

Potential Impact of NHIS Redesign and COVID-19 on the Cancer Trends Progress Report

Data from the National Health Interview Survey (NHIS) and the Cancer Control Supplement to the NHIS have been used to produce trends for some [measures](#) related to cancer for the NCI's Cancer Trends Progress Report (CTPR).

In 2019, the NHIS questionnaire was redesigned to increase relevance, enhance data quality, and minimize respondent burden. The redesign revised the wording of some questions and answer choices, dropped some questions and added others. Some questions are now answered directly by the adult to which they refer, rather than a family member responding on behalf of all family members. A revised and updated method of adjusting sampling weights to account for nonresponse was also implemented for 2019 and forward.

The changes in the 2019 NHIS questionnaire redesign and weighting adjustment could break the trends for the CTPR measures described above. There are not sufficient data for a full evaluation on the impact of these changes. However, the National Center of Health Statistics (NCHS) conducted preliminary evaluation of the impact on 19 variables for their Early Release Program in 2020, using 5 sets of data from 2018 and 2019: 1) 2018 full year data with old weights; 2) 2018 Quarter 4 data with old weights; 3) 2018 Quarter 4 Bridge sample with redesigned questionnaire and old weights; 4) 2019 full-year data with old weights; and 5) 2019 full-year with new weights (National Center for Health Statistics, 2020). Among the 19 variables, adult current cigarette smoking and electronic cigarette use are included in the CTPR. The questions used for current smoking were the same between 2018 and 2019, but the questions used for electronic cigarette use changed slightly from 2018 to 2019. In 2018, there was a lengthy definition of the term 'e-cigarettes' before asking the questions, while the definition was removed in 2019. For adult current cigarette smoking, the NCHS' preliminary analysis indicated that questionnaire redesign was unlikely to have modified the estimates, however the changes in weighting slightly affected the estimates. Overall, the current smoking estimates for 2019 may have shifted upward by 0.5 percentage points due to methodological changes. For adult electronic cigarette use, the NCHS' preliminary analysis indicated that a questionnaire redesign effect was likely, however the changes in weighting didn't affect the estimates significantly. Overall estimates of electronic cigarette smoking for 2019 may have shifted upward by 1.1 percentage points due to methodological changes.

The main conclusion from the NCHS' preliminary evaluation is that any observed differences between 2018 and 2019 could be affected by the 2019 NHIS questionnaire redesign, the updated weighting approach, or both. However, while this could affect the ability to interpret trends, the net impact of the questionnaire changes and the weighting changes for the 19 variables examined was less than 2 percentage points (Table 3, National Center for Health Statistics, 2020). It is not known how large the impact is on other variables; although if the analysis of the 19 variables is any indication, the impact is generally small.

The COVID-19 pandemic created challenges conducting in-person interviews for the 2020 NHIS, requiring changes to field procedures. NHIS shifted from in-person to all-telephone interviewing because of the COVID-19 pandemic in March 2020, and then resumed in-person interviewing in July 2020 but continued to conduct the survey mostly by telephone through December 2020. We include the 2020 NHIS estimates in this report when available, but recommend not comparing the results to prior estimates or trends, since it is unclear how to separate the effects of the survey administration from true changes in the outcomes.

Reference

National Center for Health Statistics (2020). "Preliminary evaluation of the impact of the 2019 National Health Interview Survey questionnaire redesign and weighting adjustments on Early Release Program estimates" from <https://www.cdc.gov/nchs/data/nhis/earlyrelease/EReval202009-508.pdf>.