



NATIONAL HEALTH INTERVIEW SURVEY EARLY RELEASE PROGRAM

Wireless Substitution: Early Release of Estimates From the National Health Interview Survey, July–December 2015

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Overview

Preliminary results from the July–December 2015 National Health Interview Survey (NHIS) indicate that the number of American homes with only wireless telephones continues to grow. Nearly one-half of American homes (48.3%) had only wireless telephones (also known as cellular telephones, cell phones, or mobile phones) during the second half of 2015—an increase of 2.9 percentage points since the second half of 2014. More than two-thirds of all adults aged 25–34 and of adults renting their homes were living in wireless-only households. This report presents the most up-to-date estimates available from the federal government concerning the size and characteristics of this population.

NHIS Early Release Program

This report is published as part of the NHIS Early Release Program. Twice each year, the 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 are conducted throughout the year to collect information on health status, health-related behaviors, and health care access and utilization. The survey also includes information about household telephones and whether anyone in the household has a wireless telephone.

To provide access to the most recent information from NHIS, estimates using the July–December 2015 data are being released prior to final data editing and final weighting. These estimates should be considered preliminary. Estimates produced using the final data files may differ slightly from those presented here.

Methods

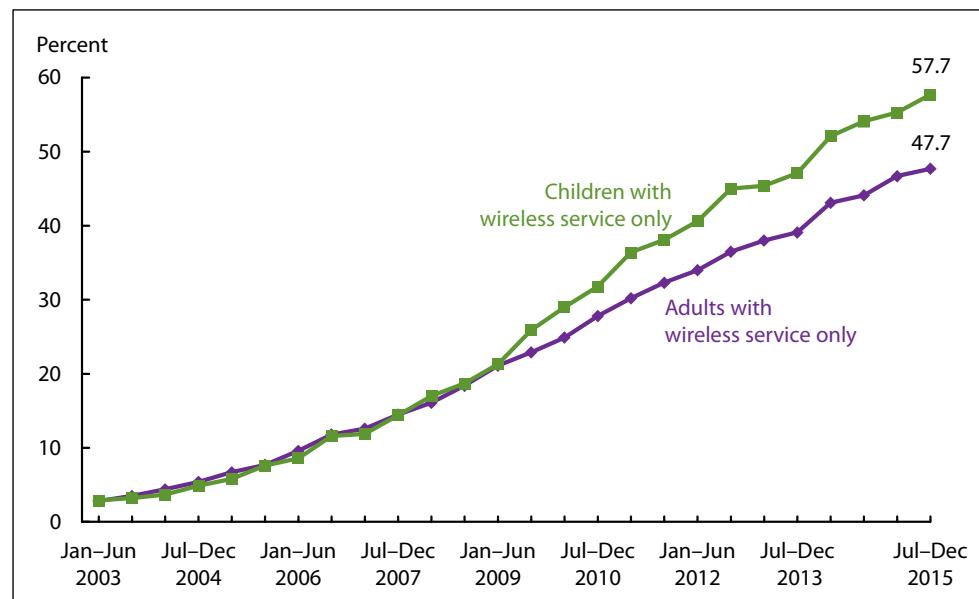
For many years, NHIS has asked respondents to provide residential telephone numbers, to permit the recontacting of survey participants. Starting in 2003, additional questions were asked to determine whether a family had a landline telephone. An NHIS family was considered to have landline telephone service if the survey respondent for the family reported that there was “at least

one phone inside your home that is currently working and is not a cell phone.” (To avoid possible confusion with cordless landline telephones, the word “wireless” was not used in the survey.)

An NHIS “family” is 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 cell phone at the time of interview. This

Figure. Percentages of adults and children living in households with only wireless telephone service: United States, 2003–2015



NOTE: Adults are aged 18 and over; children are under age 18.
DATA SOURCE: NCHS, National Health Interview Survey.

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 families with landline telephone service in 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 among families when more than one family lives in the same household.

From July through December 2015, information on household telephone status was obtained for 19,959 households that included at least one civilian adult or child. These households included 37,332 civilian adults aged 18 and over, and 12,197 children under age 18. Analyses of telephone status are presented separately for households, adults, and children in **Table 1**.

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. “Household income” is the sum of the family incomes in the household. Estimates stratified by household 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 poverty status was unknown for 24.3% of adults in these analyses.

Analyses of selected health measures are based on data from the NHIS Sample Adult File. Health-related data for one randomly selected civilian adult in each family (the “sample adult”) were used in these analyses. From July through December 2015, data on household telephone status and selected health measures were collected from 15,988 of these sample adults.

Because NHIS is conducted throughout the year and the sample is designed to yield a nationally representative sample each month, 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 ([Parsons et al., 2014](#)).

Point estimates and 95% confidence intervals were calculated using SUDAAN software (RTI International, Research Triangle Park, NC) to account for the complex sample design of NHIS. Differences between percentages were evaluated 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 second 6 months of 2015, nearly one-half of all households (48.3%) did not have a landline telephone but did have at least one wireless telephone (**Table 1**). Approximately 116 million adults (47.7% of all adults) lived in households with only wireless telephones; over 42 million children (57.7% of all children) lived in households with only wireless telephones.

The percentage of households that are wireless-only and the percentages of adults and children living in wireless-only households have been steadily increasing. The 2.9-percentage-point increase in the percentage of households that are wireless-only from the second 6 months of 2014 through the second 6 months of 2015 was statistically significant. The 3.6-percentage-point increases for adults and children across the same 12-month time period were also significant (**Figure**). However, the increases from the first 6 months of 2015 to the second 6 months of 2015 were not statistically significant for adults ($p = 0.27$) or children ($p = 0.06$).

The percentages of adults and children living without any telephone service have increased slightly but significantly over the past 3 years (**Table 1**). Approximately 3.1% of

households had no telephone service (neither wireless nor landline). About 6.5 million adults (2.7%) and 2.3 million children (3.1%) 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 survey time period, in **Table 2**. For July–December 2015:

- More than two-thirds of adults aged 25–29 (72.6%) and aged 30–34 (69.0%) lived in households with only wireless telephones. These rates are greater than the rate for those 18–24 (61.1%). The percentage of adults living with only wireless telephones decreased as age increased beyond 35 years: 58.2% for those 35–44; 41.2% for those 45–64; and 20.5% for those 65 and over.
- More than three in four adults living only with unrelated adult roommates (78.8%) were in households with only wireless telephones. This rate is higher than the rates for adults living alone (52.1%), adults living only with spouses or other adult family members (39.7%), and adults living with children (55.2%).
- Two in three adults living in rented homes (68.8%) had only wireless telephones. This rate is nearly twice the rate for adults living in homes owned by a household member (37.3%).
- Adults living in poverty (64.3%) and near poverty (54.0%) were more likely than higher income adults (45.7%) to be living in households with only wireless telephones. (Footnote 3 in **Table 2** gives definitions of these categories.)
- Hispanic adults (60.5%) were more likely than non-Hispanic white (44.0%), non-Hispanic black (48.5%), or non-Hispanic Asian (48.4%) adults to be living in households with only wireless telephones.

Geographic differences were also noted. Adults living in the Midwest (51.4%), South (51.3%), and West (51.2%) were more likely than those living in the Northeast (31.4%) to be living in households with only wireless telephones. Adults living in metropolitan areas (48.4%) were more likely than those living in nonmetropolitan areas (43.1%) to be living in wireless-only households.

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.

Table 3 gives the percent distributions 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 age and home ownership status.

- The proportion of wireless-only adults who were aged 35 and over has increased steadily, from 52.8% in the second 6 months of 2012 to 57.9% in the second 6 months of 2015.
- The proportion of wireless-only adults living in homes owned by a household member increased from 46.6% in the second 6 months of 2012 to 51.6% in the second 6 months of 2015.

Selected Health Measures by Household Telephone Status

Many health surveys, political polls, and other types of research are conducted using random-digit-dial (RDD) telephone surveys. Despite operational challenges, most major survey research organizations include wireless telephone numbers when

conducting RDD 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 phoneless) 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 and over.) For July–December 2015:

- Regarding alcohol consumption, the percentage of adults who had at least one heavy drinking day in the past year was substantially higher among wireless-only adults (29.6%) than among adults living in landline households (17.2%). Wireless-only adults were also more likely to be current smokers.
- Compared with adults living in landline households, wireless-only adults were more likely to have their health status described as excellent or very good, more likely to have met the 2008 federal physical activity guidelines for aerobic activity (based on leisure-time 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 age 65 (16.1%) was greater than the percentage among adults in that age group living in landline households (7.8%).
- 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 (44.2%) were more likely than adults living in landline households (32.3%) 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 threat to health surveys that do not include sufficient representation of households with only wireless telephones.

Wireless-mostly Households

The potential for bias due to undercoverage is not the only threat to surveys conducted only 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 question was added to NHIS 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 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, 35.2% received all or almost all calls on wireless telephones, based on data for July–December 2015. These wireless-mostly households make up 14.5% of all households. During the second 6 months of 2015, about 39 million adults (16.1%) lived in wireless-mostly households.

Table 5 gives the percentage of adults living in wireless-mostly households, by demographic characteristics and survey time period. For July–December 2015:

- Adults with college degrees (19.5%) were more likely to be living in wireless-mostly households than were high school graduates (14.9%) or adults with less education (12.1%).
- Adults living with children (19.2%) were more likely than adults living alone (9.5%) or with only adult relatives (16.3%) to be living in wireless-mostly households.
- Adults living in poverty (8.7%) and adults living near poverty (10.7%) were less likely than higher-income adults (18.7%) to be living in wireless-mostly households.
- Adults living in rented homes (10.4%) were less likely to be living in wireless-mostly households than were adults living in homes owned by a household member (19.0%).

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-mostly 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(10):1806–10. 2009. Available from: <http://ajph.aphapublications.org/cgi/content/abstract/99/10/1806>.
- Boyle JM, Lewis F, Tefft B. Cell phone mainly households: Coverage and reach for telephone surveys using RDD landline samples. *Surv Pract* 2(9). 2009. Available from: <http://surveypractice.wordpress.com/2009/12/09/cell-phone-and-landlines/>.

When including wireless telephone numbers in RDD surveys, researchers have many methodological, statistical, operational, legal, and ethical issues to consider. These issues have been described in a report from a task force of the American Association for Public Opinion Research (AAPOR). That task force 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. Deerfield, IL: American Association for Public Opinion Research. 2010. Available from: <http://www.aapor.org/Education-Resources/Reports/Cell-Phone-Task-Force-Report.aspx>.

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 prevalence estimates at the state level, see

- NCHS. Modeled estimates (with standard errors) of the percent distribution of household telephone status for adults aged 18 and over, by state: United States, 2014. February 2016. Available from: http://www.cdc.gov/nchs/data/nhis/earlyrelease/wireless_state_201602.pdf.
- Blumberg SJ, Ganesh N, Luke JV, Gonzales G. Wireless substitution: State-level estimates from the National Health Interview Survey, 2012. *National health statistics reports; no 70*. Hyattsville, MD: National Center for Health Statistics. 2013. Available from: <http://www.cdc.gov/nchs/data/nhsr/nhsr070.pdf>.

Other NHIS Early Release Program Products

Two additional reports are published regularly 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. Other Early Release Program products are released as needed.

In addition to these reports, preliminary microdata files containing selected NHIS variables are produced as part of the ER Program. Beginning in May 2016, the telephone service use variables presented in this report are included in those microdata files. These variables are made available twice each year, in November or December for data from the first 6 months of the calendar year and in May or June for data from the second 6 months of the calendar year. NHIS data users can analyze these files through the NCHS Research Data Centers (<http://www.cdc.gov/rdc/>) without having to wait for the final annual NHIS microdata files to be released.

For more information about NHIS and the NHIS Early Release Program, or to find other Early Release Program products, see

- NHIS home page at <http://www.cdc.gov/nchs/nhis.htm>.
- Early Release Program home page at <http://www.cdc.gov/nchs/nhis/releases.htm>.
- Parsons VL, Moriarity CL, Jonas K, et al. Design and estimation for the National Health Interview Survey: 2006–2015. *National Center for Health Statistics. Vital Health Stat 2(165)*. 2014. Available from: http://www.cdc.gov/nchs/data/series/sr_02/sr02_165.pdf.

Suggested Citation

Blumberg SJ, Luke JV. Wireless substitution: Early release of estimates from the National Health Interview Survey, July–December 2015. National Center for Health Statistics. May 2016. Available from:

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

Table 1. Percent distribution of household telephone status for households, adults, and children, by date of interview: United States, July 2012–December 2015

Date of interview	Number of households (unweighted)	Landline with wireless	Landline without wireless	Landline with unknown wireless	Nonlandline with unknown wireless	Wireless-only	Phoneless	Total
Households								
July–December 2012	21,709	50.8	8.6	0.2	0.1	38.2	2.1	100.0
January–June 2013	19,765	49.5	8.5	0.1	0.0	39.4	2.3	100.0
July–December 2013	21,512	47.7	8.6	0.1	0.1	41.0	2.5	100.0
January–June 2014	22,438	44.7	8.5	0.1	0.0	44.0	2.6	100.0
July–December 2014	22,023	42.7	8.4	0.2	0.1	45.4	3.2	100.0
January–June 2015	21,517	41.6	7.6	0.1	0.0	47.4	3.4	100.0
July–December 2015	19,959	41.2	7.2	0.1	0.0	48.3	3.1	100.0
1 95% confidence interval	...	40.05–42.34	6.68–7.76	0.06–0.19	0.01–0.07	47.17–49.51	2.81–3.49	...
Adults								
July–December 2012	40,839	54.4	7.0	0.2	0.1	36.5	1.9	100.0
January–June 2013	37,268	52.8	6.9	0.1	0.0	38.0	2.2	100.0
July–December 2013	40,173	51.5	7.0	0.1	0.1	39.1	2.2	100.0
January–June 2014	42,262	47.3	7.0	0.1	0.1	43.1	2.4	100.0
July–December 2014	41,160	45.8	7.1	0.1	0.1	44.1	2.9	100.0
January–June 2015	40,489	43.9	6.2	0.1	0.0	46.7	3.1	100.0
July–December 2015	37,332	43.7	5.8	0.1	0.0	47.7	2.7	100.0
1 95% confidence interval	...	42.55–44.81	5.34–6.29	0.05–0.15	0.01–0.07	46.51–48.82	2.46–3.07	...
Children								
July–December 2012	14,083	49.5	3.4	0.1	0.1	45.0	1.9	100.0
January–June 2013	12,932	48.3	3.6	0.1	0.0	45.4	2.6	100.0
July–December 2013	13,714	46.4	3.8	0.1	0.0	47.1	2.5	100.0
January–June 2014	14,349	41.7	3.5	–	0.0	52.1	2.7	100.0
July–December 2014	13,754	39.1	3.3	0.1	0.0	54.1	3.4	100.0
January–June 2015	13,493	38.3	3.0	0.1	0.0	55.3	3.2	100.0
July–December 2015	12,197	36.2	2.8	0.1	0.0	57.7	3.1	100.0
1 95% confidence interval	...	34.46–38.07	2.28–3.54	0.02–0.16	0.01–0.15	55.89–59.51	2.57–3.74	...

0.0 Quantity more than zero but less than 0.05.

... Category not applicable.

– Quantity zero.

1Refers to July–December 2015.

NOTE: Data are based on household interviews of a sample of the civilian noninstitutionalized population.

DATA SOURCE: NCHS, National Health Interview Survey, July 2012–December 2015.

Table 2. Percentage of adults living in wireless-only households, by selected demographic characteristics and calendar half-years: United States, July 2012–December 2015

Demographic characteristic	July–December 2012	January–June 2013	July–December 2013	January–June 2014	July–December 2014	January–June 2015	July–December 2015	95% confidence interval ¹
Race/ethnicity								
Hispanic or Latino, any race(s)	50.5	49.9	53.1	56.1	58.6	59.2	60.5	58.40–62.64
Non-Hispanic white, single race	32.9	35.1	35.1	39.6	40.3	43.2	44.0	42.49–45.42
Non-Hispanic black, single race	39.0	39.4	42.7	44.9	45.7	48.1	48.5	45.82–51.29
Non-Hispanic Asian, single race	34.4	35.2	38.1	41.3	42.3	47.9	48.4	44.68–52.09
Non-Hispanic other, single race	43.9	50.1	51.7	52.4	54.8	51.8	56.5	47.98–64.58
Non-Hispanic multiple race	45.3	46.2	45.7	52.5	53.3	53.6	60.2	53.78–66.24
Age (years)								
18–24	53.2	54.3	53.0	57.8	58.0	59.4	61.1	58.44–63.80
25–29	62.1	65.6	65.7	69.3	69.2	71.3	72.6	69.90–75.09
30–34	56.7	59.9	59.7	64.9	67.4	67.8	69.0	66.67–71.16
35–44	43.5	44.5	47.8	52.5	53.7	56.6	58.2	56.25–60.14
45–64	28.4	29.8	31.4	35.7	36.8	40.8	41.2	39.75–42.57
65 and over	11.6	12.6	13.6	15.7	17.1	19.3	20.5	19.10–21.89
Sex								
Male	38.0	39.7	40.4	44.3	45.7	48.2	49.3	48.04–50.59
Female	35.1	36.5	37.9	41.9	42.6	45.3	46.1	44.95–47.31
Education								
Some high school or less	42.4	41.7	41.8	46.6	46.5	49.0	51.1	49.03–53.16
High school graduate or GED ²	35.9	37.2	38.8	43.3	44.2	46.7	47.2	45.39–49.04
Some post-high school, no degree	38.3	40.6	41.7	45.6	47.1	49.0	49.7	47.96–51.42
4-year college degree or higher	32.2	34.5	35.5	39.0	40.3	43.5	44.8	43.11–46.60
Employment status last week								
Working at a job or business	41.4	43.5	44.4	48.9	49.9	52.7	53.7	52.39–55.06
Keeping house	38.6	39.4	40.5	47.6	47.2	49.3	50.7	47.90–53.52
Going to school	46.0	48.1	46.3	49.7	53.8	49.6	53.2	48.68–57.60
Something else (incl. unemployed)	25.1	25.2	27.0	29.1	29.7	32.7	33.4	31.99–34.79
Household structure								
Adult living alone	43.9	46.4	46.6	48.3	49.5	51.1	52.1	49.93–54.20
Unrelated adults, no children	76.2	74.7	76.1	73.9	81.3	84.6	78.8	69.63–85.77
Related adults, no children	28.2	29.6	31.0	35.3	35.8	39.1	39.7	38.08–41.24
Adult(s) with children	42.2	43.6	44.8	49.8	50.8	53.3	55.2	53.37–56.96
Household poverty status³								
Poor	54.3	54.7	56.2	59.1	59.4	59.3	64.3	61.15–67.25
Near-poor	45.9	47.5	46.1	50.8	51.1	54.4	54.0	51.61–56.37
Not-poor	33.2	35.3	36.6	40.8	42.5	45.7	45.7	44.26–47.10

See footnotes at end of table.

Table 2. Percentage of adults living in wireless-only households, by selected demographic characteristics and calendar half-years: United States, July 2012–December 2015—Continued

Demographic characteristic	July–December 2012	January–June 2013	July–December 2013	January–June 2014	July–December 2014	January–June 2015	July–December 2015	95% confidence interval ¹
Geographic region⁴								
Northeast	23.6	27.1	24.9	27.8	29.5	31.6	31.4	28.35–34.62
Midwest	40.6	39.6	43.7	46.9	48.0	51.9	51.4	49.01–53.79
South	39.7	41.8	41.9	47.3	47.0	50.2	51.3	49.51–53.14
West	37.8	39.0	41.2	43.8	46.9	47.1	51.2	49.26–53.15
Metropolitan statistical area status								
Metropolitan	38.1	39.5	40.5	43.9	45.7	47.8	48.4	47.10–49.64
Not metropolitan	30.5	32.4	33.7	39.8	37.6	42.3	43.1	40.14–46.18
Home ownership status⁵								
Owned or being bought	25.4	27.2	28.5	32.9	33.1	37.2	37.3	36.10–38.50
Renting	59.7	61.5	61.7	64.6	66.2	67.0	68.8	67.17–70.47
Other arrangement	49.1	42.6	49.3	52.2	49.2	52.8	58.0	51.44–64.37
Number of wireless-only adults in survey sample (unweighted)	15,589	14,512	16,436	18,380	18,740	18,921	17,974	...

... Category not applicable.

¹Refers to July–December 2015.²GED is General Educational Development high school equivalency diploma.

³Based 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.

⁴In 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 Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont; *Midwest* includes Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin; *South* includes Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia; and *West* includes Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

⁵For 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.

NOTE: Data are based on household interviews of a sample of the civilian noninstitutionalized population.

DATA SOURCE: NCHS, National Health Interview Survey, July 2012–December 2015.

Table 3. Percent distributions of selected demographic characteristics for adults living in wireless-only households, by date of interview: United States, July 2012–December 2015

Demographic characteristic	July–December 2012	January–June 2013	July–December 2013	January–June 2014	July–December 2014	January–June 2015	July–December 2015	95% confidence interval ¹
Race/ethnicity								
Hispanic or Latino, any race(s)	20.6	19.7	20.5	19.8	20.3	19.6	19.9	18.28–21.56
Non-Hispanic white, single race	59.7	61.0	59.2	60.4	60.0	60.2	59.7	57.80–61.55
Non-Hispanic black, single race	12.3	12.0	12.6	12.1	12.1	12.1	12.0	10.88–13.15
Non-Hispanic Asian, single race	4.9	5.0	5.2	5.2	5.3	5.8	5.8	5.23–6.39
Non-Hispanic other, single race	0.8	0.9	1.0	0.9	0.7	0.8	1.0	0.73–1.35
Non-Hispanic multiple race	1.6	1.5	1.4	1.6	1.5	1.5	1.7	1.44–2.01
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	...
Age (years)								
18–24	18.9	18.4	17.4	17.1	16.6	16.0	16.0	14.96–17.02
25–29	14.8	15.2	14.8	14.1	13.9	13.6	13.6	12.75–14.42
30–34	13.4	13.5	13.3	13.1	13.2	12.6	12.6	11.90–13.27
35–44	20.0	19.7	20.4	20.3	20.1	19.9	20.0	19.23–20.86
45–64	27.1	27.2	27.8	28.6	28.8	30.0	29.6	28.68–30.53
65 and over	5.7	6.0	6.4	6.8	7.3	7.9	8.3	7.68–8.91
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	...
Sex								
Male	50.1	50.3	49.7	49.6	49.9	49.8	49.9	49.17–50.58
Female	49.9	49.7	50.3	50.4	50.1	50.2	50.1	49.42–50.83
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	...
Education								
Some high school or less	16.1	15.0	14.5	14.7	13.9	13.5	13.6	12.72–14.57
High school graduate or GED ²	27.4	26.7	26.9	27.2	26.9	26.0	25.8	24.72–26.87
Some post-high school, no degree	31.8	32.6	32.4	32.2	31.9	32.0	31.7	30.52–32.86
4-year college degree or higher	24.6	25.8	26.2	25.9	27.3	28.5	28.9	27.63–30.24
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	...
Employment status last week								
Working at a job or business	68.9	69.7	70.1	69.3	70.1	69.7	69.7	68.68–70.77
Keeping house	5.8	5.9	5.7	6.4	6.0	6.0	5.9	5.45–6.35
Going to school	4.0	4.4	3.6	4.1	4.0	3.6	3.7	3.18–4.24
Something else (incl. unemployed)	20.5	19.2	19.8	19.5	19.1	19.8	20.0	19.08–20.99
Unknown, not reported	0.9	0.7	0.8	0.9	0.9	0.8	0.7	0.50–0.92
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	...
Household structure								
Adult living alone	18.6	18.8	18.6	17.0	17.5	16.4	17.4	16.38–18.50
Unrelated adults, no children	3.1	3.2	2.9	2.5	2.9	2.4	2.6	1.96–3.34
Related adults, no children	35.7	35.8	36.9	38.8	37.9	39.6	39.6	38.15–41.03
Adult(s) with children	42.6	42.2	41.6	41.8	41.6	41.6	40.4	38.93–41.97
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	...

See footnotes at end of table.

Table 3. Percent distributions of selected demographic characteristics for adults living in wireless-only households, by date of interview: United States, July 2012–December 2015

Demographic characteristic	July–December 2012	January–June 2013	July–December 2013	January–June 2014	July–December 2014	January–June 2015	July–December 2015	95% confidence interval ¹
Household poverty status³								
Poor	15.4	13.9	14.1	13.0	13.6	10.9	12.1	11.11–13.09
Near-poor	18.0	17.8	16.6	16.7	15.9	15.5	15.6	14.71–16.56
Not-poor	46.1	48.5	47.8	49.4	49.3	53.1	50.8	49.36–52.26
Unknown, not reported	20.6	19.7	21.5	20.8	21.3	20.5	21.5	20.26–22.82
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	...
Geographic region⁴								
Northeast	11.7	12.6	11.3	11.1	12.0	11.5	12.1	10.63–13.69
Midwest	24.8	23.1	25.1	25.0	24.3	25.0	23.2	21.22–25.29
South	40.1	40.8	39.9	41.1	39.9	39.9	40.5	38.43–42.61
West	23.4	23.6	23.8	22.9	23.8	23.5	24.2	22.51–26.03
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	...
Metropolitan statistical area status								
Metropolitan	82.6	82.8	82.6	81.6	83.1	82.3	87.8	86.08–89.39
Not metropolitan	17.4	17.2	17.4	18.4	16.9	17.7	12.2	10.61–13.92
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	...
Home ownership status⁵								
Owned or being bought	46.6	48.0	48.5	51.1	49.5	53.8	51.6	49.97–53.26
Renting	50.9	49.6	49.1	46.4	48.4	44.2	45.8	44.18–47.45
Other arrangement	2.6	2.4	2.4	2.6	2.1	2.0	2.6	2.09–3.17
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	...
Number of wireless-only adults in survey sample (unweighted)	15,589	14,512	16,436	18,380	18,740	18,921	17,974	...

... Category not applicable.

¹Refers to July–December 2015.

²GED is General Educational Development high school equivalency diploma.

³Based 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.

⁴In 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 Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont; Midwest includes Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin; South includes Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia; and West includes Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

⁵For 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.

NOTE: Data are based on household interviews of a sample of the civilian noninstitutionalized population.

DATA SOURCE: NCHS, National Health Interview Survey, July 2012–December 2015.

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 and over, by household telephone status: United States, July–December 2015

Measure	Landline ¹	Wireless-only	Phoneless
Health-related behaviors			
At least one heavy drinking day in past year ²	17.2 (15.89-18.51)	29.6 (28.14-31.20)	24.0 (19.56-29.07)
Current smoker ³	11.5 (10.50-12.56)	18.8 (17.54-20.21)	20.8 (17.00-25.26)
Met the 2008 federal physical activity guidelines for aerobic activity through leisure-time aerobic activity ⁴	35.4 (33.75-37.09)	38.1 (36.42-39.71)	35.5 (29.80-41.67)
Health status			
Health status described as excellent or very good ⁵	58.3 (56.63-60.01)	62.3 (60.85-63.66)	58.1 (52.74-63.22)
Experienced serious psychological distress in past 30 days ⁶	3.1 (2.55-3.69)	4.4 (3.80-5.13)	4.6 (2.81-7.43)
Obese (adults aged 20 and over) ⁷	30.2 (28.71-31.80)	29.5 (27.92-31.04)	31.1 (25.54-37.27)
Asthma episode in past year ⁸	3.3 (2.76-4.06)	3.6 (3.03-4.17)	*2.5 (1.17-5.23)
Ever diagnosed with diabetes ⁹	12.0 (11.03-13.10)	6.9 (6.09-7.84)	8.8 (6.22-12.30)
Health care service use			
Received influenza vaccine during past year ¹⁰	49.8 (48.05-51.50)	33.9 (32.49-35.34)	38.1 (32.64-43.83)
Ever been tested for HIV ¹¹	32.3 (30.65-33.99)	44.2 (42.63-45.86)	47.3 (41.26-53.50)
Health care access			
Has a usual place to go for medical care ¹²	92.0 (91.04-92.95)	78.8 (77.50-80.10)	76.8 (71.75-81.21)
Failed to obtain needed medical care in past year due to financial barriers ¹³	4.0 (3.47-4.66)	8.1 (7.31-9.02)	9.4 (6.10-14.18)
Currently uninsured (adults aged 18–64) ¹⁴	7.8 (6.76-8.93)	16.1 (14.81-17.45)	19.0 (14.40-24.60)
Number of adults in survey sample (unweighted)	7,472	7,984	532

* Estimate has a relative standard error greater than 30% and does not meet standards for reliability or precision.

¹Includes households that also have wireless telephone service.

²The estimates presented here are for men aged 18 and over who had five or more drinks in 1 day at least once in the past year and women aged 18 and over who had four or more drinks in 1 day at least once in the past year. A year is defined as the 12 months prior to interview. The analyses excluded adults with unknown alcohol consumption (about 2%).

³A person who had smoked more than 100 cigarettes in his or her lifetime and now smokes every day or some days. The analyses excluded adults with unknown smoking status (about 2%).

⁴This measure reflects an estimate of regular leisure-time aerobic activity motivated by the 2008 federal *Physical Activity Guidelines for Americans* (<http://www.health.gov/paguidelines/>), which are being used in setting Healthy People 2020 objectives (<http://www.healthypeople.gov>). The 2008 guidelines refer to any kind of aerobic activity, but estimates in this table are limited to leisure-time physical activity only. These leisure-time aerobic activity estimates may therefore underestimate the percentage of adults who met the 2008 guidelines for aerobic activity. The 2008 federal guidelines recommend that for substantial health benefits, adults perform at least 150 minutes a week of moderate-intensity aerobic physical activity, or 75 minutes a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity aerobic activity. The 2008 guidelines also state that aerobic activity should be performed in episodes of at least 10 minutes and preferably should be spread throughout the week. The analyses excluded adults with unknown physical activity participation (about 3%).

⁵Health 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 0.2%).

⁶Six 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 weighted equally 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. The analyses excluded adults with unknown serious psychological distress status (about 3%).

⁷Obesity 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 adults with unknown height or weight (about 6%). Estimates of obesity are presented for adults aged 20 and over because the Healthy People 2020 objectives (<http://www.healthypeople.gov>) for healthy weight among adults define adults as persons aged 20 and over.

⁸Information on an episode of asthma or an asthma attack during the past year is self-reported by adults aged 18 and over. A year is defined as the 12 months prior to interview. The analyses excluded persons with unknown asthma episode status (about 0.1%).

⁹Prevalence 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 adults with unknown diabetes status (about 0.1%).

¹⁰Receipt 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 adults with unknown flu vaccination status (about 3%).

¹¹Individuals 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 adults with unknown HIV test status (about 5%).

¹²Does not include a hospital emergency room. The analyses excluded persons with an unknown usual place to go for medical care (about 5%).

¹³A 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 0.2%).

¹⁴A 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 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 adults with unknown health insurance status (about 1%).

NOTE: Data are based on household interviews of a sample of the civilian noninstitutionalized population.

DATA SOURCE: NCHS, National Health Interview Survey, July–December 2015.

Table 5. Percentage of adults living in wireless-mostly households, by selected demographic characteristics and calendar half-years: United States, July 2012–December 2015

Demographic characteristic	July–December 2012	January–June 2013	July–December 2013	January–June 2014	July–December 2014	January–June 2015	July–December 2015	95% confidence interval ¹
Total	18.0	17.7	18.3	16.6	16.9	16.3	16.1	15.37–16.95
Race/ethnicity								
Hispanic or Latino, any race(s)	17.4	16.4	16.6	14.6	14.2	15.4	15.0	13.60–16.50
Non-Hispanic white, single race	17.7	17.4	18.6	16.8	17.2	16.0	16.0	15.04–17.01
Non-Hispanic black, single race	18.6	19.0	18.2	16.9	17.5	17.3	17.1	15.18–19.22
Non-Hispanic Asian, single race	22.2	20.9	20.4	19.5	19.4	18.4	19.7	16.82–22.95
Non-Hispanic other, single race	12.5	22.7	14.1	11.0	*10.3	18.0	12.8	7.21–21.76
Non-Hispanic, multiple race	18.0	18.0	16.9	16.3	17.0	17.8	15.0	10.99–20.14
Age (years)								
18–24	18.2	18.6	20.0	18.1	17.7	17.1	17.2	15.31–19.22
25–29	17.0	14.8	14.5	11.8	13.5	11.1	11.1	9.57–12.86
30–44	21.2	20.7	20.0	17.6	17.2	16.9	16.2	15.17–17.31
45–64	20.3	19.8	21.6	20.0	20.6	19.2	19.9	18.71–21.23
65 and over	9.1	10.3	10.3	10.2	10.6	12.0	11.0	9.94–12.12
Sex								
Male	18.3	17.8	18.6	16.7	17.1	16.5	16.2	15.32–17.01
Female	17.7	17.6	18.0	16.5	16.7	16.1	16.1	15.31–17.01
Education								
Some high school or less	11.6	12.8	12.4	12.4	11.0	12.1	12.1	10.78–13.48
High school graduate or GED ²	16.3	16.0	16.5	14.3	14.5	14.6	14.9	13.65–16.14
Some post-high school, no degree	19.3	18.6	18.9	17.3	17.7	16.4	15.8	14.61–17.09
4-year college degree or higher	21.5	20.7	22.3	20.1	20.8	19.5	19.5	18.20–20.82
Employment status last week								
Working at a job or business	21.1	20.2	21.4	18.9	19.5	18.2	18.3	17.36–19.25
Keeping house	17.5	19.0	16.9	15.9	16.8	13.9	15.5	13.65–17.49
Going to school	18.2	22.2	21.1	20.5	19.0	21.6	19.7	16.59–23.34
Something else (incl. unemployed)	11.6	11.7	11.4	11.2	10.9	11.9	11.4	10.53–12.41
Household structure								
Adult living alone	9.8	9.5	9.4	9.3	9.3	9.5	9.5	8.50–10.53
Unrelated adults, no children	12.3	12.9	11.2	9.2	5.5	7.4	*10.3	5.46–18.68
Related adults, no children	17.4	17.0	18.1	15.9	17.3	16.4	16.3	15.15–17.53
Adult(s) with children	22.4	22.2	22.6	20.8	20.0	19.2	19.2	17.95–20.56
Household poverty status ³								
Poor	8.6	10.8	9.1	9.1	8.4	10.0	8.7	7.26–10.46
Near-poor	12.7	12.0	12.0	10.6	12.0	12.5	10.7	9.21–12.39
Not-poor	21.8	21.4	22.1	20.0	19.4	18.4	18.7	17.64–19.87

See footnotes at end of table.

Wireless Substitution: Early Release of Estimates From the National Health Interview Survey, July–December 2015

Table 5. Percentage of adults living in wireless-mostly households, by selected demographic characteristics and calendar half-years: United States, July 2012–December 2015—Continued

Demographic characteristic	July–December 2012	January–June 2013	July–December 2013	January–June 2014	July–December 2014	January–June 2015	July–December 2015	95% confidence interval ¹
Geographic region⁴								
Northeast	20.0	18.2	20.1	18.7	21.4	20.4	19.0	16.96–21.32
Midwest	15.3	16.7	16.2	14.5	14.6	13.1	14.9	13.40–16.57
South	17.7	17.0	18.0	16.0	16.2	16.3	15.6	14.38–16.93
West	19.3	19.4	19.3	18.1	16.5	16.2	15.9	14.36–17.48
Metropolitan statistical area status								
Metropolitan	18.5	17.9	18.7	16.9	17.0	16.8	16.3	15.49–17.21
Not metropolitan	15.8	17.0	16.7	15.5	16.2	14.2	15.0	12.92–17.25
Home ownership status⁵								
Owned or being bought	20.1	20.0	21.0	19.0	19.9	19.0	19.0	17.99–20.12
Renting	13.0	12.8	12.4	11.1	11.0	10.5	10.4	9.42–11.44
Other arrangement	17.3	17.0	14.8	12.8	12.1	14.1	11.7	7.84–17.08
Number of adults in survey sample who live in landline households with wireless telephones (unweighted)	21,194	19,106	22,879	19,608	18,040	17,527	15,780	...

* Estimate has a relative standard error greater than 30% and does not meet standards for reliability or precision.

... Category not applicable.

¹Refers to July–December 2015.

²GED is General Educational Development high school equivalency diploma.

³Based 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.

⁴In 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 Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont; Midwest includes Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin; South includes Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia; and West includes Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

⁵For 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.

NOTE: Data are based on household interviews of a sample of the civilian noninstitutionalized population.

DATA SOURCE: NCHS, National Health Interview Survey, July 2012–December 2015.