Behavioral Risk Factor Surveillance System

2015 Summary Data Quality Report
July 29, 2015

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Introduction

The Behavioral Risk Factor Surveillance System (BRFSS) is a state-based, CDC-assisted health-data collection project and partnership of state health departments, CDC's Division of Population Health, and other CDC programs and offices. It comprises telephone surveys conducted by the health departments of all 50 states, the District of Columbia, Puerto Rico, and Guam.

This *Summary Data Quality Report* presents detailed descriptions of the 2015 BRFSS calling outcomes and call summary information for each of the states and territories that participated in the 2015 BRFSS. All BRFSS public-use data are collected by landline telephone and cellular telephone to produce a single data set aggregated from the 2015 BRFSS territorial- and state-level data sets. The variables and outcomes provided in this document are applicable to a combined data set of responses from participants using landline telephones and cellular telephones within each of the states and territories.

The inclusion of data from cellular telephone interviews in the BRFSS public release data set has been standard protocol since 2011. In many respects, 2011 was a year of change—both in BRFSS approach and methodology. As the results of cellular telephone interviews were added in 2011, so were new weighting procedures that could accommodate the inclusion of new weighting variables. Data users should note that new weighting procedures are likely to affect trend lines when comparing BRFSS data collected before and after 2011. Because of these changes, users are advised NOT to make direct comparisons with pre-2011 data, and instead, should begin new trend lines with that year. Details of changes beginning with the 2011 BRFSS are provided in the *Morbidity and Mortality Weekly Report* (*MMWR*), which highlights weighting and coverage effects on trend lines.[1]

The measures presented in this document are designed to summarize the quality of the 2015 BRFSS survey data. Response rates, cooperation rates, and refusal rates for BRFSS are calculated using standards set by the American Association of Public Opinion Research (AAPOR).[2] The BRFSS has calculated 2015 response rates using AAPOR Response Rate #4, which is in keeping with rates provided by BRFSS before 2011 using rates from the Council of American Survey Research Organizations (CASRO).[3]

On the basis of the AAPOR guidelines, response rate calculations include assumptions of eligibility among potential respondents or households that are not interviewed. Changes in the geographic distribution of cellular telephone numbers by telephone companies and the portability of landline telephone numbers are likely to make it more difficult than in the past to ascertain which telephone numbers are out-of-sample and which telephone numbers represent likely households. The BRFSS calculates likely households using the proportions of eligible

households among all phone numbers where eligibility has been determined. This eligibility factor appears in calculations of response-, cooperation-, resolution-, and refusal rates.

Interpretation of BRFSS Response Rates

Because this report reflects the initial inclusion of BRFSS cellular telephone interviews, contextual information on cellular telephone response rates is provided below. Although cellular telephone response rates are generally lower than landline telephone response rates across most surveys, the BRFSS has achieved a cellular telephone response rate that compares favorably with other similar surveys (Table 1).

Table 1.
Examples of Cellular Telephone and Landline Survey Response Rates

Survey	Year(s)	Response Rates	
		Landline	Cell Phone
California Health Interview Survey (CHIS)	2011–2012	17.0%	18.3%
The Commonwealth Fund 2010 Biennial Health Insurance Survey[b]	2012	29.0%	25.0%
National Immunization Survey (NIS)[a c]	2014	62.6% [a]	33.5%
Pew Internet and American Life Project[d]	2012	30.0%	20.0%
PSRAI Omnibus Survey[e]	2015	5.0%	4.0%
National Adult Tobacco Survey (NATS)[f]	2012-2013	47.2%	36.3%
BRFSS[g]	2015	48.2%	47.2%

[c]Unlike the BRFSS, the NIS does not include household sampling in the landline portion of the study but interviews the adult who self-identifies as the most knowledgeable about household immunization information.

[a]http://healthpolicy.ucla.edu/chis/design/Documents/chis2011-2012-method-2_2014-02-21.pdf

[b]http://www.commonwealthfund.org/interactives-and-data/surveys/2011/mar/2010-biennial-health-insurance-survey

[c]http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6433a1.htm

[d]http://www.people-press.org/2006/05/15/the-cell-phone-challenge-to-survey-research/

[e]http://www.pewinternet.org/2015/04/01/appendix-a-about-the-december-week-1-and-week-3-omnibus-survey/

[f]http://www.cdc.gov/tobacco/data_statistics/surveys/nats/pdfs/2012-2013-nats-methodology-final.pdf

[g]BRFSS response rates are presented here as median rates for all states and territories.

Research by the Pew Research Center indicates that response rates for all telephone-based surveys have declined in recent years.[4] Despite lower response rates, this research supports previous findings[5] that weighting to demographic characteristics of respondents ensures accurate estimates for most measures.

The following tables present landline telephone and cellular telephone calling outcomes and rates. The BRFSS cellular telephone survey was collected in a manner similar to that of the BRFSS landline telephone survey. One important difference, however, is that interviews conducted by landline telephones include random selection among adults within households, while cellular telephone interviews are conducted with adults who are contacted on personal (nonbusiness) cellular telephones. The report presents data on three general types of measure by state:

> 1. Call outcome measures, including response rates, which are based on landline telephone disposition codes.
>
> 2. Call outcome measures, including response rates, which are based on cellular telephone disposition codes.
>
> 3. A weighted response rate, based on a combination of the landline telephone response rate with the cellular telephone response rate proportional to the total sample used to collect the data for a state.

For clarity, the BRFSS recommends that authors and researchers referencing BRFSS data quality include the following language, below. Note the places where authors should include information specific to their projects.

Response rates for BRFSS are calculated using standards set by the American Association of Public Opinion Research (AAPOR) Response Rate Formula #4 (http://www.aapor.org/AAPOR_Main/media/publications/Standard-Definitions20169theditionfinal.pdf). The response rate is the number of respondents who completed the survey as a proportion of all eligible and likely-eligible people. The median survey response rate for all states, territories and Washington, DC, in 2015 was 47.2, and ranged from 33.9 to 61.1.[a] Response rates for states and territories included in this analysis had a median of [provide median] and ranged from [provide range],[b] For detailed information see the BRFSS Summary Data Quality Report.[c]

[a] Response rates and ranges should reflect the year(s) included in the analyses.
[b] Response rates for states selected for analysis should be included here. This sentence may be omitted if all states are used in the analysis.
[c] See the Summary Data Quality Report for the year(s) included in the analyses.

BRFSS 2015 Call Outcome Measures and Response Rate Formulae

The calculations of calling-outcome rates are based on final disposition codes that are assigned after all calling attempts have been exhausted. The BRFSS may make up to 15 attempts to reach a respondent before assigning a final disposition code. In 2015, the BRFSS used a single set of disposition codes for both landline and cell phones, adapted from standardized AAPOR disposition codes for telephone surveys. A few disposition codes apply only to landline telephone or cellular telephone sample numbers. For example, answering-device messages may confirm household eligibility for landline telephone numbers but are not used to determine eligibility of cellular telephone numbers. Disposition codes reflect whether interviewers have completed or partially completed an interview (1000 level codes), determined that the household was eligible without completing an interview (2000 level codes), determined that a household or respondent was ineligible (4000 level codes), or was unable to determine the eligibility of a household or respondent (3000 level codes). The table below illustrates the codes used by the BRFSS in 2015, and it notes the instances where codes are used only for landline telephone or cellular telephone sample numbers.

The Disposition Code Table below uses a number of terms to define and categorize outcomes. These include the following:

- Respondent: A person who is contacted by an interviewer and who may be eligible for interview.
- Private residence: Persons residing in private residences or college housing are eligible. Persons living in group homes, military barracks or other living arrangements are not eligible. Persons living in vacation homes for 30 days or more are eligible. Eligibility is ascertained by asking each potential respondent whether they live in a private residence. If the respondent is unsure whether their residence qualifies, additional definitions of residences are provided.
- Landline telephone: A telephone that is used within a specific location, including traditional household telephones, Voice Over Internet Protocol (VOIP), and Internet phones connected to computers in a household.
- Cellular telephone: A mobile device that is not tied to a specific location for use.
- Selected respondent: A person who is eligible for interview. For the cellular telephone sample, a selected respondent is an adult associated with the phone number who lives in a private residence or college housing within the United States or territories covered by the BRFSS. For the landline telephone sample, a selected respondent is the person chosen for interview during the household enumeration section of the screening questions.
- Personal cellular telephone: A cellular telephone that is used for personal calls. Cellular telephones that are used for both personal and business calls may be categorized as personal telephones and persons contacted on these phones are eligible for interview. Persons using telephones that are exclusively for business use are not eligible for interview.

Table 2.
2015 Landline Telephone and Cellular Telephone BRFSS Disposition Codes

Category	Code	Description
Interviewed (1000 level codes)	1100	Completed interview
	1200	Partially completed interview
Eligible, Non-Interview (2000 level codes)	2111	Household level refusal (used for landline only)
	2112	Selected respondent refusal
	2120	Break off/termination within questionnaire
	2210	Selected respondent never available
	2220	Household (nonbusiness) answering device (used for landline only)
	2320	Selected respondent physically or mentally unable to complete interview
	2330	Language barrier of selected respondent
Unknown Eligibility	3100	Unknown if housing unit
	3130	No answer
	3140	Answering device, unknown whether eligible
	3150	Telecommunication barrier (i.e. call blocking)
	3200	Household, not known if respondent eligible
	3322	Physical or mental impairment (household level)
	3330	Language barrier (household level)
	3700	On never-call list

Table 2.
2015 Landline Telephone and Cellular Telephone BRFSS Disposition Codes

Category	Code	Description
Not Eligible	4100	Out of sample
	4200	Fax/data/modem
	4300	Nonworking/disconnected number
	4400	Technological barrier (i.e., fast busy, phone circuit barriers)
	4430	Call forwarding/pager
	4450	Cellular telephone number (used for landline telephone only)
	4460	Landline telephone number (used for cellular telephone only)
	4500	Non-residence/business
	4510	Group home
	4700	Household, no eligible respondent (teen phone/minor child cellular telephone)
	4900	Miscellaneous, non-eligible

Factors affecting the distribution of disposition codes by state include differences in telephone systems, sample designs, surveyed populations, and data collection processes. Table 3 defines the categories of disposition codes used to calculate outcome and response rates illustrated in Tables 4A through 6.

Table 3.
Categories of 2015 Landline and Cellular Telephone Disposition Codes

Category	Disposition Code Definitions	Formulae Abbreviation
Completed Interviews	1100+1200	COIN
Eligible	1100+1200+2111+2112+2120+2210+2220+2320+2330	ELIG
Contacted Eligible	1100+1200+2111+2112+2120+2210+2320+2330	CONELIG

Table 3.		
Categories of 2015 Landline and Cellular Telephone Disposition Codes		
Category	**Disposition Code Definitions**	**Formulae Abbreviation**
Terminations and Refusals	2111+2112+2120	TERE
Ineligible Phone Numbers	All 4000 level disposition codes	INELIG
Unknown Whether Eligible	All 3000 level disposition codes	UNKELIG
Eligibility Factor	ELIG/(ELIG + INELIG)	E

The disposition codes are categorized according to the groups illustrated in Table 3 to produce rates of resolution, cooperation, completion, refusal and response. In accordance with population surveillance standards, the proportions of people who may have been eligible for interview, but who were not able to be interviewed, are accounted for in the formulae.

Eligibility Factor

E = ELIG/ (ELIG + INELIG)

The Eligibility Factor is the proportion of eligible phone numbers from among all sample numbers for which eligibility has been determined. The eligibility factor, therefore, provides a measure of eligibility that can be applied to sample numbers with unknown eligibility. The purpose of the eligibility factor is to estimate the proportion of the sample that is likely to be eligible. The eligibility factor is used in the calculations of refusal and response rates. Separate eligibility factors are calculated for landline telephones and cellular telephone samples for each state and territory.

Resolution Rate

((ELIG + INELIG) / (ELIG+INELIG+UNKELIG))*100

The Resolution Rate is the percentage of numbers in the total sample for which eligibility has been determined. The total number of eligible and ineligible sample phone numbers is divided by the total number of phone numbers in the entire sample. The result is multiplied by 100 to calculate the percentage of the sample for which eligibility is determined. Separate resolution rates are calculated for landline telephone and cellular telephone samples for each state and territory.

Interview Completion Rate

(COIN / (COIN + TERE)) * 100

The Interview Completion Rate is the rate of completed interviews among all respondents who have been determined to be eligible and selected for interviewing. The numerator is the number of complete and partially completed interviews. This number is divided by the number of completed interviews, partially completed interviews, and all break offs, refusals, and terminations. The result is multiplied by 100 to provide the percentage of completed interviews among eligible respondents who are contacted by interviewers. Separate interview completion rates are calculated for landline telephone and cellular telephone samples for each state and territory.

Cooperation Rate

(COIN / CONELIG) *100

The AAPOR Cooperation Rate is the number of complete and partial complete interviews divided by the number of contacted and eligible respondents. The BRFSS Cooperation Rate follows the guidelines of AAPOR Cooperation Rate #2. Separate cooperation rates are calculated for landline telephone and cellular telephone samples for each state and territory.

Refusal Rate

(TERE / (ELIG + (E * UNKELIG))) * 100

The BRFSS Refusal Rate is the proportion of all eligible respondents who refused to complete an interview or terminated an interview prior to the threshold required to be considered a partial interview. Refusals and terminations (TERE) are in the numerator, and the denominator includes all eligible numbers and a proportion of the numbers with unknown eligibility. The proportion of numbers with unknown eligibility is determined by the eligibility factor (E as described above). The result is then multiplied by 100 to provide a percentage of refusals among all eligible and likely to be eligible numbers in the sample. Separate refusal rates are calculated for landline telephone and cellular telephone samples for each state and territory.

Response Rate

(COIN / ((ELIG + (E * UNKELIG))) * 100

A Response Rate is an outcome rate with the number of complete and partial interviews in the numerator and an estimate of the number of eligible units in the sample in the denominator. The BRFSS Response Rate calculation assumes that the unresolved numbers contain the same percentage of eligible households or eligible personal cell phones as the records whose eligibility or ineligibility are determined. The BRFSS Response Rate follows the guidelines for AAPOR Response Rate #4. It also is similar to the BRFSS CASRO Rates reported prior to 2011. Separate eligibility factors are calculated for landline telephone and cellular telephone samples for each state and territory and a combined Response

Rate for landline telephone and cellular telephone also is calculated. The combined landline telephone and cellular telephone response rate is generated by weighting to the respective size of the two samples. The total sample equals the landline telephone sample plus cellular telephone sample. The proportion of each sample is calculated using the total sample as the denominator. The formulae for the proportions of the sample are found below:

$$P1 = \text{TOTAL LANDLINE SAMPLE} /$$
$$(\text{TOTAL LANDLINE SAMPLE} + \text{TOTAL CELL PHONE SAMPLE});$$

$$P2 = \text{TOTAL CELL PHONE SAMPLE} /$$
$$(\text{TOTAL LANDLINE SAMPLE} + \text{TOTAL CELL PHONE SAMPLE});$$

The formula for the Combined Landline Telephone and Cellular Telephone Weighted Response Rate, therefore, is described below:

$$\text{COMBINED RESPONSE RATE} =$$
$$(P1 * \text{LANDLINE RESPONSE RATE}) + (P2 * \text{CELL PHONE RESPONSE RATE}).$$

Tables of Outcomes and Rates by State

The tables on the following pages illustrate calling outcomes in categories of eligibility, rates of cooperation, refusal, resolution, and response by landline telephone and cellular telephone samples.

➢ Tables 4A and 4B provide information on the size of the sample and the numbers and percentages of completed interviews, cooperation rates, terminations and refusals, and contacts with eligible households by state and territory.
➢ Tables 5A and 5B provide information on the number and percentage of landline telephone and cellular telephone sample numbers that are eligible, ineligible, and of unknown eligibility.
➢ Table 6 provides response rates for landline telephone samples, cellular telephone samples, and combined samples.

Table 4A. Landline Sample Completions, Terminations and Refusals, Contacted Eligible Households and

State	COIN N	COIN %	TERE N	TERE %	CONELIG N	CONELIG %	COOP %	Total Sample
AL	3,453	3.6	2,200	2.3	6,754	7.1	51.1	95,436
AK	2,523	1.8	1,005	0.7	4,119	2.9	61.3	143,910
AZ	5,270	3.7	2,081	1.5	8,457	6.0	62.3	140,550
AR	4,008	4.0	1,698	1.7	6,633	6.7	60.4	99,270
CA	3,558	2.7	2,578	1.9	6,928	5.2	51.4	134,011
CO	7,424	5.3	1,716	1.2	10,658	7.6	69.7	139,619
CT	7,858	3.6	2,866	1.3	13,100	6.1	60.0	216,048
DE	2,191	2.7	490	0.6	3,345	4.2	65.5	80,310
DC	3,409	2.2	1,310	0.8	5,581	3.6	61.1	155,310
FL	6,087	2.8	3,113	1.4	10,793	5.0	56.4	214,890
GA	3,030	2.2	727	0.5	4,751	3.4	63.8	139,410
HI	2,795	2.2	874	0.7	4,675	3.7	59.8	126,100
ID	3,298	3.6	1,393	1.5	5,306	5.8	62.2	91,260
IL	2,856	3.7	1,062	1.4	4,744	6.2	60.2	77,040
IN	3,941	3.9	1,828	1.8	6,667	6.6	59.1	100,584
IA	3,510	5.5	1,183	1.9	5,325	8.4	65.9	63,270
KS	11,356	5.6	3,929	1.9	16,642	8.2	68.2	203,310
KY	5,345	3.2	1,133	0.7	6,827	4.1	78.3	168,480
LA	2,789	2.9	1,503	1.6	4,909	5.1	56.8	96,403
ME	6,397	6.6	1,725	1.8	9,044	9.3	70.7	97,350
MD	11,007	4.7	4,711	2.0	18,458	7.8	59.6	235,666
MA	4,276	2.6	1,970	1.2	6,527	4.0	65.5	163,001
MI	4,215	4.1	1,166	1.1	6,421	6.2	65.6	104,010
MN	8,007	5.3	1,010	0.7	10,887	7.3	73.5	150,090
MS	3,703	4.0	1,636	1.8	5,989	6.5	61.8	91,713

Table 4A. Landline Sample Completions, Terminations and Refusals, Contacted Eligible Households and

| State | COIN | | TERE | | CONELIG | | COOP | Total Sample |
	N	%	N	%	N	%	%	
MO	4,216	5.6	1,227	1.6	6,392	8.5	66.0	75,350
MT	4,048	5.8	967	1.4	5,824	8.3	69.5	69,786
NE	8,750	6.6	3,009	2.3	13,449	10.1	65.1	133,470
NV	1,826	4.4	563	1.4	2,689	6.5	67.9	41,580
NH	4,997	5.5	1,630	1.8	7,592	8.4	65.8	90,690
NJ	7,811	3.5	1,855	0.8	11,969	5.4	65.3	222,150
NM	3,958	4.5	1,690	1.9	6,491	7.5	61.0	87,120
NY	8,433	3.3	4,567	1.8	15,756	6.1	53.5	259,230
NC	2,447	5.5	946	2.1	3,853	8.7	63.5	44,490
ND	2,978	4.6	752	1.1	4,189	6.4	71.1	65,430
OH	8,706	3.8	1,490	0.7	12,228	5.4	71.2	226,350
OK	4,510	5.1	2,175	2.5	7,888	8.9	57.2	88,360
OR	2,525	3.7	1,000	1.4	3,662	5.3	69.0	69,113
PA	2,787	6.1	1,204	2.6	4,535	10.0	61.5	45,506
RI	4,001	6.3	1,459	2.3	6,347	10.0	63.0	63,390
SC	6,075	6.6	1,578	1.7	9,108	9.9	66.7	91,875
SD	4,297	3.3	980	0.8	6,105	4.7	70.4	129,240
TN	4,090	3.9	1,912	1.8	6,680	6.4	61.2	104,744
TX	9,260	3.0	4,493	1.4	16,163	5.2	57.3	312,870
UT	4,174	5.5	780	1.0	5,871	7.7	71.1	75,766
VT	3,205	7.7	689	1.7	4,380	10.6	73.2	41,400
VA	4,954	5.8	767	0.9	6,927	8.1	71.5	85,650
WA	10,162	4.1	4,256	1.7	16,507	6.7	61.6	247,770
WV	2,969	11.1	661	2.5	4,021	15.0	73.8	26,760
WI	3,176	5.1	1,650	2.7	5,400	8.8	58.8	61,710

Table 4A. Landline Sample Completions, Terminations and Refusals, Contacted Eligible Households and Total Sample by State

State	COIN N	COIN %	TERE N	TERE %	CONELIG N	CONELIG %	COOP %	Total Sample
WY	4,142	3.2	1,532	1.2	6,420	5.0	64.5	128,250
GU	1,259	6.1	244	1.2	2,290	11.1	55.0	20,690
PR	2,598	4.9	398	0.8	3,957	7.5	65.7	52,918
Minimum	1,259	1.8	244	0.5	2,290	2.9	51.1	20,690
Maximum	11,356	11.1	4,711	2.7	18,458	15.0	78.3	312,870
Mean	4,805	4.5	1,686	1.5	7,552	7.0	64.0	118,655
Median	4,048	4.1	1,490	1.5	6,421	6.6	63.8	97,350

Table 4B. Cell Phone Sample Completions, Terminations and Refusals, Contacted Eligible Households and Total Sample by State

State	COIN		TERE		CONELIG		COOP	Total Sample
	N	%	N	%	N	%	%	
AL	4,512	6.4	1,155	1.6	5,808	8.2	77.7	70,453
AK	1,134	5.1	126	0.6	1,317	5.9	86.1	22,350
AZ	2,328	7.7	477	1.6	2,986	9.9	78.0	30,300
AR	1,204	7.9	227	1.5	1,530	10.0	78.7	15,300
CA	8,817	7.6	2,946	2.5	12,362	10.7	71.3	115,717
CO	6,161	10.5	683	1.2	6,986	11.9	88.2	58,680
CT	4,477	6.4	1,013	1.4	5,870	8.3	76.3	70,427
DE	2,036	5.0	292	0.7	2,520	6.2	80.8	40,350
DC	502	3.3	106	0.7	658	4.3	76.3	15,360
FL	2,925	7.1	644	1.6	3,619	8.8	80.8	41,308
GA	1,403	4.9	314	1.1	1,840	6.5	76.3	28,410
HI	4,861	9.6	828	1.6	5,881	11.6	82.7	50,759
ID	2,546	13.8	490	2.7	3,149	17.1	80.9	18,450
IL	2,314	7.4	323	1.0	2,705	8.6	85.5	31,290
IN	2,068	7.9	461	1.8	2,627	10.0	78.7	26,249
IA	2,639	13.2	218	1.1	2,935	14.7	89.9	20,010
KS	12,628	6.8	2,028	1.1	14,871	8.0	84.9	186,569
KY	3,590	4.9	405	0.6	4,067	5.6	88.3	72,930
LA	1,905	5.8	416	1.3	2,370	7.3	80.4	32,582
ME	2,761	10.2	461	1.7	3,321	12.3	83.1	27,060
MD	1,474	7.2	330	1.6	1,928	9.5	76.5	20,400
MA	5,085	3.9	1,933	1.5	7,147	5.5	71.1	129,879
MI	4,896	8.3	1,056	1.8	6,727	11.4	72.8	58,770
MN	8,362	8.3	550	0.5	9,495	9.4	88.1	100,740
MS	2,315	9.4	387	1.6	2,762	11.2	83.8	24,652
MO	2,856	9.4	281	0.9	3,242	10.6	88.1	30,478

Table 4B. Cell Phone Sample Completions, Terminations and Refusals, Contacted Eligible Households and Total Sample by State

| | COIN | | TERE | | CONELIG | | COOP | |
State	N	%	N	%	N	%	%	Total Sample
MT	2,060	9.3	136	0.6	2,251	10.1	91.5	22,226
NE	9,315	10.8	1,089	1.3	10,890	12.7	85.5	85,890
NV	988	8.9	114	1.0	1,119	10.1	88.3	11,070
NH	2,172	7.9	512	1.9	2,860	10.4	75.9	27,510
NJ	3,781	5.8	551	0.8	4,779	7.4	79.1	64,860
NM	2,902	10.2	602	2.1	3,570	12.6	81.3	28,380
NY	3,856	6.1	1,107	1.7	5,331	8.4	72.3	63,330
NC	4,063	9.5	595	1.4	4,796	11.2	84.7	42,660
ND	2,212	7.5	330	1.1	2,648	9.0	83.5	29,460
OH	3,116	6.0	288	0.6	3,627	7.0	85.9	51,810
OK	2,312	7.1	1,079	3.3	3,627	11.1	63.7	32,646
OR	2,690	5.5	319	0.6	3,098	6.3	86.8	49,111
PA	2,798	8.9	366	1.2	3,257	10.3	85.9	31,482
RI	2,360	7.3	508	1.6	3,126	9.6	75.5	32,550
SC	5,639	10.7	697	1.3	6,493	12.4	86.8	52,541
SD	3,036	7.3	215	0.5	3,285	7.9	92.4	41,467
TN	1,746	6.8	356	1.4	2,138	8.4	81.7	25,558
TX	4,727	6.6	1,768	2.5	6,784	9.5	69.7	71,700
UT	7,553	16.0	504	1.1	8,516	18.1	88.7	47,100
VT	3,224	8.7	485	1.3	3,886	10.5	83.0	37,170
VA	3,575	8.1	405	0.9	4,280	9.7	83.5	44,250
WA	5,931	7.3	1,925	2.4	8,550	10.6	69.4	80,700
WV	3,177	10.7	281	0.9	3,512	11.8	90.5	29,728
WI	3,130	10.6	769	2.6	4,031	13.7	77.6	29,520
WY	1,378	5.9	194	0.8	1,638	7.0	84.1	23,400
GU	414	6.3	86	1.3	553	8.4	74.9	6,570

Table 4B. Cell Phone Sample Completions, Terminations and Refusals, Contacted Eligible Households and Total Sample by State

State	COIN		TERE		CONELIG		COOP	Total Sample
	N	%	N	%	N	%	%	
PR	2,878	15.8	248	1.4	3,306	18.2	87.1	18,194
Minimum	414	3.3	86	0.5	553	4.3	63.7	6,570
Maximum	12,628	16.0	2,946	3.3	14,871	18.2	92.4	186,569
Mean	3,523	8.1	635	1.4	4,350	9.9	81.4	45,625
Median	2,878	7.6	461	1.3	3,321	9.9	82.7	32,582

Table 5A. Landline Sample Categories of Eligibility by State (Landline Only)

	ELIG		INELIG		UNKELIG	
State	**N**	**%**	**N**	**%**	**N**	**%**
AL	9,918	10.4	76,716	80.4	8,802	9.2
AK	4,545	3.2	129,811	90.2	9,554	6.6
AZ	10,406	7.4	111,768	79.5	18,376	13.1
AR	7,220	7.3	80,374	81.0	11,676	11.8
CA	8,340	6.2	98,613	73.6	27,058	20.2
CO	11,363	8.1	110,724	79.3	17,532	12.6
CT	16,368	7.6	161,939	75.0	37,741	17.5
DE	3,555	4.4	55,474	69.1	21,281	26.5
DC	7,589	4.9	120,975	77.9	26,746	17.2
FL	13,444	6.3	162,293	75.5	39,153	18.2
GA	5,072	3.6	108,302	77.7	26,036	18.7
HI	5,770	4.6	108,195	85.8	12,135	9.6
ID	5,801	6.4	75,414	82.6	10,045	11.0
IL	7,459	9.7	60,214	78.2	9,367	12.2
IN	7,785	7.7	77,303	76.9	15,496	15.4
IA	5,595	8.8	50,592	80.0	7,083	11.2
KS	17,812	8.8	161,353	79.4	24,145	11.9
KY	7,224	4.3	134,259	79.7	26,997	16.0
LA	6,195	6.4	77,489	80.4	12,719	13.2
ME	9,802	10.1	72,418	74.4	15,130	15.5
MD	21,889	9.3	164,056	69.6	49,721	21.1
MA	7,589	4.7	110,435	67.8	44,977	27.6
MI	7,008	6.7	82,311	79.1	14,691	14.1
MN	11,176	7.4	114,287	76.1	24,627	16.4
MS	8,052	8.8	74,513	81.2	9,148	10.0
MO	6,806	9.0	58,033	77.0	10,511	13.9
MT	6,542	9.4	55,945	80.2	7,299	10.5

Table 5A. Landline Sample Categories of Eligibility by State (Landline Only)

State	ELIG		INELIG		UNKELIG	
	N	%	N	%	N	%
NE	14,778	11.1	105,613	79.1	13,079	9.8
NV	3,215	7.7	30,813	74.1	7,552	18.2
NH	9,620	10.6	65,601	72.3	15,469	17.1
NJ	12,287	5.5	156,120	70.3	53,743	24.2
NM	6,744	7.7	71,057	81.6	9,319	10.7
NY	18,893	7.3	179,534	69.3	60,803	23.5
NC	5,723	12.9	33,214	74.7	5,553	12.5
ND	4,446	6.8	54,995	84.1	5,989	9.2
OH	12,486	5.5	180,897	79.9	32,967	14.6
OK	8,232	9.3	69,618	78.8	10,510	11.9
OR	3,662	5.3	54,642	79.1	10,809	15.6
PA	4,991	11.0	31,355	68.9	9,160	20.1
RI	7,396	11.7	36,714	57.9	19,280	30.4
SC	10,129	11.0	69,666	75.8	12,080	13.1
SD	6,704	5.2	113,557	87.9	8,979	6.9
TN	9,453	9.0	81,219	77.5	14,072	13.4
TX	23,560	7.5	238,323	76.2	50,987	16.3
UT	5,934	7.8	62,700	82.8	7,132	9.4
VT	4,987	12.0	30,375	73.4	6,038	14.6
VA	7,008	8.2	62,171	72.6	16,471	19.2
WA	24,082	9.7	191,211	77.2	32,477	13.1
WV	4,489	16.8	15,984	59.7	6,287	23.5
WI	6,439	10.4	46,987	76.1	8,284	13.4
WY	9,342	7.3	103,627	80.8	15,281	11.9
GU	2,430	11.7	16,225	78.4	2,035	9.8
PR	4,188	7.9	42,948	81.2	5,782	10.9
Minimum	2,430	3.2	15,984	57.9	2,035	6.6

Table 5A. Landline Sample Categories of Eligibility by State (Landline Only)

State	ELIG		INELIG		UNKELIG	
	N	%	N	%	N	%
Maximum	24,082	16.8	238,323	90.2	60,803	30.4
Mean	8,897	8.1	91,301	76.9	18,456	15.0
Median	7,396	7.7	77,303	77.9	13,079	13.4

Table 5B. Cell Phone Sample Categories of Eligibility by State (Cell Phone Only)

State	ELIG N	ELIG %	INELIG N	INELIG %	UNKELIG N	UNKELIG %
AL	5,808	8.2	38,289	54.3	26,356	37.4
AK	1,317	5.9	16,761	75.0	4,272	19.1
AZ	2,986	9.9	13,406	44.2	13,908	45.9
AR	1,530	10.0	7,804	51.0	5,966	39.0
CA	12,362	10.7	42,194	36.5	61,161	52.9
CO	6,986	11.9	26,710	45.5	24,984	42.6
CT	5,870	8.3	26,903	38.2	37,654	53.5
DE	2,520	6.2	17,619	43.7	20,211	50.1
DC	658	4.3	8,375	54.5	6,327	41.2
FL	3,619	8.8	15,328	37.1	22,361	54.1
GA	1,840	6.5	13,838	48.7	12,732	44.8
HI	5,881	11.6	17,730	34.9	27,148	53.5
ID	3,149	17.1	7,624	41.3	7,677	41.6
IL	2,705	8.6	14,968	47.8	13,617	43.5
IN	2,627	10.0	11,220	42.7	12,402	47.2
IA	2,935	14.7	9,302	46.5	7,773	38.8
KS	14,871	8.0	108,824	58.3	62,874	33.7
KY	4,067	5.6	38,581	52.9	30,282	41.5
LA	2,370	7.3	16,935	52.0	13,277	40.7
ME	3,321	12.3	11,343	41.9	12,396	45.8
MD	1,928	9.5	8,672	42.5	9,800	48.0
MA	7,147	5.5	63,248	48.7	59,484	45.8
MI	6,727	11.4	31,130	53.0	20,913	35.6
MN	9,495	9.4	49,818	49.5	41,427	41.1
MS	2,762	11.2	12,874	52.2	9,016	36.6
MO	3,242	10.6	14,676	48.2	12,560	41.2

Table 5B. Cell Phone Sample Categories of Eligibility by State (Cell Phone Only)

	ELIG		INELIG		UNKELIG	
State	**N**	**%**	**N**	**%**	**N**	**%**
MT	2,251	10.1	12,573	56.6	7,402	33.3
NE	10,890	12.7	50,105	58.3	24,895	29.0
NV	1,119	10.1	4,424	40.0	5,527	49.9
NH	2,860	10.4	12,106	44.0	12,544	45.6
NJ	4,779	7.4	29,042	44.8	31,039	47.9
NM	3,570	12.6	14,898	52.5	9,912	34.9
NY	5,331	8.4	26,059	41.1	31,940	50.4
NC	4,796	11.2	19,648	46.1	18,216	42.7
ND	2,648	9.0	16,639	56.5	10,173	34.5
OH	3,627	7.0	25,955	50.1	22,228	42.9
OK	3,627	11.1	19,082	58.5	9,937	30.4
OR	3,098	6.3	18,746	38.2	27,267	55.5
PA	3,257	10.3	12,974	41.2	15,251	48.4
RI	3,126	9.6	13,737	42.2	15,687	48.2
SC	6,493	12.4	23,979	45.6	22,069	42.0
SD	3,285	7.9	24,857	59.9	13,325	32.1
TN	2,138	8.4	11,441	44.8	11,979	46.9
TX	6,784	9.5	35,367	49.3	29,549	41.2
UT	8,516	18.1	21,749	46.2	16,835	35.7
VT	3,886	10.5	16,298	43.8	16,986	45.7
VA	4,280	9.7	20,701	46.8	19,269	43.5
WA	8,550	10.6	31,098	38.5	41,052	50.9
WV	3,512	11.8	12,035	40.5	14,181	47.7
WI	4,031	13.7	14,850	50.3	10,639	36.0
WY	1,638	7.0	15,567	66.5	6,195	26.5
GU	553	8.4	4,330	65.9	1,687	25.7
PR	3,306	18.2	6,000	33.0	8,888	48.9

Table 5B. Cell Phone Sample Categories of Eligibility by State (Cell Phone Only)

State	ELIG		INELIG		UNKELIG	
	N	**%**	**N**	**%**	**N**	**%**
Minimum	553	4.3	4,330	33.0	1,687	19.1
Maximum	14,871	18.2	108,824	75.0	62,874	55.5
Mean	4,350	9.9	21,836	48.0	19,439	42.1
Median	3,321	9.9	16,639	46.5	14,181	42.7

Table 6. Response Rates for Landline Telephone, Cellular Telephone, and Combined Samples

State	Landline Response Rate	Cell Phone Response Rate	Combined Response Rate
AL	31.6	48.6	38.8
AK	51.8	69.6	54.2
AZ	44.0	42.2	43.7
AR	49.0	48.0	48.9
CA	34.0	33.6	33.9
CO	57.1	50.6	55.2
CT	39.6	35.5	38.6
DE	45.3	40.3	43.6
DC	37.2	44.9	37.9
FL	37.0	37.1	37.0
GA	48.6	42.1	47.6
HI	43.8	38.4	42.2
ID	50.6	47.2	50.0
IL	33.6	48.3	37.9
IN	42.8	41.5	42.6
IA	55.7	55.0	55.5
KS	56.2	56.3	56.2
KY	62.1	51.6	59.0
LA	39.1	47.6	41.2
ME	55.1	45.1	52.9
MD	39.7	39.7	39.7
MA	40.8	38.6	39.8
MI	51.7	46.9	49.9
MN	59.9	51.9	56.7
MS	41.4	53.2	43.9
MO	53.3	51.8	52.9
MT	55.4	61.0	56.8

Table 6. Response Rates for Landline Telephone, Cellular Telephone, and Combined Samples

State	Landline Response Rate	Cell Phone Response Rate	Combined Response Rate
NE	53.4	60.7	56.3
NV	46.5	44.2	46.0
NH	43.1	41.3	42.7
NJ	48.2	41.3	46.6
NM	52.4	52.9	52.5
NY	34.2	35.9	34.5
NC	37.4	48.5	42.9
ND	60.9	54.7	58.9
OH	59.6	49.1	57.6
OK	48.3	44.3	47.2
OR	58.2	38.6	50.0
PA	44.6	44.3	44.5
RI	37.6	39.1	38.1
SC	52.1	50.4	51.5
SD	59.6	62.7	60.4
TN	37.5	43.4	38.6
TX	32.9	41.0	34.4
UT	63.7	57.0	61.1
VT	54.9	45.1	50.2
VA	57.1	47.2	53.7
WA	36.7	34.1	36.0
WV	50.6	47.3	48.9
WI	42.7	49.7	45.0
WY	39.1	61.9	42.6
GU	46.7	55.6	48.9
PR	55.3	44.5	52.5
Minimum	31.6	33.6	33.9

Table 6. Response Rates for Landline Telephone, Cellular Telephone, and Combined Samples

State	Landline Response Rate	Cell Phone Response Rate	Combined Response Rate
Maximum	63.7	69.6	61.1
Mean	47.4	47.2	47.1
Median	48.2	47.2	47.2

References

1. Pierannunzi C, Town M, Garvin W, Shaw F, Balluz L. Methodologic changes in the Behavioral Risk Factor Surveillance System in 2011 and potential effects on prevalence estimates. *MMWR.*2012;61(22):410-413. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6122a3.htm . Accessed September 5, 2015.

2. The American Association for Public Opinion Research. Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys website http://www.aapor.org/AAPOR_Main/media/publications/Standard-Definitions20169theditionfinal.pdf Accessed June 14, 2016.

3. The Council of American Survey Research Organizations. 2013. Code of Standards and Ethics for Market, Opinion, and Social Research website. www.casro.org/resource/resmgr/code/september_2013_revised_code.pdf?hhSearchTerms=%22casro+and+response+and+rate%22. Accessed September 5, 2015.

4. The Pew Research Center for People and the Press. 2012. Assessing the Representativeness of Public Opinion Surveys website. http://www.people-press.org/files/legacy-pdf/Assessing%20the%20Representativeness%20of%20Public%20Opinion%20Surveys.pdf . Accessed September 5, 2015.

5. Groves, RM. Nonresponse rates and nonresponse bias in household surveys. *Public Opinion Quarterly.* 2006;70(5):646-675.