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Wireless Substitution: Early Release of Estimates From the National Health Interview Survey, January – June 2010

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Overview

Preliminary results from the January–June 2010 National Health Interview Survey (NHIS) indicate that the number of American homes with only wireless telephones continues to grow. More than one of every four American homes (26.6%) had only wireless telephones (also known as cellular telephones, cell phones, or mobile phones) during the first half of 2010—an increase of 2.1 percentage points since the second half of 2009. In addition, nearly one of every six American homes (15.9%) received all or almost all calls on wireless telephones despite having a landline. This report presents the most up-to-date estimates available from the federal government concerning the size and characteristics of these populations.

NHIS Early Release Program

This report is published as part of the NHIS Early Release Program. In May and December of each year, the Centers for Disease Control and Prevention's National Center for Health Statistics (NCHS) releases selected estimates of telephone coverage for the civilian noninstitutionalized U.S. population based on data from NHIS, along with comparable estimates from NHIS for the previous 3 years. The estimates are based on in-person interviews that NHIS conducts continuously throughout the year to collect information on health status, health-related behaviors, and health care utilization. The survey also includes information about household telephones and whether anyone in the household has a wireless telephone.

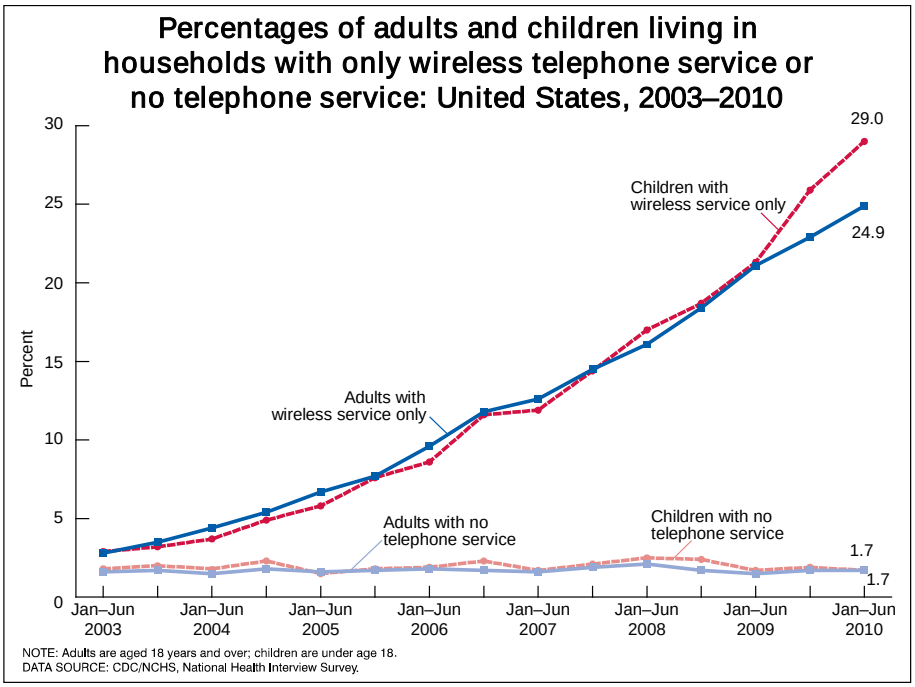
Two additional reports are published as part of the NHIS Early Release Program. *Early Release of Selected Estimates Based on Data From the National Health Interview Survey* is published quarterly and provides estimates for 15 selected measures of health. *Health Insurance Coverage: Early Release of Estimates From the National Health Interview Survey* is also published quarterly and provides additional estimates regarding health insurance coverage.

Methods

For many years, NHIS has asked respondents to provide residential telephone numbers, to permit recontact of survey participants. Starting in 2003, additional questions were asked to determine whether a family had a landline telephone. NHIS families were considered to have landline telephone service if the survey respondent for each family reported that there was "at least one phone inside your home that is currently working and is not a cell phone."

A "family" can be an individual or a group of two or more related persons living together in the same housing unit (a "household"). Thus, a family can consist of only one person, and more than one family can live in a household (including, for example, a household where there are multiple single-person families, as when unrelated roommates are living together).

The survey respondent for each family was also asked whether "anyone in your family has a working cellular telephone." Families are identified as "wireless families" if respondents reported that someone in the family had a working cellular telephone at the time of interview. This person (or persons)



Figure

could be a civilian adult, a member of the military, or a child.

Households are identified as "wireless-only" if they include at least one wireless family and if there are no working landline telephones inside the household. Persons are identified as wireless-only if they live in a wireless-only household. A similar approach is used to identify adults living in households with no telephone service (neither wireless nor landline). Household telephone status (rather than family telephone status) is used in this report because most telephone surveys do not attempt to distinguish between families when more than one family lives in the same household.

From January through June 2010, information on household telephone status was obtained for 17,619 households that included at least one civilian adult or child. These households included 33,780 civilian adults aged 18 years and over and 12,234 children under age 18.

Analyses of demographic characteristics are based on data from the NHIS Person and Household files. Demographic data for all civilian adults living in interviewed households were used in these analyses. Estimates stratified by poverty status are based on reported income only, because imputed income values are not available until a few months after the annual release of NHIS microdata. Household income was unknown for 13% of adults.

Analyses of selected health measures are based on data from the NHIS Sample Adult file. Health-related data for one civilian adult randomly selected from each family were used in these analyses. From January through June 2010, data on household telephone status and selected health measures were collected from 14,112 randomly selected adults.

Because NHIS is conducted throughout the year and the sample is designed to yield a nationally representative sample each week, data can be analyzed quarterly. Weights are created for each calendar quarter of the NHIS sample. NHIS data weighting procedures are described in more detail in a previous NCHS report (see Botman et al., 2000). To provide access to the most recent information from NHIS, estimates using the January–June 2010 data are being released prior to final data editing and final weighting. These estimates should be considered preliminary. If estimates are produced using the final data files, the estimates may differ slightly from those presented here.

Point estimates and 95% confidence intervals were calculated using SUDAAN software, to account for the complex sample design of NHIS. Differences between percentages were evaluated by using two-sided significance tests at the 0.05 level. Terms such as "more likely" and "less likely" indicate a statistically significant difference. Lack of comment regarding the difference between any two estimates does not necessarily mean that the difference was tested and found to be not significant. Because of small sample sizes, estimates based on less than 1 year of data may have large variances, and caution should be used in interpreting such estimates.

Telephone Status

In the first 6 months of 2010, more than one of every four households (26.6%) did not have a landline telephone but did have at least one wireless telephone (**Table 1**). Approximately 24.9% of all adults (approximately 57 million adults) lived in households with only wireless telephones; 29.0% of all children (more than 21 million children) lived in households with only wireless telephones.

The percentage of households that are wireless-only has been steadily increasing. The 2.1-percentage-point increase from the last 6 months of 2009 through the first 6 months of 2010 is similar to the 1.8-percentage-point increase observed from the first 6 months of 2009 through the last 6 months of 2009 and to the 2.5-percentage-point increase observed from the last 6 months of 2008 through the first 6 months of 2009.

The percentage of adults living in wireless-only households has also been increasing steadily (see **Figure**). During the first 6 months of 2010, one of every four adults lived in wireless-only households. One year before that (i.e., during the first 6 months of 2009), one of every five adults lived in wireless-only households. And 2 years before that (i.e., during the first 6 months of 2007), only one of every eight adults lived in wireless-only households.

The percentage of children living in wireless-only households is also growing. The 3.1-percentage-point increase from the last 6 months of 2009 is not as large as the 4.6-percentage-point increase from the first 6 months of 2009 to the last 6 months of 2009. However, these increases represent the two largest 6-month increases observed since 2003, when NHIS began collecting data on wireless-only households.

The percentages of adults and children living without any telephone service have remained relatively unchanged over the past 3 years. Approximately 2.0% of households had no telephone service (neither wireless nor landline). Nearly 4 million adults (1.7%) and 1.2 million children (1.7%) lived in these households.

Demographic Differences

The percentage of U.S. civilian noninstitutionalized adults living in wireless-only households is shown by selected demographic characteristics and by survey time period in **Table 2**. For the period January–June 2010,

- More than half of adults aged 25–29 years (51.3%) lived in households with only wireless telephones. This is the first time that the number of adults in wireless-only households has exceeded the number of adults in landline households in any age range examined.

- Two in five adults aged 18–24 years (39.9%) or 30–34 years (40.4%) lived in households with only wireless telephones. As age increased from 35 years, the percentage of adults living in households with only wireless telephones decreased: 27.0% for adults aged 35–44; 16.9% for adults aged 45–64; and 5.4% for adults aged 65 and over.
- More than two in three adults living only with unrelated adult roommates (69.4%) were in households with only wireless telephones. This is the highest prevalence rate for the population subgroups examined.
- Nearly half of all adults renting their home (47.1%) had only wireless telephones. Adults renting their home were more likely than adults owning their home (15.5%) to be living in households with only wireless telephones.
- Men (26.2%) were more likely than women (23.7%) to be living in households with only wireless telephones.
- Adults living in poverty (39.3%) and adults living near poverty (32.9%) were more likely than higher income adults (21.7%) to be living in households with only wireless telephones.
- Adults living in the Midwest (26.6%), South (29.3%), and West (23.5%) were more likely than adults living in the Northeast (15.8%) to be living in households with only wireless telephones.
- Hispanic adults (34.7%) were more likely than non-Hispanic white adults (22.7%) or non-Hispanic black adults (28.5%) to be living in households with only wireless telephones.

Demographic Distributions

The demographic differences noted in the previous section are based on the distribution of household telephone status within each demographic group. When examining the population of wireless-only adults, some readers may instead wish to consider the distribution of various demographic characteristics within the wireless-only adult population. For example, although young adults aged 18–29 years were more likely than older adults to live in households with only wireless telephones, these young adults made up fewer than half (39.8%) of all wireless-only adults. Young adults were a minority among all wireless-only adults because young adults made up only 22% of the total adult population.

Table 3 presents the percent distribution of selected demographic characteristics for adults living in households with only wireless telephones, by survey time period. The estimates in this table reveal that the distributions of selected demographic characteristics changed little over the 4-year period shown. The exceptions were related to sex, age, employment status, and household structure. From 2007 to the first 6 months of 2010,

- The proportion of women among all wireless-only adults increased from approximately 47% to 49.1%.
- Among all wireless-only adults, the proportion of adults aged 30 years and over has steadily increased. In the first 6 months of 2010, the majority of wireless-only adults (60.2%) were aged 30 and over, up from 49.3% in the first 6 months of 2007.
- The proportion of employed adults among all wireless-only adults has decreased from 77.1% to 69.7%. Over the same time period, the proportion of adults with an employment status other than working, keeping house, or going to school increased. These adults (largely unemployed or retired) made up 19.5% of wireless-only adults in the first 6 months of 2010, up from 12.1% in the first 6 months of 2007.
- Among all wireless-only adults, the proportion of adults living with children has steadily increased. In the first 6 months of 2010, 40.9% of wireless-only adults were living with children, up from 34.6% in the first 6 months of 2007.

Selected Health Measures by Household Telephone Status

Many health surveys, political polls, and other research are conducted using random-digit-dial telephone surveys. Until recently, these surveys did not include wireless telephone numbers in their samples. Now, despite operational challenges, most major survey research organizations are including wireless telephone numbers when conducting random-digit-dial telephone surveys. If they did not, the exclusion of households with only wireless telephones (along with the small proportion of households that have no telephone service) could bias results. This bias—known as coverage bias—could exist if there are differences between persons with and without landline telephones for the substantive variables of interest.

The NHIS Early Release Program updates and releases estimates for 15 key health indicators every 3 months. **Table 4** presents estimates by household telephone status (landline, wireless-only, or without any telephone service) for all but two of these measures. ("Pneumococcal vaccination" and "personal care needs" were not included because these indicators are limited to older adults aged 65 years and over.) For the period January–June 2010,

- The prevalence of having five or more alcoholic drinks in 1 day during the past year among wireless-only adults (33.1%) was substantially higher than the prevalence among adults living in landline households (19.4%). Wireless-only adults were also more likely to be current smokers than were adults living in landline households.
- Compared with adults living in landline households, wireless-only

adults were more likely to report that their health status was excellent or very good, more likely to engage in regular leisure-time physical activity, and less likely to have ever been diagnosed with diabetes.

- The percentage without health insurance coverage at the time of interview among wireless-only adults under 65 years of age (28.5%) was more than twice as high as the percentage among adults in that age group living in landline households (14.0%).
- Compared with adults living in landline households, wireless-only adults were more likely to have experienced financial barriers to obtaining needed health care, and they were less likely to have a usual place to go for medical care. Wireless-only adults were also less likely to have received an influenza vaccination during the previous year.
- Wireless-only adults (48.7%) were more likely than adults living in landline households (36.5%) to have ever been tested for human immunodeficiency virus (HIV), the virus that causes AIDS.

The potential for bias due to undercoverage remains a real and growing threat to surveys conducted only on landline telephones. Telephone surveys limited to landline households may still be viable for health surveys of all adults and for surveys of most subpopulations regarding their health status (see Blumberg and Luke, 2009). However, for health-related behaviors, health care service use indicators, and health care access measures (such as those in **Table 4**), caution is warranted when using landline surveys to draw inferences about subpopulations more likely to be wireless-only (e.g., young or low-income adults).

Wireless-mostly Households

The potential for bias due to undercoverage is not the only threat to surveys conducted on landline telephones. Researchers are also concerned that some people living in households with landlines cannot be reached on those landlines because they rely on wireless telephones for all or almost all of their calls.

In 2007, a new question was added to the survey for persons living in families with both landline and cellular telephones. The respondent for the family was asked to consider all of the telephone calls his or her family receives and to report whether "all or almost all calls are received on cell phones, some are received on cell phones and some on regular phones, or very few or none are received on cell phones." This new question permits the identification of persons living in "wireless-mostly" households—defined as households with both landline and cellular telephones in which all families receive all or almost all calls on cell phones.

Among households with both landline and wireless telephones, 27.3% received all or almost all calls on the wireless telephones, based on data for the period January–June 2010. These wireless-mostly households make up 15.9% of all households.

The percentage of adults living in wireless-mostly households has been increasing (see **Table 5**). During the first 6 months of 2010, approximately 40 million adults (17.7%) lived in wireless-mostly households. This prevalence estimate was higher than the estimate for the last 6 months of 2009 (16.3%) and substantially greater than the estimate for the first 6 months of 2007 (14.0%).

Table 5 presents the percentage of adults living in wireless-mostly households, by selected demographic characteristics and by survey time period. For the period January–June 2010,

- Adults working at a job or business (20.8%) and adults going to school (23.5%) were more likely to be living in wireless-mostly households than were adults keeping house (14.5%) or with another employment status such as retired or unemployed (11.5%).
- Adults with college degrees (20.3%) were more likely to be living in wireless-mostly households than were high school graduates (16.0%) or adults with less education (12.0%).
- Adults living with children (23.3%) were more likely than adults living alone (10.1%) or with only adult relatives (15.7%) to be living in wireless-mostly households.
- Adults living in poverty (11.0%) and adults living near poverty (12.6%) were less likely than higher income adults (20.8%) to be living in wireless-mostly households.
- Adults renting their home (13.9%) were less likely to be living in wireless-mostly households than were adults owning their home (19.6%).

Research by Boyle, Lewis, and Tefft (2009) suggests that the majority of adults living in wireless-mostly households are reachable using their landline telephone number. NHIS data cannot be used to estimate the proportion of wireless-only adults who are unreachable or to estimate the potential for bias due to their exclusion from landline surveys.

References and Other Sources of Information

For more information about the potential implications for health surveys that are based on landline telephone interviews, see

- Blumberg SJ, Luke JV. Reevaluating the need for concern regarding noncoverage bias in landline surveys. Am J Public Health 99:1806–10. 2009. http://ajph.aphapublications.org/cgi/content/abstract/99/10/1806.
- Blumberg SJ, Luke JV, Cynamon ML, Frankel MR. Recent trends in household telephone coverage in the United States. In: Lepkowski JM et al., eds, Advances in telephone

survey methodology. New York: John Wiley and Sons. pp 56–86. 2008.

- Boyle JM, Lewis F, Tefft B. Cell phone mainly households: Coverage and reach for telephone surveys using RDD landline samples. Survey Practice [serial online]. 2009. Available from: http://surveypractice.org/2009/12/09/cell-phone-and-landlines/.

When including wireless telephone numbers in random-digit-dial surveys, researchers have many methodological, statistical, operational, legal, and ethical issues to consider. These issues have recently been described in a report from a task force of the American Association for Public Opinion Research (AAPOR). That task force included staff from the Centers for Disease Control and Prevention, and its report is available online:

- AAPOR Cell Phone Task Force. New considerations for survey researchers when planning and conducting RDD telephone surveys in the U.S. with respondents reached via cell phone numbers [online]. American Association for Public Opinion Research (AAPOR). 2010. http://aapor.org/cell_phone_task_force.htm.

For more information about NHIS and the NHIS Early Release Program, or to find other Early Release reports, please see the following:

- http://www.cdc.gov/nchs/nhis.htm.
- http://www.cdc.gov/nchs/nhis/releases.htm.

- Botman SL, Moore TF, Moriarity CL, Parsons VL. Design and estimation for the National Health Interview Survey, 1995–2004. National Center for Health Statistics. Vital Health Stat 2(130). 2000. Available from: http://www.cdc.gov/nchs/data/series/sr_02/sr02_130.pdf.

Suggested Citation

Blumberg SJ, Luke JV. Wireless substitution: Early release of estimates from the National Health Interview Survey, January–June 2010. National Center for Health Statistics. December 2010. Available from: http://www.cdc.gov/nchs/nhis.htm.

Table 1. Percent distribution of household telephone status, by date of interview, for households, adults, and children: United States, January 2007–June 2010

Date of interview		Household telephone status						
		Landline households with a wireless telephone	Landline households without a wireless telephone	Landline households with unknown wireless telephone status	Nonlandline households with unknown wireless telephone status	Wireless-only households	Phoneless households	Total
	Number of households (unweighted)	Percent of households						
Jan–Jun 2007	15,996	58.9	23.8	1.7	0.1	13.6	1.9	100.0
Jul–Dec 2007	13,083	58.8	21.8	1.3	0.1	15.8	2.2	100.0
Jan–Jun 2008	16,070	58.5	20.6	0.9	0.0	17.5	2.5	100.0
Jul–Dec 2008	12,597	59.6	17.4	0.9	0.0	20.2	1.9	100.0
Jan–Jun 2009	12,447	59.4	15.5	0.4	0.0	22.7	1.9	100.0
Jul–Dec 2009	21,375	58.2	14.9	0.4	0.0	24.5	2.0	100.0
Jan–Jun 2010	17,619	58.1	12.9	0.3	0.0	26.6	2.0	100.0
95% confidence interval[1]		56.97 – 59.18	12.24 – 13.67	0.22 – 0.40	0.02 – 0.10	25.60 – 27.62	1.78 – 2.35	
	Number of adults (unweighted)	Percent of adults						
Jan–Jun 2007	29,982	63.3	20.8	1.7	0.1	12.6	1.6	100.0
Jul–Dec 2007	24,514	63.2	19.1	1.2	0.1	14.5	1.9	100.0
Jan–Jun 2008	30,150	63.0	17.9	0.8	0.0	16.1	2.1	100.0
Jul–Dec 2008	23,726	63.7	15.1	1.0	0.0	18.4	1.7	100.0
Jan–Jun 2009	23,632	63.5	13.4	0.4	0.0	21.1	1.5	100.0
Jul–Dec 2009	40,619	62.5	12.6	0.3	0.0	22.9	1.7	100.0
Jan–Jun 2010	33,780	62.2	10.9	0.3	0.0	24.9	1.7	100.0
95% confidence interval[1]		61.00 – 63.32	10.19 – 11.56	0.20 – 0.37	0.01 – 0.08	23.97 – 25.91	1.49 – 2.04	

See footnotes at end of table.

Date of interview	Number of children (unweighted)	Household telephone status: Landline households with a wireless telephone	Landline households without a wireless telephone	Landline households with unknown wireless telephone status	Nonlandline households with unknown wireless telephone status	Wireless-only households	Phoneless households	Total
		Percent of children						
Jan–Jun 2007	11,532	68.3	16.4	1.6	0.0	11.9	1.7	100.0
Jul–Dec 2007	9,122	68.5	13.8	1.1	0.0	14.4	2.1	100.0
Jan–Jun 2008	11,238	67.3	12.6	0.6	0.0	17.0	2.5	100.0
Jul–Dec 2008	8,635	67.1	11.1	0.7	0.0	18.7	2.4	100.0
Jan–Jun 2009	8,818	67.6	9.1	0.3	0.0	21.3	1.7	100.0
Jul–Dec 2009	14,984	63.4	8.5	0.2	0.0	25.9	1.9	100.0
Jan–Jun 2010	12,234	62.8	6.4	0.1	–	29.0	1.7	100.0
95% confidence interval[1]		61.04 – 64.45	5.65 – 7.25	0.06 – 0.29	. . .	27.51 – 30.52	1.35 – 2.16	

0.0 Quantity is more than zero but less than 0.05.

– Quantity zero.

. . . Category not applicable.

[1]Confidence intervals refer to the time period January 2010 through June 2010.

DATA SOURCE: CDC/NCHS, National Health Interview Survey, January 2007–June 2010. Data are based on household interviews of a sample of the civilian noninstitutionalized population.

Table 2. Percentage of adults living in wireless-only households, by selected demographic characteristics and by calendar half-years: United States, January 2007–June 2010

Demographic characteristic	Calendar half-year							95% confidence interval[1]
	Jan–Jun 2007	Jul–Dec 2007	Jan–Jun 2008	Jul–Dec 2008	Jan–Jun 2009	Jul–Dec 2009	Jan–Jun 2010	
	Percent							
Race/ethnicity								
Hispanic or Latino, any race(s)	18.0	19.3	21.6	25.0	28.2	30.4	34.7	32.66 – 36.79
Non-Hispanic white, single race	11.3	12.9	14.6	16.6	19.7	21.0	22.7	21.52 – 23.82
Non-Hispanic black, single race	14.3	18.3	18.5	21.4	21.3	25.0	28.5	26.58 – 30.54
Non-Hispanic Asian, single race	10.6	12.1	16.5	17.8	18.0	20.6	18.8	15.94 – 21.97
Non-Hispanic other, single race	22.8	17.5	12.8	17.3	20.6	26.5	*16.1	6.97 – 33.00
Non-Hispanic multiple race	17.3	22.8	22.3	22.5	28.7	26.9	36.0	29.99 – 42.45
Age								
18–24 years	27.9	30.6	31.4	33.1	37.6	37.8	39.9	37.55 – 42.38
25–29 years	30.6	34.5	35.7	41.5	45.8	48.6	51.3	48.91 – 53.70
30–34 years	16.5	22.0	27.0	30.4	33.5	37.2	40.4	38.05 – 42.88
35–44 years	10.8	12.5	15.5	17.5	21.5	23.9	27.0	25.42 – 28.64
45–64 years	7.1	8.0	9.2	11.6	12.8	14.9	16.9	15.99 – 17.90
65 years and over	2.0	2.2	2.8	3.3	5.4	5.2	5.4	4.72 – 6.21
Sex								
Male	13.8	15.9	18.0	20.0	22.5	24.5	26.2	25.19 – 27.32
Female	11.5	13.2	14.4	17.0	19.8	21.3	23.7	22.69 – 24.74
Education								
Some high school or less	14.6	15.4	16.1	18.8	22.2	24.7	28.6	26.79 – 30.51
High school graduate or GED[2]	11.8	13.4	15.2	17.8	20.8	22.9	23.6	22.38 – 24.95
Some post-high school, no degree	14.7	17.0	19.0	20.1	23.6	25.0	26.5	25.25 – 27.88
4-year college degree or higher	10.8	12.7	14.3	17.7	18.2	19.5	22.7	21.05 – 24.47
Employment status last week								
Working at a job or business	15.0	16.6	19.0	21.5	24.3	26.0	28.5	27.32 – 29.74
Keeping house	9.5	12.8	12.6	16.0	16.6	20.5	22.7	20.45 – 25.05
Going to school	21.3	28.9	21.5	23.5	29.7	29.2	33.2	29.61 – 37.01
Something else (incl. unemployed)	6.4	7.6	8.9	11.0	14.0	15.9	16.8	15.82 – 17.80

See footnotes at end of table.

Demographic characteristic	Calendar half-year							95% confidence interval[1]
	Jan–Jun 2007	Jul–Dec 2007	Jan–Jun 2008	Jul–Dec 2008	Jan–Jun 2009	Jul–Dec 2009	Jan–Jun 2010	
Household structure								
Adult living alone	20.3	22.9	24.6	28.1	30.8	32.9	33.5	31.55 – 35.42
Unrelated adults, no children	55.3	56.9	63.1	60.6	68.5	62.9	69.4	62.10 – 75.77
Related adults, no children	9.8	11.0	12.5	14.7	16.8	17.1	19.1	18.07 – 20.19
Adult(s) with children	11.3	13.0	15.1	17.2	20.4	24.1	26.9	25.44 – 28.38
Household poverty status[3]								
Poor	21.6	27.4	26.0	30.9	33.0	36.3	39.3	36.31 – 42.27
Near poor	18.5	20.8	22.6	23.8	26.5	29.0	32.9	30.79 – 35.00
Not poor	10.6	11.9	14.2	16.0	18.9	19.6	21.7	20.58 – 22.80
Geographic region[4]								
Northeast	8.8	10.0	9.8	11.4	14.6	15.1	15.8	13.92 – 17.97
Midwest	14.0	15.3	17.8	20.8	21.9	25.6	26.6	24.74 – 28.62
South	14.9	17.1	19.6	21.3	25.0	25.4	29.3	27.62 – 31.08
West	10.9	12.9	13.7	17.2	19.0	22.2	23.5	21.79 – 25.35
Metropolitan statistical area status								
Metropolitan	13.7	15.5	17.5	19.7	22.4	24.2	26.5	25.36 – 27.67
Not metropolitan	8.4	10.0	10.9	13.5	16.5	17.9	19.3	17.37 – 21.32
Home ownership status[5]								
Owned or being bought	6.7	7.3	9.0	9.9	12.8	14.0	15.5	14.66 – 16.44
Renting	28.2	30.9	33.6	39.2	40.9	43.1	47.1	45.25 – 48.87
Other arrangement	22.5	23.2	23.4	17.7	33.6	33.8	34.9	28.97 – 41.28
Number of wireless-only adults in survey sample (unweighted)	3,819	3,558	4,939	4,426	5,078	9,401	8,659	

*Estimate has a relative standard error greater than 30% and does not meet National Center for Health Statistics (NCHS) standards for reliability.

[1]Confidence intervals refer to the time period January 2010 through June 2010.

[2]GED is General Educational Development high school equivalency diploma.

[3]Poverty status is based on household income and household size using the U.S. Census Bureau's poverty thresholds. "Poor" persons are defined as those below the poverty threshold. "Near poor" persons have incomes of 100% to less than 200% of the poverty threshold. "Not poor" persons have incomes of 200% of the poverty threshold or greater. Early Release estimates stratified by poverty status are based on reported income only and may differ from similar estimates produced later that are based on both reported and imputed income. NCHS imputes income when income is unknown, but the imputed income file is not available until a few months after the annual release of National Health

Interview Survey microdata. For households with multiple families, household income and household size were calculated as the sum of the multiple measures of family income and family size.

[4]In the geographic classification of the U.S. population, states are grouped into the following four regions used by the U.S. Census Bureau: *Northeast* includes Maine, Vermont, New Hampshire, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, and Pennsylvania; *Midwest* includes Ohio, Illinois, Indiana, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Kansas, and Nebraska; *South* includes Delaware, Maryland, District of Columbia, West Virginia, Virginia, Kentucky, Tennessee, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Oklahoma, Arkansas, and Texas; and *West* includes Washington, Oregon, California, Nevada, New Mexico, Arizona, Idaho, Utah, Colorado, Montana, Wyoming, Alaska, and Hawaii.

[5]For households with multiple families, home ownership status was determined by considering the reported home ownership status for each family. If any family reported owning the home, then the household level variable was classified as "owned or being bought" for all persons living in the household. If one family reported renting the home and another family reported "other arrangement," then the household level variable was classified as "other arrangement" for all persons living in the household.

DATA SOURCE: CDC/NCHS, National Health Interview Survey, January 2007–June 2010. Data are based on household interviews of a sample of the civilian noninstitutionalized population.

Table 3. Percent distribution of selected demographic characteristics, by date of interview, for adults living in wireless-only households: United States, January 2007–June 2010

Demographic characteristic	Calendar half-year							95% confidence interval[1]
	Jan–Jun 2007	Jul–Dec 2007	Jan–Jun 2008	Jul–Dec 2008	Jan–Jun 2009	Jul–Dec 2009	Jan–Jun 2010	
	Percent distribution							
Race/ethnicity								
Hispanic or Latino, any race(s)	18.9	18.0	18.1	18.5	18.4	18.5	19.4	17.66 – 21.23
Non-Hispanic white, single race	61.5	61.2	62.2	61.9	63.8	62.5	61.6	59.54 – 63.67
Non-Hispanic black, single race	12.9	14.4	13.2	13.3	11.7	12.7	13.3	11.96 – 14.83
Non-Hispanic Asian, single race	3.8	3.8	4.6	4.4	3.9	4.1	3.5	2.96 – 4.05
Non-Hispanic other, single race	*1.6	*0.8	0.6	0.6	0.7	1.0	0.6	0.38 – 0.84
Non-Hispanic multiple race	1.3	1.8	1.3	1.2	1.5	1.3	1.6	1.32 – 2.03
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
Age								
18–24 years	28.4	27.2	24.9	23.1	22.9	21.2	20.7	19.40 – 22.07
25–29 years	22.3	22.1	20.5	21.0	19.9	19.6	19.1	18.04 – 20.13
30–34 years	11.3	13.0	14.3	14.0	13.6	14.0	13.9	13.02 – 14.91
35–44 years	16.3	16.3	17.8	17.4	18.4	18.6	18.9	17.95 – 19.97
45–64 years	19.1	18.9	19.6	21.6	21.0	22.8	23.7	22.56 – 24.88
65 years and over	2.6	2.5	2.9	2.9	4.3	3.8	3.7	3.20 – 4.18
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
Sex								
Male	52.9	53.0	53.7	52.4	51.4	51.8	50.9	49.94 – 51.81
Female	47.1	47.0	46.3	47.6	48.6	48.2	49.1	48.19 – 50.06
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
Education								
Some high school or less	17.5	16.2	15.5	15.8	15.5	16.0	16.6	15.42 – 17.91
High school graduate or GED[2]	27.5	27.5	27.8	27.2	27.7	28.9	26.7	25.50 – 28.02
Some post-high school, no degree	32.7	32.9	33.9	31.7	33.3	32.9	32.0	30.63 – 33.33
4-year college degree or higher	22.3	23.4	22.8	25.3	23.5	22.3	24.7	23.04 – 26.36
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	

See footnotes at end of table.

Demographic characteristic	Calendar half-year							95% confidence interval[1]
	Jan–Jun 2007	Jul–Dec 2007	Jan–Jun 2008	Jul–Dec 2008	Jan–Jun 2009	Jul–Dec 2009	Jan–Jun 2010	
Employment status last week								
Working at a job or business	77.1	74.3	75.9	74.5	71.1	69.1	69.7	68.32 – 71.00
Keeping house	5.2	5.6	5.0	5.3	4.5	5.3	5.3	4.78 – 5.79
Going to school	5.1	5.8	4.1	3.7	4.6	4.4	4.3	3.75 – 4.91
Something else (incl. unemployed)	12.1	13.1	13.7	15.4	18.7	20.2	19.5	18.41 – 20.64
Unknown, not reported	0.6	*1.3	1.4	*1.1	1.1	1.1	1.3	0.91 – 1.77
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
Household structure								
Adult living alone	25.1	24.4	23.2	23.6	22.1	21.9	19.9	18.57 – 21.28
Unrelated adults, no children	6.0	7.7	6.4	5.2	5.4	4.1	4.1	3.35 – 5.11
Related adults, no children	34.4	34.2	35.1	36.9	36.0	34.0	35.1	33.46 – 36.77
Adult(s) with children	34.6	33.7	35.3	34.3	36.4	40.0	40.9	38.95 – 42.80
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
Household poverty status[3]								
Poor	14.6	16.1	14.1	15.5	15.5	16.4	16.5	14.91 – 18.19
Near poor	18.4	18.4	18.1	16.8	17.9	18.5	19.8	18.51 – 21.11
Not poor	50.5	49.7	53.4	53.3	56.7	53.0	53.2	51.19 – 55.17
Unknown, not reported	16.5	15.8	14.4	14.4	10.0	12.2	10.6	9.44 – 11.79
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
Geographic region[4]								
Northeast	12.7	12.4	10.7	11.3	12.2	12.1	11.4	9.97 – 13.05
Midwest	25.1	24.6	25.0	26.0	23.9	26.0	24.0	21.93 – 26.22
South	42.6	42.7	45.2	41.1	43.8	39.5	42.3	39.78 – 44.89
West	19.7	20.4	19.1	21.6	20.1	22.4	22.3	20.13 – 24.55
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
Metropolitan statistical area status								
Metropolitan	86.1	86.9	85.9	85.1	83.3	83.7	83.2	80.68 – 85.40
Not metropolitan	13.9	13.1	14.1	14.9	16.7	16.3	16.8	14.60 – 19.32
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	

See footnotes at end of table.

Demographic characteristic	Calendar half-year							95% confidence interval[1]
	Jan–Jun 2007	Jul–Dec 2007	Jan–Jun 2008	Jul–Dec 2008	Jan–Jun 2009	Jul–Dec 2009	Jan–Jun 2010	
Home ownership status[5]								
Owned or being bought	37.7	34.8	39.2	37.1	42.1	42.3	43.7	41.52 – 45.92
Renting	59.0	61.3	58.1	61.1	55.0	54.3	53.5	51.31 – 55.72
Other arrangement	3.3	3.8	2.7	1.8	2.9	3.3	2.8	2.25 – 3.39
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
Number of wireless-only adults in survey sample (unweighted)	3,819	3,558	4,939	4,426	5,078	9,401	8,659	

*Estimate has a relative standard error greater than 30% and does not meet National Center for Health Statistics (NCHS) standards for reliability.

[1]Confidence intervals refer to the time period January 2010 through June 2010.

[2]GED is General Educational Development high school equivalency diploma.

[3]Poverty status is based on household income and household size using the U.S. Census Bureau's poverty thresholds. "Poor" persons are defined as those below the poverty threshold. "Near poor" persons have incomes of 100% to less than 200% of the poverty threshold. "Not poor" persons have incomes of 200% of the poverty threshold or greater. Early Release estimates stratified by poverty status are based on reported income only and may differ from similar estimates produced later that are based on both reported and imputed income. NCHS imputes income when income is unknown, but the imputed income file is not available until a few months after the annual release of National Health Interview Survey microdata. For households with multiple families, household income and household size were calculated as the sum of the multiple measures of family income and family size.

[4]In the geographic classification of the U.S. population, states are grouped into the following four regions used by the U.S. Census Bureau: *Northeast* includes Maine, Vermont, New Hampshire, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, and Pennsylvania; *Midwest* includes Ohio, Illinois, Indiana, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Kansas, and Nebraska; *South* includes Delaware, Maryland, District of Columbia, West Virginia, Virginia, Kentucky, Tennessee, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Oklahoma, Arkansas, and Texas; and *West* includes Washington, Oregon, California, Nevada, New Mexico, Arizona, Idaho, Utah, Colorado, Montana, Wyoming, Alaska, and Hawaii.

[5]For households with multiple families, home ownership status was determined by considering the reported home ownership status for each family. If any family reported owning the home, then the household level variable was classified as "owned or being bought" for all persons living in the household. If one family reported renting the home and another family reported "other arrangement," then the household level variable was classified as "other arrangement" for all persons living in the household.

DATA SOURCE: CDC/NCHS, National Health Interview Survey, January 2007–June 2010. Data are based on household interviews of a sample of the civilian noninstitutionalized population.

Table 4. Prevalence rates (and 95% confidence intervals) for selected measures of health-related behaviors, health status, health care service use, and health care access for adults aged 18 years and over, by household telephone status: United States, January–June 2010

Measure	Household telephone service		
	Landline household[1]	Wireless-only household	Phoneless household
	Percent (95% confidence interval)		
Health-related behaviors			
Five or more alcoholic drinks in 1 day at least once in past year[2]	19.4 (18.31 – 20.47)	33.1 (31.08 – 35.13)	22.4 (16.95 – 28.88)
Current smoker[3]	17.2 (16.20 – 18.25)	26.7 (24.95 – 28.60)	28.5 (23.10 – 34.63)
Engaged in regular leisure-time physical activity[4]	33.5 (32.24 – 34.69)	37.4 (35.39 – 39.37)	24.1 (18.91 – 30.08)
Health status			
Health status described as excellent or very good[5]	59.3 (58.01 – 60.61)	63.8 (61.97 – 65.59)	50.9 (43.67 – 58.10)
Experienced serious psychological distress in past 30 days[6]	3.1 (2.71 – 3.53)	4.1 (3.41 – 4.89)	5.7 (3.48 – 9.33)
Obese (adults aged 20 years and over)[7]	28.9 (27.71 – 30.08)	26.4 (24.91 – 27.91)	26.7 (20.26 – 34.21)
Asthma episode in past year[8]	4.1 (3.65 – 4.59)	3.8 (3.27 – 4.53)	6.0 (3.52 – 9.90)
Ever diagnosed with diabetes[9]	10.0 (9.31 – 10.74)	5.7 (4.95 – 6.62)	7.7 (5.00 – 11.64)
Health care service use			
Received influenza vaccine during past year[10]	39.2 (37.77 – 40.64)	23.8 (22.19 – 25.40)	26.8 (21.02 – 33.58)
Ever been tested for HIV[11]	36.5 (35.27 – 37.74)	48.7 (46.81 – 50.59)	38.7 (32.20 – 45.69)
Health care access			
Has a usual place to go for medical care[12]	87.5 (86.66 – 88.39)	70.9 (68.98 – 72.82)	70.9 (64.42 – 76.67)
Failed to obtain needed medical care in past year due to financial barriers[13]	7.0 (6.41 – 7.69)	14.1 (12.94 – 15.42)	15.4 (11.34 – 20.51)
Currently uninsured (adults aged 18–64 years)[14]	14.0 (12.99 – 14.98)	28.5 (26.71 – 30.36)	33.8 (27.58 – 40.62)
Number of adults in survey sample (unweighted)	9,669	4,145	298

[1]In this analysis, landline households include households that also have wireless telephone service.

[2]A year is defined as the 12 months prior to interview. The analyses excluded adults with unknown alcohol consumption (about 2% of respondents each year).

[3]Current smokers were defined as those who had smoked more than 100 cigarettes in their lifetime and now smoke every day or some days. The analyses excluded persons with unknown smoking status (about 1% of respondents each year).

[4]Regular leisure-time physical activity is defined as engaging in light-moderate leisure-time physical activity for greater than or equal to 30 minutes at a frequency greater than or equal to five times per week or engaging in vigorous leisure-time physical activity for greater than or equal to 20 minutes at a frequency greater than or equal to three times per week. Persons who were known to have not met the frequency recommendations are classified as "not regular," regardless of duration. The analyses excluded persons with unknown physical activity participation (about 3% of respondents each year).

[5]Health status data were obtained by asking respondents to assess their own health and that of family members living in the same household as excellent, very good, good, fair, or poor. The analyses excluded persons with unknown health status (about 0.5% of respondents each year).

[6]Six psychological distress questions are included in the National Health Interview Survey. These questions ask how often during the past 30 days a respondent experienced certain symptoms of psychological distress (feeling so sad that nothing could cheer you up, nervous, restless or fidgety, hopeless, worthless, that everything was an effort). The response codes (0–4) of the six items for each person were equally weighted and summed. A value of 13 or more for this scale indicates that at least one symptom was experienced "most of the time" or "all of the time" and is used here to define serious psychological distress.

[7]Obesity is defined as a body mass index (BMI) of 30 kg/m^2 or more. The measure is based on self-reported height and weight. The analyses excluded people with unknown height or weight (about 4% of respondents each year). Estimates of obesity are presented for adults aged 20 years and over because the Healthy People 2010 objectives (http://www.healthypeople.gov) for healthy weight among adults define adults as persons aged 20 and over.

[8]Information on an episode of asthma or an asthma attack during the past year is self-reported by adults aged 18 years and over. A year is defined as the 12 months prior to interview. The analyses excluded people with unknown asthma episode status (about 0.3% of respondents each year).

[9]Prevalence of diagnosed diabetes is based on self-report of ever having been diagnosed with diabetes by a doctor or other health professional. Persons reporting "borderline" diabetes status and women reporting diabetes only during pregnancy were not coded as having diabetes in the analyses. The analyses excluded persons with unknown diabetes status (about 0.1% of respondents each year).

[10]Receipt of flu shots and receipt of nasal spray flu vaccinations were included in the calculation of flu vaccination estimates. Responses to these two flu vaccination questions do not indicate when the subject received the flu vaccination during the 12 months preceding the interview. In addition, estimates are subject to recall error, which will vary depending on when the question is asked because the receipt of a flu vaccination is seasonal. The analyses excluded those with unknown flu vaccination status (about 1% of respondents each year).

[11]Individuals who received human immunodeficiency virus (HIV) testing solely as a result of blood donation were considered not to have been tested for HIV. The analyses excluded those with unknown HIV test status (about 4% of respondents each year).

[12]The usual place to go for medical care does not include a hospital emergency room. The analyses excluded persons with an unknown usual place to go for medical care (about 0.6% of respondents each year).

[13]A year is defined as the 12 months prior to interview. The analyses excluded persons with unknown responses to the question on failure to obtain needed medical care due to cost (about 0.5% of respondents each year).

[14]A person was defined as uninsured if he or she did not have any private health insurance, Medicare, Medicaid, Children's Health Insurance Program (CHIP), state-sponsored or other government-sponsored health plan, or military plan at the time of the interview. A person was also defined as uninsured if he or she had only Indian Health Service coverage or had only a private plan that paid for one type of service, such as accidents or dental care. The data on health insurance status were edited using an automated system based on logic checks and keyword searches. The analyses excluded persons with unknown health insurance status (about 1% of respondents each year).

DATA SOURCE: CDC/NCHS, National Health Interview Survey, January–June 2010. Data are based on household interviews of a sample of the civilian noninstitutionalized population.

Table 5. Percentage of adults living in wireless-mostly households, by selected demographic characteristics and by calendar half-years: United States, July 2007–June 2010

Demographic characteristic	Calendar half-year						95% confidence interval[1]
	Jul–Dec 2007	Jan–Jun 2008	Jul–Dec 2008	Jan–Jun 2009	Jul–Dec 2009	Jan–Jun 2010	
	Percent[2]						
Total	14.0	14.4	15.4	16.2	16.3	17.7	16.89 – 18.58
Race/ethnicity							
Hispanic or Latino, any race(s)	14.5	16.0	15.9	18.0	16.9	19.7	17.78 – 21.80
Non-Hispanic white, single race	13.2	14.2	14.9	15.6	16.1	17.2	16.22 – 18.13
Non-Hispanic black, single race	15.1	13.3	14.7	15.0	16.2	17.5	15.76 – 19.31
Non-Hispanic Asian, single race	20.3	16.4	20.3	19.6	18.5	20.8	18.01 – 23.95
Non-Hispanic other single race	*8.6	*10.1	15.5	22.9	*16.1	*12.3	5.20 – 26.38
Non-Hispanic multiple race	19.7	17.7	24.2	22.5	18.2	21.0	16.14 – 26.86
Age							
18–24 years	18.2	19.2	18.8	20.0	19.9	21.4	19.64 – 23.32
25–29 years	19.7	17.3	18.3	17.7	16.4	17.4	15.68 – 19.22
30–44 years	17.3	18.2	19.0	20.3	19.5	21.2	19.86 – 22.65
45–64 years	13.0	13.8	15.4	16.5	17.5	19.0	17.82 – 20.21
65 years and over	3.9	4.4	4.9	5.3	6.3	7.0	6.19 – 7.94
Sex							
Male	14.3	14.9	15.4	16.2	16.5	18.1	17.16 – 19.02
Female	13.6	14.0	15.2	16.1	16.2	17.4	16.55 – 18.26
Education							
Some high school or less	8.7	10.0	9.8	12.1	11.5	12.0	10.75 – 13.41
High school graduate or GED[3]	12.7	12.5	13.2	13.7	14.2	16.0	14.99 – 17.12
Some post-high school, no degree	16.6	17.0	18.6	17.7	18.1	20.1	18.94 – 21.40
4-year college degree or higher	16.2	17.1	18.0	19.7	19.7	20.3	18.93 – 21.64
Employment status last week							
Working at a job or business	16.8	17.3	18.4	19.5	19.7	20.8	19.85 – 21.80
Keeping house	10.4	11.9	11.9	12.7	15.1	14.5	12.68 – 16.43
Going to school	20.4	25.2	21.5	21.1	21.7	23.5	20.19 – 27.17
Something else (incl. unemployed)	6.7	6.6	7.8	9.0	9.0	11.5	10.56 – 12.43
Household structure							
Adult living alone	10.7	10.1	12.2	10.0	10.6	10.1	9.27 – 11.09
Unrelated adults, no children	20.1	*15.4	21.3	13.9	15.5	13.4	8.74 – 19.95
Related adults, no children	12.1	12.8	13.2	14.7	15.0	15.7	14.65 – 16.77
Adult(s) with children	17.2	18.1	19.2	20.5	20.2	23.3	21.95 – 24.71
Household poverty status[4]							
Poor	8.6	10.8	9.5	11.0	10.0	11.0	9.49 – 12.81
Near poor	11.4	10.3	11.3	12.0	12.7	12.6	11.20 – 14.12
Not poor	15.9	17.1	18.2	18.8	19.2	20.8	19.78 – 21.95
Geographic region[5]							
Northeast	11.7	13.8	12.0	15.3	14.9	17.1	15.12 – 19.28
Midwest	13.3	12.6	13.2	14.6	14.7	17.5	15.94 – 19.11
South	14.3	14.6	16.2	16.7	17.3	18.1	16.90 – 19.37
West	15.9	16.4	18.7	17.7	17.7	17.8	15.84 – 20.03

See footnotes at end of table.

Demographic characteristic	Calendar half-year						95% confidence interval[1]
	Jul–Dec 2007	Jan–Jun 2008	Jul–Dec 2008	Jan–Jun 2009	Jul–Dec 2009	Jan–Jun 2010	
Metropolitan statistical area status							
Metropolitan	14.7	15.0	15.8	16.9	16.8	18.0	17.12 – 19.01
Not metropolitan	10.9	12.1	13.4	13.5	14.5	16.5	14.67 – 18.60
Home ownership status[6]							
Owned or being bought	14.0	14.7	15.9	17.2	17.5	19.6	18.57 – 20.63
Renting	13.8	13.9	13.0	13.9	13.6	13.9	12.69 – 15.30
Other arrangement	14.1	14.8	24.6	13.8	15.8	10.8	7.53 – 15.16
Number of adults in survey sample who live in landline households with wireless telephones (unweighted)	15,356	18,664	14,816	14,886	24,904	20,610	

* Estimate has a relative standard error greater than 30% and does not meet National Center for Health Statistics (NCHS) standards for reliability.

[1]Confidence intervals refer to the estimate of the percentage of adults living in wireless-mostly households for the time period January 2010 through June 2010.

[2]The sum of the percentage of adults in households that receive all or nearly all calls on wireless phones (shown here) and the percentage of adults in households that receive some or very few calls on wireless phones (data not shown) is equal to the percentage of adults living in landline households with wireless telephones (see Table 1).

[3]GED is General Educational Development high school equivalency diploma.

[4]Poverty status is based on household income and household size using the U.S. Census Bureau's poverty thresholds. "Poor" persons are defined as those below the poverty threshold. "Near poor" persons have incomes of 100% to less than 200% of the poverty threshold. "Not poor" persons have incomes of 200% of the poverty threshold or greater. Early Release estimates stratified by poverty status are based on reported income only and may differ from similar estimates produced later that are based on both reported and imputed income. NCHS imputes income when income is unknown, but the imputed income file is not available until a few months after the annual release of National Health Interview Survey microdata. For households with multiple families, household income and household size were calculated as the sum of the multiple measures of family income and family size.

[5]In the geographic classification of the U.S. population, states are grouped into the following four regions used by the U.S. Census Bureau: *Northeast* includes Maine, Vermont, New Hampshire, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, and Pennsylvania; *Midwest* includes Ohio, Illinois, Indiana, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Kansas, and Nebraska; *South* includes Delaware, Maryland, District of Columbia, West Virginia, Virginia, Kentucky, Tennessee, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Oklahoma, Arkansas, and Texas; and *West* includes Washington, Oregon, California, Nevada, New Mexico, Arizona, Idaho, Utah, Colorado, Montana, Wyoming, Alaska, and Hawaii.

[6]For households with multiple families, home ownership status was determined by considering the reported home ownership status for each family. If any family reported owning the home, then the household level variable was classified as "owned or being bought" for all persons living in the household. If one family reported renting the home and another family reported "other arrangement," then the household level variable was classified as "other arrangement" for all persons living in the household.

DATA SOURCE: CDC/NCHS, National Health Interview Survey, July 2007–June 2010. Data are based on household interviews of a sample of the civilian noninstitutionalized population.