2011 SMART BRFSS MMSA Methodology

Overview

The Behavioral Risk Factor Surveillance System (BRFSS) Selected Metropolitan/Micropolitan Area Risk Trends (SMART) is a subset of the 2011 BRFSS that has been produced to provide local area estimates. These local areas are identified as metropolitan or micropolitan statistical areas (MMSA) as defined by the Office of Management and Budget. The SMART data set was produced by adding new raking weights designed to correspond to the 2011 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 Bureau of the Census. On June 6, 2003, the Office of Management and Budget (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 in the December 2009 OMB Bulletin.

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 and 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 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. This is determined from the purchased telephone sample.

Cell phone data records resulting in entries with a missing county variable had an imputed county value assigned from one of three sources. An open-end text response provided by the respondent or information derived from the zip code provided the respondent--or 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 2011 BRFSS combined landline and cell phone data.

Weighting methodology

The BRFSS raking method used to generate the 2011 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 2011 Annual Data Web page. The MMSA weight was generated from additional raking, beginning with the BRFSS raked data set. The combined landline and cellphone weight variable, including the county-level raking, was raked to 5 margins, which include 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 dataset.

Appendix A lists the MMSAs that are in 2011 SMART BRFSS MMSA data; 198 MMSAs met the criteria.

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

Appendix A: List of the 198 MMSAs that have MMSA-level Weights in 2011 BRFSS Data

Metropolitan/Micropolitan Statistical Area or Metropolitan Division Codes and Names

MMSA Number	MMSA Name
10020	Abbeville, LA, Micropolitan Statistical Area
10100	Aberdeen, SD, Micropolitan Statistical Area
10420	Akron, OH, Metropolitan Statistical Area
10740	Albuquerque, NM, Metropolitan Statistical Area
10900	Allentown-Bethlehem-Easton, PA-NJ Metropolitan Statistical Area
11260	Anchorage, AK, Metropolitan Statistical Area
11700	Asheville, NC, Metropolitan Statistical Area
12060	Atlanta-Sandy Springs-Marietta, 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-San Marcos, TX, Metropolitan Statistical Area
12580	Baltimore-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
13644	Bethesda-Rockville-Frederick, MD, Metropolitan Division
13740	Billings, MT, Metropolitan Statistical Area
13820	Birmingham-Hoover, AL, Metropolitan Statistical Area
13900	Bismarck, ND, Metropolitan Statistical Area
14260	Boise City-Nampa, ID, Metropolitan Statistical Area
14484	Boston-Quincy, MA, Metropolitan Division
14500	Boulder, CO, Metropolitan Statistical Area
14580	Bozeman, MT, Micropolitan Statistical Area
14860	Bridgeport-Stamford-Norwalk, CT, Metropolitan Statistical Area
15100	Brookings, SD, Micropolitan Statistical Area
15380	Buffalo-Niagara Falls, N,Y 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

MMSA Number	MMSA Name
16220	Casper, WY, Metropolitan Statistical Area
16300	Cedar Rapids, IA, Metropolitan Statistical Area
16620	Charleston, WV, Metropolitan Statistical Area
16700	Charleston-North Charleston-Summerville, SC, Metropolitan Statistical Area
16740	Charlotte-Gastonia-Rock Hill, NC-SC, Metropolitan Statistical Area
16860	Chattanooga, TN-GA, Metropolitan Statistical Area
16940	Cheyenne, WY, Metropolitan Statistical Area
16980	Chicago-Joliet-Naperville, IL-IN-WI, Metropolitan Statistical Area
17140	Cincinnati-Middletown, OH-KY-IN, Metropolitan Statistical Area
17460	Cleveland-Elyria-Mentor, OH, Metropolitan Statistical Area
17820	Colorado Springs, CO, Metropolitan Statistical Area
17900	Columbia, SC, Metropolitan Statistical Area
18100	Columbus, NE, Micropolitan Statistical Area
18140	Columbus, OH, Metropolitan Statistical Area
18180	Concord, NH, Micropolitan Statistical Area
19124	Dallas-Plano-Irving, TX, Metropolitan Division
19340	Davenport-Moline-Rock Island, IA-IL, Metropolitan Statistical Area
19380	Dayton, OH, Metropolitan Statistical Area
19740	Denver-Aurora-Broomfield, CO, Metropolitan Statistical Area
19780	Des Moines-West Des Moines, IA, Metropolitan Statistical Area
19804	Detroit-Livonia-Dearborn, MI, Metropolitan Division
20100	Dover, DE, Metropolitan Statistical Area
20260	Duluth, MN-WI, Metropolitan Statistical Area
20500	Durham-Chapel Hill, NC, Metropolitan Statistical Area
20764	Edison-New Brunswick, NJ, Metropolitan Division
21660	Eugene-Springfield, OR, Metropolitan Statistical Area
21780	Evansville, IN-KY, Metropolitan Statistical Area
21820	Fairbanks, AK, Metropolitan Statistical Area
22020	Fargo, ND-MN, Metropolitan Statistical Area
22140	Farmington, NM, Metropolitan Statistical Area
22220	Fayetteville-Springdale-Rogers, AR-MO, Metropolitan Statistical Area
22660	Fort Collins-Loveland, CO, Metropolitan Statistical Area
23060	Fort Wayne, IN, Metropolitan Statistical Area
23104	Fort Worth-Arlington, TX, Metropolitan Division
24260	Grand Island, NE, Micropolitan Statistical Area
24340	Grand Rapids-Wyoming, MI, Metropolitan Statistical Area
24500	Great Falls, MT, Metropolitan Statistical Area

MMSA Number	MMSA Name
24540	Greeley, CO, Metropolitan Statistical Area
24660	Greensboro-High Point, NC, Metropolitan Statistical Area
24860	Greenville-Mauldin-Easley, SC, Metropolitan Statistical Area
25060	Gulfport-Biloxi, MS, Metropolitan Statistical Area
25180	Hagerstown-Martinsburg, MD-WV, Metropolitan Statistical Area
25540	Hartford-West Hartford-East Hartford, CT, Metropolitan Statistical Area
25580	Hastings, NE, Micropolitan Statistical Area
25660	Havre, MT, Micropolitan Statistical Area
25720	Heber, UT, Micropolitan Statistical Area
25740	Helena, MT, Micropolitan Statistical Area
25860	Hickory-Lenoir-Morganton, NC, Metropolitan Statistical Area
25900	Hilo, HI, Micropolitan Statistical Area
25940	Hilton Head Island-Beaufort, SC, Micropolitan Statistical Area
26180	Honolulu, HI, Metropolitan Statistical Area
26380	Houma-Bayou Cane-Thibodaux, LA, Metropolitan Statistical Area
26420	Houston-Sugar Land-Baytown, TX, Metropolitan Statistical Area
26580	Huntington-Ashland, WV-KY-OH, Metropolitan Statistical Area
26820	Idaho Falls, ID, Metropolitan Statistical Area
26900	Indianapolis-Carmel, IN, Metropolitan Statistical Area
27140	Jackson, MS, Metropolitan Statistical Area
27260	Jacksonville, FL, Metropolitan Statistical Area
27980	Kahului-Wailuku, HI, Micropolitan Statistical Area
28060	Kalispell, MT, Micropolitan Statistical Area
28140	Kansas City, MO-KS, Metropolitan Statistical Area
28180	Kapaa, HI, Micropolitan Statistical Area
28260	Kearney, NE, Micropolitan Statistical Area
28300	Keene, NH, Micropolitan Statistical Area
28700	Kingsport-Bristol-Bristol, TN-VA, Metropolitan Statistical Area
28940	Knoxville, TN, Metropolitan Statistical Area
29180	Lafayette, LA, Metropolitan Statistical Area
29340	Lake Charles, LA, Metropolitan Statistical Area
29740	Las Cruces, NM, Metropolitan Statistical Area
29820	Las Vegas-Paradise, NV, Metropolitan Statistical Area
29940	Lawrence, KS, Metropolitan Statistical Area
30100	Lebanon, NH-VT, Micropolitan Statistical Area
30300	Lewiston, ID-WA, Metropolitan Statistical Area
30340	Lewiston-Auburn, ME, Metropolitan Statistical Area
30460	Lexington-Fayette, KY, Metropolitan Statistical Area

MMSA Number	MMSA Name
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
31180	Lubbock, TX, Metropolitan Statistical Area
31700	Manchester-Nashua, NH, Metropolitan Statistical Area
31740	Manhattan, KS, Metropolitan Statistical Area
32820	Memphis, TN-MS-AR, Metropolitan Statistical Area
33100	Miami-Fort Lauderdale-Pompano Beach, FL, Metropolitan Statistical Area
33260	Midland, TX, Metropolitan Statistical Area
33340	Milwaukee-Waukesha-West Allis, WI, Metropolitan Statistical Area
33460	Minneapolis-St. Paul-Bloomington, MN-WI, Metropolitan Statistical Area
33500	Minot, ND, Micropolitan Statistical Area
33540	Missoula, MT, Metropolitan Statistical Area
33660	Mobile, AL, Metropolitan Statistical Area
33740	Monroe, LA, Metropolitan Statistical Area
33860	Montgomery, AL, Metropolitan Statistical Area
34820	Myrtle Beach-North Myrtle Beach-Conway, SC, Metropolitan Statistical Area
34980	Nashville-Davidson--Murfreesboro--Franklin, TN, Metropolitan Statistical Area
35004	Nassau-Suffolk, NY, Metropolitan Division
35084	Newark-Union, NJ-PA, Metropolitan Division
35300	New Haven-Milford, CT, Metropolitan Statistical Area
35380	New Orleans-Metairie-Kenner, LA, Metropolitan Statistical Area
35644	New York-White Plains-Wayne, NY-NJ, Metropolitan Division
35740	Norfolk, NE, Micropolitan Statistical Area
35820	North Platte, NE, Micropolitan Statistical Area
36140	Ocean City, NJ, Metropolitan Statistical Area
36260	Ogden-Clearfield, UT, Metropolitan Statistical Area
36420	Oklahoma City, OK, Metropolitan Statistical Area
36500	Olympia, WA, Metropolitan Statistical Area
36540	Omaha-Council Bluffs, NE-IA, Metropolitan Statistical Area
36700	Orangeburg, SC, Micropolitan Statistical Area
36740	Orlando-Kissimmee-Sanford, FL, Metropolitan Statistical Area
37764	Peabody, MA, Metropolitan Division
37964	Philadelphia, PA, Metropolitan Division
38060	Phoenix-Mesa-Glendale, AZ, Metropolitan Statistical Area

MMSA Number	MMSA Name
38180	Pierre, SD, Micropolitan Statistical Area
38300	Pittsburgh, PA, Metropolitan Statistical Area
38860	Portland-South Portland-Biddeford, ME, Metropolitan Statistical Area
38900	Portland-Vancouver-Hillsboro, OR-WA, Metropolitan Statistical Area
39300	Providence-New Bedford-Fall River, RI-MA, Metropolitan Statistical Area
39340	Provo-Orem, UT, Metropolitan Statistical Area
39580	Raleigh-Cary, NC, Metropolitan Statistical Area
39660	Rapid City, SD, Metropolitan Statistical Area
39900	Reno-Sparks, NV, Metropolitan Statistical Area
40060	Richmond, VA, Metropolitan Statistical Area
40140	Riverside-San Bernardino-Ontario, CA, Metropolitan Statistical Area
40180	Riverton, WY, Micropolitan Statistical Area
40484	Rockingham County-Strafford County, NH, Metropolitan Division
40500	Rockland, ME, Micropolitan Statistical Area
40860	Rutland, VT, Micropolitan Statistical Area
40900	Sacramento--Arden-Arcade--Roseville, CA, Metropolitan Statistical Area
41180	St. Louis, MO-IL, Metropolitan Statistical Area
41420	Salem, OR, Metropolitan Statistical Area
41620	Salt Lake City, UT, Metropolitan Statistical Area
41700	San Antonio-New Braunfels, TX, Metropolitan Statistical Area
41740	San Diego-Carlsbad-San Marcos, CA, Metropolitan Statistical Area
41860	San Francisco-Oakland-Fremont, CA, Metropolitan Statistical Area
41940	San Jose-Sunnyvale-Santa Clara, CA, Metropolitan Statistical Area
42044	Santa Ana-Anaheim-Irvine, CA, Metropolitan Division
42140	Santa Fe, NM, Metropolitan Statistical Area
42420	Scottsbluff, NE, Micropolitan Statistical Area
42540	Scranton--Wilkes-Barre, PA, Metropolitan Statistical Area
42580	Seaford, DE, Micropolitan Statistical Area
42644	Seattle-Bellevue-Everett, WA, Metropolitan Division
43340	Shreveport-Bossier City, LA, Metropolitan Statistical Area
43580	Sioux City, IA-NE-SD, Metropolitan Statistical Area
43620	Sioux Falls, SD, Metropolitan Statistical Area
43900	Spartanburg, SC, Metropolitan Statistical Area
43940	Spearfish, SD Micropolitan Statistical Area
44060	Spokane, WA, Metropolitan Statistical Area
44140	Springfield, MA, Metropolitan Statistical Area
45104	Tacoma, WA, Metropolitan Division
45220	Tallahassee, FL, Metropolitan Statistical Area

MMSA Number	MMSA Name
45300	Tampa-St. Petersburg-Clearwater, FL, Metropolitan Statistical Area
45780	Toledo, OH, Metropolitan Statistical Area
45820	Topeka, KS, Metropolitan Statistical Area
45940	Trenton-Ewing, NJ, Metropolitan Statistical Area
46060	Tucson, AZ, Metropolitan Statistical Area
46140	Tulsa, OK, Metropolitan Statistical Area
46220	Tuscaloosa, AL, Metropolitan Statistical Area
46340	Tyler, TX, Metropolitan Statistical Area
47260	Virginia Beach-Norfolk-Newport News, VA-NC, Metropolitan Statistical Area
47644	Warren-Troy-Farmington Hills, MI, Metropolitan Division
47894	Washington-Arlington-Alexandria, DC-VA-MD-WV, Metropolitan Division
47980	Watertown, SD, Micropolitan Statistical Area
48620	Wichita, KS, Metropolitan Statistical Area
48864	Wilmington, DE-MD-NJ, Metropolitan Division
49340	Worcester, MA, Metropolitan Statistical Area
49660	Youngstown-Warren-Boardman, OH-PA, Metropolitan Statistical Area

Appendix B: Sample Codes for Analysis

SUDAAN Code Example:

Suppose we want an estimate for the Atlanta-Sandy Springs-Marietta, GA, Metropolitan Statistical Area (MMSA code = 12060). Here's SAS/SUDAAN code that could be used to do this:

```
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-Marietta, 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 nobs mean stderr sum sumwgt;
strata _ststr;
weight _mmsawt;
var (your analysis variable);
class (your analysis variable);
domain _mmsa;
run;
```