Potential Enhancements to Data on Health Insurance, Health Services, and Medicare in the Health and Retirement Study

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Abstract

As a nationally representative cohort of middle-aged and elderly adults with longitudinal data spanning nearly two decades, the Health and Retirement Study (HRS) is an important resource for researchers studying the dynamics of health insurance coverage in the United States and the relation of insurance coverage to the use of health services and to health outcomes. We assessed the strengths and limitations of currently available HRS data for such research, focusing on survey items in these domains and Medicare claims data that have been linked to HRS survey data. The process for researchers to obtain Medicare claims has greatly improved in recent years. The additions of biomarkers (e.g. blood pressure and serum cholesterol) and objective measures of physical functioning for HRS participants have also been notable improvements. We propose changes to the HRS to enhance its value for health services research, particularly regarding the effects of health care reform as the Patient Protection and Affordable Care Act of 2010 is implemented over the next decade.

KEYWORDS: Health and Retirement Study

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Introduction

To guide the mid-term review of the Health and Retirement Study (HRS) by its Data Monitoring Committee (DMC) in 2010, we evaluated the currently available survey items related to health insurance and use of health services, along with the Medicare data that have been linked to HRS survey data. We assessed the strengths and limitations of current HRS data elements in these domains to provide recommendations for how these data could be improved for researchers. We also provided input on the ways in which HRS could be enhanced to evaluate the impact of health care reform as the Patient Protection and Affordable Care Act of 2010 is implemented over the next decade.

Our approach to this evaluation was guided primarily by our own experiences conducting studies with HRS data and advising doctoral students and post-doctoral fellows using these data. In our research, we have used longitudinal HRS survey data to assess the impact of lacking or gaining health insurance coverage on the use of health services and health outcomes, and in one study we also used Medicare claims data that have been linked to HRS survey data. To supplement our insights from these studies, we reviewed the 2008 survey codebooks on the HRS website. We also used the interactive bibliography on the HRS website in June 2010 to identify 108 research articles and 20 reports on health insurance or health services produced from HRS data during 2005 through 2010. From these citations, we solicited input from numerous colleagues (see Acknowledgements) who have authored articles and reports using HRS data.

Our assessment of the HRS is presented in the following 6 sections:

1) Changes and improvements in the HRS since 2002
2) Current questions on health insurance (HRS Survey Section N)
3) Current questions on health services (HRS Survey Section N), including those included in the physical health section (HRS Survey Section C)
4) Medicare data linked to the HRS
5) Other potential administrative data linkages to the HRS
6) Special issues related to health care reform

1. Changes and Improvements in the HRS since 2002

Since the last DMC review in 2002, the HRS has made a number of improvements related to health insurance, health services, and the Medicare claims linkage in the following areas:

- Reduction in the time needed to obtain linked Medicare claims data
- Addition of questions regarding prescription drug coverage
- Addition of questions regarding long-term care insurance
- Addition of biomarkers and measures of blood pressure
In 2002, only one linkage to Medicare claims data had been completed, providing linked data through 1996. At that time, few researchers had accessed or analyzed this limited set of linked claims. Since then, the linkage and application processes for Medicare claims data have been shortened substantially and continue to improve. Improvements to the HRS website have made the application process clearer, and HRS administrative and technical staff members have been responsive and helpful. Another valuable addition to the HRS was the addition of prescription drug coverage questions before the implementation of Medicare Part D, making the HRS a useful source of information on the early effects of the program. The addition of questions on long-term care insurance has helped researchers understand how older adults approach the purchase of insurance for long-term care needs.

Objective physical health measures (HRS Survey Section I) have been routinely collected via the Enhanced Face-to-Face Interview since 2004. The initial measures included a peak flow measurement of respiratory capacity, grip strength, timed walk, and height and weight to calculate participants’ body-mass index. Since 2006, balance tests and waist circumference have been obtained, blood pressure readings have been recorded, and blood samples have been collected to assess serum cholesterol and glycosylated hemoglobin as key biomarkers. These biomarkers and blood pressure readings are known to be influenced by evidence-based treatments that reduce morbidity and mortality from cardiovascular disease and diabetes. Measures of physical fitness are also useful tools for epidemiologists and health services researchers to assess health-related functional status.

2. Survey Questions on Health Insurance

The section on insurance covers important broad topics, including type of coverage, supplemental coverage, and spells of uninsurance. The added questions on coverage of prescription drugs and long-term care services have been timely and informative. Questions about how individuals make decisions about insurance coverage (e.g. with help from agency materials, adult children, or spouse) also provide novel information that is not typically collected elsewhere. These broad topic areas should be preserved, and in some cases expanded, to reflect changes under health reform.

However, the insurance coverage section is excessively long. Precious survey time is used to ask respondents about information they may not be well equipped to answer, such as self-reported details about insurance plan benefit design. Given the difficulty that survey researchers have collecting information on even basic facts such as individuals’ source of health insurance coverage,
survey time spent on additional features of benefit design should be minimal. We found little evidence of researchers using questions related to the details of health plan benefits. For example, survey participants are asked whether the costs of their hospital stays (or other services) were completely covered, mostly covered, partially covered, or not covered at all by their health insurance coverage. Not only are these categories imprecise and subjectively defined, but the questions duplicate questions on out-of-pocket costs by type of service, which provide more useful information about exposure to uncovered medical expenses.

Conversely, the HRS questions regarding periods without insurance coverage could be more specific so that a more accurate picture of periods without coverage could be analyzed with detailed information on the timing of insurance gaps. The survey currently asks only if respondents were ever uninsured since the prior survey, and about point-in-time coverage. A follow-up question regarding sources of coverage or review of more explicit records of coverage sources would be helpful.

For Medicare beneficiaries, many insurance questions could be cut, and others could be improved. One way to achieve to shorten the survey and increase the accuracy of information would be to link Medicare Advantage enrollees to health plan or contract identifiers through a linkage to the Enrollment Database (EDB), as suggested below in the section on Medicare claims.

The current questions on HMO enrollment are not particularly useful. Currently, questions on Medicare or Medicaid HMO enrollment are lumped together. The use of the term “HMO” may also cause many participants enrolled in other types of Medicare Advantage plans to be missed.

The extensive questions regarding Part D coverage were an appropriate and timely response to this new program in 2006 and 2008. However, questions about how plans are selected and whether individuals may or may not switch plans in the future could be condensed into a few questions that would help researchers and policymakers track whether seniors continue to have trouble navigating Part D coverage decisions. This set of questions could be condensed empirically by assessing which items performed well.

The HRS could add questions on satisfaction with insurance coverage. The question regarding satisfaction with prescription drug coverage (item LN428) is useful, but the current question (item LN235) about overall satisfaction with the “quality, cost and convenience” of health care (following a set of questions on coverage) is ambiguous. Adding more specific questions regarding satisfaction with insurance coverage to the 2012 survey would be particularly helpful for researchers examining how access and satisfaction change with federal health reform as implementation accelerates in 2014.

The HRS could be made even more user-friendly by including additional recoded variables in the RAND HRS dataset. In several domains, items are
repeated many times to elicit all answers where respondents may have more than one answer, to enumerate covered individuals in the family for each plan, to cover all private plans if more than one, or to obtain more specific responses for premiums or other amounts for which respondents may be unable to provide exact figures. The skip patterns in the codebooks can be very confusing, thus it would be very helpful to have summary variables for these domains. The RAND dataset includes several summary measures of insurance coverage, and additional summary measures would be welcomed by researchers.

**Proposed Enhancements:** Based on these insights, we recommend the HRS health insurance questions be condensed or changed in the following ways:

- Remove questions on cost-sharing while retaining those on out-of-pocket expenditures
- Collect more information on periods without insurance coverage
- Remove or modify outdated questions such as those on HMO enrollment
- Shorten the section on choosing Medicare Part D plans
- Collect more information regarding satisfaction with insurance coverage
- Make insurance questions more user-friendly for researchers

3. Survey Questions on Use of Health Services

In contrast to the very extensive questions related to health insurance in the HRS, the 2008 HRS survey included a relatively limited set of questions related to use of health services. Key questions currently include the following aspects of health services:

- Overall number of hospitalizations in the prior 2 years
- Overall number of doctor visits including emergency department visits or any other encounters in a variety of outpatient settings
- Single item on satisfaction with medical care
- Use of prescription drugs for hypertension, diabetes, elevated cholesterol, lung conditions, psychiatric conditions, and memory problems
- Select group of preventive services including breast and prostate exams, measurement of blood pressure and cholesterol, and receipt of the influenza vaccine and herpes zoster (shingles) vaccine.

While these measures have been useful for research, they could be enhanced by collecting additional information on health services, particularly for subjects who are not yet eligible for Medicare or who are enrolled in Medicare Advantage plans for which claims data are unavailable. The survey could be improved, for example, by asking separately about medical and surgical admissions and about planned (i.e. elective) and unplanned admissions (i.e. urgent or emergent). Questions on home health services could distinguish why services were used.
during the most recent month of use (e.g. nursing care after hospitalization, physical or occupational therapy, management of chronic condition).

Asking specifically about office visits with physicians and about emergency department visits would help researchers to distinguish these outpatient visits from those for hemodialysis, chemotherapy, radiation therapy, physical therapy or other services that may skew overall visit counts reported by subjects. Assessing the duration of time respondents have had a personal physician would support a measure of continuity of care. In the Behavioral Risk Factor Surveillance System (BRFSS), subjects are asked: “Do you have one person you think of as your personal doctor or health care provide?” For those who answer affirmatively, a follow-up question could be asked about the duration of this relationship.

To determine whether subjects have had a preventive health exam or check-up in the preceding two years, a question could be modeled after the BRFSS (“About how long has it been since you last visited a doctor for a routine checkup? [A routine checkup is a general physical exam, not an exam for a specific injury, illness, or condition.”) The BRFSS also provides a model for asking whether cost has been a barrier to seeing a physician (“Was there a time in the past 12 months when you needed to see a doctor but could not because of cost?”) which would complement the existing question on whether subjects have cut back on prescription drugs due to cost (item LN188)

Expanded questions on preventive care should include the following services: 1) colorectal cancer screening (FOBT within 1 year, sigmoidoscopy within 5 years, colonoscopy within 10 years); 2) screening for diabetes with fasting blood sugar or glycosylated hemoglobin testing; 3) bone density testing; 4) Pneumococcal vaccination ever received; 5) PSA testing (for men).

Many researchers would appreciate more information regarding adherence to prescription medications. The HRS could save some survey time by reconciling redundant questions on use of medications for psychiatric problems (items LC068 & LN365), sleep problems (items LC232U2 & LN364), lung problems (items LC032 & LN362) and arthritis and musculoskeletal pain (items LC074 & LN361).

For subjects who are veterans, it would be useful to ask about a few specific types of service, including medical or surgical hospitalizations, outpatient visits with a physician, and prescription drugs, that they obtained through the Veterans Affairs (VA) health system. These additional questions would help researchers identify Medicare beneficiaries who are veterans and obtain some care through Medicare and some through the VA system.

Finally, it would be useful to expand the single item on satisfaction with the “quality, cost and convenience” of health care (item LN235) to include a brief set of well-validated questions from the Consumer Assessment of Healthcare Providers and Systems (CAHPS) on patient-centered experiences with care. For example, in the self-administered portion of the Medical Expenditure Panel
Survey (MEPS), CAHPS questions are used to assess participants’ experiences with health care. These questions are generally highly correlated, so one or two CAHPS items may be sufficient to capture key perceptions of care. One question on the MEPS survey is a 10-point overall rating of care; if it were included in the HRS, responses of HRS participants could be compared to other nationally representative cohorts such as MEPS or Medicare CAHPS to assess whether ratings of health care are similar among these groups.

Proposed Enhancements: In summary, the following improvements could be made to the HRS survey questions on use of health services:
- Identify the reasons why patients have been hospitalized
- Reasons for home health visits in last month
- Determine number of office visits with physicians in the past 2 years
- Distinguish emergency department visits from office visits
- Assess whether and how long individuals have had a personal physician
- Determine if respondents had a preventive health exam in the prior 2 years
- Ask whether cost is a barrier to seeing a physician
- Include an expanded set of preventive services
- Assess medication adherence
- Reconcile redundant medication questions
- Evaluate use of the VA health system among veterans
- Replace the single question on the “quality, cost and convenience” of care with one or more validated items from CAHPS

4. Medicare Data Linked to HRS

Given the limitations of survey assessments of health care utilization, the linkage to Medicare claims files represents a major advance in the quality of data provided by the HRS. In particular, the Beneficiary Annual Summary Files (BASFs) is very useful for analyses of HRS-Medicare data, and the Quarterly and Interview Gap summary files (BQSFs and BISFs) may be even more suitable for research focused on different time intervals. Specific strengths of the BASFs include the annual counts of utilization events, annual spending by type of service and the chronic condition indicators. To create these summary variables from standard analytic files requires substantial programming effort and expertise in applying algorithms to raw claims. Thus, the availability of these summary measures saves researchers valuable time and resources.

Given the advantages of working with the BASFs, we strongly recommend that more summary measures be created. Although utilization and spending services are summarized by type of administrative claim (e.g. inpatient, skilled
nursing facility, outpatient institutional, Part B, home health, durable medical equipment), these data would be even more useful if summarized in more clinically nuanced ways. For example, counts and summary spending for physician and outpatient institutional visits could be categorized by setting, type of service, and specialty (e.g. emergency department visits, hemodialysis visits, primary care visits, specialty visits, and visit counts by specific specialties). Data processing algorithms are available for other useful summary variables often used by researchers, including hospitalizations for ambulatory-care sensitive conditions (Prevention Quality Indicators developed by the AHRQ), readmission rates developed by a variety of organizations and researchers, and the Berenson Eggers Type of Service (BETOs) measures for classifying HCPCS codes into clinically meaningful categories.

The HRS-Medicare claims data would be greatly enhanced if plan or contract identifiers were available for participants enrolling in Medicare managed care plans. The HRS could pursue a linkage between the study sample and the Medicare Enrollment Database (EDB), and it could then release Medicare Advantage contract identifiers as a restricted dataset or in concert with restricted claims data. This would allow researchers to link participants with better information on plan characteristics than is currently obtained in the limited questions in the survey, as well as publicly available information on plans’ benefits, enrollment penetration, and quality of care through the Medicare Compare databases. For HRS participants enrolled in Medicare Advantage plans, these data could be linked via plan or contract identifiers. These identifiers would also allow linkage with Healthcare Effectiveness Data and Information Set (HEDIS) measures of plan performance.

Another limitation of the HRS-Medicare claims data is that the geographic identifiers in the linked Denominator files have been removed to protect the privacy of HRS participants. In contrast, geographic identifiers down to the Census tract are available for survey data from all participants through the HRS restricted data application process. Thus, geographic identifiers can be linked to Medicare claims files to replace the missing state, county, and zip code information, but only after a separate restricted data application process. Moreover, the restricted geographic identifiers are available only on a biennial basis and only for participants who responded to surveys. This sporadic availability can lead to inaccurate or missing data when merging with annual claims summaries, which are available for consenting participants in all years, whether they have responded to surveys or not. These problems could be remedied if the zip code, county code, and state codes were retained in the Medicare claims files released to researchers.

In addition to the condition indicators included in the BASFs, HCCs would be very helpful to researchers for purposes of risk adjustment or to address other
modeling or policy questions. The HCCs may be determined from diagnostic codes available in claims data for traditional fee-for-service Medicare enrollees.

Finally, a major limitation of the HRS-Medicare claims data is the absence of Part D claims. If standard Part D claims files do not include plan identifiers, we would encourage HRS staff to obtain these identifiers for reasons similar to those we described above for Medicare Advantage (Part C). In addition, administrative records on the receipt of low-income subsidies would be worth pursuing for HRS participants enrolled in Part D.

Proposed Enhancements: We believe the following improvements related to HRS-Medicare data would make these data even more useful to researchers:

- Provide more summary measures
- Add linked identifiers to plans or contracts for Medicare Advantage
- Unmask geographic identifiers in the claims data
- Provide Hierarchical Condition Categories (HCCs) for participants enrolled in traditional Medicare
- Add Part D claims and plan identifiers when available

5. Potential Linkages with Other Administrative Data on Health Services

Since 2000 participants receiving Medicaid benefits have been asked to provide their Medicaid numbers. Linked Medicaid data could provide very useful information about long-term care services. This linkage would also allow researchers to examine drug utilization and spending longitudinally in this cohort before and after the implementation of Part D.

The HRS could also be enhanced by acquiring more detailed information about health care utilization in the VA system. A linkage between the HRS and VA utilization data may be administratively challenging, but linked VA data would certainly provide very useful information because approximately half of all men in the HRS are veterans.

As a precedent for linking national survey data to VA utilization data, the Medicare Current Beneficiary Survey (MCBS) has been successfully linked to VA data through the VA Information Resources Center (VIReC). CMS supplies the Health Insurance Claim (HIC) numbers for MCBS respondents who match a previously identified cohort of veterans who had contact with the VA and are also enrolled in Medicare. The MCBS is linked to VA data through a formal statutory data-sharing agreement between the VA and CMS. The linked data are made available exclusively to VA researchers who already have access to the VA data.
6. Special Issues Related to Health Care Reform

We identified a number of policy issues related to health reform for which new items could be added to the HRS in 2012 to facilitate assessments of the impact of the Patient Protection and Affordable Care Act (PPACA) of 2010:

- Ask about difficulty finding a physician who accepts subjects’ insurance, which may become a greater issue for Medicare and Medicaid enrollees
- Similarly, include a question on whether individuals had difficulty finding a provider who accepts new patients
- Consider adding a question about whether participants’ insurance coverage affected their access to care
- Add a question to assess whether participants received premium credits
- Ask whether respondents make premium contributions for, and eventually, receive cash benefits for purchase of community-based long-term care services through the Community Living Assistance Services and Supports (CLASS) program. Premium contributions for this program will begin in 2011 and payouts are scheduled to begin in 2017 for disabled adults, so the next several waves of the HRS are well timed to evaluate CLASS program participation and benefits
- Add questions to determine the number, specialties, and practice locations/affiliations of providers involved in participants’ care, and whether participants have one physician who coordinates their care. If feasible, collecting this information on providers and practices would facilitate linkages to new sources of information describing organizational characteristics of provider groups. Such information would be helpful when evaluating the potential effects of accountable care organizations, patient-centered medical homes, and new care management programs
- Ask if private insurance was purchased through a health insurance exchange
- Explore whether an administrative linkage will be possible with the health insurance exchanges to be established under PPACA. It is unclear what types of administrative data these exchanges will store, but they will likely have information on enrollment, plan benefits, and premium credits for individuals purchasing coverage through exchanges. HRS staff could discuss such possibilities for data linkage with the Massachusetts Connector and consider a pilot linkage for HRS participants living in Massachusetts.
Conclusion

As a nationally representative cohort of middle-aged and elderly adults with longitudinal data spanning 18 years, the HRS is an important national resource for health services researchers and health economists studying the dynamics of health insurance coverage and the relation of insurance to the use of health services and to health outcomes. The additions of objective physical health measures and linked Medicare claims in recent years have substantially enhanced the value of the HRS for such research. Through the specific changes we have recommended, the HRS could play an even greater role in rigorous evaluations of the U.S. health system as health care reform is implemented over the next decade.