

2012 SMART BRFSS MMSA Methodology

Overview

The Behavioral Risk Factor Surveillance System (BRFSS) Selected Metropolitan/Micropolitan Area Risk Trends (SMART) is a documented and verified subset of the 2012 BRFSS that has been produced to provide some local area estimates. These local areas are identified as metropolitan or micropolitan statistical areas (MMSA), as defined by the Office of Management and Budget (OMB). The data set was produced by adding new raking weights designed to correspond to the 2012 population estimates for each eligible MMSA.

Typically, BRFSS data are used to produce state-level estimates; however, for the SMART project, BRFSS data were used to produce small area-level estimates for MMSAs as defined by the U.S. Census Bureau. On June 6, 2003, OMB issued new definitions for MMSA and metropolitan divisions. OMB periodically updates the list of MMSAs. The list of areas used for this analysis can be found here: [OMB Bulletin Number 13-01.pdf](#).

County and MMSA Identifiers

A county name was collected from the respondent during the demographics section of the interview. The name of the county was used to determine the corresponding American National Standards Institute (ANSI) county code; this code was retained as a variable in the data set. The data record from an interview with a respondent was assigned to an MMSA on the basis of the county code.

Landline telephone data records resulting in an entry with a missing county variable value had an imputed county value assigned. The imputed county value represents the county most likely associated with the telephone number and was determined from the purchased telephone sample.

Cellular telephone data records resulting in entries with a missing county variable had an imputed county value assigned from one of three sources:

1. An open-end text response provided by the respondent, or
2. Information derived from the zip code provided by the respondent, or
3. The record was assigned to the largest county population by age and race/ethnicity.

MMSAs were selected in the SMART BRFSS MMSA data if there were 500 or more respondents in the 2012 BRFSS combined landline telephone and cellular telephone data.

Weighting Methodology

The BRFSS raking method used to generate the 2012 final weight is described in the documentation available with the annual aggregate data release. For the details of the description of the raking methodology, refer to the [BRFSS 2012 Survey Data and Documentation Web page](#). The MMSA weight was generated from additional raking, beginning with the BRFSS raked data set. The combined landline telephone and cellular telephone weight variable was raked to 5 margins, which are age group, gender, race and ethnicity group, gender by age group, and gender by race and ethnicity group at the MMSA level.

The variable **_MMSA** is the code of metropolitan or micropolitan statistical area where the respondent lives. The variable **_MMSANAM** is the MMSA name. The variable **_MMSAWT** is the MMSA-level weight that is used when generating MMSA-level estimates for variables in the data set.

Appendix A lists the MMSAs that are in 2012 SMART BRFSS MMSA data; 187 MMSAs met the criteria.

Appendix B includes examples of SAS code and SUDAAN code used for analysis of the MMSA data set.

Appendix A:
List of the 187 MMSAs Having MMSA-level Weights in 2012 BRFSS Data

Metropolitan/Micropolitan Statistical Area or Metropolitan Division Codes and Names

MMSA Number	MMSA Name
10380	Aguadilla-Isabela, PR, Metropolitan Statistical Area
10420	Akron, OH, Metropolitan Statistical Area
10740	Albuquerque, NM, Metropolitan Statistical Area
10900	Allentown-Bethlehem-Easton, PA-NJ, Metropolitan Statistical Area
11244	Anaheim-Santa Ana-Irvine, CA, Metropolitan Division
11260	Anchorage, AK, Metropolitan Statistical Area
11700	Asheville, NC, Metropolitan Statistical Area
12060	Atlanta-Sandy Springs-Roswell, GA, Metropolitan Statistical Area
12100	Atlantic City-Hammonton, NJ, Metropolitan Statistical Area
12260	Augusta-Richmond County, GA-SC, Metropolitan Statistical Area
12300	Augusta-Waterville, ME, Micropolitan Statistical Area
12420	Austin-Round Rock, TX, Metropolitan Statistical Area
12580	Baltimore-Columbia-Towson, MD, Metropolitan Statistical Area
12620	Bangor, ME, Metropolitan Statistical Area
12700	Barnstable Town, MA, Metropolitan Statistical Area
12740	Barre, VT, Micropolitan Statistical Area
12940	Baton Rouge, LA, Metropolitan Statistical Area
13380	Bellingham, WA, Metropolitan Statistical Area
13620	Berlin, NH-VT, Micropolitan Statistical Area
13740	Billings, MT, Metropolitan Statistical Area
13820	Birmingham-Hoover, AL, Metropolitan Statistical Area
13900	Bismarck, ND, Metropolitan Statistical Area
14260	Boise City, ID, Metropolitan Statistical Area
14454	Boston, MA, Metropolitan Division
14500	Boulder, CO, Metropolitan Statistical Area
14740	Bremerton-Silverdale, WA, Metropolitan Statistical Area
14860	Bridgeport-Stamford-Norwalk, CT, Metropolitan Statistical Area
15540	Burlington-South Burlington, VT, Metropolitan Statistical Area
15764	Cambridge-Newton-Framingham, MA, Metropolitan Division
15804	Camden, NJ, Metropolitan Division
15940	Canton-Massillon, OH, Metropolitan Statistical Area
16220	Casper, WY, Metropolitan Statistical Area
16300	Cedar Rapids, IA, Metropolitan Statistical Area

MMSA Number	MMSA Name
16620	Charleston, WV, Metropolitan Statistical Area
16700	Charleston-North Charleston, SC, Metropolitan Statistical Area
16740	Charlotte-Concord-Gastonia, NC-SC, Metropolitan Statistical Area
16860	Chattanooga, TN-GA, Metropolitan Statistical Area
16940	Cheyenne, WY, Metropolitan Statistical Area
16980	Chicago-Naperville-Elgin, IL-IN-WI, Metropolitan Statistical Area
17140	Cincinnati, OH-KY-IN, Metropolitan Statistical Area
17200	Claremont-Lebanon, NH-VT, Micropolitan Statistical Area
17460	Cleveland-Elyria, OH, Metropolitan Statistical Area
17820	Colorado Springs, CO, Metropolitan Statistical Area
17900	Columbia, SC, Metropolitan Statistical Area
18140	Columbus, OH, Metropolitan Statistical Area
18180	Concord, NH, Micropolitan Statistical Area
19124	Dallas-Plano-Irving, TX, Metropolitan Division
19380	Dayton, OH, Metropolitan Statistical Area
19740	Denver-Aurora-Lakewood, CO, Metropolitan Statistical Area
19780	Des Moines-West Des Moines, IA, Metropolitan Statistical Area
19804	Detroit-Dearborn-Livonia, MI, Metropolitan Division
20100	Dover, DE, Metropolitan Statistical Area
20260	Duluth, MN-WI, Metropolitan Statistical Area
20500	Durham-Chapel Hill, NC, Metropolitan Statistical Area
21340	El Paso, TX, Metropolitan Statistical Area
21660	Eugene, OR, Metropolitan Statistical Area
21820	Fairbanks, AK, Metropolitan Statistical Area
22020	Fargo, ND-MN, Metropolitan Statistical Area
22140	Farmington, NM, Metropolitan Statistical Area
22180	Fayetteville, NC, Metropolitan Statistical Area
22220	Fayetteville-Springdale-Rogers, AR-MO, Metropolitan Statistical Area
22660	Fort Collins, CO, Metropolitan Statistical Area
23060	Fort Wayne, IN, Metropolitan Statistical Area
23104	Fort Worth-Arlington, TX, Metropolitan Division
24260	Grand Island, NE, Metropolitan Statistical Area
24340	Grand Rapids-Wyoming, MI, Metropolitan Statistical Area
24500	Great Falls, MT, Metropolitan Statistical Area
24540	Greeley, CO, Metropolitan Statistical Area
24660	Greensboro-High Point, NC, Metropolitan Statistical Area
24860	Greenville-Anderson-Mauldin, SC, Metropolitan Statistical Area
25060	Gulfport-Biloxi-Pascagoula, MS, Metropolitan Statistical Area

MMSA Number	MMSA Name
25180	Hagerstown-Martinsburg, MD-WV, Metropolitan Statistical Area
25420	Harrisburg-Carlisle, PA, Metropolitan Statistical Area
25540	Hartford-West Hartford-East Hartford, CT, Metropolitan Statistical Area
25720	Heber, UT, Micropolitan Statistical Area
25900	Hilo, HI, Micropolitan Statistical Area
25940	Hilton Head Island-Bluffton-Beaufort, SC, Metropolitan Statistical Area
26420	Houston-The Woodlands-Sugar Land, TX, Metropolitan Statistical Area
26580	Huntington-Ashland, WV-KY-OH, Metropolitan Statistical Area
26620	Huntsville, AL, Metropolitan Statistical Area
26820	Idaho Falls, ID, Metropolitan Statistical Area
26900	Indianapolis-Carmel-Anderson, IN, Metropolitan Statistical Area
27140	Jackson, MS, Metropolitan Statistical Area
27260	Jacksonville, FL, Metropolitan Statistical Area
27980	Kahului-Wailuku-Lahaina, HI, Metropolitan Statistical Area
28060	Kalispell, MT, Micropolitan Statistical Area
28140	Kansas City, MO-KS, Metropolitan Statistical Area
28180	Kapaa, HI, Micropolitan Statistical Area
28300	Keene, NH, Micropolitan Statistical Area
28420	Kennewick-Richland, WA, Metropolitan Statistical Area
28700	Kingsport-Bristol-Bristol, TN-VA, Metropolitan Statistical Area
28940	Knoxville, TN, Metropolitan Statistical Area
29060	Laconia, NH, Micropolitan Statistical Area
29180	Lafayette, LA, Metropolitan Statistical Area
29740	Las Cruces, NM, Metropolitan Statistical Area
29820	Las Vegas-Henderson-Paradise, NV, Metropolitan Statistical Area
30340	Lewiston-Auburn, ME, Metropolitan Statistical Area
30460	Lexington-Fayette, KY, Metropolitan Statistical Area
30700	Lincoln, NE, Metropolitan Statistical Area
30780	Little Rock-North Little Rock-Conway, AR, Metropolitan Statistical Area
30860	Logan, UT-ID, Metropolitan Statistical Area
31084	Los Angeles-Long Beach-Glendale, CA, Metropolitan Division
31140	Louisville/Jefferson County, KY-IN, Metropolitan Statistical Area
31300	Lumberton, NC, Micropolitan Statistical Area
31700	Manchester-Nashua, NH, Metropolitan Statistical Area
32580	McAllen-Edinburg-Mission, TX, Metropolitan Statistical Area
32820	Memphis, TN-MS-AR, Metropolitan Statistical Area
33100	Miami-Fort Lauderdale-West Palm Beach, FL, Metropolitan Statistical Area
33340	Milwaukee-Waukesha-West Allis, WI, Metropolitan Statistical Area

MMSA Number	MMSA Name
33460	Minneapolis-St. Paul-Bloomington, MN-WI, Metropolitan Statistical Area
33540	Missoula, MT, Metropolitan Statistical Area
33660	Mobile, AL, Metropolitan Statistical Area
33860	Montgomery, AL, Metropolitan Statistical Area
33874	Montgomery County-Bucks County-Chester County, PA, Metropolitan Division
34820	Myrtle Beach-Conway-North Myrtle Beach, SC-NC, Metropolitan Statistical Area
34980	Nashville-Davidson--Murfreesboro--Franklin, TN, Metropolitan Statistical Area
35004	Nassau County-Suffolk County, NY, Metropolitan Division
35084	Newark, NJ-PA, Metropolitan Division
35300	New Haven-Milford, CT, Metropolitan Statistical Area
35380	New Orleans-Metairie, LA, Metropolitan Statistical Area
35614	New York-Jersey City-White Plains, NY-NJ, Metropolitan Division
35740	Norfolk, NE, Micropolitan Statistical Area
35820	North Platte, NE, Micropolitan Statistical Area
35980	Norwich-New London, CT, Metropolitan Statistical Area
36084	Oakland-Hayward-Berkeley, CA, Metropolitan Division
36140	Ocean City, NJ, Metropolitan Statistical Area
36260	Ogden-Clearfield, UT, Metropolitan Statistical Area
36420	Oklahoma City, OK, Metropolitan Statistical Area
36500	Olympia-Tumwater, WA, Metropolitan Statistical Area
36540	Omaha-Council Bluffs, NE-IA, Metropolitan Statistical Area
36740	Orlando-Kissimmee-Sanford, FL, Metropolitan Statistical Area
37964	Philadelphia, PA, Metropolitan Division
38060	Phoenix-Mesa-Scottsdale, AZ, Metropolitan Statistical Area
38300	Pittsburgh, PA, Metropolitan Statistical Area
38660	Ponce, PR, Metropolitan Statistical Area
38860	Portland-South Portland, ME, Metropolitan Statistical Area
38900	Portland-Vancouver-Hillsboro, OR-WA, Metropolitan Statistical Area
39300	Providence-Warwick, RI-MA, Metropolitan Statistical Area
39340	Provo-Orem, UT, Metropolitan Statistical Area
39580	Raleigh, NC, Metropolitan Statistical Area
39660	Rapid City, SD, Metropolitan Statistical Area
39900	Reno, NV, Metropolitan Statistical Area
40060	Richmond, VA, Metropolitan Statistical Area
40140	Riverside-San Bernardino-Ontario, CA, Metropolitan Statistical Area
40484	Rockingham County-Strafford County, NH, Metropolitan Division
40860	Rutland, VT, Micropolitan Statistical Area
40900	Sacramento--Roseville--Arden-Arcade, CA, Metropolitan Statistical Area

MMSA Number	MMSA Name
41180	St. Louis, MO-IL, Metropolitan Statistical Area
41540	Salisbury, MD-DE, Metropolitan Statistical Area
41620	Salt Lake City, UT, Metropolitan Statistical Area
41700	San Antonio-New Braunfels, TX, Metropolitan Statistical Area
41740	San Diego-Carlsbad, CA, Metropolitan Statistical Area
41884	San Francisco-Redwood City-South San Francisco, CA, Metropolitan Division
41940	San Jose-Sunnyvale-Santa Clara, CA, Metropolitan Statistical Area
41980	San Juan-Carolina-Caguas, PR, Metropolitan Statistical Area
42140	Santa Fe, NM, Metropolitan Statistical Area
42380	Sayre, PA, Micropolitan Statistical Area
42420	Scottsbluff, NE, Micropolitan Statistical Area
42540	Scranton--Wilkes-Barre--Hazleton, PA, Metropolitan Statistical Area
42644	Seattle-Bellevue-Everett, WA, Metropolitan Division
43340	Shreveport-Bossier City, LA, Metropolitan Statistical Area
43524	Silver Spring-Frederick-Rockville, MD, Metropolitan Division
43580	Sioux City, IA-NE-SD, Metropolitan Statistical Area
43620	Sioux Falls, SD, Metropolitan Statistical Area
43900	Spartanburg, SC, Metropolitan Statistical Area
44060	Spokane-Spokane Valley, WA, Metropolitan Statistical Area
44140	Springfield, MA, Metropolitan Statistical Area
45104	Tacoma-Lakewood, WA, Metropolitan Division
45300	Tampa-St. Petersburg-Clearwater, FL, Metropolitan Statistical Area
45780	Toledo, OH, Metropolitan Statistical Area
45820	Topeka, KS, Metropolitan Statistical Area
45860	Torrington, CT, Micropolitan Statistical Area
45940	Trenton, NJ, Metropolitan Statistical Area
46060	Tucson, AZ, Metropolitan Statistical Area
46140	Tulsa, OK, Metropolitan Statistical Area
46220	Tuscaloosa, AL, Metropolitan Statistical Area
46520	Urban Honolulu, HI, Metropolitan Statistical Area
47220	Vineland-Bridgeton, NJ, Metropolitan Statistical Area
47260	Virginia Beach-Norfolk-Newport News, VA-NC, Metropolitan Statistical Area
47664	Warren-Troy-Farmington Hills, MI, Metropolitan Division
47894	Washington-Arlington-Alexandria, DC-VA-MD-WV, Metropolitan Division
48620	Wichita, KS, Metropolitan Statistical Area
48864	Wilmington, DE-MD-NJ, Metropolitan Division
49180	Winston-Salem, NC, Metropolitan Statistical Area
49340	Worcester, MA-CT, Metropolitan Statistical Area

MMSA Number	MMSA Name
49420	Yakima, WA, Metropolitan Statistical Area
49660	Youngstown-Warren-Boardman, OH-PA, Metropolitan Statistical Area

Appendix B: Sample Codes for Analysis

SUDAAN Code Example:

Generating an estimate for the Atlanta-Sandy Springs-Roswell, GA, Metropolitan Statistical Area (MMSA code = 12060).

```
proc sort data=xxxx;
by _STSTR _SEQNO;
run;
```

```
proc descript data=xxxx filetype=sas design=wr;
nest _STSTR _SEQNO / missunit;
weight _MMSAWT;
subpopn _MMSA=12060 / name=" Atlanta-Sandy Springs-Roswell, GA";
var (your analysis variable);
catlevel (the level of your analysis variable for which you want an estimate);
run;
```

SAS Code Example:

```
proc surveymeans data=xxxx nobks mean stderr sum sumwgt;
strata _ststr;
weight _mmsawt;
var (your analysis variable);
class (your analysis variable);
domain _mmsa;
run;
```