

# Behavioral Risk Factor Surveillance System

2012 Landline Telephone Survey Questionnaire Use of Data

(Version #1 - Revised: 07/08/2013)



## Background

The addition of a cellular telephone survey to the Behavioral Risk Factor Surveillance System (BRFSS) has moved BRFSS data collection from a landline telephone survey to a dual-mode survey. The landline telephone survey and cellular telephone survey used very similar questionnaires. The landline telephone survey Demographics section includes two questions on the number of landline telephone numbers which reach the household and two questions on respondent cell phone use. The landline telephone survey data collection method is similar to previous years. The landline telephone survey core questions were asked of all respondents and standardized optional modules were available for states to include by choice. The same optional modules were available for the cellular telephone survey.

The increased cost of collecting a cellular telephone interview as well as the concern for reducing the cost burden on the cellular telephone respondent prompted a few states to add optional modules only to the landline telephone survey. To assist in using the data collected only on the landline survey, an additional data set has been provided along with an additional weighting variable for use with these data.

## Weighting the Landline Telephone Data

The 2012 BRFSS landline telephone survey data set contains data from all states and any optional module data that was asked as common modules on the landline telephone survey. The final weight variable to use for analysis of the landline data set is `_LANDWT`. When data are used without weights, each record counts the same as any other record. Implicit in such use are the assumptions that each record has an equal probability of being selected and that noncoverage and nonresponse are equal among all segments of the population. When deviations from these assumptions are large enough to affect the results obtained from a data set, then weighting each record appropriately can help to adjust for assumption violations. An additional (but conceptually unrelated) reason for weighting is to make the total number of cases equal to some desired number which, for state BRFSS data, is the number of people in the state who are aged 18 years and older. In the BRFSS, weighting serves as a blanket adjustment for noncoverage and nonresponse and forces the total number of cases to equal population estimates for each geographic region, which for the BRFSS is usually a state.

Below is a general description of the process that reflects factors taken into account in weighting the 2012 BRFSS landline telephone data. When a factor does not apply, its value is set to one for calculation.

The raking weighting methodology is comprised of two sections: design weight and raking.

### **Design Weight = STRWT \* (1/NUMPHON2) \* NUMADULT**

The stratum weight 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 rarely 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.

- The stratum weight (**STRWT**) is calculated using the following elements:
  - Number of available records (**NRECSTR**) and the number of records selected (**NRECSEL**) within each geographic strata and density strata.

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- Geographic strata (**GEOSTR**) that may be the entire state or a geographic subset such as counties, census tracts, etc.
- Density strata (**DENSTR**), indicating the density of the phone numbers for a given block of numbers as listed or not listed.

Within each **GEOSTR\*DENSTR** combination, the stratum weight (**STRWT**) is calculated from the average of the **NRECSTR** and the sum of all sample records used to produce the **NRECSEL**. The stratum weight is equal to **NRECSTR / NRECSEL**.

- **1/NUMPHON2** is the inverse of the number of residential telephone numbers in the respondent's household.
- **NUMADULT** is the number of adults 18 years and older in the respondent's household.

**FINAL WEIGHT** is the design weight raked to 7 margins (age group by gender, race/ethnicity, education, marital status, tenure, gender by race/ethnicity, age group by race/ethnicity). If geographic regions are included, four additional margins (region, region by age group, region by gender, region by race/ethnicity) are included.

**LANDWT** is the final weight assigned to each respondent.

Weight trimming is used to increase the value of extremely low weights and decrease the value of extremely high weights. The objective of weight trimming is to reduce errors in the outcome estimates caused by unusually high or low weights in some categories.

### *Calculation of a Child Weight*

The design weight for the child weighting is calculated from the stratum weight times the inverse of the number of telephones in the household and then multiplied by the number of children

**Child Design Weight = STRWT \* (1/NUMPHON2) \* CHILDREN**

**CHILDWT** is the child design weight raked to 4 margins including age by gender, race/ethnicity, gender by race/ethnicity, age by race/ethnicity.

**CLANDWT** is the weight assigned for each child interview.

### *Calculation of a Household Weight*

The design weight for the household weighting is calculated from the stratum weight times the inverse of the number of telephones in the household.

**Household Design Weight = STRWT \* (1/NUMPHON2)**

**HOUSEWT = STRWT \* (1/ NUMPHON2)** is raked to the Number of Persons in a Household, Number of Adults in a Household, and Number of Children in a Household.

**HHOLDWT** is the weight assigned to each household.

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### A. Analysis of the Landline Data

Unweighted data on the BRFSS represent the actual responses of each respondent, before any adjustment is made for variation in the respondents' probability of selection, disproportionate selection of population subgroups relative to the state's population distribution, or nonresponse. Weighted BRFSS data represent results that have been adjusted to compensate for these issues. Regardless of state sample design, use of the final weight in analysis is necessary if generalizations are to be made from the sample to the population.

The analysis of the optional module data collected on the landline survey is conducted using the additional data set available for 2011. This data set can be used to generate estimates for the variables contained in optional modules. The weighting variable representing the final weight (\_LANDWT) should be used to obtain estimates for the adult population within a state. The weighting variable representing the final weight (\_CLANDWT) for the optional modules specific to the child respondent selected in the household should be used to obtain estimates for the non-adult population within a state. The list below shows the optional modules included in the landline telephone survey data set by state.

2012 Landline Telephone Survey Questionnaire states and modules:

Modules by State	
Alabama	Diabetes, Random Child Selection, Childhood Asthma Prevalence, General Preparedness, Pre-Diabetes, Cancer Survivorship, Adult Human Papilloma Virus (HPV)
Alaska	Diabetes, Pre-Diabetes, Inadequate Sleep, Cancer Survivorship
Arizona	Fruits and Vegetables, Reactions to Race, Random Child Selection, Childhood Asthma Prevalence, Tetanus Diphtheria (Adults), Adult Human Papilloma Virus (HPV), Childhood Immunization, Shingles (Zostavax or ZOS), Chronic Obstructive Pulmonary Disease (COPD)
Arkansas	Diabetes, Pre-Diabetes
California	Random Child Selection, Childhood Asthma Prevalence
Colorado	Excess Sun Exposure
Connecticut	Diabetes, HIV/AIDS, Random Child Selection, Childhood Asthma Prevalence, Pre-Diabetes, Adult Human Papilloma Virus (HPV), Childhood Immunization, Shingles (Zostavax or ZOS), Chronic Obstructive Pulmonary Disease (COPD)
Delaware	Diabetes, Fruits and Vegetables, Pre-Diabetes, Adult Human Papilloma Virus (HPV), Sugar Sweetened Beverages and Menu Labeling, Prostate Cancer Screening Decision Making Module
District of Columbia	Random Child Selection, Childhood Asthma Prevalence
Florida	Diabetes, Mental Illness & Stigma, Pre-Diabetes, Cancer Survivorship, Excess Sun Exposure
Georgia	Diabetes, Fruits and Vegetables, Random Child Selection, Childhood Asthma Prevalence, Pre-Diabetes, Cancer Survivorship, Sugar Sweetened Beverages and Menu Labeling, Prostate Cancer Screening Decision Making Module
Hawaii	Diabetes, Social Context, Random Child Selection, Childhood Asthma Prevalence, Pre-Diabetes, Cancer Survivorship, Childhood Immunization, Excess Sun Exposure, Sugar Sweetened Beverages and Menu Labeling, Prostate Cancer Screening Decision Making Module
Idaho	Diabetes, Random Child Selection, Excess Sun Exposure
Illinois	Social Context, Random Child Selection, Childhood Asthma Prevalence, Mental Illness & Stigma, Chronic Obstructive Pulmonary Disease (COPD)
Indiana	Diabetes, Pre-Diabetes
Iowa	Mental Illness & Stigma, Pre-Diabetes, Adverse Childhood Experience
Kansas	Random Child Selection, Childhood Asthma Prevalence
Kentucky	Diabetes, Random Child Selection, Childhood Asthma Prevalence, Pre-Diabetes
Louisiana	Diabetes, Social Context, Adult Asthma History, Random Child Selection, Childhood Asthma Prevalence, Mental Illness & Stigma, Pre-Diabetes, Emotional Support and Life Satisfaction

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Modules by State	
Maryland	Fruits and Vegetables, Random Child Selection, Childhood Asthma Prevalence, Childhood Immunization
Massachusetts	Diabetes, Pre-Diabetes, Cancer Survivorship, Tetanus Diphtheria (Adults), Adult Human Papilloma Virus (HPV), High Risk/Health Care Worker, Shingles (Zostavax or ZOS)
Michigan	Social Context, Random Child Selection, Childhood Asthma Prevalence, Chronic Obstructive Pulmonary Disease (COPD)
Minnesota	Diabetes, Mental Illness & Stigma, Pre-Diabetes, Tetanus Diphtheria (Adults), Excess Sun Exposure, Chronic Obstructive Pulmonary Disease (COPD), Sugar Sweetened Beverages and Menu Labeling
Mississippi	Diabetes, Random Child Selection, Childhood Asthma Prevalence, Pre-Diabetes, Childhood Immunization, Chronic Obstructive Pulmonary Disease (COPD), Sugar Sweetened Beverages and Menu Labeling
Missouri	Random Child Selection, Childhood Asthma Prevalence, Mental Illness & Stigma, Childhood Immunization
Montana	Random Child Selection, Childhood Asthma Prevalence, General Preparedness, Mental Illness & Stigma, Veteran's Health, Chronic Obstructive Pulmonary Disease (COPD), Sugar Sweetened Beverages and Menu Labeling
Nebraska	Random Child Selection, Childhood Asthma Prevalence
Nevada	Diabetes, Random Child Selection, Childhood Asthma Prevalence, Mental Illness & Stigma, Inadequate Sleep, Chronic Obstructive Pulmonary Disease (COPD), Sugar Sweetened Beverages and Menu Labeling
New Hampshire	Random Child Selection, Childhood Asthma Prevalence, Sugar Sweetened Beverages and Menu Labeling
New Jersey	Diabetes, Random Child Selection, Childhood Asthma Prevalence, Pre-Diabetes
New Mexico	Diabetes, Random Child Selection, Childhood Asthma Prevalence, Mental Illness & Stigma, Pre-Diabetes
New York	Random Child Selection, Childhood Asthma Prevalence, Mental Illness & Stigma, Pre-Diabetes, Sugar Sweetened Beverages and Menu Labeling
North Carolina	Diabetes, Social Context, Pre-Diabetes, Adverse Childhood Experience
North Dakota	Diabetes, Random Child Selection, Childhood Asthma Prevalence, Pre-Diabetes, Excess Sun Exposure
Ohio	Diabetes, Random Child Selection, Childhood Asthma Prevalence, Pre-Diabetes
Oklahoma	Random Child Selection, Childhood Asthma Prevalence
Oregon	Diabetes, Random Child Selection, Childhood Asthma Prevalence, Mental Illness & Stigma, Inadequate Sleep, Chronic Obstructive Pulmonary Disease (COPD)
Pennsylvania	Diabetes, Adult Asthma History, Random Child Selection, Childhood Asthma Prevalence, Pre-Diabetes, Childhood Immunization
Rhode Island	Reactions to Race, Random Child Selection, Childhood Asthma Prevalence, Pre-Diabetes, Adult Human Papilloma Virus (HPV), Childhood Immunization, Shingles (Zostavax or ZOS)
South Carolina	Diabetes, Random Child Selection, Childhood Immunization, Chronic Obstructive Pulmonary Disease (COPD)
South Dakota	Diabetes, Random Child Selection, Pre-Diabetes, Sugar Sweetened Beverages and Menu Labeling
Tennessee	Diabetes, Fruits and Vegetables, Social Context, Adult Asthma History, Random Child Selection, Childhood Asthma Prevalence, Pre-Diabetes, Adverse Childhood Experience, Childhood Immunization, Veteran's Health, Chronic Obstructive Pulmonary Disease (COPD), Sugar Sweetened Beverages and Menu Labeling
Texas	Random Child Selection, Childhood Asthma Prevalence, Childhood Immunization
Utah	Random Child Selection, Childhood Asthma Prevalence
Vermont	Diabetes, Pre-Diabetes, Cancer Survivorship, Tetanus Diphtheria (Adults), Shingles (Zostavax or ZOS)
Virginia	Diabetes, Pre-Diabetes, Tetanus Diphtheria (Adults), Shingles (Zostavax or ZOS)
Washington	HIV/AIDS, Random Child Selection, Childhood Asthma Prevalence, Mental Illness & Stigma, Pre-Diabetes

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Modules by State	
West Virginia	Diabetes, Random Child Selection, Childhood Asthma Prevalence, Pre-Diabetes, Adult Human Papilloma Virus (HPV)
Wisconsin	Diabetes, Random Child Selection, Childhood Asthma Prevalence, Pre-Diabetes, Cancer Survivorship, Adverse Childhood Experience
Wyoming	Diabetes, Reactions to Race, Random Child Selection, Childhood Asthma Prevalence, Childhood Immunization
Guam	Diabetes, Pre-Diabetes
Puerto Rico	Diabetes, Random Child Selection, Childhood Asthma Prevalence, Mental Illness & Stigma, Pre-Diabetes, Inadequate Sleep, Childhood Immunization
Virgin Islands	Diabetes, Pre-Diabetes

States by Module	
Module	
Adult Asthma History	Louisiana, Pennsylvania, Tennessee
Adult Human Papilloma Virus (HPV)	Alabama, Arizona, Connecticut, Delaware, Massachusetts, Rhode Island, West Virginia
Adverse Childhood Experience	Iowa, North Carolina, Tennessee, Wisconsin
Cancer Survivorship	Alabama, Alaska, Florida, Georgia, Hawaii, Massachusetts, Vermont, Wisconsin
Childhood Asthma Prevalence	Alabama, Arizona, California, Connecticut, District of Columbia, Georgia, Hawaii, Illinois, Kansas, Kentucky, Louisiana, Maryland, Michigan, Mississippi, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, Tennessee, Texas, Utah, Washington, West Virginia, Wisconsin, Wyoming, Puerto Rico
Childhood Immunization	Arizona, Connecticut, Hawaii, Maryland, Mississippi, Missouri, Pennsylvania, Rhode Island, South Carolina, Tennessee, Texas, Wyoming, Puerto Rico
Chronic Obstructive Pulmonary Disease (COPD)	Arizona, Connecticut, Illinois, Michigan, Minnesota, Mississippi, Montana, Nevada, Oregon, South Carolina, Tennessee
Diabetes	Alabama, Alaska, Arkansas, Connecticut, Delaware, Florida, Georgia, Hawaii, Idaho, Indiana, Kentucky, Louisiana, Massachusetts, Minnesota, Mississippi, Nevada, New Jersey, New Mexico, North Carolina, North Dakota, Ohio, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Vermont, Virginia, West Virginia, Wisconsin, Wyoming, Guam, Puerto Rico, Virgin Islands
Emotional Support and Life Satisfaction	Louisiana
Excess Sun Exposure	Colorado, Florida, Hawaii, Idaho, Minnesota, North Dakota
Fruits and Vegetables	Arizona, Delaware, Georgia, Maryland, Tennessee
General Preparedness	Alabama, Montana
HIV/AIDS	Connecticut, Washington
High Risk/Health Care Worker	Massachusetts
Inadequate Sleep	Alaska, Nevada, Oregon, Puerto Rico
Mental Illness & Stigma	Florida, Illinois, Iowa, Louisiana, Minnesota, Missouri, Montana, Nevada, New Mexico, New York, Oregon, Washington, Puerto Rico
Pre-Diabetes	Alabama, Alaska, Arkansas, Connecticut, Delaware, Florida, Georgia, Hawaii, Indiana, Iowa, Kentucky, Louisiana, Massachusetts, Minnesota, Mississippi, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Pennsylvania, Rhode Island, South Dakota, Tennessee, Vermont, Virginia, Washington, West Virginia, Wisconsin, Guam, Puerto Rico, Virgin Islands
Prostate Cancer Screening Decision Making Module	Delaware, Georgia, Hawaii

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States by Module	
Module	
Random Child Selection	Alabama, Arizona, California, Connecticut, District of Columbia, Georgia, Hawaii, Idaho, Illinois, Kansas, Kentucky, Louisiana, Maryland, Michigan, Mississippi, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Washington, West Virginia, Wisconsin, Wyoming, Puerto Rico
Reactions to Race	Arizona, Rhode Island, Wyoming
Shingles (Zostavax or ZOS)	Arizona, Connecticut, Massachusetts, Rhode Island, Vermont, Virginia
Social Context	Hawaii, Illinois, Louisiana, Michigan, North Carolina, Tennessee
Sugar Sweetened Beverages and Menu Labeling	Delaware, Georgia, Hawaii, Minnesota, Mississippi, Montana, Nevada, New Hampshire, New York, South Dakota, Tennessee
Tetanus Diphtheria (Adults)	Arizona, Massachusetts, Minnesota, Vermont, Virginia
Veteran's Health	Montana, Tennessee