



## Technical Notes for Early Release of Selected Estimates Based on Data from the National Health Interview Survey

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### Technical Notes

All estimates presented are based on preliminary data files. The 2019–June 2020 estimates are being released prior to final data editing and final weighting to provide access to the most recent information from the National Health Interview Survey (NHIS). In the past, differences between estimates calculated using preliminary data files and final data files were typically less than 0.1 percentage point. In 2019, the NHIS underwent a questionnaire redesign to better meet the needs of data users. The aims of the redesign were to improve the measurement of covered health topics, reduce respondent burden by shortening the length of the questionnaire, harmonize overlapping content with other federal surveys, establish a long-term structure of ongoing and periodic topics, and incorporate advances in survey methodology and measurement. For more information about the redesigned NHIS visit the website at:

[https://www.cdc.gov/nchs/nhis/2019\\_quest\\_redesign.htm](https://www.cdc.gov/nchs/nhis/2019_quest_redesign.htm). Following the redesign, the original key health indicators published based on the 1997–2018 NHIS were reevaluated, and a new set was chosen.

The 18 measures include outcomes of health status (disability status, six or more workdays missed due to illness, injury, or disability in the past 12 months, asthma episode in the past 12 months, diagnosed hypertension in the past 12 months, regularly experienced chronic pain, regularly had feelings of worry, nervousness or anxiety, and regularly had feelings of depression); health care service use (doctor visit in the past 12 months, hospital emergency department visit in the past 12 months, counseled by a mental health professional in the past 12 months, dental exam or cleaning in the past 12 months, blood pressure check in the past 12 months, and receipt of influenza vaccination in the past 12 months); health care access (did not get needed medical care due to cost in the past 12 months, did not get needed mental health care due to cost in the past 12 months, and did not take medication as prescribed to reduce costs in the past 12 months); and health behaviors (current cigarette smoking and current electronic cigarette use). Additional indicators may be included in future releases based on changing public health surveillance need and data availability on the NHIS. Quarterly and full-year estimates based on data from the 2019 NHIS are presented for each selected health measure in tabular format in “[Early Release of Selected Estimates Based on Data From the January–December 2019 National Health Interview Survey](#).” Quarterly estimates are also available in the [NHIS Quarterly Release Tables](#) data query tool, and biannual estimates for 2019 are available in the [NHIS Biannual Release Tables](#) data query tool.

### Data source

Data used to produce this Early Release (ER) report are derived from the Sample Adult component from the 2019–June 2020 NHIS. NHIS is a nationally representative household survey conducted throughout the year to collect information on health status, health-related behaviors, and health care access and utilization. The NHIS interview begins by identifying everyone who usually lives or stays in the household. Then, one “sample adult” aged 18 years or older and one “sample child” aged 17 years or younger (if any children live in the household) are randomly selected. Information about the sample adult is collected from the sample adult him or herself unless he or she is physically or mentally unable to do so, in which case a knowledgeable proxy can answer for the sample adult. Data analysis was based on information collected on 32,391 sample adults in 2019 and 14,041 sample adults in January–June 2020. Visit the NHIS website at:

<https://www.cdc.gov/nchs/nhis.htm> for more information about the design, content, and use of NHIS.

### Estimation procedures

NCHS creates survey sampling weights to produce representative national estimates. The base weight is equal to the inverse of the probability of selection of the sample address. These weights are adjusted for

household and person-level nonresponse using multilevel models predictive of response propensity. Nonresponse-adjusted weights are further calibrated to U.S. Census Bureau population projections and American Community Survey one-year estimates for age, sex, race and ethnicity, educational attainment, Census division and Metropolitan Statistical Area status.

Point estimates and estimates of their variances were calculated using SUDAAN software (RTI International, Research Triangle Park, N.C.) to account for the complex sample design of NHIS, taking into account stratum and primary sampling unit (PSU) identifiers. The Taylor series linearization method was chosen for variance estimation.

All estimates shown meet the NCHS standards of reliability as specified in “National Center for Health Statistics Data Presentation Standards for Proportions” (1). All differences discussed are significant unless otherwise noted. Differences between percentages were evaluated using two-sided significance tests at the 0.05 level. 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.

### **Comparison of estimates to earlier years**

Changes in the weighting approach and the questionnaire design have the potential to impact direct comparisons between estimates for 2019–June 2020 and earlier years. A working paper entitled “Preliminary Evaluation of the Impact of the 2019 National Health Interview Survey Questionnaire Redesign and Weighting Adjustments on Early Release Program Estimates,” available from the [Early Release Program homepage](#), discusses these issues in greater detail for 15 of the 18 indicators included in this report (2). For the other three indicators, six or more workdays missed due to health, counseled by a mental health professional, and dental exam or cleaning, the changes to both the location and wording of the questions were so substantial that no comparison between 2018 and 2019 (and beyond) is recommended.

Preliminary analyses suggest that differences observed between estimates for 2018 and 2019 for the following 4 indicators may be partially attributable to changes in the NHIS questionnaire redesign: regularly experienced chronic pain; regularly had feelings of worry, nervousness, or anxiety; current electronic cigarette use; and did not get needed mental health care due to cost.

For 2 indicators, differences observed between estimates for 2018 and 2019 may be partially attributable to the updated weighting approach: disability status and current cigarette smoking.

For 1 of the indicators, differences observed between estimates for 2018 and 2019 may be partially attributable to both the NHIS questionnaire design and the updated weighting approach: did not get needed medical care due to cost.

For 6 indicators, neither the questionnaire redesign nor the updated weighting approach appeared to have an impact on the estimates: asthma episode; regularly had feelings of depression; did not take medication as prescribed to save money; hospital emergency department visit; influenza vaccination; and blood pressure check.

For an additional 2 indicators (diagnosed hypertension and doctor visit), neither the questionnaire nor the updated weighting approach had a statistically significant impact. However, the size of the observed impact was sufficiently large to conclude that questionnaire design effects may have slightly (but not significantly) attenuated or enhanced observed differences between 2018 and 2019. See the working paper for more detail.

Due to the COVID-19 pandemic, NHIS data collection switched to a telephone-only mode beginning March 19, 2020. While this change had little impact on Quarter 1 (January–March), there were lower response rates and differences in respondent characteristics for Quarter 2 (April–June). Comparisons of demographic distributions between Quarter 2 and Quarter 1 (and Quarter 2 of 2019) revealed that telephone-only data collection led to an over-representation of more affluent households, including a greater proportion of homeowners, among the participating sample. Though NHIS survey weights account for some of this change, differences observed in estimates between April–June 2020 and earlier time periods may be partially or fully attributable to these changes. More information can be found at: <https://www.cdc.gov/nchs/data/nhis/earlyrelease/nonresponse202102-508.pdf>.

### **Did not take medication as prescribed to reduce costs in the past 12 months**

Respondents who took prescription medication in the past 12 months were asked a series of questions about ways in which they may not have taken the medication as prescribed in order to save money. Estimates are based on a positive response to at least one question about skipping medication doses to save money, taking less medicine to save money, or delay filling a prescription to save money. Questions and response options related to this indicator can be found in the Appendix.

### **Disability status**

Disability is defined by the reported level of difficulty (no difficulty, some difficulty, a lot of difficulty, or cannot do at all) in six functioning domains: seeing (even if wearing glasses), hearing (even if wearing hearing aids), mobility (walking or climbing stairs), communication (understanding or being understood by others), cognition (remembering or concentrating), and self-care (such as washing all over or dressing). Sample adults who responded "a lot of difficulty" or "cannot do at all" to at least one question were considered to have a disability. Questions and response options for the six domains used to construct the disability status composite can be found in the Appendix.

### **Diagnosed hypertension**

Diagnosed hypertension is defined as report of hypertension or high blood pressure in the past 12 months or any medication use prescribed by a doctor for high blood pressure among adults. Questions and response options related to hypertension estimates can be found in the Appendix.

### **Influenza vaccination**

Receipt of a flu vaccination is defined by report of having received a vaccination in the past 12 months as opposed to during a flu season (see: <https://www.cdc.gov/flu/fluview>). Responses to the influenza vaccination question used to calculate the estimates presented cannot be used to determine when, during the preceding 12 months, the subject received the influenza vaccination. In addition, estimates are subject to recall error, which will vary depending on when the question is asked, because the receipt of an influenza vaccination is seasonal. Questions and response options related to influenza vaccination estimates can be found in the Appendix.

### **Regularly had feelings of depression**

Regularly had feelings of depression is defined as report of a) feeling depressed daily and describing the level of depression as "somewhere in between a little and a lot" or "a lot" or b) feeling depressed weekly and describing the level of depression as "a lot." Questions and response options related to depression estimates can be found in the Appendix.

### **Regularly had feelings of worry, nervousness, or anxiety**

Regularly had feelings of worry, nervousness, or anxiety is defined as report of a) feeling worried, nervous, or anxious daily and describing the level of those feelings as "somewhere in between a little and a lot" or "a lot" or b) feeling worried, nervous, or anxious weekly and describing the level of those feelings as "a lot." Questions and response options related to this indicator can be found in the Appendix.

### **Six or more workdays missed due to illness, injury or disability in the past 12 months**

Six or more workdays missed due to illness, injury, or disability in the past 12 months is defined as a report of six or more workdays missed due to illness, injury, or disability by adults who a) worked for pay in the week prior to the interview, b) had a job or business in the week prior to the interview, but were temporarily absent, c) had seasonal or contract work for at least a few days in the past 12 months, or d) worked at a job or business but not for pay for at least a few days in the past 12 months. Questions and response options related to estimates of the number of workdays missed can be found in the Appendix.

## **References**

1. Parker JD, Talih M, Malec DJ, et al. National Center for Health Statistics data presentation standards for proportions. National Center for Health Statistics. Vital Health Stat 2(175). 2017. Available from: [https://www.cdc.gov/nchs/data/series/sr\\_02/sr02\\_175.pdf](https://www.cdc.gov/nchs/data/series/sr_02/sr02_175.pdf).
2. Preliminary Evaluation of the Impact of the 2019 National Health Interview Survey Questionnaire Redesign and Weighting Adjustments on Early Release Program Estimates. 2020.

### **Suggested Citation**

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## Appendix. 2019 and 2020 National Health Interview Survey Questions Used to Define Selected Health Measures

Alphanumeric codes refer directly to the question(s) on the 2019–2020 National Health Interview Survey used to define the health measure.

### Asthma episode in the past 12 months

AST.0020 Have you ever been told by a doctor or other health professional that you had asthma?

- (1) Yes
- (2) No
- (7) Refused
- (9) Don't know

AST.0030 During the past 12 months, have you had an episode of asthma or an asthma attack?

- (1) Yes
- (2) No
- (7) Refused
- (9) Don't know

### Blood pressure check in the past 12 months (2019 only)

PRV.0010 When was the last time you had your blood pressure checked by a doctor, nurse, or other health professional?

- (0) Never
- (1) Within the past year (anytime less than 12 months ago)
- (2) Within the last 2 years (1 year but less than 2 years ago)
- (3) Within the last 3 years (2 years but less than 3 years ago)
- (4) Within the last 5 years (3 years but less than 5 years ago)
- (5) Within the last 10 years (5 years but less than 10 years ago)
- (6) 10 years ago or more
- (7) Refused
- (9) Don't know

### Counseled by a mental health professional in the past 12 months

MHC.0020 During the past 12 months, did you receive counseling or therapy from a mental health professional such as a psychiatrist, psychologist, psychiatric nurse, or clinical social worker?

- (1) Yes
- (2) No
- (7) Refused
- (9) Don't know

### Current cigarette smoking

CIG.0020 Have you smoked at least 100 cigarettes in your entire life?

- (1) Yes
- (2) No
- (7) Refused
- (9) Don't know

CIG.0030 Do you now smoke cigarettes every day, some days or not at all?

- (1) Every day
- (2) Some days
- (3) Not at all
- (7) Refused
- (9) Don't know

**Current electronic cigarette use**

CIG.0070 Have you used an e-cigarette or other electronic vaping product, even just one time, in your entire life?

- (1) Yes
- (2) No
- (7) Refused
- (9) Don't know

CIG.0080 Do you now use e-cigarettes or other electronic vaping products every day, some days, or not at all?

- (1) Every day
- (2) Some days
- (3) Not at all
- (7) Refused
- (9) Don't know

**Dental exam or cleaning in the past 12 months**

DNC.0020 About how long has it been since you last had a dental examination or cleaning?

- (0) Never
- (1) Within the past year (anytime less than 12 months ago)
- (2) Within the last 2 years (1 year but less than 2 years ago)
- (3) Within the last 3 years (2 years but less than 3 years ago)
- (4) Within the last 5 years (3 years but less than 5 years ago)
- (5) Within the last 10 years (5 years but less than 10 years ago)
- (6) 10 years ago or more
- (7) Refused
- (9) Don't know

**Did not get needed medical care due to cost in the past 12 months**

UTZ.0110 During the past 12 months, was there any time when needed medical care, but did not get it because of the cost?

- (1) Yes
- (2) No
- (7) Refused
- (9) Don't know

**Did not get needed mental health care due to cost in the past 12 months**

MHC.0050 During the past 12 months, was there any time when needed counseling or therapy from a mental health professional, but did not get it because of the cost?

- (1) Yes
- (2) No
- (7) Refused
- (9) Don't know

**Did not take medication as prescribed to reduce cost in the past 12 months**

PMD.0010 At any time in the past 12 months, did you take prescription medication?

- (1) Yes
- (2) No
- (7) Refused
- (9) Don't know

PMD.0020 During the past 12 months, were any of the following true for you? ...You skipped medication doses to save money?

- (1) Yes
- (2) No
- (7) Refused
- (9) Don't know

PMD.0030 During the past 12 months, were any of the following true for you? ...You took less medication to save money?

- (1) Yes
- (2) No
- (7) Refused
- (9) Don't know

PMD.0040 During the past 12 months, were any of the following true for you? ... You delayed filling a prescription to save money?

- (1) Yes
- (2) No
- (7) Refused
- (9) Don't know

**Disability status**

COG.0010 Do you have difficulty remembering or concentrating?

- (1) No difficulty
- (2) Some difficulty
- (3) A lot of difficulty
- (4) Cannot do at all
- (7) Refused
- (9) Don't know

COM.0010 Using your usual language, do you have difficulty communicating, for example, understanding or being understood?

- (1) No difficulty
- (2) Some difficulty
- (3) A lot of difficulty
- (4) Cannot do at all
- (7) Refused
- (9) Don't know

HEA.0030 Do you have difficulty hearing, even when using your hearing aid(s)? Would you say no difficulty, some difficulty, a lot of difficulty, or you cannot do this at all?

- (1) No difficulty
- (2) Some difficulty
- (3) A lot of difficulty
- (4) Cannot do at all
- (7) Refused
- (9) Don't know

MOB.0010 Do you have difficulty walking or climbing steps?

- (1) No difficulty
- (2) Some difficulty
- (3) A lot of difficulty
- (4) Cannot do at all
- (7) Refused
- (9) Don't know

UPP.0010 Do you have difficulty with self-care, such as washing all over or dressing? Would you say no difficulty, some difficulty, a lot of difficulty, or you cannot do this at all?

- (1) No difficulty
- (2) Some difficulty
- (3) A lot of difficulty
- (4) Cannot do at all
- (7) Refused
- (9) Don't know

VIS.0030 Do you have difficulty seeing, even when wearing glasses or contact lenses? Would you say no difficulty, some difficulty, a lot of difficulty, or you cannot do this at all?

- (1) No difficulty
- (2) Some difficulty
- (3) A lot of difficulty
- (4) Cannot do at all
- (7) Refused
- (9) Don't know

**Doctor visit in the past 12 months**

UTZ.0020 About how long has it been since you last saw a doctor or other health care professional about your health?

- (0) Never
- (1) Within the past year (anytime less than 12 months ago)
- (2) Within the last 2 years (1 year but less than 2 years ago)
- (3) Within the last 3 years (2 years but less than 3 years ago)
- (4) Within the last 5 years (3 years but less than 5 years ago)
- (5) Within the last 10 years (5 years but less than 10 years ago)
- (6) 10 years ago or more
- (7) Refused
- (9) Don't know

**Hospital emergency department visit in the past 12 months**

UTZ.0080      During the past 12 months, how many times have you gone to a hospital emergency room about your health?

- (00-96) Range of values
- (97) Refused
- (99) Don't know

**Diagnosed hypertension in the past 12 months**

HYP.0020      Have you ever been told by a doctor or other health professional that you had hypertension, also called high blood pressure?

- (1) Yes
- (2) No
- (7) Refused
- (9) Don't know

HYP.0030      Were you told on two or more different visits that you had hypertension or high blood pressure?

- (1) Yes
- (2) No
- (7) Refused
- (9) Don't know

HYP.0040      During the past 12 months, have you had hypertension or high blood pressure?

- (1) Yes
- (2) No
- (7) Refused
- (9) Don't know

HYP.0050      Are you now taking any medication prescribed by a doctor for your high blood pressure?

- (1) Yes
- (2) No
- (7) Refused
- (9) Don't know

**Receipt of influenza vaccination in the past 12 months**

IMS.0030      There are two types of flu vaccinations. One is a shot and the other is a spray, mist, or drop in the nose. During the past 12 months, have you had a flu vaccination?

- (1) Yes
- (2) No
- (7) Refused
- (9) Don't know

**Regularly experienced chronic pain**

PAI.0020 In the past three months, how often did you have pain? Would you say never, some days, most days, or every day?

- (1) Never
- (2) Some days
- (3) Most days
- (4) Every day
- (7) Refused
- (9) Don't know

**Regularly had feelings of depression**

DEP.0010 How often do you feel depressed? Would you say daily, weekly, monthly, a few times a year, or never?

- (1) Daily
- (2) Weekly
- (3) Monthly
- (4) A few times a year
- (5) Never
- (7) Refused
- (9) Don't know

DEP.0030 Thinking about the last time you felt depressed, how depressed did you feel? Would you say a little, a lot, or somewhere in between?

- (1) A little
- (2) A lot
- (3) Somewhere in between a little and a lot
- (7) Refused
- (9) Don't know

**Regularly had feelings of worry, nervousness, or anxiety**

ANX.0010 How often do you feel worried, nervous or anxious? Would you say daily, weekly, monthly, a few times a year, or never?

- (1) Daily
- (2) Weekly
- (3) Monthly
- (4) A few times a year
- (5) Never
- (7) Refused
- (9) Don't know

ANX.0030 Thinking about the last time you felt worried, nervous or anxious, how would you describe the level of these feelings? Would you say a little, a lot, or somewhere in between?

- (1) A little
- (2) A lot
- (3) Somewhere in between a little and a lot
- (7) Refused
- (9) Don't know

**Six or more workdays missed due to illness, injury, or disability in the past 12 months**

- EMP.0010 Last week, did you work for pay at a job or business?
- (1) Yes
  - (2) No
  - (7) Refused
  - (9) Don't know
- EMP.0020 Did you have a job or business last week, but were temporarily absent due to illness, vacation, family or maternity leave, or some other reason?
- (1) Yes
  - (2) No
  - (7) Refused
  - (9) Don't know
- EMP.0050 What is the main reason you were not working for pay at a job or business last week?
- (1) Unemployed, laid off, seasonal/contract work, looking for work
  - (2) Seasonal/contract work
  - (3) Retired
  - (4) Unable to work for health reasons/disabled
  - (5) Taking care of house or family
  - (6) Going to school
  - (7) Working at a job or business but not for pay
  - (8) Other
  - (97) Refused
  - (99) Don't Know
- EMP.0060 When was the last time you worked for pay at a job or business, even if only for a few days?
- (1) Within the past 12 months
  - (2) 1-5 years ago
  - (3) Over 5 years ago
  - (4) Never worked
  - (7) Refused
  - (9) Don't know
- EMP.0090 During the past 12 months, about how many days of work did you miss because of illness, injury or disability?
- (000-365) Range of values
  - (997) Refused
  - (999) Don't know