

Using the National Health Interview Survey for Policy Research on Health Insurance

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Abstract

Over the past decade, the NHIS has been an important source of data for estimates of insurance coverage and evaluations of policy initiatives affecting eligibility and takeup of public insurance, and offers of, and enrollment in private group plans. The NHIS permits a focus on population subgroups defined by health status, and examination of links between insurance and access to care and healthcare service use. With its commitment to provide early estimates, rapid public release of microdata, and flexibility in questionnaire design to capture new policy initiatives such as Medicare Part D, NCHS has positioned the NHIS to be a critical resource for evaluation of future policy initiatives. Examples from the literature will be used to illustrate the role played by the NHIS. Preliminary estimates of Medicare Part D are presented. Future information needs and the role of the NHIS as a key resource for researchers are discussed.

KEY WORDS: insurance, policy, household survey

1. Introduction

Over the past twenty years there have been dramatic changes in federal and state policy designed to affect health insurance availability, organization, financing, and quality. Beginning with Omnibus Budget Reconciliation Act of 1989 and continuing through passage of the Balanced Budget Act of 1997, there have been a variety of expansions of public insurance coverage for low income children. This expansion of public insurance benefits incorporated work disabled and elderly adults with passage of the Medicare Modernization Act in 2003 and implementation of Part D drug coverage in January 2006. In addition, there has been adoption of private insurance market reforms designed to influence access to private insurance, and widespread adoption of managed care in both the public and private sector. More recent initiatives include “Consumer directed” health programs, and efforts to improve quality of care through monitoring and payment incentives. Because the implementation of these initiatives always comes with some uncertainty as to effects, as well as some spending implications, there is an ongoing need to assess, plan, simulate, and evaluate these policies.

1.1 The unique role of household surveys

Household surveys have unique role in policy evaluation and research. In the ideal world, rigorous policy evaluations would be designed prior to implementation, and would collect needed data on intervention and control groups. In the real world, policies and politics interact – often resulting in delayed or rushed adoption of policies, leaving little time for planning the ideal evaluation. In addition, policies are generally implemented universally, under the assumption that it would be inequitable to implement a new program selectively, let alone to a randomly assigned treatment group. Household surveys, particularly when they are fielded routinely, as is the NHIS, and when they include content that is relevant for the policy to be evaluated, provide a useful resource. They can be used to assess need for a policy, simulate the likely effect of a proposed policy, and to evaluate the effects of policies already implemented. The potential uses of household survey data can be contrasted with the purposes of administrative (enrollment or claims) data, in that it is possible to examine those who *do not* participate in a program, and to examine unintended effects on the target, and other populations.

There is no one household survey that can provide information on all of the dimensions that might be relevant to evaluate policy initiatives related to health insurance. Some of the components that are critical include insurance coverage by type, measured both at the current time, but also capturing whether full year, and any transitions over time. The source of coverage, how it is paid for, the premium amount and enrollee contribution, and scope of coverage for selected services are important. In the researchers’ wish list, one would also include information on what coverage options are available – what other plans were offered but not selected, and whether the person was eligible for public insurance programs. There is a long list of potential health care access, use, and health status outcomes, and each study could demand a different list of measures. In addition, the survey should have sufficient size to make subpopulation or state specific estimates.

The NHIS incorporates many but not all of these measures and attributes, but other household surveys can and have been used to analyze the effects of health insurance policies. Among the federally funded surveys

are the Current Population Survey (CPS), the Medical Expenditure Panel Survey (MEPS), the Survey of Income & Program Participation (SIPP), the Health & Retirement Study (HRS), the Medicare Current Beneficiary Survey (MCBS), the SLAITS Surveys – National Surveys of Children with Special Health Care Needs and the National Survey of Children’s Health (NSCH), and the Behavioral Risk Factor Surveillance System (BRFSS). Various foundations have funded large household surveys, in particular the National Survey of America’s Families (NSAF) (1997-2002), and the Community Tracking Survey (CTS) (1996-2003). Each survey has its strengths and weaknesses.

2. The NHIS collects data on a broad array of topics relevant to coverage policy

The NHIS provides extensive information on insurance coverage. Among the measures are current coverage by type, and if the person is currently insured, where they ever uninsured during year, the length of time, and the reason. The NHIS does not capture transitions between types of insurance during the year, so it is not possible to track a switch between different types of insurance. The NHIS collects data on private medical plan source, plan type, policy holder, who pays, and family premium contribution for up to 4 plans. In addition there are measures as to whether the plan covers prescription drugs, with periodic questions concerning dental coverage. Coverage with single service plans is also captured.

The presence of an offer of insurance from an employer is asked of all workers on the NHIS, but there is no information on health plans offered but not taken. The plan information also includes elements of managed care. In the public sector there are questions about care management features, such as the need to choose a provider from a list. On the private side, there is an assignment of the plan to HMO, PPO, POS, or FFS type.

Decisions about the content of insurance questions asked on the NHIS have tried to balance the need for continuity over time, with the need to capture policy changes and market initiatives as they occur. Since the redesign of the survey in 1996, and with increasing emphasis since the early 2000’s, a number of refinements have been made and new questions added to enhance the value of insurance information available for policy research. For example, the following changes have been made (or are planned):

- SCHIP enrollment question added (1999);
- Information collected on single service plans when reported (1999)
- Respondents asked about single service plans (2004)
- Information collected on prescription drug coverage for private insurance (2004)

- Added question on Medicare drug discount card (2004)
- Collected additional information about Medicare + Choice (Advantage) plans (2000)
- Added question about Part D enrollment (2006)
- Added question about high deductible health plans, health savings accounts (2007)
- Expecting to add questions about dental coverage within private plans (2008)

In addition to collecting new information, the sponsoring agency, the National Center for Health Statistics (NCHS) provides access to the data in a timely manner. Through the early release program, quarterly updates of insurance estimates are produced within six months of data collection. More important, public use files are available six months after close of calendar year. These data files are available from the NCHS website, with excellent documentation, and formatting that is consistent from year to year.

In addition to fairly extensive information on health insurance coverage, there are other domains where the NHIS captures a broad range of information, such as health status, access to care, and use of selected types of services. This broad range of information enhances the utility of the NHIS as a resource for person level analyses that focus on health status, health behaviors, or subgroups with selected health problems. The range of health status information includes self reported general health status, limitations of activity/disability, conditions that cause limitations, injuries, and poisoning, specific medical conditions, child behavior (Mental Health Index, Strengths and Difficulties Questionnaire), health behaviors, and change in general health status from prior year. Each year there are special supplemental questions that explore a specific topic in depth. The NHIS also includes broad array of potential health related access and use outcomes. Information is collected to capture the presence of a usual source of care, and whether there is perceived unmet need for medical, dental, prescription drugs, mental health, or vision care. In addition, there are questions concerning use of services in the past 12 months, such as immunizations, hospital stays, emergency department visits, and visits to selected provider types. Supplements gather targeted preventive behavior, screening, diagnoses, and services. Finally, questions are asked about family out-of-pocket spending. It should be noted that the MEPS and MCBS have much greater detail than the NHIS in the reported utilization and spending data, making them more appropriate for certain types of analyses.

Key policy-relevant characteristics are reported on the NHIS, both demographics and participation in other public programs. Demographics include the

standards: Age, race, ethnicity, gender, origin, region, urbanicity, as well as socioeconomic characteristics such as education, employment, other sources of income. There are indicators for receipt of transfer income such as SSDI, SSI, and TANF, and participation in programs such as WIC or subsidized housing. Information is collected about worker earnings and family income, although the questions lack the detail available in a survey such as the CPS.

3. The NHIS supports many different research designs

The NHIS is an ongoing survey, with public use files created on an annual basis. The data are cross sectional so can be used for descriptive analyses, both bivariate and multivariate that adjust for a variety of sample characteristics. With cross sectional data it is difficult to assign causality. Furthermore, observational data are subject to various problems with selection. To address these issues, researchers have used propensity score or IV techniques. With the breadth of content areas in the NHIS, it is likely that appropriate instruments can be identified within the data. Alternatively researchers have linked external data to the NHIS for use as instruments.

The ability to pool multiple years of NHIS data provides additional flexibility. Pooled cross sectional data can be used for aggregate trend analyses. In addition, they can support a pre-post comparison (for discrete policy changes) or multi-year pooled cross-sectional analyses can examine the effects of policies that evolve over time. Difference-in-difference analyses have been employed, with either an explicit comparison group, or taking advantage of both geographic and time variation in policy implementation.

There is one way that NHIS data can be used in a panel. The NHIS is used as the sample frame for the MEPS, which is itself a two year panel survey. Files that link the NHIS and MEPS observations are available, creating a three year panel. Using this, it would be possible observe individual transitions in insurance or health status in response to policy changes.

4. The question of state estimates.

Because so much insurance policy happens at the state level, being able to link state policies to the NHIS, and to generate state specific estimates is important. State and county indicators can be accessed for purposes of linking policy, but only through Research Data Center at NCHS. With respect to state specific estimates, the NHIS collects data from primary sampling units in all states. The annual sample size is adequate to generate state specific estimates for the 20 largest states, although available sample may depend on whether one is

examining a population subgroup; for the smaller states one can pool multiple years of data. The sampling weights are set to meet national control totals. Researchers can readjust weights to match state specific demographic control totals.

5. Examples of policy research on insurance coverage using the NHIS

A quick PubMed search generates a large number of NHIS studies that examine a variety of aspects of insurance coverage. Many studies are descriptive and use measures readily available on the NHIS. For example, there are a number of studies describing patterns of insurance coverage. Other studies examine associations between insurance coverage and use of specific services. A few examples of this latter group focus on:

- Specialist visits for children (Kuhlthau et al. 2004)
- Smoking cessation services (Cokkinides et al. 2005)
- Colonoscopy and fecal occult blood test receipt (Subramanian et al. 2005)
- Multiple cancer screenings (Potosky et al. 1998)

There are several studies that use a simple pre-post design to bracket policy changes. For example, Kelaher & Stellman (2000) examine the effects of new Medicare reimbursement for mammography on use rates within the Medicare population, comparing years before and after the policy change.

5.1 Research on public insurance eligibility expansions

The NHIS has been used in a number of studies to evaluate the effects of Medicaid and/or SCHIP eligibility expansions on a variety of outcomes. One of the challenges inherent in using any household survey for this purpose is that there is no indicator for program eligibility that can be collected directly from the respondent. To capture this information, several research groups have developed complex algorithms to generate indicators of likely Medicaid or SCHIP eligibility (e.g. Currie and Gruber 1995; Davidoff et al. 2005; Davidoff & Garrett 2001; Lykens & Jargowsky 2002). These algorithms mimic the Medicaid and SCHIP eligibility determination process, linking state and year specific eligibility rules to the NHIS, and comparing measures of income and family structure generated from the NHIS to the relevant eligibility rules. These indicators of program eligibility were used in difference-in-difference (DD) or IV analyses of the effects of Medicaid and/or SCHIP eligibility expansions on various populations:

- Utilization, health outcomes (Currie & Gruber 1995; Lykens & Jargowsky, 2002)

- Dental Care (Wang, Norton, and Rozier 2007)
- Coverage and access for children with chronic conditions (Davidoff, Kenney, and Dubay 2005)

5.2 Research on managed care effects in Medicaid and SCHIP

In another series of studies, researchers have examined the effects of managed care programs in Medicaid or SCHIP by linking various managed care program or enrollment data to the NHIS at the level of the state or county. Researchers have examined the effects on:

- Medicaid enrollment, overall, by race (Currie & Fahr, 2005)
- On racial disparities in access (Cook, 2007)
- Access, service use children, TANF moms (Garrett, Davidoff and Yemane 2003)
- Access, service use for children with chronic conditions (Davidoff et al. 2007).

The NHIS has also been used to examine the effects of state small-group market regulations on coverage for high-risk workers (Davidoff, Blumberg and Nichols 2005). For this analysis we linked state-year specific data on small group market regulations. We also linked county level data on labor force by industry and firm size to construct instruments for insurance offers.

6. New horizons: Medicare Part D enrollment

There is considerable interest in prescription drug coverage, particularly the effects of Medicare Part D on drug coverage for the elderly. Traditional Medicare (Parts A and B) does not cover outpatient drugs, and a large number of elderly Medicare beneficiaries lacked any supplemental drug coverage. Passage of the Medicare Modernization Act of 2003 set in motion the implementation of the new Part D drug coverage, which began on January 1, 2006. Key features of the program include:

- Medicare beneficiaries eligible for Part A and enrolled in Part B may purchase Part D coverage from a stand-alone prescription drug plans (PDPs) or by enrolling in a Medicare Advantage Plan with prescription drug coverage (MAPD).
- Dual Medicare-Medicaid enrolled receive coverage through a qualified PDP instead of directly through the Medicaid program
- Employers providing retiree drug coverage are paid subsidies to continue
- New Medigap plans are prohibited from covering prescription drugs

The NHIS provides an important source of information on enrollment into Part D plans. In collaboration with Robin Cohen at NCHS, I have initiated a series of studies to examine participation. The first stage is to examine changes in the distribution of prescription drug coverage pre- and post implementation of Part D. For the pre-period we use NHIS data from the July 2004 – June 2005. For the post period we use data from the final three quarters of 2006. We include a washout period (July 2005-March 2006) to allow for anticipatory and delayed transitions, as well as general confusion. We use responses to questions about Medicare and Medicaid enrollment, Medicare Advantage or HMO enrollment, whether the person pays a premium for extra services, for private plans (employer, privately purchased (Medigap), other) whether drug coverage is provided, coverage through the VA, and whether enrolled in a Part D plan. We create a hierarchy of supplemental medical and prescription drug coverage, estimate sample proportions in each period and compare across the two periods of time.

Preliminary results for the elderly Medicare population indicate that 80 percent reported drug coverage in 2006, with equal proportions reporting PDP (25.4%) and employment based (25.5%) coverage. An additional 14.4% received drug coverage through MAPDs, 8.3% through Medicaid, 4.7% through Medigap or other private plans, and 1.6% only reported VA coverage. The overall coverage rates are significantly higher in 2006 relative to the pre-period, where only 62.5% reported coverage, with most of the increase coming through new PDP plans. There was a significant increase in MA plans as a source of drug coverage, but there were also declines in reported drug coverage through employer sponsored and Medigap or other private plans. Next steps in our analysis are to examine characteristics of those who remain without drug coverage, to examine the effects of drug coverage on access to care, and to compare these results with those of other datasets, such as the Health and Retirement Study and the Medicare Current Beneficiary Survey.

In summary, the NHIS has become a critical resource for examining the effects of public policy on insurance coverage. The continued commitment of the agency to maintaining currency of the insurance questions to capture emerging trends is critical. Federal support for the NCHS is also essential, so that it can maintain the quality of the survey, adequacy of sample size, and excellent service to users.

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References

- Cokkinides V.E., Ward E., Jemal A., Thun M.J. (2005) "Under-use of smoking-cessation treatments: results from the National Health Interview Survey, 2005," *Am J Prev Med.*, 28(1), 119-22.
- Cook B.L. (2007) "Effect of Medicaid Managed Care on racial disparities in health care access," *Health Serv Res.*, 42(1 Pt 1), 124-45.
- Currie, J. and Fahr, J. (2005), "Medicaid Managed Care: Effects on Children's Medicaid Coverage and Utilization" *Journal of Public Economics*
- Currie, J. and Gruber, J. (1996), "Health Insurance Eligibility, Utilization of Medical Care, and Child Health," *The Quarterly Journal of Economics*, 111(2), 431-466.
- Davidoff, A., Hill, I., Courtot, B., and Adams, E. (2007), "Effects of Managed Care on Service Use and Access for Publicly Insured Children with Chronic Health Conditions," *Pediatrics*, 119, 956-964
- Davidoff, A., Blumberg, L., and Nichols, L. (2005), "State Health Insurance Market Reforms and Access to Insurance for High Risk Employees," *Journal of Health Economics*, 24, 725-750.
- Davidoff, A., Kenny, J. and Dubay, L. (2005), "Effects of the State Children's Health Insurance Program on Children with Chronic Health Conditions," *Pediatrics*, 116, 34-42.
- Davidoff, A., Yemane, A., and Hill, I. (2004), "Public Insurance Eligibility and Enrollment for Special Healthcare Needs Children," *Health Care Financing Review*, 26(1), 119-135.
- Davidoff, A.J., and Garrett, A.B. (2001), "Determinants of Public and Private Insurance Enrollment Among Medicaid Eligible Children," *Medical Care*, 39 (6), 523-535.
- Garrett, B., Davidoff, A., and Yemane, A. (2003), "Effects of Medicaid Managed Care on Health Services Access and Utilization," *Health Services Research*, 38(2), 575-594.
- Kelaher, M. and Stellman, J.M. (2000), "The impact of Medicare funding on the use of mammography among older women: implications for improving access to screening," *Prev Med.*, 31(6), 658-64.
- Kuhlthau, K., Nyman, R.M., Ferris, T.G., Beal, A.C., and Perrin, J.M. (2004), "Correlates of use of specialty care," *Pediatrics*, 113(3 Pt 1), e249-255.
- Lykens, KA, and Jargowsky, PA. (2002), "Medicaid matters: children's health and Medicaid eligibility expansions," *J Policy Anal Manage.*, 21(2), 219-38
- Potosky, A.L., Breen, N., Graubard, B.I., and Parsons, P.E. (1998), "The association between health care coverage and the use of cancer screening tests. Results from the 1992 National Health Interview Survey," *Med Care*, 36(3), 257-70.
- Subramanian, S, Amonkar, M.M., and Hunt, T.L. (2005), "Use of colonoscopy for colorectal cancer screening: evidence from the 2000 National Health Interview Survey," *Cancer Epidemiol Biomarkers Prev*, 14(2), 409-416.
- Wang, H., Norton, E., and Rozier, R.G. (forthcoming), "Effects of the State Children's Health Insurance Program on Access to Dental Care and Use of Dental Services," *Health Services Research*.