



Wireless Substitution: Early Release of Estimates From the National Health Interview Survey, January - June 2009

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Overview

Preliminary results from the January-June 2009 National Health Interview Survey (NHIS) indicate that the number of American homes with only wireless telephones continues to grow. More than one of every five American homes (22.7%) had only wireless telephones (also known as cellular telephones, cell phones, or mobile phones) during the first half of 2009--an increase of 2.5 percentage points since the second half of 2008. In addition, one of every seven American homes (14.7%) had a landline yet received all or almost all calls on wireless telephones. 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

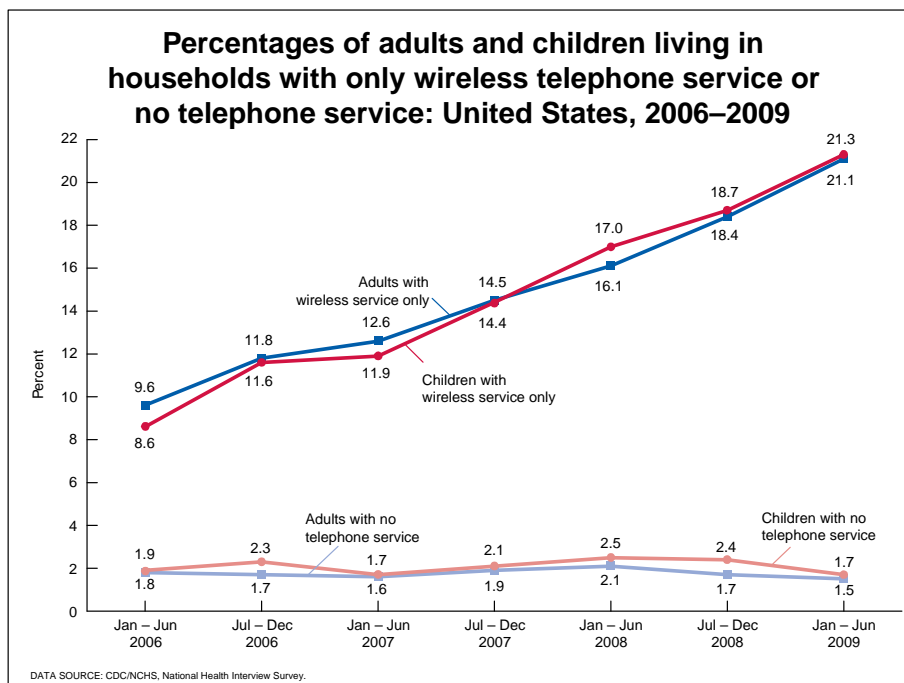
Release Program. *Early Release of Selected Estimates Based on Data From the National Health Interview Survey* is published quarterly and provides estimates for 15 selected measures of health. *Health Insurance Coverage: Early Release of Estimates From the National Health Interview Survey* is also published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

Methods

For many years, NHIS has included questions on residential telephone numbers, to permit recontacting of survey participants. Starting in 2003, additional questions were asked to determine whether a family's telephone number was a landline telephone. Respondents were also asked whether "you or anyone in your family has a working cellular telephone."

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).

In this report, families are identified as "wireless families" if anyone in the family had a working cellular telephone at the time of interview. This person (or persons) 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 draw samples of households rather than families.

From January through June 2009, information on household telephone status was obtained for 12,447 households that included at least one civilian adult or child. These households included 23,632 civilian adults aged 18 years and over and 8,818 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 (i.e., not on imputed income). Household income was unknown for 10% 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 July 2009, data on household telephone status and selected health measures were collected from 10,258 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 (*Vital and Health Statistics, series 2, no 130*). To provide access to the most recent information from NHIS, estimates using the January-June 2009 data are being released prior to final data editing and final weighting. These estimates should be considered preliminary and may differ slightly from estimates using the final data files.

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 these estimates.

Questionnaire Changes in 2007

From 2003 to 2006, NHIS families were considered to have landline telephone service if the survey respondent provided a telephone number, identified it as “the family’s phone number,” and said that it was not a cellular telephone number. If the family’s phone number was reported to be a cellular telephone number, the respondent was asked if there was “at least one phone inside your home that is currently working and is not a cell phone.”

In 2007, the questionnaire was changed so that the survey respondent for each family was asked if there was “at least one phone inside your home that is currently working and is not a cell phone,” unless the respondent indicated not having any phone when asked for a telephone number.

From 2003 to 2006, the questions about cellular telephones were asked at the end of the survey. Because of incomplete interviews, more than 10% of households were not asked about wireless telephones. In 2007, the questions were asked earlier in the survey, resulting in fewer families with unknown wireless telephone status.

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 that 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.

Finally, in 2007, the questionnaire was redesigned to improve the collection of income information. Initial evaluations suggest that the resulting poverty estimates are generally comparable with those from years 2006 and earlier. However, as a result of the changes, the poverty ratio variable has fewer missing values since 2007 compared with prior years.

Telephone Status

In the first 6 months of 2009, more than one of every five households (22.7%) did not have a landline telephone but did have at least one wireless telephone (**Table 1**). Approximately 21.1% of all adults--approximately 48 million adults--lived in households with only wireless telephones; 21.3% of all children--nearly 16 million children--lived in households with only wireless telephones.

The percentage of households that are wireless-only has been steadily increasing. The 2.5-percentage-point increase from the last 6 months of 2008 through the first 6 months of 2009 is nearly equivalent to the 2.7-percentage-point increase observed from the first 6 months of 2008 through the last 6 months of 2008. The percentage of households that are wireless-only increased by approximately 5 percentage points in just 12 months, from 17.5% in the first 6 months of 2008 to 22.7% in 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 2009, more than one of every five adults lived in wireless-only households. One year before that (i.e., during the first 6 months of 2008), one of every six adults lived in wireless-only households. And 2 years before that (i.e., during the first 6 months of 2006), only 1 of every 10 adults lived in wireless-only households.

The percentages of adults and children living without any telephone service have remained relatively unchanged over the past 3 years. Approximately 1.9% of households had no telephone service (neither wireless nor landline). More than 3 million adults (1.5%) and 1 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 through June 2009,

- More than two in three adults living only with unrelated adult roommates (68.5%) were in households with only wireless telephones. This is the highest prevalence rate among the population subgroups examined.
- Two in five adults renting their home (40.9%) had only wireless telephones. Adults renting their home were more likely than adults owning their home (12.8%) to be living in households with only wireless telephones.
- Nearly half of adults aged 25-29 years (45.8%) lived in households with only wireless telephones. More than one-third of adults aged 18-24 (37.6%) and approximately one-third of adults aged 30-34 (33.5%) 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: 21.5% for adults aged 35-44; 12.8% for adults aged 45-64; and 5.4% for adults aged 65 and over. However, as shown in [Table 2](#), the percentage of wireless-only adults within each age group has increased over time.

- Adults living in poverty (33.0%) and adults living near poverty (26.5%) were more likely than higher income adults (18.9%) to be living in households with only wireless telephones.
- Adults living in the South (25.0%) and Midwest (21.9%) were more likely than adults living in the Northeast (14.6%) to be living in households with only wireless telephones.
- Hispanic adults (28.2%) were more likely than non-Hispanic white adults (19.7%) or non-Hispanic black adults (21.3%) to be living in households with only wireless telephones.
- No statistically significant difference was observed between the percentage of men (22.5%) and the percentage of women (19.8%) 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 only 42.8% 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 3-year period shown. The exceptions were related to sex, age, and employment status. From 2006 to the first 6 months of 2009,

- The proportion of women among all wireless-only adults increased from approximately 46% to 48.6%.
- Among all wireless-only adults, the proportion of adults aged 30 years and over has steadily increased. In the first 6 months of 2009, the majority of wireless-only adults (57.2%) were aged 30 and over, up from 48.4% 3 years earlier.
- The proportion of employed adults among all wireless-only adults has decreased from approximately 78% to 71.1%. Over the same time period, there was growth in the proportion of adults with an employment status other than working, keeping house, or going to school. These adults (largely unemployed or retired) made up 18.7% of wireless-only adults in the first 6 months of 2009, up from 10.3% 3 years earlier.

Wireless-mostly Households

Among households with both landline and wireless telephones, 24.8% received all or almost all calls on the wireless telephones, based on data for the period July through December 2008. These wireless-mostly households make up 14.7% of all households.

The percentage of adults living in wireless-mostly households has been increasing (see [Table 4](#)). During the first 6 months of 2009, nearly 37 million adults (16.2%) lived in wireless-mostly households. Although this prevalence estimate was not significantly different from the estimate for the last 6 months of 2008 (15.4%), it



was significantly greater than the estimate for the first 6 months of 2008 (14.4%).

Table 4 presents the percentage of adults living in wireless-mostly households by selected demographic characteristics and by survey time period. For the period January through June 2009,

- Adults working at a job or business (19.5%) and adults going to school (21.1%) were more likely to be living in wireless-mostly households than were adults keeping house (12.7%) or with another employment status such as retired or unemployed (9.0%).
- Adults with college degrees (19.7%) were more likely to be living in wireless-mostly households than were high school graduates (13.7%) or adults with less education (12.1%).
- Adults living with children (20.5%) were more likely than adults living alone (10.0%) or with only adult relatives (14.7%) to be living in wireless-mostly households.
- Adults living in poverty (11.0%) and adults living near poverty (12.0%) were less likely than higher income adults (18.8%) to be living in wireless-mostly households.
- Adults living in metropolitan areas (16.9%) were more likely to be living in wireless-mostly households than were adults living in more rural areas (13.5%).

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 have begun 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 5** 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 through June 2009,

- The prevalence of binge drinking (i.e., having five or more alcoholic drinks in 1 day during the past year) among wireless-only adults (35.3%) was nearly twice as high as the prevalence among adults living in landline households (19.3%). 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 experience serious psychological distress, 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 (29.4%) was more than twice as high as the percentage among adults in that age group living in landline households (13.7%).
- 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 (48.6%) were more likely than adults living in landline households (37.1%) 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. However, for health-related behaviors, health care service use indicators, and health care access measures (such as those in **Table 5**), caution is warranted when using landline surveys to draw inferences about subpopulations more likely to be wireless-only (such as young or low-income adults).

For More 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.
- 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.

The potential for bias may differ from one state to another because the prevalence of wireless-only households varies substantially across states. For more information about state-level



prevalence estimates from the 2007 NHIS, see

- Blumberg SJ, Luke JV, Davidson G, Davern ME, Yu T, Soderberg K. Wireless substitution: State-level estimates from the National Health Interview Survey, January-December 2007. National health statistics report; no 14. Hyattsville, MD: National Center for Health Statistics. 2009.

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

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

Suggested Citation

Blumberg SJ, Luke JV. Wireless substitution: Early release of estimates from the National Health Interview Survey, January-June 2009. National Center for Health Statistics. December 2009. 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 2006-June 2009

Date of interview	Number of households (unweighted)	Household telephone status						Total
		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	
		Percent of households						
Jan-Jun 2006	16,009	45.6	30.9	10.3	0.7	10.5	2.0	100.0
Jul-Dec 2006	13,056	44.3	29.6	10.2	0.8	12.8	2.2	100.0
Jan-Jun 2007 ¹	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
95% confidence interval ²		57.84-60.90	14.38-16.77	0.30-0.64	0.01-0.05	21.29-24.25	1.59-2.24	
		Percent of adults						
	Number of adults (unweighted)							
Jan-Jun 2006	29,842	49.5	28.2	10.4	0.6	9.6	1.8	100.0
Jul-Dec 2006	24,473	48.1	27.3	10.5	0.7	11.8	1.7	100.0
Jan-Jun 2007 ¹	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
95% confidence interval ²		62.01-65.03	12.32-14.51	0.30-0.65	0.01-0.06	19.70-22.59	1.28-1.80	

See footnotes at end of table.



Date of interview	Number of children (unweighted)	Household telephone status						Total
		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	
		Percent of children						
Jan-Jun 2006	11,670	53.4	23.8	11.5	0.9	8.6	1.9	100.0
Jul-Dec 2006	9,165	51.9	21.5	11.9	0.9	11.6	2.3	100.0
Jan-Jun 2007 ¹	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
95% confidence interval ²		65.34-69.76	7.95-10.29	0.17-0.66	0.00-0.06	19.32-23.35	1.30-2.34	

0.0 means quantity is more than zero but less than 0.05.

0.00 means quantity is more than zero but less than 0.005.

¹ Questionnaire changes that occurred in 2007 should be considered when evaluating recent trends in household telephone status. See text for more information about these changes.

² Confidence intervals refer to the time period January through June 2009.

DATA SOURCE: National Health Interview Survey, January 2006-June 2009. 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 2006-June 2009

Demographic characteristic	Calendar half-year							95% confidence interval ²
	Jan-Jun 2006	Jul-Dec 2006	Jan-Jun 2007 ¹	Jul-Dec 2007 ¹	Jan-Jun 2008	Jul-Dec 2008	Jan-Jun 2009	
Percent								
Race/ethnicity								
Hispanic or Latino, any race(s)	11.2	15.3	18.0	19.3	21.6	25.0	28.2	25.09- 31.62
Non-Hispanic white, single race	9.0	10.8	11.3	12.9	14.6	16.6	19.7	18.22- 21.34
Non-Hispanic black, single race	10.5	12.8	14.3	18.3	18.5	21.4	21.3	18.38- 24.46
Non-Hispanic Asian, single race	10.2	11.8	10.6	12.1	16.5	17.8	18.0	14.55- 22.01
Non-Hispanic other, single race	9.8	17.2	22.8	17.5	12.8	17.3	20.6	13.59- 29.99
Non-Hispanic multiple race	15.4	14.6	17.3	22.8	22.3	22.5	28.7	22.24- 36.27
Age								
18-24 years	22.6	25.2	27.9	30.6	31.4	33.1	37.6	33.78- 41.62
25-29 years	22.3	29.1	30.6	34.5	35.7	41.5	45.8	42.34- 49.31
30-34 years	12.1	17.6	16.5	22.0	27.0	30.4	33.5	30.07- 37.19
35-44 years	8.2	10.1	10.8	12.5	15.5	17.5	21.5	19.84- 23.18
45-64 years	5.3	6.1	7.1	8.0	9.2	11.6	12.8	11.58- 14.04
65 years and over	1.3	1.9	2.0	2.2	2.8	3.3	5.4	4.41- 6.65
Sex								
Male	10.7	13.1	13.8	15.9	18.0	20.0	22.5	21.04- 24.01
Female	8.5	10.5	11.5	13.2	14.4	17.0	19.8	18.30- 21.43
Education								
Some high school or less	8.3	12.9	14.6	15.4	16.1	18.8	22.2	19.84- 24.78
High school graduate or GED ³	9.6	10.6	11.8	13.4	15.2	17.8	20.8	18.94- 22.78
Some post-high school, no degree	11.9	14.4	14.7	17.0	19.0	20.1	23.6	21.57- 25.76
4-year college degree or higher	8.5	10.1	10.8	12.7	14.3	17.7	18.2	16.24- 20.35
Employment status last week								
Working at a job or business	11.6	13.9	15.0	16.6	19.0	21.5	24.3	22.60- 26.03
Keeping house	7.1	8.6	9.5	12.8	12.6	16.0	16.6	14.15- 19.28
Going to school	17.3	20.4	21.3	28.9	21.5	23.5	29.7	24.27- 35.73
Something else (incl. unemployed)	4.2	6.2	6.4	7.6	8.9	11.0	14.0	12.70- 15.35

See footnotes at end of table.



Demographic characteristic	Calendar half-year							95% confidence interval ²
	Jan-Jun 2006	Jul-Dec 2006	Jan-Jun 2007 ¹	Jul-Dec 2007 ¹	Jan-Jun 2008	Jul-Dec 2008	Jan-Jun 2009	
Household structure								
Adult living alone	16.2	18.2	20.3	22.9	24.6	28.1	30.8	28.18- 33.48
Unrelated adults, no children	44.2	54.0	55.3	56.9	63.1	60.6	68.5	57.64- 77.62
Related adults, no children	7.1	8.5	9.8	11.0	12.5	14.7	16.8	15.29- 18.34
Adult(s) with children	8.6	10.5	11.3	13.0	15.1	17.2	20.4	18.54- 22.34
Household poverty status ⁴								
Poor	15.8	22.4	21.6	27.4	26.0	30.9	33.0	29.76- 36.51
Near poor	14.4	15.7	18.5	20.8	22.6	23.8	26.5	23.70- 29.44
Not poor	9.4	11.3	10.6	11.9	14.2	16.0	18.9	17.34- 20.64
Geographic region ⁵								
Northeast	7.2	8.6	8.8	10.0	9.8	11.4	14.6	11.82- 17.85
Midwest	10.2	11.4	14.0	15.3	17.8	20.8	21.9	19.49- 24.48
South	11.4	14.0	14.9	17.1	19.6	21.3	25.0	22.70- 27.51
West	7.8	11.0	10.9	12.9	13.7	17.2	19.0	16.57- 21.69
Metropolitan statistical area status								
Metropolitan	10.3	12.7	13.7	15.5	17.5	19.7	22.4	20.72- 24.08
Not metropolitan	7.0	8.0	8.4	10.0	10.9	13.5	16.5	14.04- 19.36
Home ownership status ⁶								
Owned or being bought	5.1	5.8	6.7	7.3	9.0	9.9	12.8	11.67- 14.05
Renting	22.5	26.4	28.2	30.9	33.6	39.2	40.9	38.04- 43.74
Other arrangement	10.7	*20.3	22.5	23.2	23.4	17.7	33.6	22.94- 46.31
Number of wireless-only adults in survey sample (unweighted)	2,804	2,878	3,819	3,558	4,939	4,426	5,078	

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

¹ Questionnaire changes that occurred in 2007 should be considered when evaluating recent trends in household telephone status. See text for more information about these changes.

² Confidence intervals refer to the time period January through June 2009.

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. *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: National Health Interview Survey, January 2006-June 2009. 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 2006-June 2009

Demographic characteristic	Calendar half-year							95% confidence interval ²
	Jan-Jun 2006	Jul-Dec 2006	Jan-Jun 2007 ¹	Jul-Dec 2007 ¹	Jan-Jun 2008	Jul-Dec 2008	Jan-Jun 2009	
Percent distribution								
Race/ethnicity								
Hispanic or Latino, any race(s)	15.2	17.1	18.9	18.0	18.1	18.5	18.4	15.8-21.4
Non-Hispanic white, single race	65.6	64.0	61.5	61.2	62.2	61.9	63.8	60.7-66.8
Non-Hispanic black, single race	12.5	12.4	12.9	14.4	13.2	13.3	11.7	10.1-13.5
Non-Hispanic Asian, single race	4.7	4.4	3.8	3.8	4.6	4.4	3.9	3.1-4.8
Non-Hispanic other, single race	0.6	0.9	1.6	0.8	0.6	0.6	0.7	0.5-1.2
Non-Hispanic multiple race	1.4	1.2	1.3	1.8	1.3	1.2	1.5	1.2-2.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
Age								
18-24 years	30.5	27.6	28.4	27.2	24.9	23.1	22.9	20.6-25.4
25-29 years	21.1	22.7	22.3	22.1	20.5	21.0	19.9	18.3-21.7
30-34 years	11.0	12.9	11.3	13.0	14.3	14.0	13.6	12.2-15.1
35-44 years	16.8	16.6	16.3	16.3	17.8	17.4	18.4	17.0-19.9
45-64 years	18.5	17.6	19.1	18.9	19.6	21.6	21.0	19.3-22.7
65 years and over	2.2	2.6	2.6	2.5	2.9	2.9	4.3	3.5-5.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
Sex								
Male	54.1	53.9	52.9	53.0	53.7	52.4	51.4	50.1-52.8
Female	45.9	46.1	47.1	47.0	46.3	47.6	48.6	47.2-49.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
Education								
Some high school or less	14.8	17.4	17.5	16.2	15.5	15.8	15.5	13.7-17.6
High school graduate or GED ³	28.3	27.0	27.5	27.5	27.8	27.2	27.7	25.5-30.1
Some post-high school, no degree	34.7	34.2	32.7	32.9	33.9	31.7	33.3	31.1-35.5
4-year college degree or higher	22.1	21.4	22.3	23.4	22.8	25.3	23.5	21.1-26.0
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 ²
	Jan-Jun 2006	Jul-Dec 2006	Jan-Jun 2007 ¹	Jul-Dec 2007 ¹	Jan-Jun 2008	Jul-Dec 2008	Jan-Jun 2009	
Employment status last week								
Working at a job or business	78.6	76.7	77.1	74.3	75.9	74.5	71.1	69.4- 72.9
Keeping house	5.2	4.9	5.2	5.6	5.0	5.3	4.5	3.9- 5.3
Going to school	5.6	4.9	5.1	5.8	4.1	3.7	4.6	3.6- 5.8
Something else (incl. unemployed)	10.3	13.0	12.1	13.1	13.7	15.4	18.7	17.2- 20.2
Unknown, not reported	0.2	0.6	0.6	1.3	1.4	1.1	1.1	0.7- 1.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
Household structure								
Adult living alone	25.4	24.2	25.1	24.4	23.2	23.6	22.1	20.2- 24.1
Unrelated adults, no children	6.8	10.1	6.0	7.7	6.4	5.2	5.4	3.9- 7.6
Related adults, no children	33.1	32.4	34.4	34.2	35.1	36.9	36.0	33.6- 38.6
Adult(s) with children	34.6	33.3	34.6	33.7	35.3	34.3	36.4	33.8- 39.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
Household poverty status⁴								
Poor	12.7	15.7	14.6	16.1	14.1	15.5	15.5	13.5- 17.7
Near poor	19.5	17.1	18.4	18.4	18.1	16.8	17.9	16.3- 19.6
Not poor	47.9	46.2	50.5	49.7	53.4	53.3	56.7	53.6- 59.7
Unknown, not reported	19.9	21.0	16.5	15.8	14.4	14.4	10.0	8.5- 11.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
Geographic region⁵								
Northeast	13.8	13.4	12.7	12.4	10.7	11.3	12.2	9.4- 15.6
Midwest	24.1	22.2	25.1	24.6	25.0	26.0	23.9	19.6- 28.8
South	44.1	44.4	42.6	42.7	45.2	41.1	43.8	38.4- 49.2
West	18.0	20.0	19.7	20.4	19.1	21.6	20.1	16.8- 24.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
Metropolitan statistical area status								
Metropolitan	84.4	86.7	86.1	86.9	85.9	85.1	83.3	79.4- 86.6
Not metropolitan	15.6	13.3	13.9	13.1	14.1	14.9	16.7	13.5- 20.6
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 ²	
	Jan-Jun 2006	Jul-Dec 2006	Jan-Jun 2007 ¹	Jul-Dec 2007 ¹	Jan-Jun 2008	Jul-Dec 2008		Jan-Jun 2009
Home ownership status ⁶								
Owned or being bought	37.4	33.8	37.7	34.8	39.2	37.1	42.1	39.0-45.2
Renting	60.5	62.6	59.0	61.3	58.1	61.1	55.0	51.7-58.3
Other arrangement	2.1	3.7	3.3	3.8	2.7	1.8	2.9	1.7-5.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
Number of wireless-only adults in survey sample (unweighted)	2,804	2,878	3,819	3,558	4,939	4,426	5,078	

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

¹ Questionnaire changes that occurred in 2007 should be considered when evaluating recent trends in household telephone status. See text for more information about these changes.

² Confidence intervals refer to the time period January through June 2009.

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. *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: National Health Interview Survey, January 2006-June 2009. Data are based on household interviews of a sample of the civilian noninstitutionalized population.



Table 4. Percentage of adults living in wireless-mostly households, by selected demographic characteristics and by calendar half-years: United States, January 2007-June 2009

Demographic characteristic	Calendar half-year					95% confidence interval ¹
	Jan-Jun 2007	Jul-Dec 2007	Jan-Jun 2008	Jul-Dec 2008	Jan-Jun 2009	
	Percent ²					
Total	12.6	14.0	14.4	15.4	16.2	15.23-17.17
Race/ethnicity						
Hispanic or Latino, any race(s)	13.2	14.5	16.0	15.9	18.0	16.02-20.13
Non-Hispanic white, single race	12.3	13.2	14.2	14.9	15.6	14.50-16.80
Non-Hispanic black, single race	11.9	15.1	13.3	14.7	15.0	12.88-17.34
Non-Hispanic Asian, single race	16.0	20.3	16.4	20.3	19.6	17.03-22.42
Non-Hispanic other single race	14.6	*8.6	*10.1	15.5	22.9	13.97-35.08
Non-Hispanic multiple race	14.6	19.7	17.7	24.2	22.5	15.92-30.73
Age						
18-24 years	17.3	18.2	19.2	18.8	20.0	17.92-22.28
25-29 years	17.2	19.7	17.3	18.3	17.7	15.13-20.54
30-44 years	15.5	17.3	18.2	19.0	20.3	18.65-22.00
45-64 years	11.5	13.0	13.8	15.4	16.5	15.22-17.79
65 years and over	3.4	3.9	4.4	4.9	5.3	4.36-6.32
Sex						
Male	13.2	14.3	14.9	15.4	16.2	15.18-17.38
Female	12.0	13.6	14.0	15.2	16.1	15.18-17.09
Education						
Some high school or less	8.0	8.7	10.0	9.8	12.1	10.48-13.90
High school graduate or GED ³	10.6	12.7	12.5	13.2	13.7	12.52-14.89
Some post-high school, no degree	15.7	16.6	17.0	18.6	17.7	16.26-19.13
4-year college degree or higher	14.9	16.2	17.1	18.0	19.7	18.12-21.42
Employment status last week						
Working at a job or business	15.5	16.8	17.3	18.4	19.5	18.26-20.76
Keeping house	9.3	10.4	11.9	11.9	12.7	10.91-14.72
Going to school	17.2	20.4	25.2	21.5	21.1	17.49-25.13
Something else (incl. unemployed)	5.3	6.7	6.6	7.8	9.0	8.04-10.10
Household structure						
Adult living alone	10.8	10.7	10.1	12.2	10.0	8.73-11.50
Unrelated adults, no children	13.9	20.1	*15.4	21.3	13.9	8.19-22.62
Related adults, no children	11.6	12.1	12.8	13.2	14.7	13.38-16.22
Adult(s) with children	14.4	17.2	18.1	19.2	20.5	18.91-22.12
Household poverty status ⁴						
Poor	8.4	8.6	10.8	9.5	11.0	8.91-13.44
Near poor	9.7	11.4	10.3	11.3	12.0	10.24-14.00
Not poor	14.8	15.9	17.1	18.2	18.8	17.62-20.04
Geographic region ⁵						
Northeast	11.3	11.7	13.8	12.0	15.3	13.08-17.78
Midwest	10.6	13.3	12.6	13.2	14.6	12.67-16.77
South	13.8	14.3	14.6	16.2	16.7	15.21-18.22
West	13.7	15.9	16.4	18.7	17.7	15.75-19.85
Metropolitan statistical area status						
Metropolitan	13.2	14.7	15.0	15.8	16.9	15.81-18.07
Not metropolitan	10.2	10.9	12.1	13.4	13.5	11.78-15.40

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	
Home ownership status ⁶						
Owned or being bought	12.1	14.0	14.7	15.9	17.2	16.05-18.44
Renting	13.9	13.8	13.9	13.0	13.9	12.42-15.51
Other arrangement	12.2	14.1	14.8	24.6	13.8	9.66-19.36
Number of adults in survey sample who live in landline households with wireless telephones (unweighted)	3,733	3,435	4,302	3,663	3,908	

* 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 through June 2009.

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. *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: National Health Interview Survey, January 2007-June 2009. Data are based on household interviews of a sample of the civilian noninstitutionalized population.



Table 5. 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 2009

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	19.3	(17.87- 20.80)	35.3	(32.50- 38.20)	27.4	(20.02- 36.24)
Current smoker ³	17.9	(16.64- 19.21)	28.4	(25.98- 31.02)	29.4	(22.53- 37.37)
Engaged in regular leisure-time physical activity ⁴	34.6	(33.00- 36.27)	37.2	(34.49- 39.97)	24.3	(17.74- 32.23)
Health status						
Health status described as excellent or very good ⁵	59.3	(57.54- 60.95)	64.5	(61.73- 67.20)	55.8	(47.66- 63.74)
Experienced serious psychological distress in past 30 days ⁶	2.7	(2.27- 3.31)	4.6	(3.67- 5.68)	6.2	(3.58- 10.68)
Obese (adults aged 20 years and over) ⁷	28.0	(26.52- 29.49)	26.8	(24.48- 29.28)	23.4	(17.58- 30.33)
Asthma episode in past year ⁸	3.8	(3.25- 4.34)	4.2	(3.35- 5.27)	*1.8	(0.75- 4.39)
Ever diagnosed with diabetes ⁹	10.8	(9.89- 11.76)	4.5	(3.55- 5.59)	6.2	(3.71- 10.29)
Health care service use						
Received influenza vaccine during past year ¹⁰	39.0	(37.68- 40.39)	22.3	(20.22- 24.44)	18.9	(12.72- 27.22)
Ever been tested for HIV ¹¹	37.1	(35.24- 39.02)	48.6	(45.52- 51.75)	39.7	(31.68- 48.27)
Health care access						
Has a usual place to go for medical care ¹²	86.5	(85.26- 87.60)	69.8	(67.16- 72.29)	59.3	(50.47- 67.48)
Failed to obtain needed medical care in past year due to financial barriers ¹³	7.1	(6.32- 7.96)	14.8	(13.10- 16.63)	14.2	(9.45- 20.92)
Currently uninsured (adults aged 18-64 years) ¹⁴	13.7	(12.51- 15.02)	29.4	(26.93- 32.04)	45.0	(36.74- 53.58)
Number of adults in survey sample (unweighted)	7,463		2,590		205	

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

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/m² 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: National Health Interview Survey, January-June 2009. Data are based on household interviews of a sample of the civilian noninstitutionalized population.