Innovations in Health Insurance Data Collection and Measurement Across Federal Surveys

Steven B. Cohen[1]
[1] RTI International, P.O. Box 12194, Research Triangle Park, NC 27709-2194

Abstract
Health insurance coverage helps facilitate timely access to medical care and protects against the risk of expensive and unanticipated medical events. Comprehensive data on insurance coverage are essential to the identification of strategies to improve access, foster appropriate use, and reduce unnecessary expenditures. This paper provides a discussion on recent health insurance data collection and measurement iinnovations that have been implemented across several federal surveys. Attention is given to the impact of these innovations on improvements in the resultant quality of the health insurance coverage survey estimates attributable to these efforts. The public sector relies upon these essential data resources to inform health policies and practices, to assess proposed changes in government health insurance programs. In particular, this includes evaluating the impact of the Affordable Care Act (ACA) enacted with major provisions to expand health insurance coverage, control health care costs, and improve the health care delivery system.

Key Words: Health Insurance; MEPS; NHIS: CPS: Medical Price Indexes.

1. Introduction

Health insurance coverage helps facilitate timely access to medical care and protects against the risk of expensive and unanticipated medical events. Comprehensive data on insurance coverage are essential to the identification of strategies to improve access, foster appropriate use, and reduce unnecessary expenditures. This paper provides a discussion on recent health insurance data collection and measurement innovations that have been implemented across several federal surveys. Attention is given to the impact of these innovations on improvements in the resultant quality of the health insurance coverage survey estimates attributable to these efforts. The public sector relies upon these essential data resources to inform health policies and practices, to assess proposed changes in government health insurance programs.

Several of these health insurance data collection and measurement innovations in federal surveys were featured in a session at the recent Federal Committee on Statistical Methodology Research and Policy Conference sponsored by the Council of Professional Associations on Federal Statistics (COPAFS). More specifically, attention was directed towards enhancements to improve the quality of health insurance related estimates and data in the following surveys and indexes: the Medical Expenditure Panel Survey (MEPS) sponsored by the Agency

for Healthcare Research and Quality (AHRQ): the National Health Interview Survey (NHIS) sponsored by the National Center for Health Statistics (NCHS/CDC); the Current Population Survey (CPS) sponsored jointly by the U.S. Census Bureau and the U.S. Bureau of Labor Statistics (BLS); and the use of insurance claims data in the medical price indexes by the Bureau of Labor Statistics (BLS).

2. Inclusion of An Insurance Verification Question in the Medical Expenditure Panel Survey

Initiated in 1996, the MEPS was designed as an ongoing survey to permit annual estimates of health care utilization, expenditures, insurance coverage, and sources of payment for the U.S. civilian noninstitutionalized population. The MEPS survey, sponsored by AHRQ, is unique in the level of detail of information obtained on the health care services used by Americans at the household level and their associated expenditures (for families and individuals); the cost, scope, and breadth of private health insurance coverage held by and available to the U.S. population; and the specific services purchased through out-of-pocket and/or third-party payments.

Attention has recently been given by Paul Jacobs and Patricia Keenan at AHRQ to assess the improvements to the accuracy MEPS estimates of the uninsured as a consequence of the inclusion of a coverage verification question in the survey. Several other federally sponsored household surveys currently include a health insurance verification question, among them, the National Health Interview Survey (NHIS) and Current Population Survey (CPS). It should also be noted the one of DHHS Data Council Health Insurance Workgroup Recommendations called for the inclusion of an insurance verification question in the MEPS:

We recommend that the MEPS add probes to the 2018 MEPS questionnaire for individuals to verify insurance coverage and lack of coverage

AHRQ followed the recommendation and added the coverage verification question in MEPS beginning in 2018 and administered after the initial health insurance questions. The wording of the coverage verification question was in general alignment with CPS insurance questions. An analysis of MEPS coverage estimates in 2019 revealed the following results. Based on the 2019 MEPS report during the main interview, 12.1 percent of the U.S. population did not report having health insurance coverage before the inclusion of the verification question. An additional 3.5 percent of the population were then determined to have coverage as a consequence of the inclusion of the verification module. The reduction in national estimates of the uninsured was determined to be significant, dropping from 12.1percent to 8.6 percent uninsured as a consequence of this innovation (Jacobs and Keenan, 2021). The AHRQ investigation also compared additional percentages reporting insurance coverage through inclusion of MEPS verification question by demographics, health spending, and family arrangements,

and by sources of coverage. The most visible shifts toward insured coverage status occurred for:

- those without annual health expenditures
- extended family members (e.g., grandchild, sibling)
- ESI policyholders living outside household, or ESI not obtained from main job
- non-Hispanic individuals, other race
- Individuals without post-secondary educational degrees.

Verification-based coverage status in MEPS also contributed to a substantial representation of those with Marketplace coverage.

3. Improving Measurement of VA Health Coverage Among Military Veterans in the National Health Interview Survey

The National Health Interview Survey (NHIS), an ongoing annual household survey sponsored by NCHS/CDC to obtain national estimates of health care utilization, health conditions, health status, insurance coverage, and access to care. Since 1997, the content and flow of the health insurance section has remained relatively stable, incorporating new programs where necessary. Since 2011, questions on relationships to policyholders, coverage of individuals outside of the household, and changes in coverage have been added to the NHIS instruments to consider the passage of the Affordable Care Act.

Recent improvements to the NHIS have focused on the measurement of VA health coverage among military veterans. In terms of background, in 2017, the United States Department of Veterans Affairs (VA) estimated that 8.8 million were enrolled in VA Health Care. Alternatively, NHIS estimates of those enrolled in VA Health Care was substantially lower, at 3.5 million. A potential solution to address this disparity was the inclusion of a probe in the NHIS for Veterans who did not indicate their VA coverage in the NHIS health insurance section. The question wording follows:

Have you/has {person} ever used or enrolled in VA Health Care?

Robin A. Cohen and Carla E. Zelaya at NCHS then conducted an impact assessment to evaluate the extent of the changes in coverage estimates with the inclusion of the VA coverage probe in the 2018 NHIS. Study results revealed the use of the probe question was successful in identifying more VA coverage among Veterans (Cohen and Zayala, 2021). Based on the 2018 NHIS estimates during the main interview, only 3.7 percent of the population reported enrollment in VA coverage. An additional 5.1 percent of the population were then determined to have VA coverage as a consequence of the inclusion of the probe. The NHIS estimates of enrollment in VA coverage at 8.8 million were now in alignment with estimates obtained from the Department of Veterans Affairs. Analytical results also indicated improved reporting of VA coverage via the probe by those

with other public or private coverage; the employed; married participants, those in fair or poor health status, and with proxy respondents. It should also be noted that MEPS will also benefit by these improvements for this measure given its linkage to NHIS.

4. Improvements on Estimates Health Insurance Coverage in the CPS ASEC

The Current Population Survey (CPS), sponsored jointly by the U.S. Census Bureau and the U.S. Bureau of Labor Statistics (BLS), is the primary source of labor force statistics for the population of the United States. The Annual Social and Economic Supplement (ASEC) of the Current Population Survey (CPS), is the source of timely official national estimates of poverty levels and rates and of widely used measures of income.
The CPS ASE was recently redesigned to capture emerging coverage types brought about by changes in the health insurance environment (e.g., ACA and the Marketplace); to address higher rates of uninsurance relative to other surveys; to address documented Medicaid undercount and higher direct purchase nongroup coverage and overestimates of multiple coverage. Improvements to the Current Population Survey Annual Social and Economic Supplement followed a two-stage redesign: questionnaire redesign and processing system redesign. More specifically, the processing system was redesigned to make use of sub-annual coverage information by type and across people within a unit.

Laryssa Mykyta, Amy Steinweg, and Katherine Keisler-Starkey at the U.S. Census Bureau then evaluated the impact of these design modifications on survey coverage estimates. Their findings revealed a reduction in uninsured rate from the survey with updated processing system relative to legacy processing system; a reduction in multiple coverage; and that imputed cases more likely to mirror coverage of non-imputed cases (Mykyta et al., 2021). Future research efforts are to be focused on determining the relative contribution of specific processing steps on health coverage estimates: Preprocessing; Health Insurance Units (HIUs); item and unit imputations; and income imputations.

5. Using Insurance Claims Data in the Medical Price Indexes

Current Medical Pricing methodology is dependent on household survey (CES) and medical provider data. The quality of the current pricing approach is impacted by declining household survey response rates, declining cooperation by medical providers, rising costs for data retrieval, and representational concerns. Claims data have been utilized in the past to create price and expenditure indexes using MarketScan data and to construct disease-based expenditure indexes in the BEA Healthcare Satellite Account in concert with MEPS data.

Daniel Wang, John Bieler, Brian Parker, Caleb Cho, and Brett Matsumoto at BLS

conducted a two-phased evaluation of the viability and utility of the use of medical claims data in the quantification of medical price indexes. The evaluation compared the revised estimates with CPI based results and a benchmark for the same time period: based on the Phase II data from a medical claims data aggregator for all CPI areas. The all-payer index was developed by combining insurance data with CPI cash and Medicare prices (Wang et al., 2021).

The linkage of data resources employed in this effort is characteristic of a data integration effort. Data integration is a process in which related and supplemental data from multiple sources are connected into a unified structure. The resulting integrated data resource serves as a platform to enhance analytic efforts. The data integration model facilitates greater analytic utility for each of the component data sets as a consequence of their "connectivity." Data integration is often implemented in a data warehouse or data enclave setting to ensure the extraction, linkage, and structure of the combined data resources are presented in a unified manner, while also serving to protect confidentiality. Study findings appear to support the use of claims data in quantification of the medical price indexes. Future efforts include full scale implementation with continued attention to ongoing evaluations of accuracy.

6. Concluding Remarks

All the presentations discussed in this paper are illustrative of ongoing efforts to help address these ongoing challenges confronting the federal statistical system to improve the quality and utility national health insurance coverage estimates. Timely, accurate, and relevant data on health insurance coverage are essential inputs to evidence-based decision-making and policy formulation. Ensuring the data are appropriate, accurate, objective, accessible, useful, understandable, and timely continue to serve as attributes that warrant continued attention and prioritization. These efforts are clearly in alignment with the Federal Data Strategy to advance the principles and best practices in implementing data innovations that drive more value for the public. In the regard, enhancing the quality of health insurance data and measurement has also been a priority for Department of Health and Human Services (DHHS) Data Council. Several of the innovations addressed in this paper were stimulated by a DHHS Data Council Workgroup that conducted and evaluation of the existing capacity, content, comparability, and alignment of federal health insurance coverage estimates. These efforts by AHRQ, NCHS, BLS and the Census Bureau reflect ongoing federal efforts to further enhance the quality of health insurance coverage estimates. They are illustrative of the benefits associated with the provision of support for research initiatives that serve to advance data quality, data integrity and advance innovations.

7. Acknowledgements

Special acknowledgements go to Paul Jacobs and Patricia Keenan at AHRQ; Robin A. Cohen and Carla E. Zelaya at NCHS; Laryssa Mykyta, Amy Steinweg, and Katherine Keisler-Starkey at the U.S. Census Bureau; and Daniel Wang, John Bieler, Brian Parker, Caleb Cho, and Brett Matsumoto at BLS for their informative research findings. These research efforts significantly benefitted by the visibility given via presentations at the recent Federal Committee on Statistical Methodology Research and Policy Conference sponsored by the Council of Professional Associations on Federal Statistics (COPAFS).

8. References

Cohen, R.A., Zelaya, C. (2021). Improving Measurement of VA Health Coverage among Military Veterans on the National Health Interview Survey. Federal Committee on Statistical Methodology (FCSM) Research and Policy Conference, Washington, DC.

Cohen, S. B., & Cohen, J. W. et al.(2019). Health insurance coverage estimates: An evaluation of existing capacity, content, comparability, and alignment. Department of Health and Human Services Data Council Report. https://meps.ahrq.gov/data_files/publications/workingpapers/wp_19001.pdf

Cohen SB, Cohen JW (2013). The Capacity of the Medical Expenditure Panel Survey to Inform the Affordable Care Act. Inquiry. 2013;50(2),124–134. http://dx.doi.org/10.1177/0046958013513678

Jacobs, P,, Keenan, P. (2021). Two times a charm? Verifying Reports of Uninsurance in a National Survey. Federal Committee on Statistical Methodology (FCSM) Research and Policy Conference, Washington, DC.

Mykyta, L., Steinweg, A., Keisler-Starkey, K. (2021). Decomposing Data Processing Improvements on Estimates Health Insurance Coverage in the Current Population Survey Annual Social and Economic Supplement (CPS ASEC). Federal Committee on Statistical Methodology (FCSM) Research and Policy Conference, Washington, DC.

National Academies of Sciences, Engineering, and Medicine. 2017. Federal Statistics, Multiple Data Sources, and Privacy Protection: Next Steps. Washington, DC: The National Academies Press. https://doi.org/10.17226/24893

Rhoades, J. and Cohen, S. The Long-Term Uninsured in America, 2009–2012 (Selected Intervals): Estimates for the U.S. Civilian Noninstitutionalized Population under Age 65. Statistical Brief #464. December 2014. Agency for

Healthcare Research and Quality, Rockville, MD. http://www.meps.ahrq.gov/mepsweb/data_files/publications/st464/stat464.pdf

Vistnes, J. and Cohen, S. Transitions in Health Insurance Coverage Over Time, 2012–2014 (Selected Intervals): Estimates for the U.S. Civilian Noninstitutionalized Adult Population under Age 65. Statistical Brief #467. February 2015. Agency for Healthcare Research and Quality, Rockville, MD. http://www.meps.ahrq.gov/mepsweb/data_files/publications/st467/stat467.pdf

Wang, D. , Bieler, J. Parker, B., Cho, C., Matsumoto, B. (2021). Using Insurance Claims Data in the Medical Price Indexes. Federal Committee on Statistical Methodology (FCSM) Research and Policy Conference, Washington, DC.