Using the National Health Interview Survey to Monitor the Early Effects of the Affordable Care Act[1]

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Abstract
The Patient Protection and Affordable Care Act (ACA) was signed into law in March 2010. It puts in place comprehensive health insurance reforms that will roll out over four years and beyond, with most changes taking place by 2014. Some changes have already begun. This paper describes how the National Health Interview Survey (NHIS), which is conducted by the National Center for Health Statistics (NCHS), is being used to monitor the population's health status, health insurance coverage, health care access, and health care utilization, which are all potentially affected by the ACA. The NHIS, which has been in the field since 1957, was already equipped with many relevant questions to yield data for that purpose. In addition, about 86 new specialized questions explicitly designed to yield enhanced information about changes potentially associated with the implementation of the ACA were added to the NHIS starting in 2010. Also, the NHIS sample size was increased starting in 2011 to enhance the precision of state-level estimates, which are important for monitoring changes in the health care system. Continued timely release of NHIS public use data will enable the public to perform its own analyses of the rich multivariate NHIS data.

Key Words: Affordable Care Act, National Health Interview Survey, National Center for Health Statistics

1. Introduction

The Patient Protection and Affordable Care Act (ACA), which became law in March 2010, institutes comprehensive health insurance reforms that will roll out over four years and beyond, with most changes taking place by 2014. This paper describes how data from the National Health Interview Survey (NHIS), which is one of the surveys conducted by the National Center for Health Statistics (NCHS), are being used to monitor the population's health insurance coverage, health care access, and health care utilization, which have all been potentially affected by the ACA since 2010. The NHIS, which has been in the field virtually continuously since 1957, has numerous ongoing questions in its core questionnaire that yield data relevant for such monitoring. In addition, about 86 new specialized questions explicitly designed to yield more information about changes that may be associated with the implementation of the ACA were added to the NHIS starting in 2010. Also, the NHIS sample size was increased selectively by state to increase the number of states for which sufficiently precise state-level estimates can be made, and special projects are being carried out to enhance the NHIS' ability to monitor changes related to modifications in the health care system.

[1] The findings and conclusions in this paper are those of the authors and do not necessarily represent the views of the National Center for Health Statistics, CDC.

2. About the National Health Interview Survey

The National Health Interview Survey is an in-person household survey of the non-institutionalized civilian population. Since 1997, NHIS interviewers have used Computer Assisted Personal Interviewing (CAPI) to conduct interviews. Interviewers who are unable to complete the entire NHIS interview in one visit to the household may sometimes complete the interview by telephone.

The National Center for Health Statistics, which is part of the Centers for Disease Control and Prevention and which is also the Federal Government's official health statistics agency, conducts the NHIS. Since the inception of the survey, the U.S. Census Bureau has been under contract with NCHS to field the survey. NHIS interviewers are thus employees of the Census Bureau.

In recent years, NCHS has released one year of NHIS microdata to the public every June, six months after the end of the January-December data year. Data files and extensive documentation are released on the NCHS website and are available without charge. Public use microdata are available online back to 1962.

Topics presently covered by the relatively stable core of the survey include health status, risk factors, health-related behaviors (such as use of tobacco and alcohol), health insurance coverage, health care access and utilization, and demographic and socio-economic information. In addition, supplemental questions on special topics are added to the NHIS questionnaire each year, sponsored by government agencies other than NCHS.

For example, NHIS supplements are used to monitor objectives of the Department of Health and Human Service's (DHHS') Healthy People program. Since 1995, more than 110 Healthy People objectives have been monitored using data from the NHIS, more than any other source. NHIS continues to be heavily used to monitor objectives for the updated Healthy People 2020 program (Dept. of Health and Human Services, 2012). Other sponsors of NHIS supplements include various institutes of the National Institutes of Health, SAMHSA, USDA, the Office of the Assistant Secretary for Planning and Evaluation in DHHS, and other CDC agencies.

The most recent extensive revision of the NHIS questionnaire was in 1997. Since then, the NHIS has collected data about all family members of all ages during the administration of the Family Component of the NHIS core questionnaire. Data are also collected about one randomly selected child (the "sample child") using the Sample Child Component, and from one randomly selected adult (the "sample adult") using the Sample Adult Component.

To improve precision of estimates for certain minority subpopulations, the NHIS has been oversampling black persons since 1985 and Hispanic persons since 1995. Also, since the NHIS sample was last redesigned in 2006, Asian persons have been oversampled, and the probability of selection as the sample adult has been increased for persons aged ≥65 who are Hispanic, black, or Asian. This oversampling (i.e., disproportionately increasing the number of persons in the sample from these minority groups) is accomplished by pre-selecting a group of households that will be interviewed only if, during a brief initial screening by the interviewer, it is determined that at least one civilian member of one of these minority groups resides in that household; if no such

minority person resides there, the interviewer terminates the questioning, and leaves the household.

For more information about the NHIS, see National Center for Health Statistics (2012a). For a list of NHIS supplements and their sponsors, see National Center for Health Statistics (2012b).

3. The large and increasing demand for state-level estimates

The NHIS was designed mainly to produce national estimates. However, the NHIS collects data in all 50 states and the District of Columbia, and the NHIS sample is designed so that NHIS data are representative of the target population at the state level as well as at the national level. Nevertheless, appreciable numbers of state-level NHIS sample sizes are normally too small for analysts to produce stable state-level estimates from a single year of data. Sometimes, satisfactorily precise state-level estimates can be produced by combining two or more adjacent years of data. The demand for state-level estimates is large and increasing. However, for confidentiality reasons, NCHS does not include any state identifiers on the NHIS public use files. Thus, when NHIS state sample sizes are sufficient for a particular state-level analysis, an NHIS data user from outside NCHS who wishes to perform that analysis must utilize the NCHS Research Data Center (RDC), which provides access to selected restricted NCHS data for analysis under strictly supervised conditions. Indeed, the vast majority of clients who use the NCHS RDC to analyze NHIS data do so in order to access state-level identifiers for their research projects. See National Center for Health Statistics (2012c) for more information about the NCHS RDC.

Analysis of state-level data is appropriate and desirable for studying the U.S. health care system because the U.S. health care system is largely administered at the state level. In particular, state-level data are valuable for monitoring the intended effects of policies affecting the health care system, because the manner in which such policies are implemented often varies from state to state.

4. Increasing state-level sample sizes on the 2011 and 2012 NHIS

Because of the need and demand for state-level analyses, NCHS increased NHIS sample sizes in selected states in recent years. Neither the largest states nor the smallest states were selected for sample size increases; the smallest states would have monopolized the available resources for increasing sample sizes, the largest states had less need for increased sample sizes. In particular, the increased sample sizes allowed analysts to make better use of health-care-system-related data from both the ongoing core NHIS questions and the new specialized NHIS questions.

Specifically, in the 2011 and 2012 NHIS, sample sizes were increased in 32 states and the District of Columbia. It was a challenge to identify addresses of additional households for interviewing while maintaining representativeness of the overall increased sample, not duplicating addresses already in the store of addresses to be used between the present and when a new sample design is implemented in about 2016, and not significantly depleting that store of addresses. That challenge was met in four different ways:

- Leftover unused listings of addresses to be interviewed were resurrected; these addresses had been planned for interviewing in previous years but had been set aside when sample sizes were reduced due to budget insufficiencies.
- Some set-aside, unused extra addresses were obtained at the Census Bureau and made available for use by the NHIS.
- Some addresses were co-opted from the store of addresses put aside for possible use for NHIS interviewing in 2016 or 2017 in case of postponement of the anticipated 2016 NHIS redesign.
- In some states, screening of households for members from target minority groups was discontinued; the interviews went ahead whether or not a target minority member was living in the household. This procedure reduced the proportion but not the number of those minority persons in the final interviewed sample, and it increased both the number and proportion of persons not in those minority groups. This was not our preferred way of increasing the NHIS sample, but it was very cost effective, given the large amount of interviewer time required to gain entrance to a household, and the representativeness of the sample was preserved.

As prescribed by the 2006 NHIS sample design, when the sample is neither cut nor augmented during a calendar year, it is expected that interviews will be completed in about 35,000 households, resulting in data for about 87,500 persons being on the subsequently released public use data files for that year. From a NHIS data set of that size, one-year estimates can be made of, for example, health insurance coverage rates for about 20 states.

This, for 2010, when the NHIS sample was neither cut nor augmented, the number of households on the public use files is 34,328, and the number of persons is 89,976. From these data files, one-year estimates can be made of health insurance coverage rates for about 20 states.

The expanded size of the 2011 public use files is 39,509 households containing 101,875 persons. From that data set, one-year estimates can be made of health insurance coverage rates for about 32 states.

It is estimated that the expanded size of the 2012 NHIS public use files will be 51,000 households containing 127,500 persons. From that data set, one-year estimates will be able to be made of health insurance coverage rates for about 41 states.

Current plans are for the 2013 NHIS sample sizes to be similarly expanded.

5. Some other projects for enhancing the NHIS' ability to monitor health-care-system-related changes

Besides increasing NHIS sample sizes and adding new NHIS questions, NCHS is conducting some special projects, as follows:

- Sample sizes will be increased not just in primary sampling units (PSUs) already in the NHIS sample design, but households in new PSUs will be added to the NHIS sample in selected states, thus improving the geographical coverage of those states.

- A pilot test will be conducted to expand the NHIS sample size not just by adding more in-person interviews, but also by adding shorter telephone interviews that will extend state sample sizes relatively cost effectively. A single set of addresses representing the target population will be used to determine which households receive in-person interviews and which households receive telephone interviews. Additional new questions will be asked to learn more about some of the topics covered by the 86 new specialized questions. For example, in addition to collecting a list of reasons why a person used the Emergency Room, the primary reason for using the Emergency room will be collected.
- A separate follow-up survey of persons who, in the 2012 NHIS, provided their email address and indicated the status of their Internet access will be conducted. Some of the 86 new specialized questions will be asked again, yielding data that can be used to calculate transition probabilities between at least two time periods. This will be a mixed-mode follow-up survey, using telephone and Internet.

6. Selected health-care-system-related NHIS publications

Besides producing annual public use NHIS data files, NCHS staff members have an ongoing program for analyzing NCHS data, writing reports and journal articles, and presenting research results. Information about selected health-care-system-related publications by NCHS staff is provided below.

- The NHIS Early Release Program produces a quarterly report on 15 key health indicators, a detailed quarterly report on health insurance coverage, three quarterly microdata files that are available through the NCHS Research Data center before the public use microdata files are released annually, and special reports and tabulations. See National Center for Health Statistics (2012d) for more information about the Early Release Program and its products.
- Health Insurance Coverage: Early Release of Estimates From the National Health Interview Survey, January-March 2011, by Cohen & Martinez, released Sept. 2011:

  "Among adults aged 19–25, the percentage uninsured at the time of interview decreased from 33.9% (10 million) in 2010 to 30.4% (9.1 million) in the first 3 months of 2011."
- Health Insurance Coverage: Early Release of Estimates From the National Health Interview Survey, January-June 2011, by Martinez & Cohen, released Dec. 2011:

  "Among adults *aged 19–25, the percentage uninsured at the time of interview decreased from 33.9% (10 million) in 2010 to 28.8% (8.7 million) in the first 6 months of 2011."*
- Health Insurance Coverage: Early Release of Estimates From the National Health Interview Survey, January-September 2011, by Martinez & Cohen, released March 2012:

  Among adults aged 19–25, the percentage uninsured at the time of interview decreased from 33.9% (10 million) in 2010 to 28.7% (8.6 million) in the first 9 months of 2011."

"Among adults aged 19–25, 55.5% were covered by a private plan in the first 9 months of 2011, an increase from 2010 (51.0%)."

- Four new special reports from on health care access and utilization, by Gindi, Cohen, and Kirzinger:
  - Financial Burden of Medical Care: Jan.-June 2011 [insert citation]
  - Emergency Room Use Among Adults Aged 18–64: Jan.-June 2011 [insert citation]
  - Health Care Access and Utilization Among Young Adults Aged 19–25: Jan.-Sept. 2011 [insert citation]
  - Medication Cost Avoidance: 2011(in preparation)

7. Concluding remarks

The projects described above present numerous complex challenges. As mentioned above, new sources of addresses need to be identified and developed, and methods for incorporating new addresses into the old 2006 sample design while preserving representativeness of the target population are being developed. As the previously-mentioned sources of new addresses become depleted, NCHS will use the United States Post Office's Delivery Sequence File and/or commercially available address listings to provide more addresses. The effects of introducing additional address sources and additional interviewing modes (telephone and Internet) to an in-person survey will need to be evaluated so that appropriate survey weights can be developed and instructions for analyzing the additionally complex data can be written.

In addition to these survey methodological challenges, an abbreviated NHIS questionnaire will need to be developed for use in telephone interviewing, because in general effective telephone interviews are usually considerably shorter in duration than effective in-person interviews. A questionnaire suitable for Internet use will also need to be developed.

Another challenge is the uncertainty of funding for the NHIS. Federal Government budgets can vary appreciably from year to year and are usually not finalized until well into the fiscal year. However, making substantial changes to the NHIS requires extensive pre-planning and early commitments to expenditures. For example, to expand the NHIS sample, new interviewers must be hired and trained well before they go into the field. Planning and carrying out the extensive and expensive additions to the 2011-2013 NHIS has required large amounts of ingenuity and good luck.

Besides providing new data and analyses about changes potentially associated with the implementation of the ACA, the projects described above will have valuable secondary benefits. The NHIS staff will gain experience in telephone surveying, Internet surveying, use of multiple survey modes, and use of new address sources; this experience will be of great use as preparations are under way for the 2016 NHIS redesign, in which plans are for the NHIS to use new address sources and additional survey modes besides in-person interviewing.

8. References

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