washington State's questions can provide data to meet our specific needs. CDC will not provide analysis of state-added questions. To add questions, the Department or requesting program must provide resources to administer the questionnaire, and to collect and analyze the data.

Sample Solicitation Letter, continued

This document describes procedures to be used in determining which questions and/or modules will be added to the Washington State BRFSS in (*year*). As part of an ongoing four-year plan, the following topics have already been selected for (*year*) as state-added questions. If a program no longer wishes to support a topic, please contact the BRFSS coordinator.

Asthma	Hunger
Breast Cancer Screening: Attitudes	Hypertension and Cholesterol
Breast Self-Exam	Occupation & Industry
Diabetes	Oral Health
Family Planning Prevalence, Utilization, and Access	Radon
Health Care Utilization, Q 2-5	Sexual Behavior
HIV Counseling and Testing in Pregnancy	Smokeless Tobacco
	ZIP Code

Up to five questions have been reserved for issues that have special significance or that represent an emerging public health concern.

Limitations on Adding Questions

Time: Research on telephone interview surveillance indicates that there is a time limit beyond which refusal rates increase. Higher refusal rates make the survey less representative of the state population and decrease its usefulness. Therefore, we plan to restrict the average interview length to less than 20 minutes.

Cost: Gilmore Research Group collects data under a state contract. The CDC cooperative agreement provides enough financial support to fund collecting approximately 1,800 interviews during the calendar year. To meet research needs for information about health risks in relatively small populations, Washington State has increased the sample size to 3,600 interviews per year. This additional capacity means that each program requesting state-added questions must identify funding available to support the cost of additional questions.

Procedures for Requesting State-Added Questions:

Programs that wish to request state-added questions (continuing **or** new proposals) must prepare a "Proposal for State-Added Questions." Please complete all of the sections. If your proposal does not address all the questions, it may fare poorly in the review. Submit the proposal to the Assessment Operations Group (AOG) representative for your division. Please send an information copy of the proposal to the BRFSS Coordinator.

AOG representatives will review the proposals from their own divisions to assure that these proposals reflect the department's priorities. AOG representatives will forward the proposals to the BRFSS coordinator. **The proposals must be submitted by (*month/day/year*).**

The BRFSS coordinator will review the proposals using the Topic Selection Criteria and Item Selection Criteria.

Sample Solicitation Letter, continued

All programs submitting requests for state-added questions must plan to have a representative attend the BRFSS (*year*) Planning Meeting on (*day, month, date, and time period*), (*place to be determined*). We will review all proposals. We will establish a priority list for new topics to be included based on topic selection criteria and on the timing of the overall questionnaire.

The BRFSS coordinator will assemble the draft questionnaire and submit it to the AOG for review at a meeting early in (*month, year*). The AOG will review and approve the draft questionnaire.

The BRFSS coordinator will submit the approved questionnaire to the Human Research Review Board (HRRB) by (*month, day, year*) for review at its (*month, day*) meeting. The BRFSS coordinator will make any changes requested by HRRB. When the questionnaire receives HRRB approval, the BRFSS coordinator will deliver it to Gilmore Research Group.

Sample Topic Selection Criteria

The following is an example of topic selection criteria for state-added questions in Washington State. States develop their own criteria for the state-added questions.

Washington State Department of Health
Center for Health Statistics
(month, day, year)

Behavioral Risk Factor Surveillance System Selection Criteria for State-Added Modules, (year-year)

1. Does the topic pertain to an important public health issue? (Specify the issue.)
 - Are the BRFSS data on this topic to be used in *Health of Washington State* or in some other Department of Health (DOH) publication?
 - Is the topic an emergent public health issue of clear statewide significance?
 - Is the topic an ongoing public health issue of high priority within DOH?
 - Will the topic provide information in support of a strategic initiative?
2. Will the state-added module be used for behavioral surveillance purposes?
 - Are BRFSS data needed to prepare prevalence estimates of a specified behavior?
 - Must the behavior be monitored annually?
 - Is the required information not readily available elsewhere?
 - Is information from consecutive years needed because of small sample size for the behavior in question?
 - Is information from consecutive years needed to construct sub-state estimates?
 - Is the information needed to provide a benchmark for local health assessment?
3. What are the major program purposes for the state-added module?
 - To evaluate the impact of a specific program?
 - To develop public health intervention programs?
 - To prepare education and health promotion materials?
 - To justify a request for funding (for example, grant applications)?
4. Has the intended use of the module been demonstrated?
 - Has BRFSS data on the proposed topic been used in the past within DOH?
 - Is there a plan for using BRFSS data on the proposed topic in the future?
5. Is BRFSS a suitable means for gathering the information about this topic?
 - Does the information to be gathered pertain to behaviors, perceptions, or attitudes that can and should be obtained via a telephone survey instead of by other data collection methods?
 - Is the population of interest represented by statewide telephone coverage?

Sample Item Selection Criteria

Here is an example of item selection criteria for state-added questions in Washington State.

Washington State Department of Health
Center for Health Statistics
(month, day, year)*

1. What is the source of the item(s)?

- Are the items part of a CDC-designed BRFSS module?
- Are the items from a national survey that has been pretested to meet standard survey design requirements?

2. Have the items been pretested, and do they meet standard survey design requirements?

- Have items been pretested for meaning and interpretation by representative respondents?
- Have items been pretested for clarity of language?
- Have items been pretested for possible contextual effects (for example, placement on the survey relative to other items)?

3. Do the items meet question design standards?

- Do questions use clear language suitable for the general public?
- Are response categories mutually exclusive and unambiguous?
- Is there sufficient background information available for interviewers to refer to if a respondent asks a topic-related question during the interview?

4. Do the items raise any special human subjects review issues?

- Does the item pertain to topics of an especially sensitive nature that would require additional Human Research Review Board consideration? (If so, has adequate time been given for the HRRB review?)
- Is there introductory language to prepare respondents for sensitive issues and assure them of the confidentiality of their answers?
- Do the items pose any ethical problems for the interviewer and for the research administrators (for example, requirement to report incidents of abuse)?

5. What is the response burden created by the items in the proposed module?

- Are items part of an index or a necessary sequence of questions or do they function independently?
- Is there one screening question, followed by a series of questions that are asked of only a portion of respondents? If so, approximately how many?
- Do the items require a lengthy answer or require the respondent to take extra time to formulate his or her answer?

*For these instances, insert the date information that is appropriate to the letter being sent.

Sample Submission Form

The following is an example of the submission form for state-added questions in Washington State.

TOPIC NAME
(year)

**Proposal for State-Added Questions
to the (State)
Behavioral Risk Factor Surveillance System Questionnaire**

1. **Name of module:**

2. **Contact:**
 - Name:**
 - Office:**
 - Mailing Address:**
 - Telephone:**
 - FAX:**
 - Email Address:**

3. **Importance of topic:**
 - Are the BRFSS data on this topic to be used in *Health of Washington State* or in some other Department of Health publication?
 - Is the topic an emergent public health issue of clear statewide significance?
 - Is the topic an ongoing public health issue of high priority within the Department of Health?
 - Will the topic provide information supporting a strategic initiative?

4. **Need to use BRFSS**
 - Are BRFSS data needed to prepare estimates of the prevalence of a specified behavior?
 - Is the required information not readily available elsewhere?
 - Must the behavior be monitored annually? If not, what time period would be appropriate?
 - If behavior must be monitored annually, is information from consecutive years needed
 - To augment small sample size for the behavior in question?
 - To construct sub-state estimates?
 - Is the information needed to provide a benchmark for local health assessment?

5. **Use of the data:**
 - How do you plan to use the data? If the questions have been included in BRFSS before, how have you used the data already collected? Explain in some detail.

Sample Submission Form, continued

6. Financial Support

The Centers for Disease Control and Prevention (CDC) provides support for approximately 50% of the data collection cost. In *(year)*, State-Added questions cost \$510 per question. The cost for *(year)* could increase to as much as \$600 per question (estimate recommended for planning). The final charge depends on the length of the questionnaire and the amount of CDC support. Please describe the financial support available for the state-added questions you propose.


7. About the Questions:

- a. What is the original source of the questions? How have they been used before? How have they been validated or tested?
- b. Who will be asked to complete the module? What proportion of respondents will answer the questions?
- c. When do you propose to include the module in BRFSS (every year, alternate years, special/emerging issues)?
- d. What possible difficulties do you foresee in getting respondents to answer the questions (PLEASE ANSWER!)
- e. Which other BRFSS questions might relate to this topic or benefit from the addition of this module?

- 8. Proposed Questions:** List the questions as they would appear on the questionnaire. Include any restrictions on which persons should be asked the questions, such as age, gender, or answers to other questions. For example, only people who have been told that they have high blood pressure receive further questions about managing high blood pressure.

(Include any introductory or transitional phrases for very sensitive topics. For example, "This introduction was included in *[year]* for questions on HIV/AIDS:")

The next few questions are about the national health problem of HIV, the virus that causes AIDS. Please remember that your answers are strictly confidential and that you don't have to answer every question if you don't want to.

	<p>State-Added Questions, Maine</p>
<p>In Maine, the coordinator does the validity and reliability testing, but she requires an up-front payment from the specific program for each state-added question. This charge covers the required analysis, printing costs, and report generation. It also limits frivolous requests.</p>	

*For these instances, insert the date information that is appropriate to the letter being sent.

Basics of Question Design

When developing questions, keep the respondent and also the following people in mind:

Public Health Planners

Potential users of data should be involved in question development. Assistance should be sought from other groups who have gathered the same information. Standardized questions should be used if available.

Interviewers

Because interviewers read each question aloud, the questions must sound like normal speech. Questions should be direct and clear, with no jargon or unfamiliar technical terms. Make response categories easy to code.

CATI Managers

To facilitate interpretation and reduce errors, make sure that the response-coding scheme is consistent and based on clear, logical distinctions among possible answers.

Data Analysts and Health Researchers

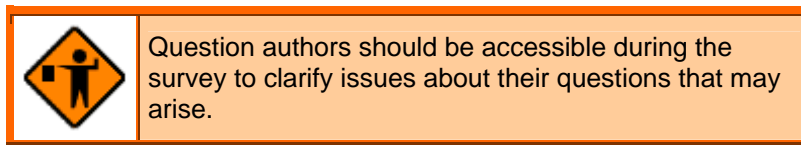
Analysts can provide advice on the kinds of data needed to meet study objectives.

Use of Existing Questions

The cognitive and pretesting requirement can be avoided by using standardized questions that have been developed, field-tested, and administered by others. In addition to these obvious advantages, standardized questions permit comparisons among studies. One source of standardized questions is the optional modules.

Pretesting

If possible, new or revised state-added questions should be pre-tested at the state level at least once and then subjected to a pilot test prior to use in a survey.



Process:

- Allow two to three days for pretesting.
- First conduct the pretest among your interviewing staff.
- Pretest on at least 200 respondents taken from the local telephone directory. A large sample size provides a better sense of question stability.
- Use paper questionnaires so interviewers can make notes.
- Speak to whomever answers the telephone.
- Tell the respondent that you are conducting a survey test.
- Try to obtain a 50/50 ratio of males to females. For example, if respondents are primarily male, instruct interviewers to ask for females.
- Do not make successive attempts to reach any given number.
- Meet with interviewers to share notes and comments, and to obtain feedback regarding their impressions of the instrument and any suggestions they have to improve it.
- Ask respondents what they think about the issues you are pretesting, if possible. For example, ask the following questions:
 - What did you think about this question?
 - Is the wording of this question clear?
 - Do you think the question on [topic X] should have been asked before the question on [topic Y]?
 - What does [a certain word] mean to you?
 - How did you interpret this question? What did this question mean to you?

During pretesting, be sure to analyze the following:

- **Ordering of Questions in the Survey**

Use two different surveys with different question ordering and analyze the results.

- **Question Wording and Clarity**

Discuss among both the interviewers and the question authors.

- **Question Appropriateness**

Analyze respondent answers and discuss them with the question authors.

- **Skip Patterns and the Adequacy of Response Categories**


Compare respondent answers and discuss them among interviewers and authors.

Questionnaire Construction

Rationale

The following statements form the rationale used in the design of the BRFSS questionnaire:

- The core questionnaire is brief enough to allow the states to add their own questions at the end.
- Questions are designed to yield information about the personal behaviors of respondents rather than those of other household members.
- Questions relate to health behaviors. Non-behavioral question items, such as those about demographic characteristics, knowledge, attitudes, and opinions, should explain, enhance, or otherwise provide more in-depth understanding of health-related behaviors.
- Questions should relate to the leading causes of premature death and disability in the United States.
- The subject matter of the questions is not so sensitive as to seriously distort responses.
- Questions are relevant to the *Healthy People 2010* objectives.
- Questions are chosen based on need for state-specific measurement of questionnaire items.
- Questions are chosen based on need to measure questionnaire items over time.


	<p>The Colorado BRFSS program was given a unique opportunity to test the validity of their questions when Kaiser-Permanente requested that the state health department survey Kaiser patients. The Survey Research Unit in Colorado collected data for Kaiser to analyze. Responses were checked against Kaiser's medical records for verification to measure the validity of the questions.</p>
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Questionnaire Length

States must be judicious when selecting optional modules and state-added questions to keep the questionnaire at a reasonable length.

Although there is no absolute time limit for a telephone interview, lengthy interviews increase the cost of data collection and the risk that respondents will terminate an interview before the last question. Consequently, requests by programs for optional modules or for state-added questions should be carefully considered to avoid a lengthy questionnaire.

Long questionnaires may result in loss of data for questions placed later in the survey, if respondents discontinue before the end.

	<p>Research shows that higher refusal rates make the survey less representative of the state population, thus decreasing its usefulness.</p> <p>In Delaware, the coordinator restricts the length of the average interview to 15 minutes or less.</p>
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Translations

- BSB provides a Spanish version of the core questionnaire and optional modules.
- In many cases, translations into other languages are not feasible or cost effective because of small numbers of respondents.

Production

1. A BRFSS questionnaire draft is provided to the states during development. This is not the final version and should not be used as a survey instrument. Use the draft to choose optional modules and to identify state funding sources based on question topics.
2. States append state-added questions to that document to create a state-specific master in an electronic copy of the document and send it to BSB for reference and documentation.

7. Survey Methodology

This section provides information about the following topics:

- [Data Integrity](#)
- [Sampling Design](#)
- [Sample Size](#)
- [Density Stratum Sampling Ratio](#)
- [Calculating Sampling Ratio](#)
- [Implementing Sampling Ratio](#)
- [Geographic Stratification](#)
- [Sources of Survey Error](#)
- [Data Weighting](#)
- [Terms](#)



States that provide incorrect or incomplete documentation or that changed their data collection method during the year will have their data processed last and may not be included in BSB products or reports.

Data Integrity

Any implementation changes to the survey can have drastic effects on the integrity of the data. What impacts data integrity?

- Change of any aspect of the sampling design during a collection cycle.
- Change of any aspect of the sampling design without first consulting BSB.
- Incomplete or incorrect information provided to BSB about your sampling design.




The extent to which BRFSS data are used in policy and program development (and ultimately the extent to which the BRFSS is funded) depends on data integrity.

Sampling Design

- Sampling design refers to the method used to select respondents to interview. This is also known as *sampling method* or *sampling strategy*.

The method of choosing telephone numbers must be statistically valid. The resulting sample must be a probability sample so that information obtained from the sample can be used to generalize results to the total population in the state as well as to the nation as a whole.

	<p>BRFSS Protocol: Samples used in the BRFSS must be probability samples in which all households with telephones have a known, nonzero chance of inclusion, as stated in item #1 in Policy Memo 2003.1. All samples come from the Telecordia Technologies database and include all numbers in NXX Types 00, 50, 51, 52, and 54 in the sampling frame.</p>
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Disproportionate stratified random sampling (DSS)

With DSS, as implemented in the BRFSS beginning in 2003, telephone numbers are drawn from two strata (lists) that are based on the presumed density of known telephone household numbers. In this design, telephone numbers are classified into strata that are either high density (**listed 1+ block** telephone numbers) or medium density (**not listed 1+ block** telephone numbers) to yield residential telephone numbers. Telephone numbers in the high density stratum are sampled at the highest rate. The rate at which each stratum is sampled is called the *sampling rate*. The ratio of the sampling rate of one stratum to sampling rate of a reference stratum is called the *sampling ratio*.

DSS Overview

The DSS design attempts to find a way of differentiating, before sampling begins, between a set of telephone numbers that contains a large proportion of target numbers (the high-density block) and a set that contains a smaller proportion of target numbers (the medium-density block). It is possible to create more than two groups, but for BRFSS, only two groups are used. In this way, sampling telephone numbers is more efficient compared to simple random sampling.

Following are DSS terms and descriptions:

Term	Description
sampling frame	For your state's BRFSS, the set of all active telephone numbers in your state that could possibly be assigned to households. A telephone sample vendor will provide a sampling frame for your state.
stratum	A discrete subdivision of a sampling frame. For example, using information about the geographic location to which a telephone number is assigned, we can assign each unique number to a state or even county (even though some of those assignments might be incorrect). Thus, we can stratify the numbers by state or county.
household density stratum	Refers to the particular stratum (that is, high or medium) that a number is in.
1+ block	A computer generated listing of 100 consecutive telephone numbers containing at least one published household telephone number.
listed 1+ block	All of the listed telephone numbers from the 1+ block of numbers. Also known as high density stratum.
not listed 1+ block	The remaining numbers from the 1+ block of telephone numbers after the listed telephone numbers are removed. Also known as a medium density stratum.
hit rate	Percent of household numbers in a sample, stratum, or block.
target population	In the BRFSS, the target population is telephone numbers assigned to households.
unique identifier	Each telephone number in the sample is assigned a unique identifier.
replicate	A group of 30 telephone numbers that must be called as a unit.

The telephone sample vendor divides the sample of all available numbers into blocks of 100. For example 404-555-1100 and 404-555-1199 are in one block.

All numbers in each block are compared to a published list of all household numbers.


In the DSS sampling design, you call **listed 1+ block** numbers at a higher rate than **not listed 1+ block** numbers.

By doing so, you achieve a high hit rate (compared to simple random sampling) and still achieve a statistically representative sample. During data analysis, because the ratio at which telephone numbers are sampled from each block is known, weighting is used to adjust the data.

About 42% of 1+ block numbers are households.

Implementing DSS

- Calculate the number of **listed 1+** and **not listed 1+ blocks** to dial, determined by the sampling ratio.
- Calculate the number of replicates (30 consecutive telephone numbers) that will need to be released. Initially figure on about four sample records from each replicate. If the number of completes for a month does not exactly match your target for that month, don't make any changes if the difference is small. However, if the difference is dramatic, call the BSB for advice.
- Process the DSS sample based on the procedures for your CATI system.

	<p>Changing Your Sampling Design Consult with BSB before making any changes to their sampling design. Examples of changes are changing geographic strata or altering your sampling ratio. Changing your design without compromising the data requires a sampling statistician.</p>
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Sample Size

Sample size refers to the number of telephone numbers that must be called within a given period of time. BSB's goal is to support at least 4,000 interviews per state. Factors influencing sample size include the following:

1. **Cost**

Cost is usually the main consideration when you determine sample size because collecting and processing survey data is expensive. Although there are variations between sample designs, for a given design, the larger the sample size, the more expensive it is to survey.

2. **Number and size of populations for which estimates are desired**

The need for obtaining estimates for subpopulations within states — for example racial or ethnic minority groups, or persons aged 65 years or older — must be considered when calculating the sample size. In general, the oversampling of subpopulations will require an increase in the sample size for the whole population.

3. **Desired level of confidence in estimates**

In general terms, a larger sample increases the statistical precision of the survey data, but also increases cost. A sampling statistician is needed to calculate the best possible precision using the smallest possible sample.

Density Stratum Sampling Ratio

Definition	The relative rates at which telephone numbers in the high-density strata are chosen versus those in the medium density strata.
Purpose	Because calling every single telephone number in the state is not possible, the sampling ratios provide a statistically sound method for choosing phone numbers to call.
Implications	Because high- and medium-density strata have different proportions of residential telephone numbers, they should be sampled at different rates.
Advantages	Using density strata reduces survey administration costs and maintains a statistically valid sample.
Disadvantages	Using density strata requires consultation with a sampling statistician or with BSB to calculate or change the sampling ratio.

Calculating Sampling Ratio

Beginning with data year 2003, a 1.5:1 (**listed 1+ to not listed 1+**) sampling ratio became standard BRFSS policy (see [Policy Memo 2003.1](#)).

- In the absence of cost data, states should use a 1.5:1 sampling ratio.
- The ideal sampling ratio is expressed by the formula:

$$\sqrt{\text{(cost of listed 1+)}} \quad ; \quad \sqrt{\text{(cost of not listed 1+)}}$$


- States that want to use a higher ratio must submit a request to BSB documenting justification based on cost of each **listed 1+** and **not listed 1+ block**.
- States are encouraged to develop a method of determining the actual cost of completing interviews in both high and medium density strata.

Implementing Sampling Ratio

For a sampling ratio of 1.5:1, you sample from **listed 1+ block numbers** at 1.5 times the rate that you sample from **not listed 1+ block numbers**. That does not mean that you call 1.5 more numbers from **listed 1+** compared to **not listed 1+ block numbers**.

How many **not listed block numbers** do you call to maintain a 1.5:1 ratio? The key is to consider the total quantity of valid numbers:


Stratum	Ratio	# of valid numbers	Quantity to call
listed	1.5	50,000	750
not listed 1+block	1	100,000	1000

	<p>Mathematical Calculation</p> <p>For example, if a listed 1+ block stratum has 50,000 numbers, from which you sample 750, the sampling rate is $750/50,000=.015$.</p> <p>Assuming that the corresponding not listed 1+ block stratum has 100,000 numbers, to get a 1.5:1 sampling ratio, you would sample the not listed 1+ block stratum at a rate of $1/100=.01$, which would yield a sample of $0.01 \times 100,000 = 1,000$ numbers.</p> <p>Thus, your sample has 750 listed 1+ block numbers and 1,000 not listed 1+ block numbers, but you have sampled from the two strata in a ratio of 1.5:1.</p>
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Geographic Stratification

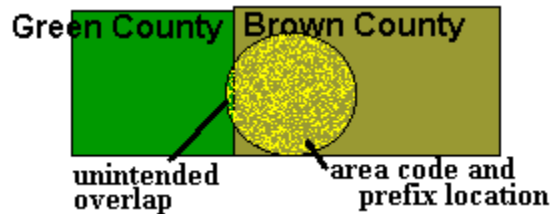
Definition	Instead of randomly selecting all telephone numbers from the state as a whole, telephone numbers are randomly selected by region.
Purpose	To target data collection for a geographically identifiable subpopulation (for example, people in rural areas).
Implications	The more strata there are, the less precise the data will be for the state as a whole.
Advantages	Gives states the opportunity to target some specific subpopulations; increases data accuracy for a small subpopulation.
Disadvantages	Increases administration time and cost for both the state and BSB; decreases the precision of the data for the whole state.

In effect, the data collection structure for each stratum is the same as that for an entire state. For a state with seven strata, the time, cost and effort involved is the same as for seven states, each with one stratum.

	<p>Traditionally, telephone companies assigned numbers geographically. For example, all 404-555-XXXX numbers were assigned to downtown Atlanta, near the Georgia Tech campus. However, now telephone companies are assigning numbers with less geographic distinction, which could affect a state's ability to use geographic stratification. To maintain the integrity of the data, strata must NEVER overlap.</p> <p>Read Telephony And Telephone Sampling: The Dynamics of Change by Linda Piekarski, Gwen Kaplan, & Jessica Prestegaard, which is located at http://www.worldopinion.com/latenews.taf?f=d&news=3966.*</p>
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In this example, there is a slight overlap of residents in Green and Brown counties.



Sources of Survey Error

To collect data on health risks, the BRFSS relies on surveillance methods and self-reports that, unfortunately, present opportunities for error. Decrease errors by encouraging interviewers to follow procedures. Interviewer training and supervision are particularly important in reducing or eliminating common sources of data collection error. The most common types of data collection errors and possible solutions are listed in the following table:

Error	Description
<p>Noncoverage Error</p>	<p>Noncoverage error occurs because not all members of the general population are included in the sample. Persons living in nonresidential settings such as hospitals, nursing homes, prisons, military bases, and college dormitories are excluded from the BRFSS survey. Compared with the size of the adult population of the state as a whole, the number of persons within the groups mentioned previously is generally small.</p> <p>Because the BRFSS is a telephone survey, households without telephones are a source of noncoverage error. Telephone coverage is generally high in the United States, so the effect of noncoverage on statewide estimates is normally small. However, for some populations (for example, American Indians, Hispanics, rural African Americans), telephone noncoverage is much higher. This difference means that estimates based on telephone surveys may underestimate risk in these groups. Additionally, an increase in the number of HHS with mobile phones and no land lines has increased noncoverage because mobile telephone numbers are normally excluded from the BRFSS sample.</p> <p>There is no easy solution to the problem of noncoverage error in the BRFSS, although data can be post-stratified to account for households without telephones. Post-stratification assumes that people not interviewed in the age, gender, or race categories used in post-stratification are exactly like the people who are interviewed.</p>
<p>Sampling Error</p>	<p>Sampling errors occur because estimates are based only on a sample of the population rather than on the entire population. This type of error occurs in even the most sophisticated sampling design.</p>
<p>Nonresponse Error</p>	<p>There are two levels of nonresponse:</p> <ul style="list-style-type: none"> • Unit nonresponse occurs when the respondent is not available or refuses to participate in the survey. Some persons may never be located after multiple call attempts; others may be willing but unable to respond because of a language barrier, hearing problem, or other cause. • Item nonresponse occurs when a selected respondent refuses

Error	Description
	<p>to answer, or does not truthfully answer, a specific question. There are three main reasons for item nonresponse:</p> <ul style="list-style-type: none"> ○ The respondent believes that a question is too sensitive. ○ The respondent does not know or cannot recall the answer to a question. ○ The interviewer overlooks a question or neglects to record the answer on the questionnaire.
<p>Measurement Error</p>	<p>Measurement error refers to the degree to which a variable actually measures what it is trying to measure; i.e., a variable's validity. Items that bias responses, thus impacting data integrity, include the following:</p> <p>Wording, format, and order of questions.</p> <p>Characteristics of the respondent, such as socioeconomic background and attitude toward interviews.</p> <p>Interviewer's adherence to wording.</p> <p>Interviewer's tone of voice, interviewing pace, and ability to maintain scientific objectivity when helping to clarify respondents' answers.</p> <p>Mistakes made in editing and coding the data.</p> <p>Measurement errors can be decreased if the questions are phrased properly on the questionnaire, read properly by the interviewer, understood and answered truthfully by the respondent, and checked for errors by CATI managers.</p>

Common Sources of Error

Common sources of error are described in the following table:

Type	Cause	Source
Question wording	Ambiguous or complex wording may be interpreted differently than intended.	Questionnaire
Question order	Respondents may answer the same question differently (especially those asking for opinions) depending on where in the questionnaire it is asked.	Questionnaire
Response-code precision	Possible answers may not have an appropriate response code, or these codes may not be mutually exclusive.	Questionnaire
Length of interview	In a lengthy interview, the respondent may tire and put less thought into responses near the end of the interview.	Questionnaire
Nonresponse error	Respondent refuses to answer the question, or does not answer truthfully.	Respondent
Recall error, or non-response error	The respondent may be unable to recall factual information accurately.	Respondent
Interviewer clarifications to respondent	Lack of thorough training and interviewing experience could cause the interviewer to mislead the respondent on questions that may not be clear.	Interviewer
Coding error	The interviewer may misinterpret the respondent's answer, mark an incorrect response code, or make an inaccurate data entry on the questionnaire.	Interviewer
Sampling error	Random selection process for household members is disregarded; instead, the person who answers the telephone is interviewed.	Interviewer
Poor questionnaire administration	The interviewer may ask a question incorrectly, record an incorrect response, or fail to follow or skip instructions.	Interviewer
Data entry error	The interviewer or CATI manager inadvertently enters the wrong value either during the interview, or during data editing and correcting.	Interviewer Data processor


Data Weighting

The following table explains data weighing:

Definition	Data weighting is an important statistical process that attempts to remove bias in the sample.
Purpose	<ul style="list-style-type: none"> • Corrects for differences in the probability of selection due to nonresponse and noncoverage errors. • Adjusts variables of age, race, and gender between the sample and the entire population. • Allows the generalization of findings to the whole population, not just those who respond to the survey.
Implications	Design factors affect weighting. In the BRFSS, these factors include: <ul style="list-style-type: none"> • Number of residential telephones in household • Number of adults in household • Geographic or density stratification
Advantages	Allows comparability of data.
Disadvantages	Can only be performed when the sampling methodology is carefully controlled.

Additional facts about data weighing include:

- Weighting consists of a lot more than post-stratification.
- Weighting for design factors has more of an effect on final results than does post-stratification.
- Weighting for design factors is also more important than conceptually.
- Weighting affects both the point estimate (bias) and confidence intervals (precision).

	<p>Data Weighting Calculation</p> <p>The computational formula below is intended to reflect all the possible factors that could be taken into account in weighting a state's data. Where a factor does not apply, its value is set to one.</p> <p>The formula for weighting:</p> <p>FINALWT = STRWT * 1 OVER IMPNPH * NUMADULT * POSTSTR</p>
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The following table explains data weighing variables:

Variable	Description
FINALWT	This is the final weight assigned to each respondent.
STRWT	Accounts for differences in the basic probability of selection among strata (subsets of area code/prefix combinations). It is the inverse of the sampling fraction of each stratum. There is almost never a complete correspondence between strata, which are defined by subsets of area code/prefix combinations, and regions, which are defined by the boundaries of government entities.
IMPDPH	This refers to the number of residential telephone numbers in the respondent's house.
NUMADULT	This is the number of adults in the respondent's household.
POSTSTR	The number of people in an age-by-sex or age-by-race-by-sex category in the population of a region or a state divided by the sum of the products of the preceding weights for the respondents in that same age-by-sex or age-by-race-by-sex category. POSTSTR adjusts for noncoverage and nonresponse and, before 1995, also adjusted for different probabilities of selection by region, where applicable.

Terms

The following are common BRFSS terms and definitions:

Term	Definition
Confidence Level	The confidence intervals for specific statistics (for example, means, regression lines) give us a range of values around the statistic where the "true" (population) statistic can be expected with a given level of certainty to be located. Smaller confidence intervals indicate more precise estimates.
Imputed Values	Estimated values based on other information in the data file.
Outcome Rate	A rate based on all or some of the disposition codes in a survey.
Poststratification	The method used to adjust the distribution of the sample data so that it more accurately reflects the total population of the sampled area. The poststratification factor is calculated by computing the ratio of the age, race, and sex distribution of the state population divided by that of the sample. This factor is then multiplied by the design weight to compute an adjusted, final-weight variable. The weighting adjusts not only for variation in selection and sampling probability but also for demographic characteristics so that projections can be made from the sample to the general population.
Sampling Frame	In the BRFSS, the sampling frame is the set of all active telephone numbers in the United States that could possibly be assigned to households. A telephone sample vendor will provide a sampling frame for your state.

8. Data Collection and Management

This section provides information about the following topics:

- [In-House or Contracted Data Collection](#)
- [Obtaining the Telephone Sample](#)
- [Household and Respondent Selection](#)
- [Disposition Codes](#)
- [Calling Schedule](#)
- [Refusal Conversions](#)
- [Appointment Procedures](#)
- [Confidentiality](#)

In-House or Contracted Data Collection?

In-House

Advantages and Disadvantages

Following are the advantages and disadvantages of in-house data collection:

Advantages	Disadvantages
<ul style="list-style-type: none"> • Less cost • More flexibility 	<p>In-house data collection requires the following:</p> <ul style="list-style-type: none"> • Interviewing, hiring, and managing of personnel • Training and motivation • Monitoring interviewers for performance • Tracking quality assurance indicators • Providing and maintaining facilities and supplies • Managing payroll • Scheduling interviewers

Personnel Needs

The in-house data collection personnel needs are

- Supervisors
- Interviewers
- CATI Manager
- Statistician

Scheduling

States generally follow the suggested BRFSS **Interviewing Schedule**. States should complete all calls for a given survey month within that month. A survey cannot start prior to the first day of the month.

Scheduling Interviewers

Analysis of call history data can yield information on the most productive interviewing schedule. The data suggest that states should

- Conduct 20% of the interviews on weekdays
- Conduct 80% on week nights and weekends
- Accommodate holidays and special events
- Make weekday calls just after the dinner hour
- Make appointment callbacks during nonscheduled hours, generally on weekdays



Read the following, **Findings from the BRFSS Call History Study**, written by Dawn M. Odom and William D. Kalsbeek, Survey Research Unit, Department of Biostatistics, University of North Carolina, NC-Chapel Hill:

"Call history data" relates to the time, day, and interviewer characteristics that affect calling outcome for each call attempt.

Using call history data for more than 100,000 sample telephone numbers selected for monthly BRFSS surveys in 1997, the researchers compiled some useful tips for BRFSS coordinators, supervisors, and interviewers:

- Expect a higher percentage of pick-ups from 11:30 a.m. – 1:00 p.m. and after 2:00 p.m. on Monday-Thursday for first attempts.
- Expect an increased percentage of pickups after the school day ends.
- On Saturdays, there is an increase in the percentage of pick-up rates between 12:30 p.m. and 3:00 p.m. and after 6:00 p.m.
- On Sundays, the percentage of pickups increases after 3:00 p.m., with the best percentage of pickup rates occurring in the evening hours.
- Call patterns are fairly consistent in December.
- Interviewers with longer BRFSS experience overall are more likely to have first-attempt completes and fewer initial refusals.
- First-attempt initial refusals are less likely to occur in calling rooms with various procedures for dealing with nonresponse.
- Factors that increase conversion rates include the following:
 - Larger number of days after the initial refusal: For example, conversion rates more than 10% were seen on day 11, day 13, and day 19.
 - Gender: females seem to have higher conversion rates, but this finding may be caused by experience level.
 - More BRFSS experience for interviewers
 - Calling room conversion procedures: this could include providing interviewers with conversion scripts, designating certain interviewers as converters, and training interviewers about how to deal with refusals.
- Time of day does not seem to influence conversion rates.

To keep interviewers motivated and productive, schedule work breaks every 1.5 hours and allow interviewers to take breaks in small groups, rather than individually.

Contracted

Contracted: Advantages and Disadvantages

Even if data collection is contracted, the coordinator is still responsible for ensuring compliance to BRFSS protocol and for data analysis.

Advantages	Disadvantages
<p>The contractor provides the following:</p> <ul style="list-style-type: none"> • Interviewing, hiring, and managing of personnel • Training and motivation • Monitoring interviewers for performance • Tracking quality assurance indicators • Providing and maintaining facilities and supplies • Managing payroll • Scheduling interviewers 	<ul style="list-style-type: none"> • Increased cost • Contract development, and oversight • Monitoring contractor's data collection • Potential restriction of the state-added questions

Contracted: Personnel Needs

No additional resources are needed for contracted data collection.

Contractor Specification Details

The following are details that need to be considered when preparing contractor specifications:

Awareness of Local Considerations

Before producing the specifications for a contract, become familiar with regulations and procedures in your organization that govern the development of Requests for Proposals (RFPs) and contracts. Contact your contracts office to determine the following information:

- Does an RFP need to be prepared, or can sole source be obtained?
- How long will the process take?
- How much lead time is required?
- Is there an approval process and, if so, what is it?
- Can drafts be reviewed before the approval process is begun?
- Does the dollar amount of the contract make any difference?
- Does the state require certain addressees for or limit in any way the distribution of RFPs (for example, minorities, small businesses, female-owned businesses)?
- Are there a minimum number of bids that must be received? If so, how do you proceed without a minimum number of bids?

- Can you include limitations or exclusions in the RFP (for example, must have prior BRFSS experience, must use computer systems for data collection)?
- Can you include a clause in the RFP that reserves your right to reject proposals or to overlook errors or omissions if it is in the best interest of the state?
- Are there minimum and maximum time periods governing the RFP or the contract?
- Are letters of intent and support required?

In broadening your knowledge of your agency's contract policies, familiarize yourself with the means of receiving, logging in, and further tracking proposals. Have a full understanding of how the proposals may be evaluated and ranked; for example, are there qualifying requirements for evaluation panel members? Are there a minimum number of persons required to be on the evaluation panel? Will the panel's evaluation be based on anything other than what is specifically included in the proposal?

Because of the possibility that many questions may be directed to you or someone on your staff, have prior knowledge of how proposers' questions are to be answered; for example, must they be submitted in writing or will a facsimile be adequate?

Your contract office may not volunteer all of this information, or other important pieces of information, or shortcuts. Double check your information and your plan to proceed with other departments that frequently invoke contracts.

If your agency does not prohibit or already require a cost proposal, you may still find it useful to request that a cost proposal form be completed by each proposal with a bid for each year covered by the RFP. The form should include costs associated with developing the core questionnaire and a specific annual number of interviews, plus the additional costs for each 100 extra interviews (each year) above that number, and a separate bid for the additional cost per extra minute of interviewing (and how many questions that would include) for each year. For a 3-year RFP, you would then have a table of nine cost estimates from which you could then determine the cost for any length questionnaire and any number of interviews. This procedure allows you much greater ease in making cost comparisons among bidders.

Contract Specifications

Typical requests for proposals will include the following components:

Component	Description
Background Statement	<p>The request should explain that [your state] is one of 50 states conducting the Behavioral Risk Factor Surveillance System (BRFSS) with financial and technical support from the Centers for Disease Control and Prevention (CDC).</p> <p>The request should also explain that the BRFSS is a state-based telephone surveillance system designed to collect data on individual risk behaviors and preventive health practices that are related to the leading causes of mortality and morbidity in the United States. Information provided by the BRFSS is not available from other sources in the state. In addition, because it is part of a nationwide surveillance system, the BRFSS provides comparisons to other states.</p>
Contract Objective	<p>The purpose of the contract is to provide CDC and the state with machine-readable datasets containing a minimum number of responses to the BRFSS. BRFSS respondents must represent the state's population.</p>
Contract Period	<p>The contract period will vary from state to state, depending on local restrictions and type of contractor (for example, academic or private). The contract period is typically determined by the fiscal or other office charged with awarding the grants and contracts. All new contracts need to conform to previously established policies. In most cases, contract periods will coincide with the BRFSS surveillance period (calendar year, January–December), but some contracts span intervals, such as the fiscal year, that coincide with other work activities. States should establish a mechanism to suspend or rectify contracts in the event of the contractor's unacceptable performance.</p>
Product and Service Requirements	<p>The contractor will perform the activities necessary to fulfill the requirements of the BRFSS. The contractor's proposal will be made part of the contract and will incorporate references. The signed contract will be the controlling document relating to the scope of work provided by the contractor and will specify types and dates for deliverables, which in turn will form the basis for payment to the contractor.</p>

Contractor Requirements

The contractor will meet the following product and service requirements:

Requirement	Tasks
Contract	<ol style="list-style-type: none"> 1. Sign a contract (effective at the start of the calendar year or fiscal year) for one year with an option to renew for four additional one-year periods. Include a statement that the state retains all rights to the completed interviews and datasets and that the contractor will not release any surveillance information or results without prior written approval from the state.
Questionnaire	<ol style="list-style-type: none"> 2. Conduct interviews using the questionnaire provided by CDC for each calendar year. The total number of questions, including state-added questions, will not exceed the number specified in the contract. 3. Develop a process to accommodate annual changes and inclusion of state-added questions. The health department will serve as coordinator for developing state-added questions. Additional payments may be made for costs of extra programming and pretests of new questions. Separate billing will be required for add-on questions; the contractor will be responsible for detailing all costs. 4. Program all questions and response categories in a computer-assisted telephone interviewing (CATI) system by two weeks before the start of the interviewing year.
Sample/ sampling design	<ol style="list-style-type: none"> 5. Complete no fewer than [1/12 of states' sample size] telephone interviews of state residents, aged 18 years or older, per month, for a total of no fewer than the total number of interviews specified in the contract. This is for a 12-month period of January 1 through December 31. The targeted response rate, as calculated by the Council of American Survey Research Organizations (CASRO) method, must not decrease. 6. May propose a random selection procedure that is a probability sample from a sampling frame consisting of all possible state households with telephones, subject to approval by the state and CDC. 7. By a predetermined date, provide a written description of the sample selection method to be used, and describe and justify any proposed variations from CDC specifications.
Interviewing methods	<ol style="list-style-type: none"> 8. Conduct interviews among randomly selected adults aged 18 and older using the questionnaire provided by the state and methodology specified by CDC in the <i>Behavioral Risk Factor Surveillance System Operational and User's Guide</i>. This task includes, but is not limited to, conducting interviews each month in accordance with the scheduling guidelines and protocol provided by CDC, randomly selecting an adult respondent in each household, and providing the monthly raw data to the state in the format and time frame specified. 9. Contact selected telephone numbers for interviewing until

Requirement	Tasks
	<p>the minimum monthly requirement of completed interviews is met and all active sampled numbers have reached final disposition. Call at a variety of times during the day and week to ensure a representative cross section of the population. Calls are to be made during evening, daytime, and weekend hours.</p> <p>10. Dial numbers not answering or busy a minimum of 15 times over 5 calling occasions, including at least one attempt during a weekend, one attempt during a weekday, and one attempt during a weekday evening. Approximately 80% of calls should be made during evenings, with the remaining 20% conducted during weekdays and weekends. Business establishments and residents of institutions and group quarters are not eligible for interview. When the selected respondent in the household is not available for interview at time of initial telephone contact, call back a minimum of three times during the work shift to attempt to interview. Eligible persons initially refusing to participate will be contacted a minimum of one additional time for attempted conversion.</p> <p>11. In addition to English, be prepared to conduct interviews in Spanish, when necessary.</p>
Data management	<p>12. Perform error checking, and validating of entries to provide a single data file each month that is acceptable to both CDC and the state. Code data according to CDC instructions. Edit and correct the resulting data file, including performance of data consistency checks, and electronically submit a standard, reliable dataset for each month's interviewing period within 30 days of completing the interviewing period, according to CDC instructions.</p> <p>13. The data file must contain information about all telephone numbers called, including complete and incomplete interviews. Computer software for detecting and correcting errors will be provided by CDC to assist in cleaning the data. Data must be provided according to coding instructions (to be supplied) in ASCII format and submitted electronically.</p>
Quality assurance and confidentiality	<p>14. Develop and maintain procedures to ensure the respondent's confidentiality.</p> <p>15. Implement procedures for assuring and documenting the quality of the interviewing process and the data management steps. Provide supervision and monitoring of interviewers. Monitoring is to be conducted through the use of unobtrusive, electronic two-way audio and video means. If possible, remote monitoring should be made available.</p> <p>16. Ideally, verify a 5% random sample of completed interviews each month, stratified by interviewer, to validate (1) respondent selection, (2) selected demographic characteristics, (3) selected behaviors, and (4) interviewer manner. On request, provide to the state the actual sample of telephone numbers for cross-checking and verification. If providing ongoing, unobtrusive electronic monitoring, and the cost to verify the sample is prohibitive, you may choose</p>

Requirement	Tasks
	not to require verification.
Training	<p>17. Ensure that interviewers have experience in conducting telephone interviews. Facilitate training of interviewers in the administration of the BRFSS questionnaire; include practice interviews. Ensure that interviewers are briefed on the new questionnaire and have opportunities to conduct practice interviews using the new questionnaire before its implementation each January.</p> <p>Training to conduct BRFSS activities will be determined by the state BRFSS coordinator, who will be overseeing the contractor. The coordinator will assess the contractor's capabilities and determine the type and level of technical assistance and consultation needed. The state BRFSS coordinator can request additional technical assistance from CDC to ensure that procedures and protocols for survey administration are uniformly followed.</p>
Consultation	<p>18. Attend national BRFSS conferences and regional BRFSS meetings, and encourage CDC site visits, as requested and required.</p>
Records/ operational procedures	<p>19. Maintain adequate records to support costs associated with this agreement. Such records shall, at a minimum, include personnel time records signed and approved by supervisory personnel and additional records supporting computer time and equipment rental, telephone lines, supplies, and other costs.</p> <p>20. In the event that a systematic, recurring error is discovered in the sampling or interviewing operations, immediately notify the state of this error, correct the error at no cost to the state, and provide documentation to the state of both the occurrence and the correction.</p> <p>21. If the state finds problems in reviewing datasets, correct these to the state's satisfaction within [specify number] weeks of notification, at no cost to the state. The state may then require the contractor to implement additional data consistency checks.</p>
Subcontracts	<p>22. Assume all responsibility for contractual activities, whether performed directly or by another agency or agencies under subcontract. Serve as the single point of contact with regard to contractual matters, including payment of any and all charges resulting from the contract. If any part of this function is to be subcontracted, the contractor's proposal should include a list of subcontractors, including the firm name and address, contact person, complete description of work to be subcontracted, descriptive information about the subcontractor's organizational abilities, and the estimated cost. The state reserves the right to approve subcontractors and to require the contractor to replace subcontractors found to be unacceptable. The contractor is totally responsible for adherence by the subcontractor to all provisions of the contract.</p>

Requirement	Tasks
Deliverables	<p>23. Send project deliverables to the CDC on a monthly basis approximately two weeks after the last day of the interviewing month.</p> <p>24. Be able to provide the state with monthly quality control reports and call histories upon request.</p> <p>25. Provide the state a written report of the surveillance data on a quarterly basis. This report should consist of cross-tabulations of all questions by age, group, and sex (optional).</p> <p>26. Maintain all written reference materials and interviewer instructions. Retain one copy of all deliverables for a period of one year after the end of the calendar year during which interviewing occurred.</p>

Technical Assistance

The technical assistance provided by the CDC to the contractors supporting BRFSS (a cross-sectional telephone survey conducted by state health departments) will be limited to the following activities:

- Programming of the CATI questionnaire (core and optional modules) for Ci3 software.
- Provision of the telephone sample.
- Provision of reformatting and editing programs developed by CDC.
- Editing criteria and data layout.

Restrictions Against Disclosure

The contractor agrees to keep information related to the identity of respondents confidential. Other than the reports submitted to CDC and the state, the contractor agrees not to publish, reproduce, or otherwise divulge such information in whole or in part or in any form, or authorize or permit others to do so. The contractor agrees to immediately notify, in writing, the state’s authorized representative if there is reason to suspect a breach of this requirement.

Proposal Content and Format

To demonstrate the applicant’s ability to conduct the BRFSS, the proposal should include the following components:

- Cover page. The page should indicate the contractor’s name, address, telephone number, taxpayer’s identification number, date of submission, authorized official and title, project period, and type of organization. The signature of the official with legal authority to bind the organization into a contractual agreement should also be included.
- Organizational capacity and structure. This section should include a brief history of the organization, focusing on experience relevant to the project. Describe the support staff, computer resources, and any other resources available to the project. Organizational structure should also include the number of available interviewers, foreign language interviewers, and licensed workstations.

- Narrative. In this section, the contractor should describe the products or services that will be provided in response to the requirements delineated previously. The narrative should include the following:
 - A detailed history of telephone interview surveillance experience, specifying experience with the BRFSS or similar health-related surveys, bilingual interviewing, random-digit-dialing, and preparing results in an ASCII file.
 - A history of experience with random-digit-dialing sample technique. A description of the sampling technique that will be used, including a justification for its use as a probability sample in which all households have a known chance of being selected.
 - Evidence of acceptable performance on past surveys as measured by the following quality assurance indicators: CASRO or other response rate (indicate how calculated), refusal rate, refusal conversion, and timeliness of providing data and corrections.
 - A description of the CATI system to be used and the contractor's experience with that system. The CATI system must permit data entry at the time of interview, provide error and range checking, be programmed for skip patterns, and, if possible, manage the telephone sample.
 - A description of procedures used to monitor interviews and verify responses.
 - A description of procedures for training interviewers, including annual plans for briefings on the new questionnaire.
 - Workplan/schedule of activities. This section should describe the specific activities required to implement the proposed services, how these activities relate to project objectives, and the dates that they will be completed. The persons responsible for each task should be specified.
 - Staff. This section should include an organizational chart highlighting the persons or unit(s) responsible for the project. Describe the qualifications and relevant experience of the project supervisor and key interviewing staff. Specify the involvement of the project supervisor and the key interviewing staff in terms of hours/days to be spent on the project. Attach the resumes of the principal investigator, key supervisory staff, and all other persons involved in the project, detailing length of experience in survey projects, experience with telephone surveys, and experience with CATI software.
 - Budget and budget justification. Contractors must submit a detailed budget proposal delineating major categories of cost (in other words, staffing, supplies and materials, travel, and other direct costs). Justification for each budget item must be included. The contractor must also provide a separate calculation for the cost of adding and processing questions to the questionnaire.

Application Process

The actual application and renewal processes observed in any state will be governed by the practices and mandates regularly observed within that state for soliciting bids, reviewing and ranking applications, and making contract awards. However, it is the responsibility of the BRFSS coordinator to be aware of this process and the normal lead and preparatory time frames involved in the process of awarding contracts and to be prepared well in advance. Identifying and becoming acquainted with key persons involved in the state’s contracting process, and their responsibilities and contributions to the process, can be very helpful.

Evaluation Process

The state will normally commission a technical review committee to evaluate and score all proposals.

Evaluation Criteria

The following are suggested evaluation criteria that states may use. The point system may be adjusted at the discretion of the state/territory.

Criteria	Points
1. Understanding of the scope of the project	20 points
2. Qualifications and capabilities to execute the project	20 points
3. Demonstration of past experience with similar health surveys	20 points
4. Appropriateness of quality assurance and monitoring procedures, including records of past performance	20 points
5. Technical approach	10 points
6. Competitiveness of cost	10 points

Evaluation Review

Often, the highest ranking proposal will receive the award. In some cases, however, simply the highest technical score or the lowest bid will be awarded. Within the framework of the state’s application process, very often a less than optimal candidate will receive the award unless states are very careful, and meticulous attention is devoted to the announcement and evaluation criteria. BSB will review RFPs and participate in application reviews when the state requests, and when possible. However, BSB will not make a recommendation for one contractor over another. The state will make the final determination on such issues.


Obtaining the Telephone Sample

This subsection provides information about the following topics:

- [Telephone sample](#)
- [Telephone Sample format](#)
- [Importing the new telephone sample format](#)

Telephone Sample

BRFSS [Policy Memo 2003.1](#) explains changes in the telephone sample format.

	<p>BRFSS Protocol: Samples used in the BRFSS must be probability samples in which all households with telephones have a known, nonzero chance of inclusion, as stated in item #1 in Policy Memo 2003.1. All samples come from the Telecordia Technologies database and include all numbers in NXX Types 00, 50, 51, 52, and 54 in the sampling frame.</p>
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Samples can either be obtained from the BSB or purchased from a vendor.

Samples acquired from BSB are free, but are delivered quarterly. Thus the numbers called at the end of the quarter may be outdated (disconnected, reassigned, or new numbers). BSB only provides survey sample for the DSS design.

Complete the **Sample Request** form to order a survey sample from the BSB. Forms are distributed September 1, and are due October 1. Be prepared to specify the number of state-added questions and to identify the optional modules you will be using.

- Sample purchased from a private vendor (such as GENESYS) must adhere to both BRFSS Protocol and the format specified in [Policy Memo 2003.1](#).

Telephone Sample Format

Changes were made in the survey sample format for the 2003 data collection year as specified in [Policy Memo 2003.1](#). This format has been required from all vendors beginning with the data year 2005. The purpose for the change is to improve sample management and methodological and substantive analyses.

Importing the Current Telephone Sample Format

Procedures for importing the current survey sample layout into Ci3 CATI are specified in the Implementation of [Policy Memo 2003.1](#).

Some items in the survey sample format will now be included in the monthly data layout submitted to BSB after monthly data collection.


- For states using Ci3 CATI and BSB sample, BSB will provide procedures for importing the BSB telephone sample into Ci3 CATI, and for producing the correct data layout.
- States not using Ci3 CATI must develop procedures for importing the sample into their CATI systems, and for producing the correct data layout as specified in [Policy Memo 2003.1](#).

Household and Respondent Selection

This subsection provides information about the following topics:

- [Household selection](#)
- [Respondent selection](#)


The CATI system randomly selects numbers to be called. However, interviewers must make a determination about whether the telephone number reaches a household, and determine the correct disposition of the call.

	<p>BRFSS PROTOCOL specifies that an eligible household is a housing unit that has a separate entrance, where occupants eat separately from other persons on the property, and that is occupied by its members as their principal or secondary place of residence.</p>
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Household Selection

Noneligible households include the following:

- Vacation homes not occupied by household members for more than 30 days per year.
- Group homes (sororities and fraternities, halfway houses, shelters, and so forth.)
- Institutions (nursing homes, college dormitories, and so forth.)

	<p>Make sure it's a residence!</p> <p>Random dialing will result in some strange situations. Once, an interviewer from North Carolina reached the "snitch line" for a vice cop. He was adamant that someone was playing a prank on him and demanded to know who gave out the number.</p> <p>It is important to determine if the telephone is in a residence before beginning the interview. In one state, the phone rang in an elevator, where a man answered and actually completed the interview. However, the interview had to be discarded because the phone was not in a private residence. In another state, an interview conducted with someone answering a pay telephone had to be discarded.</p>
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Respondent Selection

The CATI system randomly selects one adult in the household to be interviewed and the appropriate text appears on the screen. The interviewer must make every attempt to interview the respondent selected. Supervisors must make sure that interviewers do not simply interview the person who answers the phone.

Guidelines for selecting adult respondents are as follows:

<p>Respondent is a member of the household</p>	<p>Household members:</p> <ul style="list-style-type: none"> • Include all related adults 18 years old or older, unrelated adults, roomers, and domestic workers who consider the household their home, even though they may not be home at the time of the call. • Do not include adult family members who are currently living elsewhere, such as at college, a military base, a nursing home, a correctional facility, and so forth.
<p>Respondent is 18 years of age and older</p>	<p>The first question on the BRFSS questionnaire regarding household selection asks how many members in the household are 18 years of age or older:</p> <ul style="list-style-type: none"> • If the answer is <i>one</i> and the person answering the telephone is that adult, the interviewer proceeds to the first question on the questionnaire. • If the response indicates that there are five or more adults, the interviewer should probe to ensure that they are all 18 years of age or older, that all are currently living in the household, and that the household is not a group home or institution. <p>The interviewer then asks the person answering the telephone the number of adult male members in the household, then asks the number of adult female members in the household. Once this information is entered into CATI, the system will randomly select a respondent.</p>
<p>How many are men, and how many are women</p>	<p>The next question asks how many of the adults are men and how many are women. The interviewer enters the appropriate answers.</p> <p>If there is only one adult in the household, the interviewer enters "1" and leaves the other box blank.</p>

Disposition Codes

For a complete list of BRFSS call disposition codes with explanations, see [Policy Memo 2001.1](#).

Calling Schedule

If there is no answer at the randomly selected telephone number, the interviewer redials that number up to 15 times within one of the four calling occasions. The calls should be placed in each of the three working schedules (as follows) until the party is reached or until 15 attempts have been made. If the interviewer reaches a nonworking number or a business, calls to that number stop.

Interviewing shifts are also known as *calling occasions*. Interviewing shifts are as follows:

- Weekdays 1:00–5:00 p.m.
- Weeknights 5:00–9:00 p.m.
- Saturdays 10:00 a.m.–2:00 p.m.
- Sundays 1:00–5:00 p.m. and 5:00–9:00 p.m.

You may find some useful information in the article, **Findings from the BRFSS Call History Study**, which is provided in the [Data Collection and Management](#) section of this document.



BRFSS Protocol requires that call attempts on all sample pieces should be completed during the calendar month of the sample selection. However, if there are unresolved sample pieces remaining without the required call-backs at the end of the month, calls should continue until each sample piece can be given a final disposition according to the BRFSS disposition rules. If it is repeatedly necessary to make additional calls after the end of the month, steps should be taken to accelerate calling earlier in the month by increasing interviewer hours.

Refusal Conversions

This subsection provides information about the following topics:

- [Hang ups](#)
- [Tips](#)
- [Techniques](#)



BRFSS protocol specifies that with the exception of verbally abusive respondents, eligible persons who initially refuse to be interviewed will be contacted at least one additional time to give them an opportunity to complete the interview. Preferably, this second contact will be made by a supervisor or by a different interviewer.

Regardless of how well trained and prepared an interviewer is, there will be times when respondents will refuse to complete an interview. Many factors can contribute to a refusal at the time of the initial call, and few have anything to do with the interviewer. The best defense against discouragement is to realize that the refusal is usually an expression of the respondent's own fear or resistance, not a negative judgment of the interviewer's competence.



Role Playing

During training in New Mexico, the staff uses refusal conversion role-playing to train interviewers. According to the supervisor there, new interviewers don't realize that 'I'm sorry, I don't have time right now,' is not a refusal – it's an opportunity for scheduling another interview.

Here are a few things to keep in mind about refusals:

It is very important to document the reason for the initial refusal because this information may help convert a refused interview into a completed interview.

Respondents are sometimes rude and even hostile. Rather than taking this reaction personally, the interviewer should try to address the respondent's objections.

If a respondent seems willing to participate in the interview but is concerned about its legitimacy, empathize and explain the purpose of the survey. If the state has a BRFSS Web site or page, you can also refer them to the Web site address. If that does not work, offer the telephone number of the office and indicate that the respondent can call back during regular working hours to verify the number. The number given should be the central number or the number of someone who serves in a management capacity. When the number is given out, make sure that there is a knowledgeable person available to respond to the inquiry, and alert this person that an inquiry may be made.

When a respondent asks the interviewer to call back some other time, code that attempt as an appointment and try to make a different appointment date and time.



Be certain that interviewers are not reporting possible callback appointments as refusals. Interviewers should not interpret "I don't have time to talk right now" as a refusal, but instead set up an appointment to call the respondent at a more convenient time.

Hang Ups


Interviewers should call back in a few minutes and apologize by saying, "I'm sorry, but somehow we were disconnected, and at this time I would like to continue." Emphasize the importance of the survey and that the interview will take only a few minutes.

Tips

The following tips may be useful for initial refusals and second refusals:

- Use the information reported about the first refused interview to prepare specific responses for the next call.
- Project a confident and reassuring manner while conveying a genuine interest in the respondent. For example, if the respondent is in the middle of cooking dinner, apologize for calling at an inconvenient time and offer to call back later. This will convey the interviewer's willingness to accommodate the respondent and an understanding of the importance of the respondent's time. This attitude could turn a refused interview into a completed interview.
- Do not be afraid to be assertive with hesitant respondents; use all of your powers of persuasion to get the interview. Remember that now is better than later. Research has shown that the highest completion rates occur at the initial contact and decline with each successive call. Unless it is clearly a bad time, the interviewer should always try to convince the respondent to do the interview at that time.
- Use the following statement when calling a respondent who has refused to participate:

"I realize we have already called you from the State Health Department, but I would like to give you a little more information because we want everyone to have a chance to participate. The survey is designed to determine the number of people who are at risk for the leading causes of premature deaths and disabilities, such as cardiovascular disease, cancer, and motor vehicle crashes. The data will be used to improve programs that promote the reduction of these conditions."

	<p>A Change in Attitude Makes All The Difference</p> <p>One very quiet and shy interviewer dropped 20 points from her refusal rate. She explained that she had simply internalized the script and converted it into something she felt comfortable with. (This involved stressing the CDC's role and the use of federal dollars.) She said she decided to change her perspective; whereas she once was afraid of being refused, she began to see it as a game or challenge to convince the person to talk with her. She tries to keep in mind that people are doing the interviewers a favor by answering the questions.</p>
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Techniques

Following are some suggested responses to refusals:

Refusal	Response
I'm not interested.	I can understand with all the surveys being taken, but I'm from the State Health Department, not a political group or business. I'm not selling anything. This study is designed to see how the health habits of the residents of our state affect their chances of getting long-term illnesses like cancer, heart disease, or high blood pressure. Your input is important so we can make better decisions in planning health programs. The interview will take only a short time.
Still not interested.	I'm sorry to inconvenience you, but we must give each household an opportunity to participate, and there is a good chance that someone other than yourself is the person I need to interview.
I don't have time/I'm busy/It's not a good time.	I understand. Let's make an appointment for another time. Someone will call you later. [If the same calling occasion is not possible, try to schedule an appointment for as soon as possible. Have the respondent specify a time.]
There is no convenient time to call back.	We will be making calls for the next few days. What day is best for you?
I don't do telephone surveys. Mail it to me.	Unfortunately, we can only conduct this survey over the telephone. The survey will only take a few minutes, and most people find the questions interesting. Let me start, and you can see what they are like. If you do not want to answer a specific question, let me know and I'll proceed to the next question. [Ask the first question immediately.]
I don't like to do surveys. Why don't you call someone else?	The survey will only take a few minutes, and it's very important that we include everyone we call so our results will be scientifically accurate.
I was just interviewed last week. Try someone else.	That sounds like a different survey. This is the State Health Department. This is a survey of health practices and will take

Refusal	Response
	a few minutes. It's very important that we include everyone we call, so we can make better decisions about how tax dollars and programs can be used to benefit our state's residents.
I don't have anything to do with public programs/I get my health care from my private doctor/HMO/military.	All health care providers, public or private, can use the information to improve services and plan better programs.
I just moved to this state; I don't qualify as a resident yet.	If you are now living in this state and you plan to live here, the Department of Health considers you a resident.

Statements such as “call back next week” or “I work odd hours” might be excuses and will probably be repeated at a subsequent call. Try to retain control by establishing an appointment. If the respondent does not provide a specific date and time, explain again the purpose of the survey and the reason it is important to interview the correct respondent. The availability of a toll-free number for the respondent to use in these circumstances can be helpful.



Adapting Scripts

Interviewers in North Carolina have a script that works well for them. Some have adapted it to meet their own needs. Here's an example, emphasizing the 'social conscience' angle, used currently by some of the interviewers: "Have you ever been watching the evening news, and Tom Brokaw or Peter Jennings says 'the CDC reports that such and such a number of people do such and such, which is bad for their health?'" [the respondent usually says yes] "Well, this questionnaire and people like you is where they get that information."

All refusals get a second call after 24 hours, unless they were extremely abusive (cursing, personal attack, and so forth). All interviewers in North Carolina call back respondents who have refused to answer the questionnaire, but not the same person who was refused the first time. Even if a person requests not to be called back, that number will be called if the interview had not progressed to the point that a respondent was selected.

Appointment Procedures

An interviewer should attempt to schedule an appointment if the selected household member is not available at the time of the call or if the selected person does not have time to complete the interview. The interviewer should ask about a convenient time to call back (preferably during the current calling occasion), agree on a specific day and time, and try to get the first name of the person to be interviewed. If the respondent will not provide a time to call, the appointment should be scheduled for the next calling occasion.

If the person who answers the telephone initially says that he or she does not have time at the moment, the interviewer should try to get the person to answer the household information questions so that the selection can be made. The selected person might be home and able to complete the interview, or the interviewer might be able to get a name and a time to call back. If the person absolutely will not take the time to answer any questions at the moment, an appointment should be scheduled for the next calling occasion. The interviewer should note that household contact was established but that no selection was made.

Appointments are recorded through the CATI system. The following information is included:

- Selected respondent
- Person with whom the interviewer spoke
- Date, day of week, and time of appointment
- Reason for callback

If an interviewer calls back at the appointed time and there is no answer or the line is busy, that number must be called at least two more times during that calling occasion. Additional calls are made according to the rules of replacement during subsequent calling occasions until a total of 15 calls are made and a final disposition is recorded.

Confidentiality


This subsection provides information about the following topics:

- [Responsibility](#)
- [Steps to ensure confidentiality](#)
- [Sample confidentiality agreement](#)

Responsibility

Ensuring the confidentiality of all survey respondents is vital to the BRFSS process. It is the responsibility of coordinators and supervisors to ensure that all BRFSS staff, especially interviewers, do the following:

- Respect confidentiality
- Receive training on the importance of confidentiality
- Refrain from discussing details of specific interviews outside the work environment
- Sign the confidentiality agreement
- Assure respondents that their confidentiality is protected

	<p>Once, during random dialing in Delaware, the governor was called. He said, "But, I'm the governor—should I be in this sample?" The interviewer responded, "Well, of course! You are a citizen in this state." Naturally, the interview couldn't be included in the sample due to the breach of confidentiality, but the governor became a strong supporter of the BRFSS after that call. He used some of the data when he created his Governor's Council on Lifestyle and Fitness.</p>
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Steps to Ensure Confidentiality

Follow these measures to ensure respondent confidentiality:

- No respondent identifiers are retained in the interview records.
- Respondent data are combined; reports cite only aggregate figures.
- If the interviewer knows the respondent, the interview should be rescheduled as an appointment and reassigned to another interviewer.

Although discussion of respondent information among BRFSS staff is a necessary part of the surveillance process, staff must not discuss details of specific interviews outside the work environment.

Interviewer monitoring does not violate the principle of confidentiality because the monitors are subject to the same confidentiality standards as the rest of the BRFSS staff.

 A dark red icon of a pair of binoculars, symbolizing observation or looking into a restricted area.	<p>Example from New Mexico</p> <p>When potential interviewers come to apply for the job, they can see a sign on the door to the calling room that says "Restricted Area." They are allowed to peek in but not enter until they have signed a confidentiality agreement (see the following sample) after being hired. Also, during their initial training, when the program is being explained, confidentiality is stressed. Examples of what is and is not acceptable are presented.</p> <p>Situations that occur when talking to the public can put a burden on interviewers because they aren't allowed to discuss their work outside the office. Interviewers are encouraged to "vent" and debrief with one another during breaks.</p>
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Sample Confidentiality Agreement

Anyone with access to data containing respondent identifiers should sign a confidentiality agreement, such as the following example.

*Survey Research Facility
Address, City, State, Zip Code*

Confidentiality Agreement

_____ provides an essential and valuable community service through the research of public information on a broad range of topics. Our projects often involve sensitive and confidential information from our clients and from our respondents. Truthful and accurate respondent and sponsor information is critical to the accuracy of the survey results and procedures.

As a result, the nature of the information surveyed requires a commitment of confidentiality to protect clients' and respondents' rights to privacy. Frequently, a commitment of confidentiality is a prerequisite to facilitate participation by respondents. Therefore, a commitment of confidentiality to its respondents and survey sponsors is important. Because unauthorized breaches of that confidentiality would violate assurances that are essential to obtaining truthful and accurate information, thereby impinging on our ability to produce accurate and reliable products, unauthorized disclosure of research information would result in a greater harm than benefit to the public interest. As a result, we request that each employee read and sign the following confidentiality agreement as a condition of employment.

I HEREBY AGREE NOT TO RELEASE THE FOLLOWING PRIVILEGED INFORMATION TO ANY PERSONNEL WITHOUT PROPER AUTHORIZATION FROM A DULY AUTHORIZED EMPLOYEE OR AGENT:

1. Information leading to the identification of a survey respondent.
2. Individual survey responses.
3. Unpublished tabulations of survey results.

Signature

Date


9. Quality Assurance

This section provides information about the following topics:

- [Overview](#)
- [Interviewer Monitoring and Feedback](#)
- [Verification Callbacks](#)
- [Interviewer Performance Statistics](#)
- [Data Collection Statistics](#)
- [Data Editing, Correction, and Submission](#)
- [Sources of Error](#)

Overview

Quality assurance is an essential aspect of the job for everyone involved in the BRFSS survey. Ensuring that BRFSS data are collected with scientific rigor and consistency is important not only to provide the most accurate data possible, but also to ensure the integrity of the data. Without adequate quality assurance activities, surveillance data may be less valid than it would be otherwise, and will certainly be less credible. A series of checks and balances exists to help catch quality problems, and coordinators must be vigilant to catch and correct them.

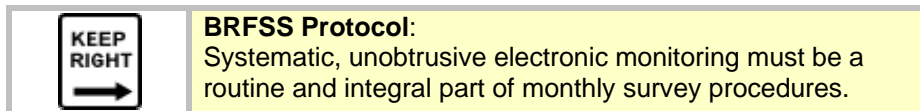
	<p>Quality control in Colorado is systematic. A Colorado BRFSS coordinator created the following system for monitoring data quality:</p> <ul style="list-style-type: none">• A researcher runs quality control reports and performs data editing every evening.• Monthly reports are generated on each interviewer, showing variables such as the number of calls, number of completed interviews, and so forth. Based on this information, the supervisor might decide to monitor a particular interviewer.• About 10% of all interviews are monitored.• Verification callbacks are not performed.• Reliability studies are conducted on all state-added questions.
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Although the coordinator is ultimately responsible for overall quality assurance, the individual processes are often carried out by a supervisor or a data processor.

Interviewer Monitoring and Feedback

This subsection provides information about the following topics:

- [Purpose](#)
- [Requirements](#)
- [Process](#)
- [State Regulations](#)
- [Sample Interviewer Monitoring Form](#)



Purpose

The purpose of interviewer monitoring is to ensure that the interviewer is not inadvertently introducing bias into the survey by tone of voice, not reading the question as written, or not completing a question.

Monitoring is a valuable tool for ongoing training of interviewers and achieving uniform questionnaire administration. Interviewers should be monitored to ensure adherence to procedure, professional conduct, effectiveness, and to identify areas for improvement. Monitoring is usually done by supervisors.

During training, allow new interviewers to listen to experienced interviewers and monitor new trainees.

It is not advisable for supervisors to enter the conversation for any reason during monitoring.

The use of simultaneous video monitoring is recommended because it allows the supervisor to watch the entries being made while listening to the survey being conducted. The supervisor can observe that the interviewer not only reads each question but also properly enters accurate responses into the computer.

Requirements

Optimal monitoring, as specified by [Policy Memo 98.2](#), requires the following:

- A telephone monitoring system that allows both the interviewer and the respondent to be heard.
- A CATI system that allows viewing an interview in progress on two monitors.
- Unobtrusive monitoring. (The interviewer should not know when monitoring is in progress.)
- Systematic monitoring of interviewers at least once a month.
- Documentation of monitoring, to be shared with the interviewer and used in performance evaluations.

While monitoring, supervisors should

- Ensure that all questions are asked as written and in the correct order.
- Pay close attention to accurate coding of responses.
- Listen for professional attitude and a positive voice.
- Notice how respondents react.

Process

Introduce the concept of monitoring to interviewers in initial training. Stress that listening to interviews is a valuable tool for their continued training and for achieving uniform questionnaire administration. Provide nonjudgmental feedback to interviewers based on monitoring. Following are guidelines for monitoring:

- Monitor during every monthly interviewing period.
- Monitor all interviewers; daily for new interviewers, monthly for experienced interviewers.
- Interviewers should not know when they are being monitored. Otherwise, they may consciously or unconsciously make changes in their interviewing style.
- Monitoring equipment should allow you to hear both the interviewer and the respondent and to observe the interviewer's coding of responses at the same time.
- Monitoring should not be limited to the interview itself. The introduction and callbacks on initial refusals should also be monitored to identify interviewers' weaknesses in persuading respondents to participate.
- Although supervisors usually do the routine monitoring, interviewers may also do some monitoring. They can gain a great deal from listening to other interviewers.
- Observations should be documented and discussed with the interviewers as soon after monitoring as possible. An interviewer monitoring form can be used to evaluate interviewers on verbatim reading, coding accuracy, probing, refusal avoidance and conversions, diction, pace, and courtesy. (A sample of this form is provided on a subsequent page of this section.)
- Results should be filed for use in future performance evaluations.

State Regulations

State regulations govern to what extent parties on the telephone need to be informed that another person is listening. Generally, however, as long as one party (in this case, the interviewer) is aware that monitoring may take place, it is not necessary to inform the interviewer or the respondent at the time an interview is actually being monitored.

Because supervisors are subject to the confidentiality requirements, monitoring is not a breach of confidentiality.

When state law requires that the respondent be notified of possible monitoring of the interview, the following statement should be substituted immediately before Section I of the questionnaire:

The interview may be monitored for quality assurance purposes, but all information obtained in this study will be confidential.

Following is an example of an interviewer monitoring form.

SAMPLE
Interviewer Monitoring Form

Interviewer ID: _____	Date: _____
Monitor: _____	State/Community: _____

Instructions:
After one hour, rate each interviewer's characteristics on a scale from 1 (lowest) to 5 (highest).

Attitude	Low					High
Is courteous and polite	•	1	2	3	4	5
Sounds confident	•	1	2	3	4	5
Does not sound bored	•	1	2	3	4	5
Knows pronunciations	•	1	2	3	4	5
Speech is clear	•	1	2	3	4	5
Does not hurry interviewee	•	1	2	3	4	5
Does not sound sarcastic	•	1	2	3	4	5
Sounds interested in responses	•	1	2	3	4	5
Interviewing Techniques	Low					High
Attempts to make appointments with appropriate respondents	•	1	2	3	4	5
Executes respondent selection process smoothly	•	1	2	3	4	5
Reads verbatim	•	1	2	3	4	5
Has good interviewing pace	•	1	2	3	4	5
Allows respondent to ramble	•	1	2	3	4	5
Interview flows well	•	1	2	3	4	5
Verifies telephone number	•	1	2	3	4	5
Goes from introduction directly into first questions	•	1	2	3	4	5
Persuades respondent to continue	•	1	2	3	4	5
Follows skip patterns smoothly	•	1	2	3	4	5
Answers respondent's questions	•	1	2	3	4	5
Smooth closing of the interview	•	1	2	3	4	5
Probing	Low					High
Probes for more accurate information	•	1	2	3	4	5
Knows when to probe	•	1	2	3	4	5
Uses neutral probes	•	1	2	3	4	5
Uses multiple probes	•	1	2	3	4	5
Encourages responses when respondent seems reluctant	•	1	2	3	4	5
Would you want to be interviewed by this person on this survey?	Yes			No		
Comments:						

Verification Callbacks

This subsection provides information about the following topics:

- [Purpose](#)
- [Process](#)
- [Verification Callback \(VCB\) records](#)
- [Discrepancy procedures](#)
- [Sample Verification Callback Form](#)

Purpose

The purpose of Verification Callbacks (VCBs) is to ensure that the survey is capturing consistent responses. This is an important quality control procedure that measures the integrity of data collection.

VCBs are usually done by a supervisor or an experienced interviewer. VCB records should be maintained to support and document the scientific rigor under which the survey is conducted. (More detail about VCB records are provided on a subsequent page of this section.)

If interviewer monitoring is not possible, VCBs must be done each month.

Interviewer monitoring and VCBs are separate activities, and neither should be conducted in place of the other. However while conducting VCBs, one may be able to detect a lapse in an interviewer's performance.

If you have reason to suspect the performance of a particular interviewer, undertake an investigation separate from VCBs.

Process

Each VCB requires approximately 10 minutes.

1. Randomly select 5% of all successful interviews for VCB.
2. Use a *Survey Verification Callback* form to document the activity and to maintain consistency in conducting VCBs.
3. Speak only to the person originally interviewed.
4. Ask age and gender to ensure the identity of the respondent.
5. Ask if the original interviewer was polite, professional, and easy to understand.
6. Ask three or four questions to verify the accuracy of the data. Recommended questions include the following:
 - Demographic information for which you can reasonably expect to get a consistent response.
 - Income and weight questions (especially if this was not gathered in the original interview).
 - Sample questions from sections such as smoking, in which the interview can be shortened by falsely recording a '**No**' answer to the first question.

7. Record responses and then thank the respondent.
8. Record responses on the monthly VCB report; keep for reference and use in future performance ratings.
9. Discuss the VCB with the respective interviewer.

Verification Callback (VCB) Records

Monthly records of VCBs should be kept. The BRFSS cooperative agreement renewal instructions specify that the progress report should include "a quantitative account of data collection activities, including quality control measures, and the extent and results of interview monitoring and Verification Callbacks." The purpose is to document both (1) interviewer performance and (2) protocol compliance. VCB records should include the numbers of

- VCBs made
- Items verified
- Discrepancies found

Discrepancy Procedures

Answers that are different in the VCB than in the original interview do not necessarily indicate that the interviewer did a poor job. The respondent may not have understood the question, or may have purposely misled the interviewer.

If recurring or significant discrepancies are found between the original interview and the VCB, a decision must be made on the best course of action to improve interviewer performance.

If minor discrepancies are found (for example, seatbelt is used "sometimes" as opposed to "seldom"), the supervisor will monitor the interviewer and exercise judgment regarding the best course to follow.

If information obtained in the VCB is different than that on the questionnaire:

- DO NOT update BRFSS questionnaire data as a result of the VCB if the responses are different. Document the discrepancy for comparison to VCB responses from other interviewers.
- DO update the questionnaire to include any new demographic information (especially weight or income data) if it was not obtained during the original interview.

For more substantial VCB discrepancies, follow these guidelines:

- If one interviewer produced many errors or significant discrepancies, verify more interviews from that one interviewer.
- If the discrepancies are due to coding errors, all interviews completed by that interviewer must be reviewed with care and handled appropriately. Additional training should be provided to the interviewer, and the interviewer should be monitored closely until the problem is overcome.
- If data have been intentionally falsified, all interviews by that interviewer must be reviewed for authenticity, and determinations must be made regarding whether the interviews are salvageable. Any suspect interviews must be removed from the dataset (but retained as documentation for disciplinary action). No reinterviews are to be done; those data are lost.

Sample Verification Callback Form

Interviewer ID _____

Date of Interview _____

PSU
Number _____

Script As appropriate, circle or write in responses. When these responses are compared to the original interview, in the space provided put a checkmark when the responses are confirmed.

Check if
Confirmed

Hello. I'm calling from the [state] department of health. Is this [telephone number]? _____

If no, redial more carefully. If yes, continue.

One of our interviewers called your home [time frame: earlier today, yesterday, this week, last week, and so forth] and interviewed [respondent ID: oldest male, mother, and so forth]. I'm calling back to confirm that the interview was conducted in an acceptable manner and to verify four questions for quality assurance. Before I continue, please tell me how many members of your household, including yourself [if an adult], are 18 years old or older? _____

How many of these are adults are male? Number: _____

The interview was conducted with [respondent ID]. May I speak to [that person]? _____

If the respondent is not available, set up an appointment to call back.

If the respondent is available, greet the respondent when he or she comes to the telephone, identify yourself and your affiliation with the state health department, and continue.

If the respondent is the person to whom you are speaking, continue.

Our records indicate that you recently participated in a health behavior survey for [State of xx]. Our quality control procedures require that we recontact you to verify that the survey was completed in an acceptable manner. Were you interviewed for our survey? _____

If no, thank the person for their time and terminate the call.

If yes, continue.

This is strictly a follow-up to verify the collected data and to evaluate the interviewer. Your comments will be used to improve the quality of the survey process. I have only seven questions to ask you, which will take only two or three minutes.

Sample Verification Callback Form, continued

1. Was your interviewer courteous and polite? Y N ___

2. Was your interviewer easily understandable?
(Clear pronunciations and speech)
Notes:

Y N ___

3. Was your interviewer pleasant to deal with?
(Moved at a steady pace, clarified questions)
Notes:

Y N ___

Finally, I have four questions from the survey itself to verify that your earlier responses were correctly recorded by the interviewer.

Check if
Confirmed

1. How often do you use seatbelts when you drive or ride in a car? ___

- Always
- Nearly always
- Sometimes
- Seldom
- Never
- Don't know
- Never drive or ride in a car
- Refused

2. Have you smoked at least 100 cigarettes in your entire life? ___

- Yes
- No
- Don't know
- Refused

Sample Verification Callback Form, continued

3. During the past month, did you participate in any physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise?

- Yes
- No
- Don't know
- Refused

4. And finally, [ask any missing demographics questions—age, race, income, education, or verify the number of telephone numbers in the household].

- Age _____
- Weight _____
- Race _____
- Education _____
- Income _____
- Telephone numbers _____

That's my last question. Thank you for taking the time to answer these questions. As I stated earlier, the information that you give us will be used to improve the quality of the survey.

Verified by:

Date:

Interviewer Performance Statistics

Interviewer performance statistics should be used as a tool to monitor and improve data collection techniques. Use these statistics to compare the performance of individual interviewers and to compare interviewer performance month-to-month. Both the CATI system and the BRFSS Year-to-Date Quality Control Report can track interviewer performance statistics. Significant changes in interviewer statistics can show deficiencies or improvements in data collection.

The CDC recommends tracking the following statistics, at a minimum:

- Percent of Records With One Adult, Records With Non-Missing Number of Adults
- Percent Missing (77 or 99) Income, Completes
- Percent Female, Completes

If possible, also track

- Question-Response Frequencies
- Number of Dialings per Hour (if resources permit)
- Number of Completed Interviews Obtained on Refusal Callbacks (if applicable)

The following is additional information about these statistics:

Statistic	Additional Information
Percent of Records With One Adult, Records With Non-Missing Number of Adults	One way that interviewers can clarify is to indicate that there is only one adult in the household. That way they can be sure to select the person on the phone as the interviewee. A large percentage of records with one adult may indicate that the interviewer is recording an incorrect number of adults.
Percent Missing (77 or 99) Income, Completes	Income is the most sensitive question on the questionnaire. Some interviewers are hesitant to ask this question or to probe respondents for an answer. A large percentage of missing values may indicate the need for further training. Also, sometimes interviewers will code records as 77 instead of 99. Therefore, an examination of the codes separately can also be useful.
Percent Female, Completes	Women tend to be more willing to complete surveys than do men. A large percentage of completes with women may indicate that the interviewer is not able to persuade more reluctant respondents to complete the interview.
Percent Income Less Than \$10,000, Completes	Some interviewers may be reluctant to probe respondents for a correct income category or to indicate an especially low income. A small percentage of records with income less than \$10,000 may indicate the need for further training.
Percent Age Ending in 5 or 0, Completes	Interviewers sometimes guess or round respondent answers. A large percentage of records with age ending in 5 or 0 may indicate the need for further training.
Percent Age 18-24, Completes	Respondents aged 18–24 years are generally more difficult to interview once reached. A small percentage of completes with respondents aged 18–24 years may indicate that the interviewer is not able to persuade more reluctant

Statistic	Additional Information
	respondents to complete the interview.
Percent Other Race, Hispanics Only	Hispanics tend to give answers to race questions that do not fit the expected categories. A large percentage of Hispanics coded Other race may indicate the need for further training on probing for the race of Hispanics.

Data Collection Statistics

Process

The CATI manager uses the CATI system reports along with the BRFSS Year-to-Date Data Quality Report to produce data collection statistics.

Collect these statistics monthly so problems can be identified and corrected before the next interviewing cycle begins.

Compare these statistics to those of previous months to determine if a change in data collection quality has occurred.

- If the data collection statistics indicate a decline in data quality, review the data collection process to determine the source and provide corrective measures, such as refresher training.

Statistics

The following are data collection statistics produced by the BRFSS Year-to-Date Data Quality Report:

Statistic	Description
Response Rate	Response rates indicate the number of completed interviews compared to an estimate of the number of households in the sample. It is important to calculate response rates because they measure the potential bias in the data. A high response rate indicates low potential bias. The CASRO rate is a response rate.
Survey Efficiency	<p>The survey efficiency for the BRFSS is the percentage of all telephone numbers in the sample that resulted in completed interviews. This indicator is affected by</p> <ul style="list-style-type: none"> • The percentage of sample telephone numbers that are assigned to households. • The degree to which interviewers adhere to surveillance procedures. • The extent to which interviewers gain respondent cooperation. <p>A state's survey efficiency measure should remain constant unless the following occurs:</p> <ul style="list-style-type: none"> • The telephone company changes assignment of telephone numbers in the surveillance area.

Statistic	Description
	<ul style="list-style-type: none"> • The sampling design is changed. • A drastic change in interviewer performance occurs.
Respondent Sex Distribution	<p>This statistic indicates adherence to respondent selection protocol. Survey samples with a respondent sex distribution that differs substantially from that of the population may produce biased data.</p> <p>Norm = percent female approximately 3-10 percentage points above population value.</p>
Respondent Race Distribution	<p>This statistic indicates adherence to respondent selection protocol. Survey samples with a respondent race distribution that differs substantially from the population may produce biased data. The percentage of non-white in the sample is affected by the protocol states use for coding Hispanics. Memo 97.5 covers this topic.</p>
Respondent Age Distribution	<p>This statistic may indicate adherence to respondent selection protocol. Survey samples with a respondent age distribution that differs substantially from the population may produce biased data.</p>
Item Nonresponse	<p>This calculation is based on the number of responses coded as 'missing' or 'refused.'</p>

Because any survey will have natural variation among sample sites, some variation between states is to be expected. Those states lying in the extremes of this statistic should focus remedial efforts on interviewer training.



Beginning with the 2002 data year, partial completes are coded separately. The 120-Partial Complete disposition is intended to provide a method of allowing a record, with valid responses through at least the demographics section, to be retained with complete interviews, without having to answer the remaining questions in the questionnaire.

For example, if a respondent refuses to continue with the interview after completing the demographics section and additional attempts do not result in a complete interview, this record should be given a final disposition, 120-Partial Complete according to the rules in Policy Memo 2001.1 Version 5 (February 21, 2002) BRFSS Disposition Codes. The remaining questions in the interview after the point of termination should be left blank. There is no longer a need to answer the remaining questions with a refused code to complete the questionnaire.

Prior to the 2002 data year, responses to questions were coded as “refused” to finish an interview that was terminated prior to the end of the Questionnaire. If data were missing for a question because of an inappropriate skip pattern, the “refused” response code would be used to fill the empty field.

Data Editing, Correction, and Submission

This subsection provides information about the following topics:

- [Data editing and correction process](#)
- [Quality control](#)
- [Data submission](#)



Monthly data editing can detect data collection errors early, allowing correction before the next data collection cycle begins. If not caught early, data collection problems can be very costly and time consuming to fix.

Data Editing and Correction Process

The following process is usually performed monthly by the CATI manager at the end of the interviewing cycle:

1. Run collected data through PC-Edits to create an error report.
2. Run the error report using PC-EditFix. Each error is displayed.
3. Correct the response, as necessary. This task may involve consulting the interviewer, or calling the respondent.
4. Repeat the process until all errors are resolved. BSB will not accept a data file with unresolved errors.

Although each state edits its data before submission, a final data edit is run by BSB to assure data quality. If, as a result of this final edit, data questions and problems arise, additional information may be requested from the state.

Although data editing is fundamentally part of the data submission process, it also plays a role in quality assurance. During data editing, unusual responses are flagged by PC-Edits. Significant or recurring errors coded by the same interviewer may indicate a need for interviewer monitoring to identify the problem or for refresher training.

Quality Control

Data editing can indicate problems with data collection procedures such as programming errors, interviewers not following protocol, and problems from poorly worded questions. When data editing is performed monthly, these data collection problems can be identified and promptly corrected.


Data Submission

Submit the data and telephone sample information monthly to BSB. The deadline is 30 days after the end of the data collection month.

Data not submitted by the deadline may not be included in the annual Summary Prevalence Report and may cause delayed production of state tables and risk reports.

[Policy Memo 2003.1](#) specifies that states are required to provide BSB with all telephone numbers selected and used in generation of the sample. This includes numbers that were preidentified as business or nonworking. This means that **all** telephone numbers in the pool of selected telephone numbers are to be included in the data submission file because they are legitimately part of the sample even though they have not been called. All submissions must adhere to the **Data Submission Format** as described in [Policy Memo 2003.1](#).

Sources of Error

	<p>Look out for sources of error that are inherent in survey research. Decrease errors by encouraging interviewers to follow procedure. Interviewer training and supervision are particularly important in reducing or eliminating these common sources of error.</p>
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Potential Errors in Data Collection and Processing

The following table explains several common errors in data collection and processing:

Type of Error	Description
Interviewer introduced bias	Lack of thorough training and interviewing experience could cause the interviewer to mislead the respondent as to the intent of the question.
Coding error	Interviewer misinterprets respondent's answer, marks an incorrect response code.
Respondent selection error	Interviewer disregards random selection process for household members, instead interviewing the person who answers the telephone.
Unit nonresponse	Chosen respondent not available or respondent refuses to participate in the survey. This is why verification callbacks and refusal conversion are important. Although this error comes from the respondent's unwillingness to answer questions, it relates to the interviewer's skill and patience in influencing respondents to answer as many questions as possible without adversely affecting the tone of the interview.
Item non-response	Interviewer overlooks a question or neglects to record the answer on the questionnaire.
Measurement error	Interviewer does not adhere to the wording of the questionnaire.

Type of Error	Description
Sloppy interviewing technique	Interviewer does not use appropriate tone of voice or pacing, or is unable to maintain scientific objectivity.
Sloppy questionnaire administration	The interviewer may ask a question incorrectly, record an incorrect response, or fail to follow skip instructions.
Data entry error	Not accurately correcting a response during data editing.



BRFSS Protocol:

With the exception of verbally abusive respondents, eligible persons who initially refuse to be interviewed will be contacted at least one additional time and given the opportunity to be interviewed. Preferably, this second contact will be made by a supervisor or a different interviewer.

10. Obtaining Funding

This section provides information about the following topics:

- [Cooperative Agreement Application](#)
- [Funding for State-Added Questions](#)
- [Funding from Partners](#)
- [Funding from Grants](#)

Coordinators are encouraged to seek out and secure funding for their state's BRFSS survey. Funds can come from different sources, including the BSB, the state, and organizations with which partnerships are formed. The main avenues for funding are listed and described in this section. They include:

Cooperative Agreement Application

BRFSS uses the cooperative agreement mechanism to provide funding to states. It is an annually renewable agreement between the state and BRFSS regarding needs, requirements, and funding.

The timeline for the Cooperative Agreement Application is as follows:


- February: the Procurement and Grants Office (PGO) mails application materials to previous award recipients.
- Deadline for returning the application to the PGO will be provided by program.
- June 30: notices of awards will be mailed to recipients. Available funds will be distributed first for a minimum 4,000 completed 100-question interviews in each state.

In addition, states may also request funds for the following:

- A percentage of the project coordinator's time and related costs for project activities in addition to managing data collection.
- Interviews to be completed in addition to the base number.
- Survey questions to be asked in addition to the base-length questionnaire.
- A percentage of an analyst's time and related costs for analyzing collected data.
- Production and distribution of publications reflecting the findings of BRFSS data or BRFSS methodology.
- Upgrading computer-assisted telephone interviewing systems and computer systems for analysis and Internet activities.

Funding for State-Added Questions

Programs requesting the addition of state-added questions are often required to provide funding for the inclusion of their question in the state's BRFSS survey.


	<p>These examples are from 1999, so these exact costs may not apply for the current year.</p> <p>In Arkansas, programs were asked to pay \$0.32 per question per respondent.</p> <p>In North Carolina, each question cost \$800, regardless of the percentage of the population to whom it is administered. If the perceived need was great, some questions may have been added even if the program couldn't pay for it. An example is a question about sexual assault, a topic for which North Carolina had no data.</p>
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Read more about state-added questions and the solicitation process used by several states in the Including State-Added Questions area of the Questionnaire Development section.

Funding from Partners

Coordinators should seek to form partnerships through establishing data users and questionnaire development workgroups to provide BRFSS data to state or local health organizations. Forming a partnership has the following advantages:

- It gives BRFSS and the health department outside exposure.
- It produces additional funding.

	<p>Kaiser-Permanente commissioned the Health Statistics Section of the Colorado Department of Health to survey Kaiser patients. This was simple for the Colorado BRFSS to accomplish because surveying capabilities were already in place.</p> <p>North Carolina, like Colorado, uses its BRFSS equipment and staff to conduct surveys commissioned by community partners. Recently, BRFSS interviewers in North Carolina conducted county-specific surveys sponsored by Cardiovascular Health program within the Division of Public Health. North Carolina receives support from 10 local County Health Departments to provide 400-500 completed interviews per county and some data analysis at a rate of \$5,000 per county.</p>
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Funding from Grants

Other sources of funding include other cooperative agreements, and grants, either from the CDC, from other federal sources, or from nonprofit organizations.

11. Data Use and Promotion


Although BRFSS coordinators often report that promoting BRFSS data is their most challenging task, many consider this one of their most important responsibilities. Using surveillance data, public health professionals can develop programs, influence policy, evaluate programs, and track health trends over time, but the data will not be used unless people are aware that it exists. It is imperative that BRFSS staff form alliances and networks with other health organizations that will use the data. A side benefit of this kind of network is that, when members of these networks see how BRFSS data can help them perform their own jobs better, they are more likely to support the BRFSS and may even provide funding for expanded data collection. In addition to encouraging the use of BRFSS data by health professionals, it is important to do as much as possible to promote it to other audiences. For example, since support and funding for the BRFSS ultimately comes from policymakers who see BRFSS data as useful and beneficial to public health, it is essential to make sure that those policymakers see BRFSS data "in action."

This section provides information about the following topics:

- [Examples from States](#)
- [Data Uses](#)
- [Healthy People 2010 Initiative](#)
- [Data Availability](#)

Examples from States

Many states have found simple and innovative ways of promoting the BRFSS. Several state coordinators create a short brochure or newsletter based on BRFSS findings; some advertise BRFSS data on the Internet; others use the personal touch — networking.

	<p>Data Use and Promotion: North Carolina</p> <p>The North Carolina BRFSS coordinator made sure that local health organizations, as well as epidemiologists and health statisticians, were aware of BRFSS and what BRFSS data could do for them.</p> <p>The coordinator distributed notebooks to relevant programs, as well as to the Public Affairs office. The cover was attention-getting orange, and the document was titled "Health Behaviors and Characteristics of North Carolina Adults: Data Reports from the Behavioral Risk Factor Surveillance System (BRFSS)." The notebook contained:</p> <ol style="list-style-type: none"> 1. A prevalence summary with comparisons to other states. 2. An outline of progress towards <i>Healthy People 2000 Objectives</i>. 3. Demographics data with risk factors for various health outcomes. 4. A brochure explaining the North Carolina BRFSS. <p>The Georgia coordinator said networking is key to spreading the word about BRFSS and ensuring that the data collected are relevant and useful to the health departments.</p>
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Data Uses

The uses for BRFSS data fall into three main categories: Conceptual, Instrumental, and Persuasive. The following table explains these categories:

Category	Definition and Examples
Conceptual	<p>Data are used to increase the understanding of the relationship between health behavior and health status. Following is an example:</p> <p>Prevention of Breast and Cervical Cancer: With the passage of the National Breast and Cervical Cancer Mortality Prevention Act by Congress in 1990, state funds became available for development of breast and cervical cancer control programs. The BRFSS data on mammography and Pap tests provide critical information about baseline cancer-screening levels and a means to monitor the effects of breast and cervical cancer control programs. At the national level, data on mammography and Pap tests have been used to evaluate the impact of breast and cervical cancer control programs in a 12-state federally funded project.</p>
Instrumental and Persuasive	<p>Data are used to influence health program decisions and to support health policy positions. Following is an example:</p> <p>Oregon has a comprehensive tobacco prevention program, and one of the major goals of the program is reduction in tobacco consumption. However, since Oregon has no sales tax, we rely on Oregon's Department of Revenue's tobacco excise tax data to show changes in tobacco consumption. The Department of Revenue, in its effort to get the Oregon legislature to fund more revenue agents, claimed that the 20% drop in consumption of tobacco products since the beginning of the tobacco prevention program was caused by counterfeiting, smuggling, and other illegal activities, and did not reflect a true drop in tobacco consumption in Oregon. This assertion could have resulted in tremendous damage to the tobacco prevention program if not corrected.</p> <p>BRFSS data allowed the program to calculate adults self-reported tobacco consumption, and the results showed an even greater drop than was evidenced by the tax data. The fact that the BRFSS is a scientifically valid survey, while the information offered by the Department of Revenue was merely anecdotal, allowed the program to successfully argue that the drop in tobacco consumption in Oregon was the result of the program's efforts. Without the BRFSS data, future funding of the prevention program would have been jeopardized.</p>

Healthy People 2010 Initiative

BRFSS data are linked to selected *Healthy People 2010* objectives. Assessment of progress toward meeting these objectives is carried out at both the state and the national level.

BRFSS findings can provide policymakers with informed options for making decisions on public health policy. At the state level, the BRFSS findings assist planners in identifying health issues, designing public health intervention strategies, and evaluating their impact.

Data Availability

Approximately six to seven months after the data have been collected for a given calendar year, the CDC makes a public use data file available via the BRFSS Web site at http://www.cdc.gov/brfss/technical_infodata/surveydata.htm. [Policy Memo 98.1](#) covers provisions of state reports.

The data availability policy guideline is as follows:

1. After processing the data, BSB sends the state data file and reports to each state.
2. After all states have received their data, BSB creates an aggregate data file only for internal CDC use.
3. BSB uses aggregate data to produce prevalence tables for selected variables.
4. By July, the data quality report, documentation package, prevalence tables, and final public use data are made available to the general public.

12. Reference Material

This section provides information about the following topics:

- [Online Resources](#)
- [Policy Memos](#)
- [Summary Data Quality Reports and Data Quality Reports](#)
- [Proposing New Questions](#)
- [Glossary](#)
- [Acronyms](#)
- [Statistical Resources](#)

Online Resources

The following are the online resources for BRFSS:

- The BRFSS Web site at: <http://www.cdc.gov/brfss/>
- The BRFSS online overview at: http://www2.cdc.gov/nccdphp/brfss2/training_ov/default.htm

Policy Memos

In recognizing the need to uniformly disseminate policy and procedure guidelines or modifications to all BRFSS projects, the CDC employs a system of numbered memoranda that are issued on an as-needed basis. Each memorandum remains in effect unless superseded by a subsequent one.

For a current list of policy memos, visit http://www.cdc.gov/brfss/technical_infodata/memos.htm. Several of these memos are referenced by this guide. If you wish to refer to these memos while keeping this document open, open a new browser window and cut and paste the above link into the new window.

Summary Data Quality Reports and Data Quality Reports

The Summary Data Quality Report, published annually by the BRFSS, compares data collection statistics for all BRFSS states and territories. Year-to-date data quality reports for each state (provided directly to the state) are updated monthly throughout the year. The Data Quality Report Handbook describes how to use these reports and the standards for identifying data quality problems. Use these reports to identify areas for data collection improvement in your state.

Stem and Leaf Plot

The Stem and Leaf Plot shows the distribution of data collection statistics. This plot shows where your state falls relative to the other states. The digit to the left of the decimal point is the stem. The digit to the right of the decimal point is the leaf.

Use the Stem and Leaf chart in the box to identify your state listed on the left side of the page.

Box Plot

The Box Plot displays data collection information in another way. It organizes Stem and Leaf data into quartiles around the mean. The location of Box Plot indicators corresponds with the Stem and Leaf data on the left side of the box:

Statistic	Indicator
in the interquartile range closest to the mean]
within 2 or 3 interquartile ranges from the mean	0
more than 3 interquartile ranges from the mean	*
Mean	+
Median	*-----*
75 th and 25 th percentile markers	+-----+

The interquartile range is the difference between the 3rd quartile and the 1st quartile (Q3 – Q1).

States with values falling above the 3 interquartile ranges (*) should review their data collection procedures and be aware of possible bias in risk factor estimates.

Z-Scores

Z-Scores, available for some statistics, indicate a statistic=s distance and direction from the mean. This permits comparison of values from different states. Values outside the range of -2.0 to +2.0 are considered extreme. States with values falling outside this range should review their data collection procedures and be aware of possible bias in risk factor estimates.

Proposing New Questions

Organizations within your state may want to propose adding questions to the Fixed Core of a future BRFSS Questionnaire.

Making the Proposal

New questions can be proposed for inclusion in the fixed core, rotating core, emerging issues, or optional modules. When proposing new questions:

1. Make sure questions meet Question Requirements and funding is available to support proposed questions.
2. Submit initial proposal to the BSB before the October deadline.
3. Present rationale for new questions at BRFSS conference.
4. If questions are approved by coordinators and BSB then they go through technical review and cognitive testing. Questions are then modified as needed based on testing results, and are included in the field test.

Funding Requirements

Based on recommendations from the BRFSS Working Group and given current resource constraints, funding will be required for all proposed questions for the emerging core and optional modules.

Emerging and Rotating Core

Divisions or Centers proposing topics for the emerging and rotating core will be required to provide financial support for each question. Decisions about modules to be offered will be based on the following:

- Public health importance of the topic.
- Number of states that have used the module in the previous two years.
- Financial support from the sponsoring program.
- Number of questions in the module.

Questions that are no longer offered as optional modules will be available for use as state-added questions.

Cognitive Testing

As outlined in [Policy Memo 97.1](#), all new or revised questions must undergo formal cognitive testing. The organization proposing the question is responsible for costs associated with cognitive testing separate from financial contributions made for operational support.

Question Requirements

The proposed question must be formatted for the BRFSS questionnaire using the current questionnaire as a model. Each submission also requires a rationale supporting the questions. This rationale should include the following:

1. A statement of funding that will be provided to support BRFSS operations.
2. The origin of the question.
3. History of prior cognitive and validity testing.
4. History of prior use.
5. An analytical plan, in other words, specific prevalence estimates that can be derived from the data.
6. Extent to which the proposed questions satisfy primary and secondary question criteria, as described in the following table:

Criteria	Question Requirements
Primary	<ol style="list-style-type: none"> 1. What is the relationship of the variable to personal behaviors linked to promoting health, preventing disease, and reducing health risks? 2. Is the question suitable for telephone interviewing? 3. What is the pertinence of the variable to <i>Healthy People 2010</i> objectives or priority health issues? 4. What is the need to measure the variable over time? 5. What is the need to have state-specific data? 6. What is the degree to which alternative data sources are unsatisfactory? 7. What is the degree to which the prevalence of the variable will be adequate for planned analyses? 8. What is the relationship of the variable to other questionnaire topics? 9. What is the expected validity of the question?
Secondary	<ol style="list-style-type: none"> 1. Are financial and technical resources available for support of the question? 2. How will the question affect questionnaire length? 3. Will data benefit the states? 4. How widely will the data benefit CDC?

Glossary

Term	Definition
Appointment Call Backs	If a person selected for an interview is not able to talk at that time, the interviewer must make a call back appointment and make every effort to call back at the agreed-upon time.
Call Disposition Codes	Also known as dispositions . Dispositions are the numerical codes interviewers assign to each call. For example: 01=Completed Interview, 02=Refused Interview, 03=Nonworking Number, and so forth.
Calling Occasion	One of the following work shifts when potential survey respondents are called: <ul style="list-style-type: none"> • Weekdays 9:00-5:00 p.m. and 5:00-9:00 p.m. • Saturdays 10:00 a.m.-2:00 p.m. • Sundays 1:00-5:00 p.m. and 5:00-9:00 p.m.
Calling Protocol	The maximum number of call attempts (15) has been made, an interview has completed the interview or been refused, or the pending status of a telephone number or respondent has been otherwise resolved.
CATI	Computer-Assisted Telephone Interviewing systems manage the sample for each interviewer and collect the respondent's data from the interviewer's direct entry into electronic files. Ci3 CATI is the survey software supported by BSB.
Compile	A computer term. When you compile the questionnaire, the Ci3 System puts it in a format that it and Ci3 CATI can use for interviewing.
Confidence Level	The confidence intervals for specific statistics (for example, means or regression lines) provide a range of values around the statistic where the "true" (population) statistic is expected to be located with a given level of certainty.
Disposition	Also known as call disposition codes . Dispositions are the numerical codes interviewers assign to each call. For example: 01=Completed Interview, 02=Refused Interview, 03=Nonworking Number, and so forth.
Disproportionate Stratified Random Sample (DSS)	On the basis of information from previous surveys or telephone listings, blocks of telephone numbers are stratified into groups that are "likely" or "unlikely" to contain residential numbers. Individual members (telephone numbers) in the likely stratum are then sampled at a higher rate than numbers in the unlikely stratum.
Exchange	Telephone terminology; also known as prefix . The first three digits of a telephone number. For the telephone number (555) 636-1234, "636" is the exchange. Exchanges tend to be limited to geographic regions, but do not follow state, county, or city boundaries.
FIPS Codes	The National Bureau of Standards' Federal Information Processing Standards under the provisions of the Brooks Act (PL 89-306) and under Part 6 of Title 15, Code of Federal Regulations. Numeric codes assigned for identification purposes in large data sets to countries,

Term	Definition
	states, and counties.
Household Roster	For each phone number selected, the computer randomly selects whether the respondent must be male or female. Respondent is never stratified by age or sex. Once selection is made, every effort must be made to interview that person. The interviewer cannot interview just anyone in the household.
Imputed Values	Estimated values based on other information in the data file.
Interviewer Monitoring	BRFSS Protocol requires routine, unobtrusive, electronic monitoring as an integral part of monthly survey procedures to ensure interviewers are adhering to procedure. Monitoring is a valuable tool for training and achieving uniform questionnaire administration.
Legitimacy Call-In	In some cases, a respondent wants to verify the legitimacy of the BRFSS call. Interviewers must provide a phone number to persons being interviewed. Legitimacy call-ins may also include complaints. Procedures must be in place to handle Legitimacy call-ins.
Measurement	The process of obtaining the qualitative or quantitative values needed to meet research objectives.
Nonresponse Error	The inability to obtain data for all questionnaire items from persons in the sample population.
Poststratification	<p>The method used to adjust the distribution of the sample data so that it more accurately reflects the total population of the sampled area. Poststratification is also the method used to compensate for sampling error caused when an interviewer does not follow the respondent selection process.</p> <p>The poststratification factor is calculated by computing the ratio of the age, race, and sex distribution of the state population divided by that of the sample. This factor is then multiplied by the raw weight to compute an adjusted, final-weight variable. The weighting adjusts not only for variation in selection and sampling probability but also for demographic characteristics so that projections can be made from the sample to the general population.</p>
Prefix	Telephone terminology; also known as exchange . The first three digits of a telephone number. For the telephone number (555) 636-1234, "636" is the prefix. Prefixes tend to be limited to geographic regions, but do not follow state, county, or city boundaries.
Project Officer	Public health advisors on the CDC's Behavioral Surveillance Branch staff who serve as the primary point of contact to individual states and serve as the liaison between the states and the branch providing general oversight and guidance on all aspects of the project.
Probability Sample	A sample in which each member of the population has a known, nonzero probability of selection.
Raw Data	Collected survey data that has not been processed, analyzed, or weighted.
Region	A subset of data records defined through the assignment of county

Term	Definition
	FIPS codes and treated as a single group in poststratification.
Reliability	A survey instrument is reliable when it consistently provides the same data; a measure of the extent to which observations of a study are repeatable, or produce the same answers. Measurement unreliability may be inherent in the instrument itself (for example, the wording of a question) or come from differences in procedure (for example, the interviewer's tone of voice when asking the question). A question is reliable if it evokes consistent responses. Reliability refers to the degree to which a person will give the same answer to a question if asked twice on different occasions.
Replicate	A replicate is a subsample of 50 telephone numbers. Telephone numbers must be released as a replicate, and the entire replicate must be used.
Rules of Replacement	The rules governing the replacement of telephone numbers used in the sample and the assignment of final disposition codes to interviews.
Sample	A small group selected to represent a larger population.
Sampling Fraction	The number of elements selected in a stratum divided by the number of elements considered for selection in some stage of sampling.
Sampling Frame	In the BRFSS, it is the set of all active telephone numbers in the United States that could possibly be assigned to households. A telephone sample vendor will provide a sampling frame for your state.
Sampling Ratio	In BRFSS, sampling ratio refers to the number of 0 block numbers chosen for calling compared to the number of 1+ block numbers chosen for calling. Although 0 block numbers are less likely to have a household phone number than a 1+ block number, not sampling 0 blocks adequately will cause bias in the sample, and, thus, bias in the data.
Sampling Unit	One of a set of elements considered for selection in some stage of sampling.
Simple Random Sample	A sample in which every member of the surveillance population has an equal chance of being selected to participate in the survey.
Stratified Random Sample	The overall population, in advance, is divided (stratified) into a specified number of subpopulations, for example, age groups, or strata. Separate random samples are then selected from within each stratum, and overall estimates are based on combined data across all strata.
Stratum	A subset of sampling units defined through the assignment of telephone prefixes and treated as a single group in the selection of a sample. A non-overlapping subset of a population. Strata must never overlap in the sampling design.
Stratum Code	A code assigned to each stratum to differentiate it from other strata.
SUDAAN	A statistical package designed to process data from complex sample designs. SUDAAN is the standard for BSB analyses. For more information, see the SUDAAN entry in the Statistical Resources area of

Term	Definition
	the Reference Material section.
Suffix	The last four digits of a telephone number. For example, in the telephone number (555) 999-1234, the suffix is 1234.
Validity	The degree to which survey questions actually measure what they intend to measure. Professional and policy use of BRFSS data depend in large part on the validity of the data. The validity of many BRFSS questions has been assessed by comparing results among surveys that ask similar questions of comparable populations. Estimates derived from the BRFSS compare favorably with those derived from in-person or observational surveys. For some questions, comparisons with medical records have been done to assess validity. Based on the response rates achieved by most BRFSS projects, the potential for bias because of selected respondents refusing to be interviewed is low.
Weighting	Data weighting is an important statistical process that reduces bias in the sample. In the BRFSS, weighting corrects for differences in the probability of selection due to nonresponse and noncoverage errors, adjusts variables of age, race, and sex between the sample and the entire population, and allows the generalization of findings to the whole population, not just those who respond to the survey.

Acronyms

Acronym	Definition
1/NPH	The number 1 divided by the number of telephones
ASA	American Statistical Association
BRFSS	Behavioral Risk Factor Surveillance System
BSB	CDC's Behavioral Surveillance Branch in the Division of Adult and Community Health (DACH)
CATI	Computer-assisted telephone interviewing
CDC	Centers for Disease Control and Prevention (formerly the National Communicable Disease Center, then the Centers for Disease Control until 1992)
DACH	CDC's Division of Adult and Community Health in the National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP)
DENWT	Density weight
DSS	Disproportionate stratified sample
FINALWT	Final weight
FIPS	Federal Information Processing System
GEOWT	Geographic weight
MMWR	Morbidity and Mortality Weekly Report
NCCDPHP	CDC's National Center for Chronic Disease Prevention and Health Promotion
NHANES	National Health and Nutrition Examination Survey
NHIS	National Health Interview Survey
POSTSTRAT	Poststratification weight
SSRM	Section on Survey Research Methods (of the ASA)

Statistical Resources

This subsection provides information about the following topics:

- [Statistical Sampling](#)
- [Statistical Analysis](#)
- [SAS](#)
- [SPSS](#)
- [SUDAAN](#)
- [EPI Info](#)

Statistical Sampling

Stuart, Alan. *The Ideas of Sampling*, Macmillan, New York: 1984.
This book explains essential concepts with small numerical illustrations.

Levy, Paul S. and Stanley Lemeshow. *Sampling of Populations*. Third Edition. Wiley, New York: 1999. This elementary to intermediate text contains a chapter on telephone sampling by R. J. Casady and J. M. Lepkowski.

Statistical Analysis

Web Directory of Statistical Analyses: www.statpages.net. * More than 300 Web pages compose a large, free multiplatform statistical software package. There are also links to online statistics books, tutorials, downloadable software, and related resources.

Korn, Edward L. and Grawbard, Barry I. *Analysis of Health Surveys*, John Wiley & Sons, Inc., New York: 1999.

Internet Glossary of Statistical Terms at <http://www.animatedsoftware.com/statglos/statglos.htm>. * These glossary entries have been prepared to accompany a computer tutorial based on the book "Statistics Explained" by Professor Howard S. Hoffman, originally published in 1985 by University Press of America (Library of Congress Catalog number ISBN 0-8191-4894-6).

SAS

Telephone: 919-677-8000

Fax: 919-677-8123

Internet address: <http://www.sas.com> *

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SPSS

Telephone: 800-543-2185

Internet address: <http://www.spss.com> *

SUDAAN

Telephone: 919-541-6602

Fax: 919-541-7431

Internet address: <http://www.rti.org/sudaan/index.cfm> *

EPI INFO

Epi Info hotline for technical support: (770) 488-8440. *Support is limited to 30 minutes per call.*

Fax: (770) 488-8440

E-mail: epiinfo@cdc.gov

Internet address: <http://www.cdc.gov/epiinfo/Epi6/ei6faq.htm>

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