VIReC Insights is intended to provide VA researchers with a starting point for understanding concepts in data management and basic information about health related databases.

VA Research Uses of Medicare Data

Denise Hynes, Ph.D., Ann Hendricks, Ph.D., Wei Yu, Ph.D., Frances M. Weaver, Ph.D., Min-Woong Sohn, Ph.D., Kristin Koelling, M.P.H, Linda Kok, M.A., Carolyn O'Leary, R.N., B.S.

Introduction

Evaluating whether or not veterans' healthcare needs are being met requires information about the full spectrum of their healthcare use. VA researchers need information about Medicare usage by Medicare-eligible veterans because these individuals may utilize more health care services due to their advancing age and/or disability status, and neither VA nor Medicare data alone can be assumed to provide a complete picture of healthcare use. Obtaining and working with Medicare data is a complex effort. For VA researchers, it requires expertise in linking the VA and Medicare databases as well as in building and utilizing Medicare claims data.

VA researchers can now obtain Medicare data for veterans from the VA Information Resource Center (VIReC)[1], and thus, the process of acquiring Medicare data and linking them with the VA databases is greatly simplified. VIReC prepares the data from CMS and links them to VA information, which allows researchers to link VA and Medicare healthcare utilization data. SAS datasets are distributed at no cost to VA researchers with approved projects.

This issue of *VIReC Insights* provides information on the new process for VA researchers to obtain Medicare data from VIReC and to demonstrate how the Medicare data can be used in research applications.

New Process for VA Researchers to Obtain Medicare Data

VIReC constructed a sampling frame, or finder file, using a definition consistent with methodologies used in the VA Office of Policy and Planning (now the Office of the Assistant Deputy Under Secretary for Health) and based on a consensus of the VIReC Medicare Data Merge Initiative Technical Advisory Board. VIReC identified veterans from calendar year 1997 through 1999 who: (1) used Veterans Health Administration (VHA) services, (2) enrolled in the VHA, or (3) received compensation or pension benefits from the VA. The veterans in the last group were included in the sampling

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[1] A July 2002 Memorandum of Understanding (MOU) between the Department of Veterans Affairs (VA) and the Department of Health and Human Services allows the Centers for Medicare and Medicaid Services (CMS) to share Medicare claims data with VA for program administration and operational purposes. The VA Under Secretary for Health and the Health Services Research and Development Service (HSR&D) sponsored an initiative to provide Medicare data to VA researchers through VIReC. The Initiative provides access to the data for non-researchers in the VA through the Office of the Assistant Under Secretary for Health.

frame solely based on eligibility rather than actual use while the other two groups were included based on their seeking at least one type of service from the VHA healthcare system between 1997 and 1999.

When submitting its finder file to CMS, VIReC originally sent real Social Security Numbers (SSN) for VHA users and other veterans eligible for VHA healthcare services for matching with Medicare beneficiaries. It is possible that errors in SSNs could result in some people not being found in the Medicare data. Previous experiences suggest that around 5% of the population may not be matched if only SSN is used.

Information Available in the Medicare Data

The Medicare data for veterans that are available from VIReC contain information on all aspects of health care covered by Medicare Hospital Insurance ("Part A") and Medical Insurance ("Part B"). This data source includes adjudicated[2] claims for inpatient hospital and skilled nursing facility stays, home health agency visits, hospice care, physician visits, use of durable medical equipment, and outpatient services. With the exception of the stay-level records in the Medical Provider Analysis and Review (MedPAR) data file, each record in the Medicare healthcare utilization files is a claim. Data elements used by researchers include diagnosis and procedure codes (for inpatient and outpatient surgical procedures and laboratory and radiology tests), dates of service, reimbursement amounts, provider numbers, and some beneficiary demographic information. Intravenous drug and chemotherapy administration data also are available.

General Limitations of Medicare Data for Studying Healthcare

Medicare data contain no information on prescription medications other than some parenteral medications because Medicare has limited coverage for medications. Additionally, Medicare data are limited by the fact that healthcare utilization provided under the Medicare managed care option, Medicare + Choice, is not included in the claims data. Since Medicare + Choice healthcare is paid for by Medicare on a capitated basis, no claims are submitted to Medicare for reimbursement. In the 1999 Medicare data received by VIReC, approximately 16% of eligible veterans were

[2] An adjudicated claim means that the final action (e.g., paid or denied) has been taken.

enrolled in Medicare + Choice plans and thus, unavailable for studies comparing healthcare use in the two systems.

Four Research Applications of VA-Medicare Data

Presented here are four brief reports from VA researchers using the VA-Medicare data. They provide examples of research questions that can be addressed with Medicare data; decisions required, such as which Medicare files to utilize; and methods for handling conflicting information in the VA and Medicare data sources.

1. VA and Medicare Long-term Care Services for VA Patients

Ann Hendricks, Ph.D., and the Health Care Financing and Economics staff Center for Health Quality, Outcomes and Economic Research, Bedford, MA

The project, "Overall Millennium Act Assessment" (MRR 00-018) was conducted by the Healthcare Financing & Economics (HCFE) group at the Center for Health Quality, Outcomes and Economic Research Healthcare under a contract with the VA Office of Geriatrics and Extended Care (OG&EC) and the Health Services Research and Development Service's Management Consultation Program. The project utilized 1997-2001 Medicare data.

Objectives

The Veterans' Millennium Healthcare and Benefits Act, Public Law 106-117, required certain changes in extended care and directed the Department of Veterans Affairs to report to Congress on VA's experience under the extended care provisions of the Act. The Overall Millennium Act Assessment project was conducted to provide this report. The project included two research questions: (1) How much does Medicare pay for VA patients' long-term care under that program? (2) Has VA patients' use of Medicare long-term care services changed since 1998?

Methods

To address these and related questions, HCFE analysts used 1997-2001 Medicare data to calculate total Medicare payments for services used by VA long-term care patients; count VA patients receiving Medicare skilled nursing, home health, or hospice care; count the days of care or visits received through Medicare; and ascertain the date of death in order to adjust or supplement VA information.

These analyses required use of the Medicare Denominator file (enrollment and death data) and Standard Analytic Files (SAF) for utilization data. Two types of populations were studied: (1) Dual enrollees who were VA long-term care patients, identified through VA utilization data, and (2) VA patients who utilized Medicare coverage for Skilled Nursing Facility (SNF), Home Health Agency (HHA), or Hospice care.

Issues

Acute hospital and skilled nursing care data are captured in both the MEDPAR stay-level file and the SNF SAF files each year so researchers must choose the most appropriate utilization file given their research questions. We used the SNF SAF because it captures all skilled nursing services provided and paid for in a given year while MEDPAR includes only episodes of care for which the patient was discharged during a given year. Thus, counts of services differ; the SAF more accurately reflected VA patients' actual days of care in a year.

The methods used to study Medicare cost and payments vary from project to project. Payments to private providers come from three sources: Medicare, the beneficiary (deductible and co-payments), or third parties, such as private insurers. The amounts from each source are usually identifiable for a given Medicare claim. Some payments for physician/supplier and durable medical equipment claims can be determined only from Revenue Center detailed data. For a particular project, researchers must decide whether to include pass-through per diem costs (e.g., capital costs, direct medical education costs) on inpatient and SNF claims. We excluded pass-through per diem costs from our calculation of payments made by Medicare because the amounts vary considerably depending on the hospitals where service is provided. Consequently, our estimates of Medicare payments for inpatient and SNF services are best thought of as basic, minimum payments for these types of care. To count home health visits in the Medicare data, we identified records in the HHA SAF for specific events according to the Revenue Center codes.

In our analyses of mortality rates for VA and Medicare enrollees, we established a hierarchy of data sources for dates of death. We gave the highest priority to VA inpatient medical SAS data and extended care data, which provide death dates for patients who died in a VA facility. Second priority was given to data from the Medicare denominator file, and third priority, to the VA Beneficiary Identification Locator

System (BIRLS) Death File. We also examined VA and Medicare utilization data to see if patients whose records indicated they had died also had records of receiving significant (e.g., non-laboratory) services in later months or years. If so, the death date was considered erroneous. This correction was most frequent when the date of death source was the BIRLS Death File.

2. Using Medicare Data in the End-of-Life Care Project

Wei Yu, Ph.D. Health Economics Resource Center, Palo Alto VAMC, Palo Alto, CA

The project, "End Of Life: Medical Treatments And Costs By Age, Race, And Region," was funded by the VA HSR&D. We obtained the 1999-2001 Medicare data from VIReC and the 1997-1998 data from the VA Office of Policy and Planning.

Objectives

Care provided to patients with serious illness during the last months or years of life is extremely expensive. About 30% of Medicare expenditures are for patients during their last year of life, a percentage that has remained constant over the last 20 years. In VA, there is a large and growing responsibility for the care of elderly veterans. The number of patients aged 85 and older was 223,000 in 1995 and is expected to reach one million by 2006. We conducted a retrospective analysis of the effects of age, race, and geographic region on aggressiveness of medical care provided to VA patients ages 65 and over during the last two years of life.

Methods

Our study required all Medicare claim files and the Medicare Denominator file. The claim files provided information on healthcare utilization and costs, and the Denominator file was a very important source for demographic information. For example, 30% of the people in our study sample had missing values for race in VA data sources. The Medicare Denominator file appears to be a more complete source for race data for those dually enrolled.

The Denominator file includes information on beneficiary's enrollment in Medicare + Choice (Medicare's managed care plan). Medicare + Choice providers do not submit claims for their patients. Because there are incomplete (or no) claims for Medicare + Choice enrollees, these

beneficiaries must frequently be eliminated from studies of healthcare utilization.

Issues

We linked the Medicare and VA data using the scrambled SSN used by the VHA for the inpatient and outpatient Medical SAS datasets. We sent the scrambled SSNs of our study cohort to VIReC, where staff linked these to the associated real SSN and then to Medicare's Health Insurance Claim Account Number (HIC) to obtain the Medicare claims data for our cohort.

3. Use of Medicare Data in Evaluation of Pilot Program Models of All-inclusive Long Term Care

Frances M. Weaver, Ph.D., and Elaine Hickey, M.S., R.N. Midwest Center for Health Services and Policy Research, Hines VA Hospital, Hines, IL

This project, "Evaluation of Three Pilot Program Models of All-inclusive Long Term Care," was funded by the VHA Office of Geriatrics and Extended Care. The study, which is ongoing, uses Medicare data from June 2001 to December 2002.

Objectives

Public Law 106-117 Section 102 of the Veterans' Millennium Act required that the Department of Veterans Affairs implement three pilot programs of all-inclusive care (AIC) delivery and to assess their effectiveness in reducing hospital and nursing home care use by frail elderly veterans. The VHA Office of Geriatrics and Extended Care will use this information to make recommendations as to whether and how the VA should proceed in providing AIC to frail elderly veterans.

The three models on which pilot programs were based were: (1) the VA as Sole Provider model, in which all care is provided by the VA; (2) a VA-Community Partnership model, in which the VA provides some care and contracts with a community agency to provide other care; and (3) a VA as Care Manager model, in which the VA contracts with a community agency for all care. In pilot programs using the Partnership and Care Manager models the VA has contracted with local sites of the Program of All-Inclusive Care for the Elderly (PACE). **PACE** is a unique capitated managed care benefit for the frail elderly provided by a not-for-profit or public entity that features a comprehensive medical and social service delivery system.

Methods

In order to determine costs of care for each model, and to evaluate these costs in relation to customary care, all healthcare use and costs are monitored continuously for the duration of the evaluation, from June 2001-September 2004. Multiple data sources were used including VA administrative databases, Medicare claims data, PACE data, and a survey of patient out-of-pocket expenses.

We used all available Medicare claims and enrollment files for this evaluation: Outpatient, Home Health, Hospice, Skilled Nursing Facility, Carrier, DME, and MedPAR. We analyzed these files to determine Medicare utilization and costs in AIC and comparison groups. We also used the Denominator file to obtain patient demographic information and to determine how many veterans were eligible to use Medicare during each study year. Since PACE is a capitated system similar to an HMO, utilization data are not reported in Medicare or Medicaid claims files. Consequently, we accessed utilization data directly from PACE.

Issues

Because our study included comparison groups that are not receiving AIC, the Medicare data were needed to determine the full scope of healthcare use in these samples. If we were to compare use and costs between the groups without using Medicare data, we could bias the results in favor of higher use and costs in the AIC groups and mask any true differences in healthcare use between AIC and customary care.

We requested that VIReC use only an SSN match to provide us with Medicare enrollment and claims records for our study cohort. Nine percent of our study subjects had no record in the Denominator file, suggesting they were not enrolled in Medicare. This linkage method gave us the responsibility to match the Medicare beneficiaries to our cohort with demographics received directly from veterans. Using SSN, date of birth (DOB), and gender as match criteria, we were able to match on 76% of cases from VIReC. Fifteen percent of veterans' Medicare records did not match our study records on DOB but did match on gender. For these veterans, we compared the names found in the file from VIReC to the names in our study files. We were able successfully to match all veterans on name that we were unable to match on DOB.

One difficulty we encountered in comparing Medicare and VA outpatient data was the difference in what a data record

represents in the two systems. In the VA data, a single record reports all aspects of care provided in a given encounter or clinic visit. In the Medicare data, a single record reports a given claim. Consequently, in the Medicare data, there can be multiple records related to a single encounter. Our solution was to compare service utilization in terms of VA outpatient records and Medicare clinic days.

A complete evaluation of the AIC demonstration, which will include health care use and costs, will be presented to Congress in early 2005.

4. Favorable HMO Selection among Veterans

Min-Woong Sohn, Ph.D., Denise Hynes, Ph.D., Kristin Koelling, M.P.H., Noreen Arnold, M.A.L.S., M.S., and Linda Kok, M.A. VIReC and Midwest Center for Health Services and Policy Research, Hines VA Hospital, Hines, IL

Objectives

Research in managed care enrollment in the private sector to date has shown that younger, healthier individuals with lower health care costs are more likely to enroll in managed care. This phenomenon is commonly called "favorable HMO selection." If favorable HMO selection is observed for veterans in the Medicare system, veterans' health status may be systematically underestimated in research, due to the availability of less healthcare utilization data for the proportionately healthier veterans in Medicare's HMO plan, Medicare + Choice.

The objective of this study was to investigate whether there has been favorable HMO selection among Medicare enrolled veterans aged 65 years old or older by determining if younger, healthier veterans who had been enrolled in the Medicare Fee For Service (FFS) plan were more likely than others to switch to Medicare + Choice.

Methods

To answer this question we used a sample of veterans who were enrolled in Medicare FFS in 1999 and studied those who then joined Medicare + Choice during 2000. Our cohort consisted of 1.5 million veterans eligible to use VA healthcare who were 65 or older as of January 1, 1999, thereby excluding veterans who were Medicare eligible due to disability. All veterans in our sample were enrolled in Medicare for all 12 months of 1999, not enrolled in Medicare + Choice

for any of those months, and alive as of January 1, 2000, the start of the second study year. In order to verify that a SSN referred to the same person in both Medicare and the VA, data were matched using SSN, gender, and two of the three parts of the date of birth.

We did both bivariate and multivariable analyses, controlling for a number of factors. These included sex, race, age, Hierarchical Condition Category (HCC) risk score, priority level within the VA, state Medicaid buy-in status, distance to the nearest VA Medical Center, and Medicare HMO penetration rate in the county of residence.

As of 2004, CMS uses the Hierarchical Condition Category (HCC) risk model to determine payments to Medicare HMOs. The HCC risk model calculates a risk score that predicts future healthcare costs based on the prior year's medical conditions. Medical conditions are determined by looking at both inpatient and outpatient diagnoses.

We determined medical conditions, for the purpose of calculating the HCC risk scores, by combining all diagnosis codes from the Medicare MedPAR, Carrier, and Outpatient files and the VA Inpatient Acute, Outpatient, Fee Basis Inpatient, and Fee Basis Outpatient files. We also used demographics, including age, gender, Medicaid eligibility, and original reason for Medicare entitlement from the 1999 Medicare Denominator file. Once we calculated the risk scores, we divided the veterans into quartiles based on risk.

Data on Medicare managed care penetration for 1998 and the number of short-term general hospitals in each county were obtained from the Area Resource File that is provided by the Bureau of Professions, Bureau of Census, linking on the patient's zip code. VA healthcare utilization was obtained from the VA's Inpatient and Outpatient Medical SAS datasets. Age, sex, race, and Medicare buy-in status were obtained from the Medicare files.

We studied race using the Medicare race variable found in the Denominator file. We used the values "black" and "non-black" because of inconsistencies within the other values of race over time. We also looked at state buy-in status. We used this as a proxy for Medicaid eligibility and low income since it indicates that a state Medicaid program paid for all or some of a beneficiary's "Part B" Medicare premium.

Finally, we determined the Medicare + Choice penetration rate in the county of residence by quartiles.

Issues

After controlling for the demographic and geographic characteristics described above, we could not rule out favorable selection. It appears from our analysis that younger and healthier veterans were more likely to switch from Medicare FFS to an HMO.

One limitation of this study deals with the diagnosis codes used to calculate the risk scores. There may be different coding incentives in Medicare and the VA, which could lead to coding variations between systems. This could affect our risk scores since some veterans use one system more heavily than the other.

Another limitation is that our sample only consisted of veterans who had at least one full year of FFS Medicare before joining an HMO. This population may be different from those veterans who join an HMO within one year of becoming eligible for Medicare. We did not study that population since we are unable to calculate HCC risk scores for those veterans. CMS does not collect diagnosis data on beneficiaries enrolled in HMOs.

The absence of data for veterans who have used healthcare under Medicare + Choice exclusively presents problems for researchers who want to put together a comprehensive picture of veterans' pattern of health care use.

Who joins Medicare + Choice, and more importantly, why, is just one step in understanding veterans' healthcare decisions. These decisions are becoming even more complex, due to the planned addition of new Medicare benefits, such as prescription drug coverage and changes to the Medicare + Choice program. If these changes result in increased Medicare + Choice enrollments, one result might be the disproportionate reduction in the availability of Medicare utilization data for younger, healthier veterans.

Summary

The use of both VA and Medicare-covered services may allow veterans to optimize their healthcare services by utilizing the unique benefits offered by both systems. However, such dual use also may lead to discontinuity of care and duplication of services. Further exploration might examine whether veterans' propensity to use VA or Medicare services is determined by quality of care or extent of treatment coverage. Medicare claims data for veterans eligible for VA health services are essential for studying healthcare utilization for this important population.

The availability of Medicare data for VA research from the VIReC simplifies the process for requesting, obtaining, and processing Medicare data, and makes it easy for VA researchers to explore veteran healthcare utilization patterns across VA and Medicare sytems of care.

Sources of Further Information

VIReC Web site, http://www.virec.research.va.gov
Pages on Medicare data give details on the data available, describe the finder file cohort, answer FAQs, and provide the data request form and instructions.

VIReC Help Desk, virec@research.hines.va.gov
VIReC provides support on questions about the content and structure of the Medicare SAS datasets produced by VIReC, methodology for linking Medicare and VA data, and all aspects of the data request process.

ResDAC, http://www.resdac.umn.edu, resdac@umn.edu,, or 1-888-973-7322
The Research Data Assistance Center is a CMS contracts providing free assistance to academic, government, and non-profit researchers interested in using Medicare and/or Medicaid data for their research.

CMS-for Researchers, http://www.cms.gov/researchers
The CMS Web site for researchers offers publications, data, research findings, and information on research priorities and funding opportunities.

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