



National Health Interview Survey Early Release Program

Table 1. Modeled estimates (with standard errors) of the percent distribution of personal telephone status for adults aged 18 and over, by state: United States, 2019

Geographic area	Wireless-only adults	Wireless-mostly adults	Dual users	Landline-mostly adults	Landline-only adults	Phoneless adults	Total
Alabama	63.8 (2.4)	16.9 (1.4)	7.6 (1.2)	5.1 (0.8)	4.3 (0.7)	2.3	100.0
Alaska	63.3 (2.1)	19.1 (1.7)	9.2 (1.0)	3.6 (0.8)	2.6 (0.6)	2.1	100.0
Arizona	71.2 (2.2)	14.2 (1.4)	6.0 (0.9)	4.3 (0.8)	2.4 (0.5)	2.1	100.0
Arkansas	68.0 (2.7)	13.5 (1.4)	6.8 (1.0)	6.7 (1.1)	2.9 (0.6)	2.1	100.0
California	59.8 (1.3)	21.7 (1.0)	9.4 (0.7)	4.9 (0.5)	2.7 (0.3)	1.5	100.0
Colorado	63.4 (2.2)	19.0 (1.5)	9.0 (1.0)	4.3 (0.7)	3.1 (0.5)	1.2	100.0
Connecticut	43.1 (2.4)	29.1 (1.9)	14.2 (1.5)	6.9 (0.9)	5.4 (0.8)	1.3	100.0
Delaware	51.6 (2.9)	24.0 (1.8)	13.4 (1.5)	6.7 (1.0)	3.4 (0.6)	0.9	100.0
District of Columbia	58.3 (3.0)	20.9 (2.3)	12.3 (1.6)	3.4 (0.8)	3.8 (0.9)	1.3	100.0
Florida	61.6 (1.6)	20.1 (1.2)	8.4 (0.7)	4.1 (0.5)	3.6 (0.5)	2.1	100.0
Georgia	63.7 (1.6)	19.7 (1.2)	8.0 (0.9)	4.1 (0.6)	2.8 (0.5)	1.6	100.0
Hawaii	52.9 (2.6)	21.5 (1.9)	16.0 (1.9)	4.3 (0.9)	3.8 (0.7)	1.4	100.0
Idaho	74.9 (2.7)	11.6 (1.3)	5.8 (1.2)	4.1 (0.9)	2.3 (0.5)	1.4	100.0
Illinois	60.6 (1.6)	19.1 (1.2)	10.4 (0.9)	5.3 (0.6)	2.8 (0.4)	1.7	100.0
Indiana	66.9 (1.8)	14.4 (1.3)	8.1 (0.9)	5.5 (0.8)	2.9 (0.5)	2.2	100.0
Iowa	66.4 (2.6)	14.2 (1.4)	8.1 (1.0)	6.2 (0.8)	3.5 (0.6)	1.6	100.0
Kansas	67.6 (2.2)	14.6 (1.6)	8.6 (1.3)	4.8 (0.8)	2.8 (0.5)	1.7	100.0
Kentucky	63.9 (2.4)	13.5 (1.2)	8.6 (1.2)	7.7 (1.0)	3.9 (0.7)	2.3	100.0
Louisiana	64.0 (1.9)	18.4 (1.5)	8.2 (1.1)	4.4 (0.8)	2.9 (0.5)	2.0	100.0
Maine	51.6 (3.5)	14.4 (1.5)	12.2 (1.7)	11.9 (1.7)	7.3 (1.0)	2.5	100.0
Maryland	44.2 (2.3)	30.0 (1.9)	14.2 (1.3)	6.3 (0.8)	3.9 (0.6)	1.4	100.0
Massachusetts	44.1 (2.0)	26.2 (1.7)	16.4 (1.3)	6.9 (0.9)	4.9 (0.7)	1.4	100.0
Michigan	61.7 (1.9)	15.5 (1.1)	9.9 (1.0)	7.8 (0.9)	3.8 (0.5)	1.4	100.0
Minnesota	57.0 (2.2)	19.5 (1.5)	10.9 (1.1)	7.1 (0.8)	4.5 (0.7)	1.0	100.0
Mississippi	71.3 (2.6)	14.4 (1.6)	5.1 (1.0)	3.9 (0.6)	2.8 (0.6)	2.5	100.0
Missouri	65.8 (1.9)	15.2 (1.3)	8.9 (1.0)	5.5 (0.7)	2.7 (0.5)	1.8	100.0
Montana	60.6 (2.9)	15.7 (1.5)	10.2 (1.5)	6.7 (1.2)	4.5 (0.8)	2.3	100.0
Nebraska	66.7 (2.6)	16.3 (1.6)	8.5 (1.1)	4.1 (0.8)	3.0 (0.6)	1.3	100.0
Nevada	67.0 (2.5)	19.3 (1.7)	6.5 (1.1)	2.4 (0.5)	2.8 (0.6)	2.1	100.0
New Hampshire	46.5 (2.1)	22.2 (1.8)	14.6 (1.8)	9.9 (1.5)	5.6 (0.9)	1.2	100.0
New Jersey	43.2 (2.1)	29.5 (1.6)	14.8 (1.2)	6.9 (0.8)	4.3 (0.6)	1.5	100.0
New Mexico	73.2 (2.4)	13.7 (1.5)	4.1 (0.9)	2.7 (0.7)	3.7 (0.7)	2.6	100.0
New York	43.9 (1.4)	24.1 (1.1)	16.9 (1.0)	7.1 (0.6)	6.0 (0.5)	2.0	100.0
North Carolina	60.7 (1.8)	18.7 (1.2)	9.4 (0.9)	5.7 (0.7)	3.8 (0.5)	1.6	100.0
North Dakota	61.2 (3.3)	17.8 (2.0)	12.7 (1.8)	4.5 (1.0)	2.6 (0.6)	1.1	100.0
Ohio	61.4 (1.8)	16.0 (1.1)	9.7 (0.9)	7.8 (0.8)	3.2 (0.5)	1.8	100.0
Oklahoma	73.5 (2.0)	13.9 (1.3)	5.6 (0.9)	3.3 (0.6)	2.2 (0.5)	1.5	100.0
Oregon	64.1 (2.3)	17.7 (1.5)	7.2 (1.0)	5.4 (0.8)	4.3 (0.7)	1.3	100.0
Pennsylvania	49.8 (1.5)	20.0 (1.2)	14.3 (1.1)	9.6 (0.8)	4.5 (0.5)	1.8	100.0
Rhode Island	49.2 (2.7)	22.1 (1.8)	13.6 (1.6)	9.1 (1.3)	4.9 (0.7)	1.2	100.0
South Carolina	58.7 (2.3)	18.2 (1.4)	9.5 (1.2)	7.7 (1.0)	4.0 (0.6)	1.8	100.0
South Dakota	67.5 (2.9)	11.8 (1.6)	9.3 (1.4)	4.5 (0.9)	4.1 (0.7)	2.8	100.0
Tennessee	64.6 (2.0)	16.1 (1.4)	7.1 (0.9)	6.3 (0.7)	3.5 (0.6)	2.4	100.0
Texas	69.9 (1.3)	17.4 (1.0)	5.7 (0.6)	3.3 (0.4)	2.0 (0.3)	1.7	100.0
Utah	72.2 (2.5)	14.7 (1.5)	8.2 (1.2)	1.8 (0.5)	1.9 (0.5)	1.2	100.0
Vermont	47.7 (2.2)	16.4 (1.8)	11.4 (1.6)	12.0 (1.6)	10.2 (1.4)	2.2	100.0
Virginia	53.3 (1.9)	22.6 (1.5)	10.8 (1.0)	7.7 (0.9)	4.3 (0.6)	1.3	100.0
Washington	63.0 (1.9)	18.7 (1.3)	9.1 (1.0)	4.6 (0.7)	3.2 (0.6)	1.4	100.0
West Virginia	59.8 (3.0)	13.3 (1.6)	8.7 (1.3)	10.9 (1.5)	4.6 (0.9)	2.7	100.0
Wisconsin	58.9 (2.0)	16.5 (1.4)	10.1 (1.1)	8.9 (0.9)	3.9 (0.6)	1.6	100.0
Wyoming	76.1 (2.5)	10.2 (1.2)	6.3 (1.3)	3.5 (0.8)	2.6 (0.6)	1.3	100.0

See notes on next page.



National Health Interview Survey Early Release Program

NOTES: Small-area statistical modeling techniques were used to combine National Health Interview Survey (NHIS) data collected from within specific geographies (states and some counties) with auxiliary data that are representative of those geographies to produce model-based estimates. Estimates for the 50 states and the District of Columbia were modeled using the procedures described in previous National Health Statistics Reports (e.g., <http://www.cdc.gov/nchs/data/nhsr/nhsr039.pdf>), with a few modifications.

- Models were based on three 12-month periods (2017-2019).
- LASSO regression models (least absolute shrinkage and selection operator) were used to select the best set of covariates for the models. Covariates for these adult models were allowed to differ from the covariates for models based on children.
- Potential covariates originally drawn from infoUSA.com were dropped in favor of additional covariates from the American Community Survey (ACS) on internet and smartphone use.
- ACS data (2017-2019) used as covariates corresponded to the same year as NHIS data. For example, data from the 2019 ACS were used as covariates in the model for direct estimates derived using data from the 2019 NHIS.
- The variances for the direct estimates were computed using in-house rather than publicly available sample design variables, and the reported standard errors were based on the variance of the estimate prior to benchmarking to national NHIS estimates for the corresponding phone category and modified state-level ACS estimates for the population without telephone service.

In 2019, the NHIS underwent a questionnaire redesign to better meet the needs of data users. Recent reports on wireless substitution (e.g., <https://www.cdc.gov/nchs/data/nhis/earlyrelease/wireless202009-508.pdf>) describe how the questions used to estimate telephone ownership have changed. Importantly, the NHIS now classifies telephone status for adults rather than households. Rather than asking family respondents whether “you or anyone in your family has a working cellular telephone,” the NHIS now asks the randomly selected adult respondents whether “you have a working cell phone.” Adult respondents who have a cell phone and live in households with a landline are also asked to consider “all the telephone calls that you answer” and to report whether “all or almost all [are] on your cell phones, some [are] on your cell phone and some on your home phone, or very few or none [are] on your cell phones.”

The modeled estimates reported here for 2019 are for adults aged 18 and over who are wireless-only, wireless-mostly, dual users, landline-mostly, and landline-only instead of adults aged 18 and over *living in households* that are wireless-only, wireless-mostly, dual-use, landline-mostly, or landline-only. However, even though the direct estimates used in the models for 2019 follow the person-level classification of telephone status, the direct estimates used in the models for 2017 and 2018 follow the household-level classification of telephone status.

The proportion of adults living in households with no telephone service (“phoneless adults”) was not modeled. Other proportions were adjusted so that this estimate agreed with a modified 2019 ACS estimate for this proportion. Beginning in 2017, the Census Bureau changed the way their ACS telephone service data are edited, resulting in a decrease in housing units with no telephone service. For the estimates reported here, the state-level ACS estimates were modified so that a national estimate derived from those modified state estimates would match the corresponding NHIS estimate for 2019. Similar to the ACS in 2017, the 2019 questionnaire redesign for the NHIS also resulted in a decrease in the percentage of adults living in households with no telephone service. Nevertheless, the state-level estimates reported here for phoneless adults will not perfectly match similar estimates reported by the Census Bureau.

Small-area statistical modeling assumes that the design-based estimates of variance are stable and that the direct estimates are unbiased. Users are therefore cautioned that the approach used to create the model-based estimates can produce substantially biased prevalence estimates and unstable variance estimates when the direct estimate from NHIS is based on small sample sizes, when that sample is drawn from only a few geographic areas, and when those few geographic areas are not representative of the state of interest.

SOURCES: NCHS, National Health Interview Survey, 2017–2019; and U.S. Census Bureau, American Community Survey, 2017–2019.

ACKNOWLEDGMENTS: Estimates were calculated by Nadarajasundaram Ganesh of NORC at the University of Chicago, in collaboration with Lin Liu of NORC and with staff of the National Center for Health Statistics, Division of Health Interview Statistics and Division of Research and Methodology.



National Health Interview Survey Early Release Program

Table 2. Modeled estimates (with standard errors) of the percent distribution of household telephone status for children under age 18, by state: United States, 2019

Geographic area	Wireless-only	Wireless and landline	Landline-only	No telephone service	Total
Alabama	79.0 (3.2)	19.1 (3.6)	0.6 (0.3)	1.3	100.0
Alaska	78.4 (2.9)	21.0 (3.2)	0.1 (0.1)	0.6	100.0
Arizona	79.8 (3.1)	18.4 (3.3)	0.3 (0.2)	1.5	100.0
Arkansas	83.7 (3.0)	14.2 (2.9)	0.3 (0.2)	1.8	100.0
California	70.5 (1.9)	28.1 (2.0)	0.5 (0.2)	1.0	100.0
Colorado	71.7 (3.2)	27.8 (3.5)	0.0 (0.0)	0.5	100.0
Connecticut	55.1 (3.8)	43.8 (4.3)	0.4 (0.3)	0.6	100.0
Delaware	61.1 (4.1)	37.8 (4.5)	0.1 (0.2)	1.0	100.0
District of Columbia	62.6 (5.2)	37.2 (5.6)	0.2 (0.2)	0.0	100.0
Florida	74.3 (2.5)	24.1 (2.7)	0.4 (0.2)	1.2	100.0
Georgia	73.3 (2.7)	24.5 (2.9)	1.2 (0.4)	1.0	100.0
Hawaii	68.1 (3.2)	31.1 (3.5)	0.0 (0.1)	0.8	100.0
Idaho	85.7 (3.0)	13.7 (3.4)	0.1 (0.2)	0.5	100.0
Illinois	71.9 (2.5)	27.4 (2.8)	0.1 (0.1)	0.6	100.0
Indiana	78.4 (2.8)	17.8 (2.9)	1.6 (0.5)	2.1	100.0
Iowa	78.1 (3.2)	20.7 (3.4)	0.5 (0.3)	0.7	100.0
Kansas	79.0 (3.2)	19.4 (3.5)	0.1 (0.2)	1.5	100.0
Kentucky	75.1 (3.4)	21.8 (3.5)	1.1 (0.5)	2.0	100.0
Louisiana	75.2 (3.3)	23.4 (3.8)	0.5 (0.3)	0.8	100.0
Maine	67.2 (4.7)	28.8 (4.9)	1.7 (0.7)	2.2	100.0
Maryland	53.5 (4.0)	45.3 (4.2)	0.3 (0.2)	0.8	100.0
Massachusetts	48.6 (3.5)	50.1 (3.9)	0.6 (0.3)	0.6	100.0
Michigan	75.1 (2.6)	23.5 (2.8)	0.3 (0.2)	1.1	100.0
Minnesota	67.9 (3.5)	30.6 (3.8)	0.8 (0.3)	0.7	100.0
Mississippi	87.0 (2.6)	12.5 (2.9)	0.0 (0.1)	0.4	100.0
Missouri	79.1 (2.5)	19.2 (2.8)	0.4 (0.2)	1.3	100.0
Montana	73.6 (3.8)	25.2 (4.3)	0.2 (0.2)	0.9	100.0
Nebraska	81.1 (3.1)	18.0 (3.0)	0.3 (0.2)	0.6	100.0
Nevada	71.3 (3.7)	27.3 (3.9)	0.5 (0.3)	1.0	100.0
New Hampshire	56.3 (4.1)	43.2 (4.2)	0.5 (0.3)	0.0	100.0
New Jersey	47.8 (3.3)	50.4 (3.6)	1.1 (0.4)	0.8	100.0
New Mexico	82.5 (2.8)	15.3 (3.2)	0.3 (0.3)	1.9	100.0
New York	52.2 (2.4)	44.3 (2.7)	1.9 (0.4)	1.6	100.0
North Carolina	72.0 (2.6)	26.7 (2.6)	0.7 (0.3)	0.7	100.0
North Dakota	68.2 (4.7)	30.9 (5.2)	0.0 (0.0)	0.9	100.0
Ohio	74.6 (2.8)	23.6 (3.0)	0.3 (0.2)	1.6	100.0
Oklahoma	83.1 (2.6)	15.8 (2.9)	0.0 (0.1)	1.0	100.0
Oregon	75.7 (3.5)	23.2 (3.5)	0.3 (0.2)	0.8	100.0
Pennsylvania	61.1 (2.7)	35.6 (2.8)	1.3 (0.4)	2.0	100.0
Rhode Island	66.4 (4.2)	33.2 (4.6)	0.1 (0.1)	0.3	100.0
South Carolina	68.8 (3.0)	29.7 (3.2)	0.4 (0.3)	1.0	100.0
South Dakota	73.0 (3.7)	21.4 (3.9)	1.8 (0.7)	3.9	100.0
Tennessee	74.0 (3.1)	23.7 (3.4)	0.4 (0.3)	1.8	100.0
Texas	78.8 (1.8)	20.0 (1.9)	0.3 (0.1)	0.8	100.0
Utah	78.6 (3.0)	20.8 (3.3)	0.0 (0.1)	0.6	100.0
Vermont	57.0 (3.9)	37.1 (4.2)	3.6 (1.1)	2.3	100.0
Virginia	65.4 (3.0)	33.6 (3.5)	0.4 (0.3)	0.6	100.0
Washington	68.6 (3.2)	30.3 (3.4)	0.3 (0.2)	0.8	100.0
West Virginia	73.4 (3.9)	24.0 (4.1)	1.1 (0.6)	1.6	100.0
Wisconsin	69.6 (3.2)	27.0 (3.5)	1.2 (0.4)	2.1	100.0
Wyoming	83.5 (2.6)	15.8 (2.8)	0.3 (0.3)	0.3	100.0

0.0 Quantity more than zero but less than 0.05.

See additional notes on next page.



National Health Interview Survey Early Release Program

NOTES: Small-area statistical modeling techniques were used to combine National Health Interview Survey (NHIS) data collected from within specific geographies (states and some counties) with auxiliary data that are representative of those geographies to produce model-based estimates. Estimates for the 50 states and the District of Columbia were modeled using the procedures described in previous National Health Statistics Reports (e.g., <http://www.cdc.gov/nchs/data/nhsr/nhsr039.pdf>), with a few modifications.

- Models were based on three 12-month periods (2017-2019).
- LASSO regression models (least absolute shrinkage and selection operator) were used to select the best set of covariates for the models. Covariates for these models based on children were allowed to differ from the covariates for models based on adults.
- Potential covariates originally drawn from infoUSA.com were dropped in favor of additional covariates from the American Community Survey (ACS) on internet and smartphone use.
- ACS data (2017-2019) used as covariates corresponded to the same year as NHIS data. For example, data from the 2019 ACS were used as covariates in the model for direct estimates derived using data from the 2019 NHIS.
- The variances for the direct estimates were computed using in-house rather than publicly available sample design variables, and the reported standard errors were based on the variance of the estimate prior to benchmarking to national NHIS estimates for the corresponding phone category and modified state-level ACS estimates for the population without telephone service.

In 2019, the NHIS underwent a questionnaire redesign to better meet the needs of data users. Recent reports on wireless substitution (e.g., <https://www.cdc.gov/nchs/data/nhis/earlyrelease/wireless202009-508.pdf>) describe how the questions used to estimate telephone ownership have changed. As before, respondents for the randomly selected children are asked if there is “at least one phone inside your home that is currently working and is not a cell phone” and if the child lives “with anyone who has a working cell phone.” Prior to 2019, the NHIS also included a question to identify wireless-mostly households based on the relative frequency of calls received on home phones and cell phones. As of 2019, this question was modified to ask only about the relative frequency of calls answered by the adult respondent. It is no longer possible to identify children living in wireless-mostly or landline-mostly households. Due to these changes, modeled estimates were derived for household telephone status using only three categories: wireless-only, both wireless and landline, and landline-only.

The proportion of children living in households with no telephone service was not modeled. Other proportions were adjusted so that this estimate agreed with a modified 2019 ACS estimate for this proportion. Beginning in 2017, the Census Bureau changed the way their ACS telephone service data are edited, resulting in a decrease in housing units with no telephone service. For the estimates reported here, the state-level ACS estimates were modified so that a national estimate derived from those modified state estimates would match the corresponding NHIS estimate for 2019. Similar to the ACS in 2017, the 2019 questionnaire redesign for the NHIS also resulted in a decrease in the percentage of children living in households with no telephone service. Nevertheless, the state-level estimates reported here for children living in households with no telephone service will not perfectly match similar estimates reported by the Census Bureau.

Small-area statistical modeling assumes that the design-based estimates of variance are stable and that the direct estimates are unbiased. Users are therefore cautioned that the approach used to create the model-based estimates can produce substantially biased prevalence estimates and unstable variance estimates when the direct estimate from NHIS is based on small sample sizes, when that sample is drawn from only a few geographic areas, and when those few geographic areas are not representative of the state of interest.

SOURCES: NCHS, National Health Interview Survey, 2017–2019; and U.S. Census Bureau, American Community Survey, 2017–2019.

ACKNOWLEDGMENTS: Estimates were calculated by Nadarajasundaram Ganesh of NORC at the University of Chicago, in collaboration with Lin Liu of NORC and with staff of the National Center for Health Statistics, Division of Health Interview Statistics and Division of Research and Methodology.