

# Behavioral Risk Factor Surveillance System

## 2011 Landline Questionnaire Use of Data

(Version #1 - Revised: 07/09/2012)



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With the addition of a cell-phone survey, 2011 BRFSS data collection changed from a landline sample survey to a dual-mode survey. The two surveys used very similar questionnaires. The landline survey followed the same method as used in previous years of BRFSS data collection. The core was asked of all respondents and standardized optional modules were available for states to include by choice. The same optional modules were available for the cell phone survey. The increased cost of collecting a cell phone interview as well as the concern for reducing the cost burden on the cell phone respondent lead several states to add the optional modules to the landline survey only. 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.

A. Weighting the Landline Data

The 2011 BRFSS landline data set contains data from all states and any optional module data that was asked as common modules on the landline 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 2011 BRFSS landline 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.
  - Geographic strata (**GEOSTR**) which 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 **NRECSEL / NRECSTR**.

- **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 is 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.

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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 is 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.

B. 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 data set by state.

**2011 Landline Survey States and Modules:**

<a href="#">Alabama</a>	<b>Landline:</b> Colorectal Cancer Screening, Diabetes, Childhood Asthma, Adult Asthma History, Random Child Selection, Pre-Diabetes, Adult Human Papilloma Virus (HPV)
<a href="#">Alaska</a>	<b>Landline:</b> Diabetes, Visual Impairment and Access to Eye Care, Pre-Diabetes, Inadequate Sleep, Veterans' Health
<a href="#">Arizona</a>	<b>Landline:</b> Diabetes, Childhood Asthma, Heart Attack and Stroke, Smoking Cessation, Cardiovascular Health, Random Child Selection, Pre-Diabetes, Chronic Obstructive Pulmonary Disease (COPD), Child Immunization (Influenza), Preconception Health/Family Planning
<a href="#">Arkansas</a>	<b>Landline:</b> Diabetes, Heart Attack and Stroke, Actions to Control High Blood Pressure, Random Child Selection, Pre-Diabetes, Cognitive Impairment, Child Immunization (Influenza)
<a href="#">California</a>	<b>Landline:</b> Childhood Asthma, Random Child Selection
<a href="#">Colorado</a>	<b>Landline:</b> Shingles

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Connecticut	<b>Landline:</b> Diabetes, Childhood Asthma, Cardiovascular Health, Actions to Control High Blood Pressure, Random Child Selection, Pre-Diabetes, Shingles, Adult Human Papilloma Virus (HPV), Chronic Obstructive Pulmonary Disease (COPD), Child Immunization (Influenza)
Delaware	<b>Landline:</b> Colorectal Cancer Screening, Diabetes, Prostate Cancer Screening, Random Child Selection, Pre-Diabetes, Adult Human Papilloma Virus (HPV), Breast/Cervical Cancer Screening, Sugar-Sweetened Beverages and Menu Labeling
District of Columbia	<b>Landline:</b> Diabetes, Childhood Asthma, Heart Attack and Stroke, Actions to Control High Blood Pressure, Random Child Selection, Pre-Diabetes, Chronic Obstructive Pulmonary Disease (COPD)
Florida	<b>Landline:</b> Diabetes, Arthritis Management, Actions to Control High Blood Pressure, Pre-Diabetes, Cognitive Impairment, Preconception Health/Family Planning
Georgia	<b>Landline:</b> Colorectal Cancer Screening, Diabetes, Prostate Cancer Screening, Actions to Control High Blood Pressure
Hawaii	<b>Landline:</b> Colorectal Cancer Screening, Diabetes, Childhood Asthma, Prostate Cancer Screening, Actions to Control High Blood Pressure, Random Child Selection, Pre-Diabetes, Cognitive Impairment, Breast/Cervical Cancer Screening, Sugar-Sweetened Beverages and Menu Labeling
Idaho	<b>Landline:</b> Heart Attack and Stroke, Actions to Control High Blood Pressure, Pre-Diabetes
Illinois	<b>Landline:</b> Childhood Asthma, Cardiovascular Health, Actions to Control High Blood Pressure, Random Child Selection, Cognitive Impairment, Chronic Obstructive Pulmonary Disease (COPD)
Indiana	<b>Landline:</b> Diabetes, Childhood Asthma, Cardiovascular Health, Actions to Control High Blood Pressure, Random Child Selection, Pre-Diabetes, Secondhand Smoke I, Preconception Health/Family Planning
Iowa	<b>Landline:</b> Diabetes, Childhood Asthma, Random Child Selection, Pre-Diabetes, Cognitive Impairment, Chronic Obstructive Pulmonary Disease (COPD), Sugar-Sweetened Beverages and Menu Labeling
Kansas	<b>Landline:</b> Childhood Asthma, Random Child Selection
Kentucky	<b>Landline:</b> Diabetes, Smoking Cessation, Cardiovascular Health, Actions to Control High Blood Pressure, Pre-Diabetes, Secondhand Smoke I, Adult Human Papilloma Virus (HPV), Chronic Obstructive Pulmonary Disease (COPD)
Louisiana	<b>Landline:</b> Diabetes, Childhood Asthma, Heart Attack and Stroke, Adult Asthma History, Smoking Cessation, Cardiovascular Health, Actions to Control High Blood Pressure, Random Child Selection, Anxiety and Depression, General Preparedness, Pre-Diabetes, Secondhand Smoke I, Cognitive Impairment, Veterans' Health
Maryland	<b>Landline:</b> Childhood Asthma, Random Child Selection, Child Immunization (Influenza)
Massachusetts	<b>Landline:</b> Colorectal Cancer Screening, Diabetes, Prostate Cancer Screening, Pre-Diabetes, Tetanus Diphtheria (Adults), Shingles, Adult Human Papilloma Virus (HPV), High Risk/Health Care Worker, Chronic Obstructive Pulmonary Disease (COPD)
Michigan	<b>Landline:</b> Childhood Asthma, Arthritis Management, Random Child Selection, Chronic Obstructive Pulmonary Disease (COPD)
Minnesota	<b>Landline:</b> Diabetes, Arthritis Management, Actions to Control High Blood Pressure, Pre-Diabetes, Inadequate Sleep, Adverse Childhood Experience, Chronic Obstructive Pulmonary Disease (COPD), Sugar-Sweetened Beverages and Menu Labeling
Mississippi	<b>Landline:</b> Childhood Asthma, Actions to Control High Blood Pressure, Random Child Selection, Anxiety and Depression, Pre-Diabetes, Secondhand Smoke I, Child Immunization (Influenza), Preconception Health/Family Planning

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Missouri	<b>Landline:</b> Diabetes, Childhood Asthma, Arthritis Management, Actions to Control High Blood Pressure, Random Child Selection, Tetanus Diphtheria (Adults), Child Immunization (Influenza), Preconception Health/Family Planning
Montana	<b>Landline:</b> Diabetes, Childhood Asthma, Cardiovascular Health, Actions to Control High Blood Pressure, Random Child Selection, Pre-Diabetes, Adverse Childhood Experience, Chronic Obstructive Pulmonary Disease (COPD)
Nebraska	<b>Landline:</b> Social Context, Childhood Asthma, Smoking Cessation, Random Child Selection
Nevada	<b>Landline:</b> Diabetes, Childhood Asthma, Random Child Selection, Anxiety and Depression, Pre-Diabetes, Inadequate Sleep, Adverse Childhood Experience, Veterans' Health, Chronic Obstructive Pulmonary Disease (COPD)
New Hampshire	<b>Landline:</b> Diabetes, Random Child Selection, Anxiety and Depression, Pre-Diabetes, Cognitive Impairment
New Jersey	<b>Landline:</b> Diabetes, Childhood Asthma, Random Child Selection, Pre-Diabetes
New Mexico	<b>Landline:</b> Diabetes, Childhood Asthma, Random Child Selection, Anxiety and Depression, Pre-Diabetes
New York	<b>Landline:</b> Random Child Selection
North Carolina	<b>Landline:</b> Diabetes, Social Context, Heart Attack and Stroke, Cardiovascular Health, Actions to Control High Blood Pressure, Pre-Diabetes, Cognitive Impairment, Veterans' Health, Chronic Obstructive Pulmonary Disease (COPD)
North Dakota	<b>Landline:</b> Diabetes, Childhood Asthma, Actions to Control High Blood Pressure, Random Child Selection
Ohio	<b>Landline:</b> Diabetes, Childhood Asthma, Visual Impairment and Access to Eye Care, Random Child Selection, Pre-Diabetes
Oklahoma	<b>Landline:</b> Childhood Asthma, Random Child Selection
Oregon	<b>Landline:</b> Diabetes, Childhood Asthma, Cardiovascular Health, Random Child Selection, Anxiety and Depression, Inadequate Sleep, Adverse Childhood Experience, Chronic Obstructive Pulmonary Disease (COPD)
Pennsylvania	<b>Landline:</b> Diabetes, Childhood Asthma, Actions to Control High Blood Pressure, Random Child Selection, Pre-Diabetes, Child Immunization (Influenza)
Rhode Island	<b>Landline:</b> Diabetes, Childhood Asthma, Actions to Control High Blood Pressure, Random Child Selection, Pre-Diabetes, Child Immunization (Influenza)
South Carolina	<b>Landline:</b> Diabetes, Heart Attack and Stroke, Arthritis Management, Cardiovascular Health, Actions to Control High Blood Pressure, Pre-Diabetes, Cognitive Impairment, Preconception Health/Family Planning
South Dakota	<b>Landline:</b> Random Child Selection, Pre-Diabetes
Tennessee	<b>Landline:</b> Diabetes, Childhood Asthma, Adult Asthma History, Arthritis Management, Random Child Selection, Pre-Diabetes, Inadequate Sleep, Adult Human Papilloma Virus (HPV), Cognitive Impairment, Veterans' Health, Breast/Cervical Cancer Screening, Chronic Obstructive Pulmonary Disease (COPD), Child Immunization (Influenza), Preconception Health /Family Planning
Texas	<b>Landline:</b> Childhood Asthma, Random Child Selection
Utah	<b>Landline:</b> Diabetes, Childhood Asthma, Random Child Selection
Vermont	<b>Landline:</b> Childhood Asthma, Random Child Selection, Adverse Childhood Experience

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Virginia	<b>Landline:</b> Heart Attack and Stroke, Actions to Control High Blood Pressure, Random Child Selection, Pre-Diabetes, Child Immunization (Influenza), Preconception Health/Family Planning
Washington	<b>Landline:</b> Childhood Asthma, Random Child Selection, Pre-Diabetes, Adverse Childhood Experience
West Virginia	<b>Landline:</b> Diabetes, Childhood Asthma, Actions to Control High Blood Pressure, Random Child Selection, Pre-Diabetes, Cognitive Impairment, Chronic Obstructive Pulmonary Disease (COPD)
Wisconsin	<b>Landline:</b> Diabetes, Childhood Asthma, Arthritis Management, Random Child Selection, Pre-Diabetes, Shingles, Adverse Childhood Experience, Adult Human Papilloma Virus (HPV), Cognitive Impairment, Sugar-Sweetened Beverages and Menu Labeling
Wyoming	<b>Landline:</b> Diabetes, Social Context, Heart Attack and Stroke, Pre-Diabetes
Guam	<b>Landline:</b> Diabetes, Smoking Cessation, Pre-Diabetes, Secondhand Smoke I
Puerto Rico	<b>Landline:</b> Childhood Asthma, Random Child Selection, Inadequate Sleep, Chronic Obstructive Pulmonary Disease (COPD), Child Immunization (Influenza)