

Medicare & Medicare Prescription Drugs

Call For Papers

Shaping Medicare's Future: An Evidence-Based Approach

Chair: Erin Fries Taylor, Mathematica Policy Research, Inc.

Sunday, June 26 • 8:30 am – 10:00 am

● Medicare Drug Coverage and Declining Disability Among the Elderly: Is There a Link?

Michael Furukawa, Ph.D.

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Research Objective: Over the past two decades, rates of disability have been declining among the elderly population in the U.S. One important contributor to the decline has been improved medical treatments, particularly the introduction of new pharmaceuticals to treat chronic diseases. While strong evidence suggests that insurance coverage increases utilization of medications by the elderly, little is known about the impact of prescription drug coverage on the level of functional disability. This study examines whether there is a link between drug coverage and transitions in the state of disability among elderly Medicare beneficiaries.

Study Design: Data come from the Medicare Current Beneficiary Survey (MCBS) Cost and Use from 1994-1999. MCBS is a nationally-representative sample of 12,000 Medicare beneficiaries and includes information on supplemental insurance and drug coverage as well as detailed measures of health status and functional disability. I estimate the effect of having drug coverage in year $t-1$ on the probability of being in one of six states of functional disability (no disability; any physical limitation; any Instrumental Activities of Daily Living (IADL); 1 to 2 Activities of Daily Living (ADL); 3 or more ADLs; or death) in year t . The probability of disability state is specified as an ordered probit with drug coverage as an endogenous treatment effect. I estimate a parametric two-step selection model and a non-parametric discrete factor model to address adverse selection and the endogeneity of drug coverage. Drug coverage effects are simulated to obtain changes in predicted probabilities for each disability state.

Population Studied: The sample includes elderly (age 65 or older), non-institutionalized Medicare beneficiaries who were continuously-enrolled in a single private supplemental plan (employer, Medigap) during year $t-1$. I compare persons with supplemental insurance with drug coverage to persons with supplemental insurance without drug coverage (e.g., employer Rx vs. employer no Rx).

Principal Findings: Preliminary results indicate that persons with drug coverage have lower probability of transition to greater states of disability in the following year. Notably, Medigap drug coverage reduces the probability of being in the 1 to 2 ADL state by 4.8 percent and reduces the probability of mortality by 1.8 percent. Simulations suggest that the drug coverage effects vary with the number of chronic conditions.

Conclusions: I find evidence of a link between drug coverage and the state of functional disability among elderly Medicare beneficiaries. The level of chronic illness appears to be a key mediating factor in predicting the magnitude of the drug coverage effects.

Implications for Policy, Delivery, or Practice: The Medicare Prescription Drug, Improvement, and Modernization Act (MMA) of 2003 sparked much policy debate over the costs and benefits of an outpatient Medicare drug benefit. Most of the empirical research has focused on the costs of expanding drug coverage with little evidence confirming the benefits. Preliminary findings of this study suggest that drug coverage has important health effects and may be associated with slower declines in functional disability.

Primary Funding Source: AHRQ

● Predictors of Preventive Screening Among Medicare Beneficiaries

Ron Ozminkowski, Ph.D., Ron Z. Goetzel, Ph.D., David Shechter, Ph.D., David C. Stapleton, Ph.D., Onur Baser, Ph.D., Pauline J. Lapin, MHS

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Research Objective: Clinical preventive services have been demonstrated to prevent disease, reduce complications, and promote early detection and treatment. Despite Medicare coverage, receipt of clinical preventive services is less than optimal. The objective of this study was to identify factors that predict the use of preventive services by Medicare beneficiaries.

Study Design: Retrospective analyses were conducted using Medicare Current Beneficiary Survey (MCBS) data for 2001. Using multinomial logistic regression analyses, we estimated the relationship between having low (< 4), medium (5 or 6), or high (7) numbers of services and the following factors: demographics and socioeconomics, health plan type, health status, underlying health risks, ability to take care of one's daily needs, and motivation to care for oneself. These factors were expected to influence receipt of the following services: pneumococcal vaccination, influenza vaccination, glaucoma screening, cholesterol screening, blood pressure testing, mammography screening and Pap smear (for females only), and digital rectal exams and prostate specific antigen (PSA) tests (for males only). The regression analyses adjusted for the complex sampling design used for the MCBS. Results are nationally representative for the study year.

Population Studied: The population of interest included non-institutionalized Medicare enrollees living in the community. About 58% were female, 8% were African American, 12% were employed, 59% were low income, 9% were dually enrolled in Medicare and Medicaid, and 21% were Medicare+Choice members. About 9% had no children, and 32% lived alone.

Principal Findings: Most respondents had one or more chronic conditions, but 45% of all respondents rated their health status as very good or excellent. More than half of the respondents received each service, except for Pap smears (only 36.3% of females had a Pap smear in the previous 12 months). The adjusted probability of having all 7 services was

significantly greater for those with children (14.1%, versus 13.3% for those with no children), Medicare+Choice members or fee-for-service beneficiaries (14.7% and 14.4%, respectively, versus 10.3% for the dually enrolled), those with several chronic conditions (e.g., heart disease, cancer, emphysema), and those who were more highly motivated to care for themselves. Medicare beneficiaries with a significantly lower number of preventive services tended to be: African Americans, low-income beneficiaries, those who were dually enrolled, persons who suffered a broken hip, heavy drinkers, those who were paralyzed, and those who had difficulty shopping or using a telephone.

Conclusions: With the exception of blood pressure and cholesterol screening, approximately 1/3 to 2/3 of Medicare beneficiaries did not receive recommended and covered preventive services. Longer-term use of these services could not be studied with these data, but the results suggest that utilization may be too low.

Implications for Policy, Delivery, or Practice: Interventions to promote appropriate use of clinical preventive services should target segments of the population where use is low. The initial preventive physical examination provides an excellent opportunity to introduce new Medicare beneficiaries to clinical preventive services and to educate them about their recommended use. However, strategies must be developed to ensure appropriate use of these services over time.

Primary Funding Source: CMS

● **Factors Affecting Physicians' Medicare Service Volume**
James Reschovsky, Ph.D., Jack Hadley, Ph.D.

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Research Objective: To estimate the effects of market competition and various financial incentives on physicians' Medicare service volume (number of beneficiaries treated), service intensity (services provided per beneficiary), and total services provided to Medicare patients

Study Design: The study uses a nationally representative sample of physicians from the 2000-2001 CTS Physician Survey linked Medicare claims data (n=8034). The claims data were drawn from the 5% random sample of Medicare beneficiaries maintained by the Centers for Medicare and Medicaid Services and aggregated to the physician level. Multiple regression (OLS and logistic) models were estimated using physician, physician practice, and market level variables as explanatory variables, along with patient casemix controls.

Population Studied: Patient care physicians treating FFS Medicare beneficiaries. Pediatricians, radiologists, pathologists, and anesthesiologists were excluded.

Principal Findings: The physician's reported overall internal practice financial incentives to either reduce or increase services to patients appear to influence service intensity, though not patient volume. These internal financial incentives reflect the extent of capitation payments and management tools, such as profiling, gatekeeping, and productivity incentives in the practice. More generous Medicare fees relative to cost seem to encourage physicians to treat more Medicare patients, but at a lower level of service intensity. It also appears that financial incentives embodied in practice

ownership and to a lesser extent in variable employee compensation are associated with both more patients treated and greater service intensity per patient. We also found that greater competition, both perceived and as measured by indicators of the numbers of physicians relative to population, appears to reduce Medicare patient volume, but not alter treatment intensity per patient. Finding that higher proportions of physicians in medical and surgical specialties at the county level are associated with more Medicare patients per physician presumably reflects greater sub-specialization in markets with higher proportions of specialists. Greater sub-specialization in turn may lead to more referrals among physician specialists and from primary care to non-primary care specialists. Our analysis also confirms greater Medicare service volume in areas with more available hospital beds and freestanding diagnostic and imaging centers.

Conclusions: Both financial incentives and several market factors are associated with significant differences in physicians' Medicare patient volume and service intensity. The results demonstrate that non-clinical factors influence physicians' treatment of their Medicare patients and ultimately Medicare costs.

Implications for Policy, Delivery, or Practice: The results suggest that policymakers could use financial incentives to influence service volume and that the use of financial incentives could be tied to variations in local market conditions. They also suggest that Medicare's Sustainable Growth Rate policy, which is currently national in scope, is affected by volume offsets and might be modified to reflect variations in local market conditions.

Primary Funding Source: RWJF

● **Comparing Four-Year Health Outcomes of Elderly Adults Enrolled in Traditional Medicare (FFS) VS. Medicare HMOs**

Dana Gelb Safran, Sc.D., William H. Rogers, Ph.D., Ira B. Wilson, M.D., MS, Hong Chang, Ph.D., Angela Li, BA

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Research Objective: To compare functional health outcomes and mortality of seniors in traditional Medicare (FFS) vs. Medicare HMOs over a 4-year period (1998-2002). Previous studies comparing Medicare FFS and HMO outcomes produced inconsistent findings and were largely conducted prior to the 1990s surge in HMO enrollment. This study represents the longest running cohort with comparative health outcomes and is unique in its monitoring of beneficiaries who switch systems.

Study Design: In 1998, we established a longitudinal cohort of non-institutionalized Medicare beneficiaries aged 65 and older residing in the 13 states with the largest and most well-established Medicare HMO systems (AZ, CA, CO, FL, IL, MA, MN, NM, NY, OR, PA, TX, WA). FFS and HMO enrollees were matched on age, sex and zip code. From 1998 through 2002, we monitored their primary care, health outcomes and enrollment status using a combination of annual surveys and administrative data obtained from the Centers for Medicare and Medicaid Services (CMS). Health outcomes included

death and changes in functional status as measured by the SF-36 Physical Component Summary (PCS) and Mental Component Summary (MCS). Models control for beneficiaries' sociodemographic characteristics, diagnoses, enrollment status, and enrollment changes (timing and type).

Population Studied: Analyses of functional health outcomes employ data on all study participants at all available study intervals (n=12,899), clustered to account for multiple observations per person. Mortality analyses include all original sample members (n=15,963).

Principal Findings: Analyses reveal no statistically significant differences in health outcomes between FFS and HMO enrollees after adjusting for population differences. Among beneficiaries stably enrolled in either FFS or an HMO, average 2-year changes in physical functioning (PCS) differed by 0.10-points (-1.30-points vs. -1.40-points, n.s.), and average mental health outcomes (MCS) differed by 0.15-points (-0.45-points vs. -0.60-points, n.s.). Mortality did not differ significantly by system, though it tended to be higher in FFS (Hazard Ratio [HR]=1.14, n.s.). However, there was compelling evidence that health status figures importantly into beneficiaries' system-switching decisions. Compared to those stably enrolled in either system, PCS declines were significantly larger among those switching from HMO to FFS (-1.95, p<.001) and significantly smaller among those switching from FFS to HMO (-1.10, p<.001). Similarly, recent switchers into HMOs had lower mortality risk than those remaining in FFS (HR=0.78); and recent switchers from HMO to FFS had 41% higher mortality risk than those remaining in HMOs (HR=1.41).

Conclusions: This 4-year follow-up of health outcomes among Medicare FFS and HMO enrollees finds no significant outcome differences between the systems, though it finds evidence of healthier beneficiaries opting into HMOs and less healthy opting out.

Implications for Policy, Delivery, or Practice: By allowing beneficiaries ongoing choice between systems (FFS, HMO) as they feel their health requires, the Medicare program may have built in a form of "self-correction" that contributes to the observed health outcomes equilibrium. It is also possible that as Medicare HMOs have proliferated and matured, the systems have converged such that any remaining care differences are inconsequential. As implementation of the Medicare Modernization Act (MMA) proceeds, including plans to re-energize and expand the role of Medicare HMOs, it appears important to preserve the element of choice between systems. The observed outcomes cannot be presumed to generalize to a program in which beneficiaries were "locked in" after enrollment.

Primary Funding Source: AHRQ, Robert Wood Johnson Foundation

●Quality of Care for Medicare Recipients: Lessons from the Second National Healthcare Quality and Disparities Reports

Nancy Wilson, M.D., MPH, Edward Kelley, Ph.D., Karen Ho, BA, Edwin Huff, Ph.D., Ernest Moy, M.D., MPH, Dan Stryer, M.D., Carolyn Clancy, M.D.

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Research Objective: To summarize the quality of health care for Medicare recipients based on findings from the second National Healthcare Quality and Disparities Reports. Key findings will be presented in three parts: a) findings on measures used by the Medicare program for quality reporting and monitoring of hospital, nursing homes, home health agencies and dialysis facilities; b) findings on measures applicable to the general population where Medicare-specific data are available and c) findings on race/ethnicity and socioeconomic status disparities within the Medicare population.

Study Design: Key findings for this paper are based on the second National Health Quality Report (NHQR) and National Healthcare Disparities Report (NHDR) to be released in January 2005. These second reports extend the baseline established in the 2003 reports for a set of health care quality measures across five dimensions of quality- effectiveness, safety, timeliness, patient centeredness and, in the NHDR, equity. The reports examine effectiveness of care across nine clinical condition areas- cancer, diabetes, end stage renal disease, heart disease, HIV/AIDS, maternal and child health, mental health, respiratory diseases, and nursing home and home health care. Over 30 databases are used to generate the 350+ data tables associated with the two reports. This paper summarizes 30 measures of quality that apply to health care settings such as nursing homes, home health, and inpatient care and 17 measures on quality of care applicable to the general population and Medicare beneficiaries to present trends over time and findings on disparities within the Medicare population.

Population Studied: Medicare beneficiaries compared with the general U.S. population.

Principal Findings: The quality of health care for Medicare recipients across both Medicare-specific measures and general measures has improved by median of 3%. Medicare specific measures

- Out of 30 Medicare measures with trend data, over four times as many measures improved (24) as deteriorated (6).
- The rate of improvement varies by care setting, with nursing homes seeing the highest reported improvement between the 2003 NHQR and the 2004 NHQR.

General Measures

- The level of improvement seen in measures applicable to both the general and Medicare populations is somewhat different from that seen in Medicare-specific measures. Out of 17 measures with trend data where Medicare populations can be analyzed, about half have improved (9) as have deteriorated (8).
- Where quality of care for Medicare recipients has improved, however, it is at a level higher than that seen in other areas of

the NHQR measure set (9.08% median improvement across the 9 improved measures).

Disparities

- Disparities exist within the Medicare population. Findings show that racial and ethnic disparities exist in dialysis care, hospital care, nursing home care and home health care.
- Disparities within the elderly Medicare population are not fully explained by supplemental insurance.
- Disparities among people over 65 (almost all of whom have Medicare coverage) tend to be smaller than disparities among people under 65.

Conclusions: The quality of health care for Medicare recipients across both Medicare-specific measures and general measures has improved overall. The most improvement in care for Medicare recipients was seen in Medicare specific measures of percent of residents who have moderate to severe pain and percent of residents who were physically restrained. There remains opportunity for improvement in quality of care for pneumonia, AMI and home health care. The level of improvement seen in measures applicable to both the general and Medicare populations is somewhat different from that seen in Medicare-specific measures. However, where quality of care for Medicare recipients has improved, it is at a level higher than seen in other areas of the NHQR measure set. Disparities among people over 65 tend to be smaller than disparities among people under 65. However, disparities do exist within the Medicare population as shown by measures used by the Medicare program for quality reporting and monitoring of hospital, nursing homes, home health agencies and dialysis facilities. Also, disparities within the elderly Medicare population are not fully explained by supplemental insurance status.

Implications for Policy, Delivery, or Practice: Although there is evidence of improvement in quality of care for Medicare beneficiaries, there remain opportunities for improvement. Disparities exist within the elderly Medicare population which are not fully explained by insurance status. Findings show racial and ethnic and socioeconomic disparities exist in preventive care and in various health care settings in which Medicare beneficiaries receive care. Current CMS Quality Initiatives for home health, nursing homes, dialysis centers, hospital care and ambulatory care are important activities to improve quality of care for beneficiaries. The Medicare Modernization Act is also an important policy which mandates better access to quality care for beneficiaries.

Primary Funding Source: AHRQ

Call for Papers

The Part D Benefit: Going Boldly Where Medicare Has Not Gone Before

Chair: Helene Lipton, University of California, San Francisco

Monday, June 27 • 11:00 am – 12:30 pm

● **Improving Medicare Coverage: An Evaluation of the Doughnut Hole Gap**

January Angeles, MPP, Marilyn Moon, Ph.D.

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Research Objective: Building on ongoing work, this study identifies options to reduce Medicare beneficiaries' overall out-of-pocket spending, while requiring little or no additional federal spending. This can be done by changing Medicare's cost-sharing structure, which currently results in very high out-of-pocket spending for some beneficiaries. The study will identify where the largest gaps in coverage exist, and compare the impact of two competing policy proposals: (1) improving inpatient and ambulatory care benefits; or (2) filling the doughnut hole in prescription drug coverage.

Study Design: Using data from the 2000 MCBS, we created a model to simulate the effects of various insurance alternatives on beneficiaries' out-of-pocket costs. After adjusting for income underreporting and projecting costs forward to 2004, we derived baseline per beneficiary estimates of Medicare liability, program payments, and out-of-pocket health care spending. We simulated options for changing Part A and B cost-sharing, using combinations of: adding a stop-loss limit to beneficiary spending; changing the Part A and B deductible levels; and using a combined A/B deductible. We also simulated options for filling the doughnut hole in the drug benefit using combinations of: increasing the deductible; decreasing the catastrophic limit; and changing the cost-sharing for drugs.

Population Studied: We focus on Medicare beneficiaries aged 65 or older who reside in the community and are enrolled in fee-for-service Medicare. We excluded those who have End-Stage Renal Disease, live in a nursing home, or are enrolled in Medicare Advantage because expenditure data for these beneficiaries are either inaccurate or uncharacteristic of most Medicare beneficiaries.

Principal Findings: Preliminary findings show that for beneficiaries, the largest improvement in Part A and B cost-sharing results from the implementation of a \$3,000 stop-loss, reducing overall per capita out-of-pocket spending by \$240. Restructuring Part D by increasing the deductible to \$350 and using tiered co-pays (50% after deductible up to \$1,250, and 25% from \$1,250 to the catastrophic level of \$5,100) produces the same level of savings. The increase in government spending resulting from these changes could be offset by charging beneficiaries a relatively modest monthly premium of \$20. Future work will investigate who benefits most from the various reform options, how the benefits are distributed across sub-groups of beneficiaries, and whether

improvements should focus on filling the doughnut hole versus improving Part A and B cost-sharing. Comparisons of the distributional impacts of the various reform options will be available in February.

Conclusions: Modest changes to Medicare's cost-sharing structure provide significantly better coverage to vulnerable beneficiaries, while imposing relatively modest costs to the program. However, the choice of which reform options are optimal may vary depending upon what policy-makers value as an improvement in coverage (e.g., concentration of benefits among those with high out-of-pocket costs, or a greater share of beneficiaries with reduced costs).

Implications for Policy, Delivery, or Practice: This study presents policymakers with options and tradeoffs for reducing Medicare beneficiaries' out-of-pocket expenses. It provides information about how specific structural changes affect beneficiaries with low-income, chronic illnesses, and high medical expenditures.

Primary Funding Source: CWF

●Generosity of Retiree Drug Benefits and Essential Medication use among Aged Medicare Beneficiaries with Employer-Sponsored Health Insurance

Jalpa Doshi, Ph.D., Daniel Polsky, Ph.D.

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Research Objective: The new Medicare drug benefit (Part D) has created unintended incentives for employers to drop or scale-back retiree drug benefits. The CBO has projected that 2.7 million beneficiaries will be dropped from retiree drug plans and shift into Part D plans. The 2004 Kaiser/Hewitt Survey suggests that some beneficiaries will also have their retiree drug benefit scaled back to match the standard Part D benefit. Our objective is to examine how the potential net reduction in drug coverage for those with currently generous retiree drug benefits would affect their medication use. The study takes advantage of the existing variation in retiree drug benefits to examine the association between generosity of drug coverage and essential medication use among retired seniors.

Study Design: The study used the 1997-2000 Medicare Current Beneficiary Survey, a nationally-representative survey of the Medicare population linked with Medicare claims. The essential medications selected were (i) statin use in retirees with coronary artery disease (CAD) and hyperlipidemia and (ii) ACE-inhibitor/ARB use in retirees with diabetes and a cardiovascular risk factor (CVD). Generosity of retiree benefits was defined based on the percentage of the beneficiary's annual drug expenditure paid by the employer (0%, 1-50%, 51-75%, and 76-100%). Multivariate logistic regressions with survey estimators were used to estimate the impact of different drug coverage generosity levels on odds of receiving the study medications controlling for socioeconomic, demographic, and disease-related characteristics.

Population Studied: Aged community-dwelling fee-for-service Medicare beneficiaries from 1997 to 2000 with supplemental health insurance from own/spouse's former employer, and one or more claims in the survey year with diagnoses of (i)

CAD and hyperlipidemia [N=1,220] and (ii) diabetes and CVD [N=1,141]. Both samples exclude Medicare retirees with drug coverage from sources other than an employer.

Principal Findings: More than half the retirees with CAD and hyperlipidemia had 76-100% and another quarter had 51-75% of their annual drug expenditures paid by their employer.

Only 10 percent retirees were in the 1-50% generosity group and about 8 percent received no retiree drug benefits (i.e. 0% group). Prevalence of statin use significantly decreased with decreasing generosity of drug coverage [76-100% group: 72.6%; 51-75% group: 55.5%; 1-50% group: 54.5%; and 0% group: 45.6%]. These results held even after multivariate adjustment. Retirees in the 51-75% group [OR:0.48; 95% CI: 0.35-0.64] and the 1-50% group [OR:0.44; 95% CI: 0.29-0.67] had less than half the odds of receiving statins than those in the 76-100% group. Similar results were observed for ACE-inhibitor/ARB use in retirees with diabetes and CVD.

Conclusions: Less generous retiree drug benefits are associated with lower use of recommended medications among Medicare retirees with selected disease conditions.

Implications for Policy, Delivery, or Practice: Our findings suggest that an elimination or reduction of retiree drug coverage due to the Medicare drug benefit may lead to a decrease in the use of essential medications for retirees who were otherwise receiving generous employer drug benefits. It will be critical to monitor employer response to Part D over the coming years and determine the extent to which access to effective medications and potentially the health of the nation's retired seniors may be adversely affected.

Primary Funding Source: Leonard Davis Institute of Health Economics

●Prescription Drug Expenditures for Medicare Managed Care Beneficiaries in the Last Year of Life

Cheryl Fahlman, BSP, MBA, Ph.D., Joanne Lynn, M.D., Danielle Doberman, MPH, M.D.

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Research Objective: This study aimed to describe mail and retail prescription drug expenditures for Medicare beneficiaries in their last year of life (LYOL) in a large national managed care organization (MCO). This research provides the first claims-based data on expenditures sorted by disease and demographics for patients at the end of life.

Study Design: This research used drug claims and enrollment data collected between January 1998 and December 2000, supplemented by the Medicare denominator file. We analyzed the relationship between socio-demographic descriptors, insurance characteristics, and mean expenditures, also calculating expenditures, by principal condition, for the last month of life, last three months, last six months, and LYOL. Expenditures included the amount the pharmacy claimed, the amount paid by the MCO, and the beneficiaries' out-of-pocket expenses. We adjusted payment amounts for inflation to January 1999 dollars using the seasonally adjusted Consumer Price Index for pharmaceutical drugs and medical supplies.

Population Studied: Four thousand six hundred and two beneficiaries qualified for the study, based on their dying between 1999-2000, being continuously enrolled for two years

before death, and having at least one prescription filled in the LYOL.

Principal Findings: The mean annual number of prescriptions filled was 36.9; the MCO paid \$490; and beneficiaries paid \$570. Higher expenditures were significantly correlated with female gender, higher number of comorbidities, and whether beneficiaries obtained the insurance as an employer retiree benefit (rather than being individually purchased). Minority beneficiaries had 26% fewer prescriptions and a lower mean annual out-of-pocket expense. Increasing levels of annual median household income in the area corresponded with a 20% increase in the number of prescriptions dispensed and a 25% increase in mean out-of-pocket expenses, between those with a median household income of less than \$20,000 and those with \$40,000 or greater. In the LYOL, COPD (47.2) and diabetes (45.6) had the highest average number of prescriptions and total expenditures (\$1445 and \$1267). Individuals dying from strokes or other unclassifiable conditions had the smallest average number of prescriptions (31.2 and 27.4) and the lowest average total expenditures (\$880 and \$804).

Conclusions: Medication expenditures in the LYOL were highly dependent upon selected socio-demographic and insurance characteristics. Spending for prescription drugs, although rising in the last months of life, does not rise as rapidly as other medical care spending, particularly hospital, physician and nursing home spending.

Implications for Policy, Delivery, or Practice: This information has important policy implications because Medicare will soon initiate coverage of prescription drugs. Recent research found that active worker claims for prescription drugs rose 53% between 2000-2004. If expenses in the Medicare population rose at the same rate then average annual total prescription drug claims would average \$1,964 (2004 \$USD). Twenty-five percent of beneficiaries would hit the “doughnut hole” and would have no Medicare prescription coverage if their last months of life fell late in the benefit year. Only 6% of the study population would have expenses making them eligible for catastrophic coverage. These findings provide an initial benchmark for planning for the Medicare drug benefit for a particularly high-utilizing portion of the population, those sick enough to die.

Primary Funding Source: RWJF

● Prescription Drug Coverage and Mortality Risks among Aged Medicare Beneficiaries

Frank Porell, Ph.D.

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Research Objective: While past research has found supplemental insurance to be associated with delayed disability and longer survival among aged Medicare beneficiaries generally, prescription drug coverage did not appear to enhance these beneficial outcomes. This study examines whether certain subpopulations of aged Medicare beneficiaries with supplementary insurance covering prescription drugs exhibit better survival outcomes than their counterparts without prescription drug coverage.

Study Design: The main source of data is the Access to Care component of the Medicare Current Beneficiary Survey (MCBS). MCBS administrative nonrespondent files, which contain verified dates of death, were used to measure survival outcomes. Six years of MCBS data, 1991-1996, were used to create five years of annual survival outcome observations using successive years of data ranging from the 1991-1992 through 1995-1996. Discrete-time survival models were specified where the probability of death within a year was a function of socio-demographic factors (age, gender, race, marital status, education, income), health status (prevalent chronic conditions, functional status, prior use), lifestyle risk factors (smoking behavior, body mass index), and supplementary insurance status (private supplementary coverage only, private supplementary insurance with drug coverage, Medicaid coverage, none). Separate outcome models were estimated for subpopulations of aged Medicare beneficiaries with: functional independence, functional limitations only, 1 or more IADL disabilities only, and 1 or more ADL disabilities. Standard errors of all parameter estimates were adjusted to reflect the presence of repeated observations in the pooled sample data. Because of the potential endogeneity of supplementary insurance status, outcome model parameters were also estimated with and without selectivity adjustments derived from a multinomial logit (MNL) choice model of supplementary insurance status, and with instruments specified for observed insurance status variables.

Population Studied: The study sample was restricted to non-institutionalized Medicare beneficiaries aged 66 or older currently entitled under OASI, who were continuously eligible for both Parts A and B of Medicare, and who were never enrolled in an HMO during the two-years comprising an observation. The estimation sample contained 40,793 person-year observations with baseline years ranging between 1991 and 1995.

Principal Findings: Mortality risk was not associated with supplementary insurance status among functionally independent community beneficiaries. Otherwise, mortality risks were significantly lower among beneficiaries with functional limitations, IADLs, and ADLs who held some form of private supplementary insurance. Their expected odds of death (within a year) were about 35%-48% lower than their counterparts with no Medicare supplementary insurance. Medicaid coverage was associated with lower mortality risks only among ADL-disabled beneficiaries (OR=0.56). Marginally significant effects of private drug coverage were only found for beneficiaries with 3+ADLs. The odds of death were about 20% lower among severely ADL-disabled beneficiaries with prescription drug coverage relative to their disabled counterparts with private supplemental insurance that did not cover drugs ($p < .09$).

Conclusions: The empirical findings provide qualified support of the proposition that extending prescription drug coverage may reduce mortality risk among aged Medicare beneficiaries. Private prescription drug coverage and Medicaid coverage were both associated with lower mortality risks only among moderate or severely ADL-disabled beneficiaries.

Implications for Policy, Delivery, or Practice: Other empirical research has suggested that the costs of extending prescription drug coverage to Medicare beneficiaries will be at least partially offset by reduced expenditures for Medicare

covered services, particularly inpatient hospitalization. This study suggests that the Part D benefit will also likely extend the longevity of community resident ADL-disabled beneficiaries. Since average annual Medicare costs of aged Medicare beneficiaries with 3+ ADLs are more than 3 times higher than their nondisabled counterparts generally, extended longevity may diminish potential cumulative program savings associated with avoided use of covered services for this subpopulation.

Primary Funding Source: AARP Andrus Foundation

●Prescription Drug Coverage and Elderly Medicare Spending

Baoping Shang, MA, Dana Goldman, Ph.D.

Presented By: Baoping Shang, MA, Doctoral Fellow, The Rand Graduate School, Rand, 1776 Main Street, Santa Monica, CA 90401; Tel: (310)393-0411 x6708; Fax: (310)260-8156; Email: baoping@rand.org

Research Objective: This study estimates the effects of a Medicare prescription drug benefit on elderly Medicare spending. Unlike official estimates of the forthcoming Medicare prescription drug benefit, we explicitly measure whether drugs substitute for—or perhaps reduce—spending on other medical services, especially inpatient and ambulatory care. One challenge for this type of research is how to control for selection bias for those with prescription coverage, and we employ several methods to deal with it.

Study Design: We use longitudinal data from 1992 to 2000 Medicare Current Beneficiary Survey (MCBS). We convert all spending into 2000 dollars using the Medical component of the Consumer Price Index. We then compare spending and service use for beneficiaries who have Medigap insurance which sometimes covers prescription drugs and sometimes does not. To further mitigate potential selection bias, we use variation in state regulations of the individual insurance market—including guaranteed issues, pre-existing condition restrictions and community rating—as instruments for prescription drug coverage. Finally, we also employ a novel discrete factor model to control for individual-level heterogeneity. Other factors included in the model are demographic characteristics, health status, year fixed effects, and the levels of Medicare spending in the county measured by Medicare Adjusted Average Per Capita Cost (AAPCC).

Population Studied: Medicare beneficiaries aged 65 or older with both Part A and Part B, and with Medigap coverage.

Principal Findings: Preliminary results show that Medigap prescription drug coverage significantly increases drug spending by \$150 or 20%, and reduces Medicare spending by \$350 or 7%. Our results also indicate that Medigap prescription drug coverage reduces Medicare Part A spending, but the estimate is not significant. Medigap prescription drug coverage significantly reduces Medicare Part B spending by \$200 or 12%.

Conclusions: This study shows that prescription drug coverage may actually reduce total Medicare spending. It also provides estimates for the substitution effects between prescription drug use and use of other medical services covered by Medicare with an elasticity of 2.3%, i.e., a \$1 increase in prescription drug spending is associated with a \$2.3 reduction in Medicare spending.

Implications for Policy, Delivery, or Practice: The results from this study have important implications for the forthcoming Medicare prescription drug benefit. Official estimates of future spending do not take into account these potential savings, and hence may overstate the costs of the forthcoming Medicare drug benefit. As prescription drugs become increasingly integral to medical treatment of many illnesses, looking at drug spending in isolation from the rest of health care spending and the efforts simply to reduce drug spending may result in too little prescription drug coverage and utilization.

Primary Funding Source: The Hagopian Dissertation Award

Related Posters

Poster Session A

Sunday, June 26 • 2:00 pm – 3:15 pm

●The Impact of the Medicare Modernization Act on Federal Spending and Health Plan Enrollment in the Medicare Program

Adam Atherly, Ph.D., Kenneth E. Thorpe, Ph.D.

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Research Objective: The purpose of this study is to understand the effect of the Medicare Modernization Act (MMA) on beneficiary enrollment in Medicare Advantage plans and Preferred Provider Organization (PPO) plans. MMA increased MA plan payment and established a new Preferred Provider Organization (PPO) plan design using regional payment areas. In addition, we estimate the effect of MMA on federal spending on the Medicare program.

Study Design: MA plan benefits were converted into dollar value using an actuarial benefit model for both the overall benefit package and for sub elements of the MA benefit package. The actuarial model estimates the dollar cost of each MA plan's design using an expenditure distribution of M+C enrollees. We calculated the actuarial value of the core set of Medicare services and the actuarial value of supplemental benefits offered by plans. Enrollment in the MA and PPO plan designs were then modeled using actuarial induction factors.

Population Studied: The main source of the data was the 2004 Medicare Compare dataset, which was used in the actuarial estimation. Medicare Compare contains information on the benefit packages of MA plans operating in 2004, including coverage for prescription drugs, mental health, preventative services, hearing services, dental care and vision care. We combined this with data from CMS providing plan enrollment by plan at the county level, MA and PPO payment rates by county, county population and county mean Medicare FFS costs

Principal Findings: The higher payment rates enacted in MMA will lead to increased enrollment. The increased enrollment is caused by increased supplemental MA plan benefits offered in response to the higher MA payment rates. However, mean MA payments will be greater than 100% of FFS costs, so the increased enrollment will lead to increased

Medicare expenditures. PPO plans will benefit from the higher payment rates as well, but will struggle for enrollment due to their limited ability to effect cost reductions relative to the MA plans and diminished appeal relative to FFS plans.

Conclusions: The results of this study suggest that increased MA plan payments are likely to lead to increased MA plan enrollment, but also increased Medicare expenditures. PPO plans will struggle to gain enrollment as they balance more restricted management – which will allow more supplemental benefits to be offered while diminishing the appeal of the product.

Implications for Policy, Delivery, or Practice: The MA program remains in limbo. MA plans do reduce the cost of providing the core Medicare benefit package, but use the savings to attract enrollment by offering supplemental benefits. If policy makers attempt to tap into the savings generated by MA plans, the relative appeal of the plans is diminished and the savings evaporate. Under the current structure, the MA program increases spending on the programs. However, much of the savings is passed on to Medicare beneficiaries in the form of additional benefits rather than absorbed by MA plans as profit.

Primary Funding Source: No Funding Source

•Income of Individuals with Schizophrenia: Implications for Medicare Prescription Drug Coverage

Daniel Ball, MBA, Baojin Zhu, Ph.D., Walter Deberdt, M.D., Haya Ascher-Svanum, Ph.D.

Presented By: Daniel Ball, MBA, Outcomes Research Scientist, US Outcomes Research, Eli Lilly and Company, Lilly Corporate Center, Indianapolis, IN 46285; Tel: (317) 277-6628; Fax: (317) 277-7444; Email: ball_daniel_Le@lilly.com

Research Objective: Low-income individuals have limited resources available to cover medical expenses. In 2002, food and housing expenses alone consumed 88% of income for those making between \$5,000 and \$10,000 (Bureau of Labor Statistics). Individuals with schizophrenia generally have low incomes and an ongoing need for prescription drugs as a component of treatment. Beginning January 1, 2006 many individuals with schizophrenia will receive coverage through Medicare Prescription Drug Plans. Low-income Medicare recipients will be eligible for various levels of premium & cost-sharing subsidies. This descriptive study examines the income of individuals with schizophrenia by payer and estimates the frequency with which Medicare beneficiaries will qualify for some level of subsidy.

Study Design: Self-reported monthly income in the prior 6 months was collected at an initial interview and annualized. Medicare and dual-eligible recipients were categorized based upon eligibility for prescription drug premium and cost-sharing subsidies under the Medicare Modernization Act (MMA). This was determined by reporting income as a percentage of the year 2000 Federal Poverty Level (FPL) for a one-person family unit (\$8,350). Data on assets were not available so there are fewer subsidy cohorts than specified in MMA. Cohorts are defined as: Group A – Income \leq 100% (FPL) for Dual eligibles or Medicare only; Group B – Dual eligibles $>$ 100% FPL; Group C -- Medicare $>$ 100% & $<$ 135% FPL; Group D – Medicare \geq 135% & $<$ 150% FPL; Group E (no subsidies) – Medicare \geq 150% FPL.

Population Studied: Data come from the U.S. Schizophrenia Care and Assessment Program (SCAP), a naturalistic, prospective study of 2,327 individuals with schizophrenia-spectrum disorders who received treatment in usual care settings. SCAP enrollment was initiated in 1997 with 3-year follow-up completed in 2003.

Principal Findings: Mean income was \$8,360 among the 2,084 respondents. Medicaid (non-dual) was the payer for 45% of recipients (\$6,824), 19% were dually eligible for Medicare & Medicaid (\$7,750), 17% Medicare only (\$10,629), 6% CHAMPUS /Department of Defense (\$17,911), 5% private insurance (\$9,148), and 8% lacked insurance (\$5,967). Most (90.3%) Medicare & dually eligible recipients (n=752) would qualify for subsidies under MMA: Group A – 61.3% of qualifying group, \$5,677; Group B - 15.4%, \$12,716; Group C – 11.6%, \$9,432; Group D – 2.0%, \$11,928. The non-subsidy eligible (Group E) cohort (9.7%) had an average income of \$23,813. Individuals with incomes from 150 - 200% of FPL comprise 36% of non-subsidy eligible recipients. This cohort would incur out-of-pocket expenses exceeding 13% of their \$14,329 annual income, for a single medication costing \$250 per month.

Conclusions: The majority of individuals with schizophrenia have incomes below the FPL for a one-person household, with most Medicare recipients qualifying for low-income subsidies to minimize out-of-pocket prescription drug spending. Given extremely limited disposable incomes, however, even limited cost-sharing may create difficulties for individuals with multiple chronic conditions. Those just above the subsidy threshold will face a substantial financial burden.

Implications for Policy, Delivery, or Practice: Exemption from cost-sharing requirements or a copayment ceiling should be considered for chronic medical conditions like schizophrenia that disproportionately affect low-income individuals.

Primary Funding Source: Eli Lilly and Company

•Medicare Physician Group Practice Demonstration: Design of Financial Incentives

JoBelahn Bapat, MA, Gregory C. Pope, MS, Michael Trisolini, Ph.D., MBA, John Pilotte, MHS, Bela Bapat, MS, Heather Grimsley, MBA

Presented By: JoBelahn Bapat, MA, Health Economics and Financing Program, RTI International, 3040 East Cornwallis Road Research Triangle Park NC 27709, Waltham, MA 02452; Tel: (781) 788-8100; Fax: (781) 788-8101; Email: bbapat@rti.org

Research Objective: To design financial incentives for physician group practices to improve the efficiency and quality of health care provided to Medicare fee-for-service beneficiaries.

Study Design: A legislative mandate for the Medicare Physician Group Practice (PGP) demonstration was included in the Benefits Improvement and Protection Act of 2000. In addition to their standard Medicare fee-for-service (FFS) reimbursement, which they will continue to receive, PGPs participating in the demonstration can earn bonus payments for both efficiency and quality performance. This research used applied microeconomic theory, analysis of Medicare data, and simulation techniques to design PGP demonstration financial incentives to encourage physician groups to attract, retain and coordinate care to chronically ill beneficiaries; give

physicians incentives to efficiently provide services to their patients; and promote the active use of utilization and clinical data for the purposes of improving efficiency and outcomes.

Population Studied: Medicare beneficiaries

Principal Findings: A PGP's ability to coordinate and manage the health care of a beneficiary depends on the type of services the PGP provides to the beneficiary, and the overall control the PGP has over the beneficiary's utilization of services. Since the PGP demonstration is a FFS innovation, there is no enrollment process whereby beneficiaries accept or reject involvement. Therefore, beneficiaries are assigned to participating PGPs based on utilization of Medicare-covered services. A beneficiary who receives a plurality of their 'office or other outpatient' Evaluation and Management (E&M) services from a participating PGP during a demonstration performance year is assigned to the PGP. The key component in the determination of bonus payments for participating PGPs is Medicare Savings, which is a measure of efficiency improvement. Medicare Savings are computed as the difference between the PGP's expenditure target and its actual expenditures in the performance year. The target is set using a comparison population of non-assigned local market area fee-for-service beneficiaries. Thus, a PGP can earn a bonus if its efficiency performance is better than its local market area. The demonstration allocates 80 percent of Medicare Savings to a bonus pool for the participating PGP, and the remaining 20 percent is savings for the Medicare program. The PGP automatically receives a portion of the bonus pool as a "cost bonus," but must earn the remaining portion by providing high quality care.

Conclusions: Financial incentives were developed for the PGP demonstration to improve the efficiency in the provision of health care for Medicare FFS beneficiaries. Performance on quality of care targets, together with cost savings, are used in the calculation of performance bonuses for participating PGPs.

Implications for Policy, Delivery, or Practice: The PGP demonstration is a unique reimbursement mechanism through which providers are rewarded for coordinating and managing the overall health care needs of a non-enrolled, FFS patient population. It offers an opportunity to test whether a different financial incentive structure can improve service delivery and quality for Medicare patients and ultimately prove cost-effective.

Primary Funding Source: CMS

●Beneficiary Perspectives on Medicare PPOs

Shula Bernard, Ph.D., Gregory Pope, MA, Leslie Greenwald, Ph.D., Wayne Anderson, Ph.D., Judy Lynch, John Kautter, Ph.D.

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Research Objective: To examine beneficiary reasons for plan choice, awareness of plan options, and plan experience among enrollees in preferred provider organizations (PPOs) as compared to beneficiaries in Medicare HMOs or Original Medicare.

Study Design: Mail survey with telephone follow-up of Medicare beneficiaries conducted in 2004. The stratified

random sample of 35 PPO demonstration service areas includes HMO and Original Medicare comparison groups. Overall response rate was 67%, with 20,304 respondents.

Population Studied: Medicare beneficiaries

Principal Findings: The most important reasons for choosing a PPO were reducing healthcare costs, followed by greater freedom of provider choice. Half of PPO enrollees paid monthly premiums ranging from \$51 to \$100, double the proportion of HMO enrollees. On the other hand, approximately 45% of beneficiaries in Original Medicare reported paying monthly premiums in excess of \$150 for supplemental insurance. 71% of PPO enrollees had some prescription drug costs covered as opposed to 60% of HMO enrollees and beneficiaries in Original Medicare with supplemental insurance. Almost twice the proportion of PPO enrollees (18%) as HMO enrollees went out of plan for services, and 40% of these PPO enrollees paid more for those services, double the proportion of HMO enrollees. About 15% of PPO enrollees received services from a provider that did not accept their insurance plan. PPO enrollees were more likely than HMO enrollees to have had supplemental insurance prior to enrolling in the PPO and to have had at least some prior coverage for prescription drugs. PPO enrollees have higher current out of pocket expenses. Recognition of PPO or POS type plans by beneficiaries in Original Medicare was low (30%), and almost half of PPO enrollees did not recognize those terms, suggesting that beneficiaries have a difficult time distinguishing abstract insurance designations. Among beneficiaries having heard of a 'Medicare PPO', slightly more than one-third of PPO enrollees knew that a PPO provides more freedom of choice of providers, but two-thirds of HMO enrollees and three-quarters of beneficiaries in Original Medicare responded either incorrectly or that they did not know. Regarding issues of choice and satisfaction, there was little variation in responses between the three comparison groups on measures of getting a desired doctor or nurse or problems in seeing a specialist or obtaining desired care. PPO enrollees reported lower ratings of their overall health insurance coverage as compared with HMO enrollees and beneficiaries in Original Medicare.

Implications for Policy, Delivery, or Practice: More work is needed to help Medicare beneficiaries understand differences between PPO and HMO options. Since these differences affect consumer ability to choose providers as well as out of pocket expenditures, it is important for beneficiaries to understand the implications of their choice at the time of enrollment. Understanding the experiences of these beneficiaries will inform planning for CMS' future PPO initiative under the MMA.

Primary Funding Source: CMS

●**Caps and Deductibles: Effect of Prescription Drug Benefit Gaps on Low-income Seniors' Drug Use and Spending**

Christine Bishop, Ph.D., Cindy Parks Thomas, Ph.D., Daniel Gilden, MS, Melissa Morley, MS

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Research Objective: Drug use and spending data from enrollees of two state pharmacy assistance programs are combined with enrollee characteristics from Medicare files to address the following questions: 1) How does a dollar cap on pharmacy benefits affect low-income seniors' use of medications prior to and after reaching the cap? 2) How does a deductible affect use of medications by low-income seniors?

Study Design: The SeniorCare programs in Wisconsin and Illinois provide a natural experiment to test the effect of caps and deductibles. The benefit design of Illinois SeniorCare has no deductible but includes a "soft cap" so that an enrollee's price per prescription increases substantially after he or she has purchased \$1750 worth of prescription drugs in the benefit year. The Wisconsin SeniorCare benefit design includes a \$500 deductible for seniors with incomes 160% FPL or greater, but has no cap on spending. We track purchasing behavior for pharmacy assistance program enrollees before and after they reach a deductible or a "soft" benefit cap. To model effective price (Ellis 1986), we apply probit analysis to estimate the probability that an enrollee will satisfy the deductible (for Wisconsin SeniorCare) or exceed the soft cap (for Illinois SeniorCare); this model includes variables reflecting demographic characteristics and health conditions based on information from Medicare eligibility and claims files merged with program enrollment data. We then model the responsiveness of low-income seniors' prescription drug spending to the estimated effective price derived from the probit analysis, given income, health condition, and other characteristics.

Population Studied: The population studied are the low-income seniors (not on Medicaid, income less than 2 x FPL) who enrolled in SeniorCare programs in Wisconsin (70,000 in FY 2004) and Illinois (179,000).

Principal Findings: Approximately 30 percent of Illinois enrollees reached the soft cap during the first year of program operation; the deductible in Wisconsin was met by nearly 80 percent of the enrollees subject to it and enrolled a full year. Wisconsin enrollees consume consistently fewer drugs before reaching their deductible than after, and Illinois enrollees restrict purchasing after they hit their "soft cap," when cost sharing increases considerably. Findings concerning the impact on use of effective price, given income and other characteristics, are forthcoming.

Conclusions: Studies have demonstrated that out-of-pocket price, as indicated by level of copayment, affects consumers' use of prescription drugs. Although the copayment for consumers who have not met a deductible or who have exceeded a spending cap is the full price of drugs, economic theory suggests that the effective price for these consumers is rather their expected price at the end of the year (Keeler, Newhouse et al. 1977; Ellis 1986; Ellis and McGuire 1986). However, this may not hold for low-income seniors, who have

little disposable income to spend on medications while in a benefit gap.

Implications for Policy, Delivery, or Practice: The Medicare prescription drug benefit design (Part D) includes gaps in coverage for certain spending levels for most seniors. The results suggest that these gaps in coverage are likely to restrict the use of prescription drugs for many low-income seniors, and that effects will differ depending on the beneficiary's health status, income, and other characteristics.

Primary Funding Source: RWJF

●**Problems Encountered by Medicare Beneficiaries in Managed Care Plans**

Bridget Booske, Ph.D., MHSA, Deirdre Frees, Ph.D., Judith Lynch, BA, Anne Kenyon, MBA, Randy Bender, Ph.D., Amy Heller, Ph.D.

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Research Objective: Most Medicare beneficiaries who choose to leave Medicare managed care plans are seeking lower costs, better benefits, or different doctors, but about one quarter of those who leave choose to do so because they have experienced problems getting care or information. The objective of this research is to learn more about the types of problems that beneficiaries encounter trying to get the care that they need.

Study Design: The Medicare CAHPS Disenrollment Reasons survey has been conducted annually since 2000. Survey respondents report on their reasons for leaving their Medicare managed care plan in two ways: they check off applicable reasons on a predefined list of 33 potential reasons and then they respond to an open-ended question inquiring about their most important reason for leaving. Over ninety percent of respondents provide narrative responses to this question, providing a narrative a rich source of information about beneficiaries' experiences with care. The responses are coded into reasons that mirror the 33 pre-defined reasons and then these reasons are grouped for reporting to the public and to plans. On www.medicare.gov, plan-specific disenrollment rates are displayed as the percent of enrollees who left due to "Problems with care or services" or "Concerns about costs and benefits". Additional detail is available about "Problems with care or services" delineating those who left due to problems getting information, doctors, or care. A slightly greater level of detail about "problems getting care" is provided to plans but the level of specificity is not considered actionable for improvement. We are performing a more detailed content analysis of the specific types of experiences reported by this subset of beneficiaries.

Population Studied: The data set consists of 26,798 beneficiary respondents nationwide who they voluntarily disenrolled from their Medicare managed care plan during 2003. On average, about 20 percent of these disenrollees report that their most important reason for leaving was due to problems getting care. From this subset, we are selecting the text responses of beneficiaries' whose most important reason was initially coded into one of six reasons including problems with doctors, getting referrals, getting needed care, getting

admitted to hospital, and getting special medical equipment or home health care.

Principal Findings: Not yet available.

Conclusions: Not yet available.

Implications for Policy, Delivery, or Practice: In addition to offering new prescription drug options, another key component of the Medicare Prescription Drug, Improvement and Modernization Act of 2003 (MMA) involves the restructuring and expansion of Medicare managed care options available to beneficiaries. Even though economic factors are clearly responsible for many decisions to change plans, a small but significant proportion of beneficiaries choose to leave because they have experienced some type of problems accessing care. The findings from this research will help CMS and other policy makers to understand the problems and barriers that beneficiaries face in dealing with managed care plans; identify areas for improvement within managed care organizations; and suggest areas to address to ensure access to high quality care in new managed care options.

Primary Funding Source: CMS

● **Effect of Payment Rate Changes on Pharmaceutical Utilization in Medicare Hospital Outpatient Payment System**

Mary Jo Braid-Forbes, MPH, Kevin F. Forbes, Ph.D., Michael Ziskind, MS

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Research Objective: To measure the effect of reductions in payments for pharmaceuticals in the hospital outpatient setting on the number of hospitals offering therapies and the level of utilization.

Study Design: Using Medicare claims data for three years, we constructed a longitudinal database of quarterly utilization and hospital participation for over 100 separately paid pharmaceuticals. We combined this with data on the actual acquisition cost of the drugs and Medicare payment rates. The effect by hospital ownership type was also studied. The number of hospitals and number of administrations were regressed on a number of binary variables.

Population Studied: Medicare

Principal Findings: Changes in payment rate had an adverse impact on the number of administrations for a number of drugs. Further analysis to be conducted.

Implications for Policy, Delivery, or Practice: Payment rates for separately paid pharmaceuticals that are below acquisition cost may have an adverse impact on access.

Primary Funding Source: Other

● **CMS Policy Change on Obesity: Potential Expansion in Medicare Reimbursable Treatment Population**

Jalpa Doshi, Ph.D., Daniel Polsky, Ph.D., Virginia Chang, M.D., Ph.D.

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Research Objective: Traditionally Medicare has only reimbursed obesity-related treatments for beneficiaries with diseases resulting in or made worse by obesity (e.g. hypothyroidism, diabetes, cardiac or respiratory diseases). Similar services for obese Medicare beneficiaries without obesity-related comorbidities have not been covered. On July 15, 2004, CMS removed the language "obesity itself cannot be considered an illness" in their National Coverage Determination (NCD) manual. This modification removes barriers for anti-obesity treatments such as bariatric surgery for obese individuals without obesity-related co-morbidities; NCD requests can now be made to modify current coverage determinations and potentially receive favorable decisions. In light of this policy change, data on the prevalence of obesity and associated comorbidities in the vulnerable Medicare population would be of value. Currently, however, there are no estimates on how many additional Medicare beneficiaries would receive obesity treatment coverage following such potential coverage policy changes. This study examines the national prevalence of obesity with and without comorbidities in the Medicare population and the potential expansion in Medicare reimbursed obesity treatment-eligible population. **Study Design:** The data source for this study was the 2000 Medicare Current Beneficiary Survey (MCBS), a nationally representative survey of the Medicare population. Beneficiary height and weight data were self-reported during in-home interviews by surveyors. Obesity was defined as BMI > 30.0 and further classified into Class I (BMI 30.0-34.9), Class II (BMI 35.0-39.9), and Class III (BMI > 40.0) obesity. Presence of obesity-related co-morbidities was identified based on self-reports of being told by a physician that beneficiary had the specific condition. National prevalence rates were estimated using survey weights and adjusting for the complex survey sampling design.

Population Studied: Nationally representative sample of community-dwelling Medicare beneficiaries in 2000.

Beneficiaries (n=199) with missing height and weight data were excluded (Final n=11,778, weighted N=37.8 million).

Principal Findings: About 8.8 million (23.3%) community-dwelling Medicare beneficiaries suffered from obesity in 2000 (Class I: 15.9%; Class II: 5.0%; Class III: 2.4%). Obesity prevalence was significantly higher among Medicare disabled under age 65 than aged Medicare beneficiaries (39.9% vs. 20.7%). The prevalence of four common comorbid conditions was higher among obese beneficiaries compared to normal weight beneficiaries (cardiovascular disease 30% vs. 26%, lung disease 20% vs. 14%, diabetes 29% vs. 12%, hypertension 69% vs. 50%). Overall, 82.3% of the obese beneficiaries had at least one of these four comorbidities. Disabled under 65 beneficiaries were less likely to have these obesity-related comorbidities than aged beneficiaries (77.9% vs. 83.6%, p<0.05). The overall estimate increases to 91.4%

upon including arthritis as an additional comorbidity. When measured by the lack of comorbidity for the four common obesity-related conditions (i.e. not including arthritis) only 1.6 million (17.7%) total obese and 0.1 million (11.0%) Class III obese Medicare beneficiaries have become potentially eligible for obesity-related services through the recent policy change.

Conclusions: About 1 in 4 community-dwelling Medicare beneficiaries was obese in 2000. A majority of these beneficiaries were already eligible for reimbursement for obesity-related services under Medicare policy prior to July 2004.

Implications for Policy, Delivery, or Practice: Our study results suggest that the recent deletion of CMS Medicare policy language that obesity is not an illness would not lead to a large increase in the Medicare reimbursed treatment eligible population for obesity related services. Nevertheless, given the high obesity prevalence and potential for coverage of antiobesity treatment, the use of these services by Medicare beneficiaries is likely to rise dramatically in the coming years. There is an urgent need for studies demonstrating the health benefits and cost-effectiveness of various antiobesity treatments in this vulnerable population to support future NCD requests.

Primary Funding Source: Penn Research Foundation

●**Efficient Pricing in FFS Medicare**

Bryan Dowd, Ph.D., Roger Feldman, Ph.D., Bob Town, Ph.D., John Nyman, Ph.D.

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Research Objective: Despite the importance of setting prices (fees) for the health care services provided to beneficiaries in fee-for-service (FFS) Medicare, the objectives of the price-setting process only recently have been explored in any detail. Objectives such as “sustainability,” accurate approximation of costs, and access have been articulated by MedPAC. The evolution of these stated objectives reflects a trend towards recognition of the importance of local market conditions and demand, as well as supply effects. In this paper, we attempt to clarify the achievable objectives for price setting in FFS Medicare and highlight some important omissions from current policy discussions. We also outline the practical steps that would be needed to pursue a price-setting strategy based on economic efficiency. This paper was the focus of a recent AcademyHealth discussion group led by Roger Feldman. We will incorporate the findings from that discussion into our presentation.

Study Design: Analysis of MedPAC documents over the past ten years and economic modeling of markets with public and private payers setting fees for providers who see patients from both markets.

Population Studied: The study focuses primarily on the Medicare-eligible population, but discusses impacts on enrollees in other government health insurance programs and consumers with employment-based insurance.

Principal Findings: MedPAC is moving gradually towards recognition of both supply and demand effects in Medicare pricing decisions and recognition of the importance of local market variation in these effects, in other words, pricing that

addresses both economic efficiency and fairness objectives. Further movement in that direction will require new types of data and analyses.

Conclusions: Explicit pursuit of efficient pricing would facilitate resolution of a number of important Medicare policy issues, including: the proper role of local disparities in demand-related factors such as beneficiary income in pricing decisions; the relationship of Medicare pricing policy to local market failure (e.g. monopolistic provider markets); the relationship between Medicare fees and fees in other insurance markets.

Implications for Policy, Delivery, or Practice: Increased recognition of local market variation in supply and demand factors raises difficult and complex policy issues, and may require fundamental re-evaluation of the federal government's role as a purchaser of health care services. However, the Medicare program already makes de facto decisions with respect to these difficult policy issues and failure to recognize local market variations could waste resources and jeopardize Medicare beneficiaries' access to services.

Primary Funding Source: No Funding Source

●**Beneficiary Health Status and Health Care Experiences: Differences Between Medicare Advantage and Fee-for-Service 2000-2003**

Marc Elliott, Ph. D., Shulamit L. Bernard, Ph.D., Lisa Carpenter, MS, Alan Zaslavsky, Ph.D., Paul Cleary, Ph.D.

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Research Objective: Assess whether the differences between health care experiences reported by beneficiaries in Medicare Managed Care (Medicare Advantage, MA) and beneficiaries in Medicare Fee-for-Service (FFS, original Medicare) varies by beneficiary self-rated health status.

Study Design: Four annual cross-sectional surveys of large nationally representative samples of Medicare beneficiaries. Analyzed effects of coverage type (MA, FFS) on reports of health care experiences and how the effects of coverage type varies by self-reported health status, using general linear models that adjust for education, age, proxy response, and county of residence. Measures of health care experiences are two scores from the CAHPS survey, a 1-4 report composite (Getting Needed Care) and a 0-10 rating (Care Received). We describe results for the eight combinations of year and health measure.

Population Studied: 610,231 MA and 220,584 FFS beneficiaries residing in the 617 counties in 40 states where beneficiaries had a choice of MA or FFS for all years from 2000 through 2003. These counties represent more than 90% of the MA population in any given year and about half of the FFS population in any given year.

Principal Findings: Beneficiaries generally report significantly better experiences with MFFS than with MA. This occurred in all 8 cases for those rating their health as “fair” or “poor”, in 6 cases for those rating their health as “good,” and in 7 cases for those rating their health as “very good” or “excellent.” These differences tend to be larger for beneficiaries who report that their health is “fair” or “poor.” In only one case (2000 rating of care for those in “very good” or “excellent” health) did MA beneficiaries report better experiences than FFS

beneficiaries. The magnitudes of these differences are fairly small, with a median difference being 0.15 standard deviations for Getting Needed Care and 0.07 standard deviations for Rating of Care. The largest effects exceed 0.20 standard deviations for both measures. $P < 0.05$ for all cited differences, with $p < 0.001$ in a majority of cases. Mean ratings of care by coverage type, year, and health status ranged from 8.4 to 9.2 out of 10.

Conclusions: Health Care experiences are quite positive for both MA and FFS beneficiaries, but are somewhat more positive in MFFS for beneficiaries in anything less than “Very Good” health.

Implications for Policy, Delivery, or Practice: Implications for Policy, Delivery, or Practice: Measuring the healthcare experiences of Medicare beneficiaries in all modes of care delivery is an important component of improving care quality. Efforts should be undertaken to improve the experiences of less healthy beneficiaries.

Primary Funding Source: CMS

● Impact of Prescription Drug Coverage on Unmet Need

Barbara Gage, Ph.D., B. Gilman, Ph.D., S. Haber, Sc.D., S. Hoover, MPP, A. Ciemnecki, K. Cybulski

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Research Objective: Estimate the effects of drug coverage on access to medications and unmet need for elderly beneficiaries. Several types of coverage are studied, including state pharmacy assistance benefits, other drug coverage, discount cards, and other private and public coverage.

Study Design: Comparison of enrollees' to eligible non-enrollees' access to prescription medications. Matched samples of near-poor Medicare beneficiaries were drawn from state Medicare enrollment files. Beneficiaries were surveyed regarding their enrollment, out-of-pocket costs, and prescription drug use. The models measure the relationship between type and level of coverage and access to drugs and level of unmet need.

Population Studied: The near poor elderly in Vermont. This population has a mean age of 75.9 years, is 61 percent female, 33 percent live alone, and 28 percent had less than a high school education. They provide a good example of the population most likely to need coverage in the future.

Principal Findings: Those with prescription drug coverage were almost twice as likely to have over 20 prescriptions per year. Enrollees were 90 percent less likely to have average monthly out of pocket costs of \$200/month or more. Enrollees were also 50 percent less likely to have altered their drug dosage levels and were 62 percent less likely to not fill a prescription because of costs. These effects varied by type of coverage and type of medical condition, including both chronic and acute conditions.

Conclusions: Prescription drug coverage plays an important role in increasing access and decreasing unmet need, particularly for older, frailer populations and those with respiratory ailments such as asthma, COPD, and emphysema.

Implications for Policy, Delivery, or Practice: These findings are important because they illustrate the types of factors affecting how a Medicare beneficiary will respond to high out

of pocket costs and the factors that predict the types of beneficiaries who have high prescription drug costs. Many of these chronic conditions can be managed with access to prescription drugs. These results help identify the types of beneficiaries most likely to benefit from the new prescription drug policy.

Primary Funding Source: CMS

● Competitive Bidding for Medicare Services

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Research Objective: To evaluate the impact of using competitive bidding to set fees for Medicare durable medical equipment (DME) and prosthetics, orthotics, and supplies (POS). We evaluate the DMEPOS Competitive Bidding Demonstration which was conducted in two sites between 1998 and 2002. The demonstration marks the first time CMS has used competitive bidding to set fees for Medicare services.

Study Design: We evaluate the impact of the demonstration on: Medicare expenditures, beneficiary access, quality of care, market competitiveness, and the reimbursement system. Data sources included site visits and key informant interviews, focus groups, documentation review, beneficiary and provider surveys, bid analysis, and claims analysis. Where possible, we collected data before and during the demonstration in both the demonstration sites and in comparison sites. We performed difference-in-differences analyses to estimate demonstration effects while controlling for time-invariant differences between sites and time trends.

Population Studied: Medicare beneficiaries and suppliers in the demonstration and comparison sites.

Principal Findings: The demonstration led to lower Medicare fees for almost every item in almost every product category in each round of bidding. We estimated that Medicare allowed charges were about \$9.4 million (19.1 percent) lower than they would have been in the absence of the demonstration. We found little systematic evidence that the demonstration affected beneficiary access to DMEPOS. With two exceptions, we found little evidence that the demonstration adversely affected quality of care or product selection. As with access, the demonstration did not have a statistically significant impact on virtually all of the quality variables included in the beneficiary surveys. The demonstration did not affect beneficiary ratings of satisfaction with their supplier, a summary measure of quality and access. Beneficiary satisfaction was high before the demonstration began and continued to be high during the demonstration. The two instances where we found anecdotal evidence of quality changes during the demonstration were urological supplies in the first demonstration site and wheelchairs and accessories in the second site. In the largest product categories, the demonstration did not appear to have an adverse impact on market competitiveness. The number of bids declined in the second round of bidding in the smaller product categories of surgical dressings and urological supplies, raising the issue of

whether competitive bidding is sustainable in product categories with low allowed charges. CMS and its implementation contractor were able to design a competitive bidding demonstration, collect bids, select demonstration suppliers, educate stakeholders, administer demonstration claims, and monitor performance during the demonstration.

Conclusions: The DMEPOS Competitive Bidding Demonstration met most of its objectives. CMS was able to successfully implement a competitive bidding program for DME services that reduced Medicare spending, and no systematic access or quality problems arose.

Implications for Policy, Delivery, or Practice: Competitive bidding may play an increasing role in Medicare reimbursement policy. The Medicare Modernization Act requires CMS to implement competitive bidding for DME, clinical laboratory services, Medicare Part B drugs, and Medicare Prescription Drug Plans. Our evaluation provides insight on the effects of competitive bidding on these services.

Primary Funding Source: CMS

●VHA Eligibility Reform and the Demand for VHA Services by Elderly Veterans

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Research Objective: Analyze the impact of the 1996 change in the Veterans Health Administration's (VHA) eligibility guidelines on the utilization and cost of VHA (and non-VHA) inpatient, outpatient, and pharmaceutical care services provided to Medicare eligible veterans. The relative importance of factors influencing elderly veterans' demand for VHA (and non-VHA) medical services is also addressed.

Study Design: Observational study utilizing longitudinal cohort survey data. The Medicare Current Beneficiary Survey (MCBS) identifies veterans and serves as the primary data source in analyzing VHA and non-VHA utilization and cost of medical and pharmaceutical care for the five years before and five years after the 1996 VHA eligibility reforms. The data set provides comprehensive information on health and socioeconomic status, health insurance, and utilization and cost of health care services.

The impact of the expansions in eligibility on veterans' reliance on VHA services is addressed using the "difference-in-differences" (DD) methodology. VHA administrative changes taking place in the mid-1990s are believed to equally influence the utilization and cost of services for the experimental and control groups, while these groups differ in their response to the 1996 expansions in eligibility. The control group consists of service connected (SC) and low-income veterans, and the experimental group are non-service connected (NSC) veterans whose incomes fall above the means test thresholds. A two-part model is used to analyze the factors influencing the choice of using VHA services and the factors influencing the utilization of VHA services for VHA users. Factors influencing the utilization of Medicare services were also analyzed.

Population Studied: A nationally representative sample of 10,430 elderly veteran Medicare beneficiaries in 1991-2002.

Principal Findings: Preliminary results suggest a trend towards increasing reliance on VHA health care services by all veteran Medicare beneficiaries. The eligibility expansions do not appear to have had a differential effect on the probability of VHA use for the experimental versus the control groups. However, the expansions appear to have increased the experimental groups' VHA expenditures (among those with some expenditures) relative to the control group, while reducing Medicare expenditures.

Conclusions: Preliminary findings suggest that the VHA eligibility reforms are shifting the cost of health care services provided to veteran Medicare beneficiaries away from the Medicare program into the VHA.

Implications for Policy, Delivery, or Practice: As the veteran population continues to age, an increasingly large percentage of veterans will be dually eligible for VHA and Medicare services. Veterans consider the VHA an important source of coverage, especially for services that the VHA offers better coverage for than Medicare, namely prescription drugs.

Primary Funding Source: VA

●Patterns of Prescription Drug Use Among Medicaid Beneficiaries with Congestive Heart Failure

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Research Objective: The goal of this study is to examine the association between state pharmacy benefit features and drug use patterns among Medicaid beneficiaries with congestive heart failure (CHF).

Population Studied: Based on State Medicaid Research Files (SMRF) 1998 and newly available Medicaid Analytic Extract (MAX) 1999 files for four states, we created analysis files that capture use of CHF drugs during 1999 among fee-for-service Medicaid beneficiaries who were diagnosed with CHF in the previous year. The four states were California and Arkansas, which had relatively restrictive Medicaid pharmacy benefit features, and Indiana and New Jersey, which had relatively unrestrictive features in 1999.

Principal Findings: Use of CHF medications varied greatly by state and between states with more or less restrictive benefits. Beneficiaries in Indiana, with 20.1 prescriptions filled, on average, during the year, had nearly twice as many as those in California, where the average was 11.4 (18.1 in New Jersey and 14.2 in Arkansas). Indiana and California also differed greatly in the percentage of beneficiaries who filled no prescription during the year: 20.1 percent in California versus 11.8 percent in Indiana. More or less restrictive states also diverge modestly in a measure of patient drug adherence: the percentage of Medicaid enrolled days in 1999 during which beneficiaries had a prescription for at least one CHF drug. In more restrictive Arkansas and California, beneficiaries had prescriptions covering only 72 to 75 percent of enrolled days as opposed to 77 to 78 percent in less restrictive New Jersey and Indiana. California had the largest share of generic prescriptions at 61 percent compared to 56 to 57 percent in other states. Indiana was the highest in the overall use of CHF medications, which was in large part due to its high share of patients taking multiple CHF drugs. These state

differences remained large and significant when controlling for beneficiary characteristics such as age, sex, dual Medicare/Medicaid status, race, coexisting conditions, and severity and health indicators.

Conclusions: Medication use patterns vary widely even among people with serious conditions such as CHF. States with more restrictive features tend to have lower use of medications. Moreover, in all four states, the level of patient adherence to drug regimen may not be sufficient to achieve full benefits of drug treatment. This is of concern because lack of adherence to drug treatment among CHF patients is likely to lead to worsening health, unnecessary hospitalizations, and thus, increased health care costs.

Implications for Policy, Delivery, or Practice: CHF is Medicare's single most costly condition. Appropriate use of medications plays a key role in treating CHF as they can improve quality of life, and reduce hospitalizations and mortality. Although subject to factors that often confound the findings of Medicaid cross-state comparative studies, this study offers valuable and timely insights for Medicare Part D implementation as it demonstrates that beneficiaries' use of prescription drugs may likely be responsive to pharmacy benefit design even among the sickest. Analysis of the impact of pharmacy benefit features on use of other health services and health outcomes is an important next step.

Primary Funding Source: CMS

●The Clinical and Economic Impacts of Long-term Care Hospitals on Medicare Beneficiaries

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Research Objective: The role of all post-acute care providers - long-term acute care hospitals, skilled nursing facilities, and inpatient rehabilitation facilities - has come under intense scrutiny by policy makers in recent years. Among post-acute care providers, Medicare policy makers have paid particular attention to long-term acute care hospitals (LTCHs) and questioned whether additional payments to long-term care hospitals are appropriate. In this study, we estimate the impact of receiving care in an LTCH on Medicare costs and beneficiaries' clinical outcomes.

Study Design: We used Medicare claims data from the 5-Percent Sample Medicare Standard Analytical File (SAF) for calendar years 1998, 1999 and 2000; these data include all Medicare fee-for-service claims for a 5-percent sample of Medicare beneficiaries. We examined five outcome measures, each measured over six months: (1) Number of days spent in the community (i.e., not in an institution); (2) Mortality rate; (3) Outpatient Emergency Department (ED) visits; (4) readmission to acute inpatient care; (5) Total Medicare payments. We used regression analysis to account for differences in a broad array of individual characteristics and measures of patient severity, including APR-DRG severity and mortality risk, demographic characteristics, prior medical utilization, and local area characteristics. Both selection (i.e., Heckman and Instrumental Variable models) and non-selection models were used. The selection models controlled

for any unobserved factors that affect both outcomes and the likelihood of treatment in an LTCH.

Population Studied: Medicare beneficiaries who received hospital care.

Principal Findings: Based on the selection models, we estimate the impact of LTCH treatment to be beneficial in each clinical measure: nearly 30 more days spent in the community, a 10 percent reduction in mortality, a 5 percent reduction in ED use, and a 7 percent reduction in the likelihood of multiple re-hospitalizations. We also estimate that LTCH treatment reduces Medicare payments over a six-month period by more than ten thousand dollars per patient. There are significant difference between the selection model results and the simpler comparisons. The estimated impact of LTCH treatment on patient outcomes goes from poor to excellent when the correction for selection of treatment setting is introduced.

Conclusions: Frequently, the reported diagnoses and other information from short-term acute care hospital discharge claims data are insufficient to differentiate patients that require the intensity and complexity of care in LTCHs versus patients that can be treated in a less intensive setting. These differences in patient severity associated with selection of LTCH care are likely driving the observed outcome differences in the more simple comparisons, where LTCH patients appear to have worse outcomes than their counterparts.

Implications for Policy, Delivery, or Practice: A standard set of LTCH admission screening criteria could be developed to more clearly define LTCH patients. These admission criteria should distinguish between levels of acute care provided in LTCHs and those in other post-acute care settings.

Primary Funding Source: National Association of Long-Term Hospitals

●Medicare Beneficiaries' Access to Physician Services in Local Markets in 2003

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Research Objective: To assess Medicare beneficiaries' perceptions of access to physicians in selected geographic areas following cuts in Medicare physician fees in 2002 and early 2003. We targeted 11 potential "hot spot" areas where possible declines in Medicare physicians' willingness to see Medicare patients may be causing access difficulties, especially for vulnerable beneficiaries, that are not captured in national tracking efforts.

Study Design: From March to June 2003, we conducted a telephone survey (with mail follow-up of telephone non-responders) of Medicare beneficiaries living in 11 geographic areas nationwide. The areas were selected based on prior evidence of high rates of access problems and concerns about declining physician willingness to see Medicare patients. The survey asked questions from Medicare CAHPS-FFS about problems with access to physician services, plus follow-up questions about the reasons for problems. Results were analyzed for each geographic area, for selected subgroups, and for all beneficiaries in the 11 areas. The areas included

Alaska (state), Phoenix, AZ, San Diego, CA, San Francisco, CA, Denver, CO, Tampa, FL, Springfield, MO, Las Vegas, NV, Brooklyn, NY, Ft. Worth, TX, and Seattle, WA. The overall survey response rate was 74 percent.

Population Studied: Interviews were conducted with 3,280 Medicare fee-for-service beneficiaries, or approximately 300 beneficiaries per area. We oversampled beneficiaries who recently enrolled in Medicare fee-for-service, or moved to an area because they were thought more likely to be looking for a new physician and thus more likely to encounter access problems. We excluded beneficiaries enrolled in Medicare managed care, those living in nursing homes, and those dually enrolled in Medicaid because access problems for these groups were less likely to be related to Medicare physician payment policy.

Principal Findings: Relatively few beneficiaries reported any problems with access to physician care, regardless of the measure used, and only a small percentage (less than 4%) had a problem they attributed to physicians not taking new Medicare patients or limiting their Medicare practices. However, access problems were more common among certain subgroups, including beneficiaries who had recently moved to the area or recently enrolled in Medicare fee-for-service. While only a small percentage reported that access is worse than in the past, slightly more said it was getting worse (7%) than getting better (5%).

Conclusions: The results from this study suggest that the reduction in physician fees did not lead to widespread access problems, even in areas with a high potential for problems. Nonetheless, some of the findings, such as higher rates of problems for vulnerable beneficiaries and signs of worsening access for some beneficiaries, provide grounds for continuing to watch for emerging difficulties.

Implications for Policy, Delivery, or Practice: This study provides information for addressing policies to ensure access to physician services among Medicare beneficiaries. Policymakers need to consider what level of reported difficulties constitute a major problem requiring action, as well as how payment policies affect physicians' willingness to see Medicare patients.

Primary Funding Source: CMS

● Enrollment and Disenrollment in Medicare Advantage Plans: Implications for Health Plan Marketing, Benefit Design, and Information Strategies

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Research Objective: Although beginning in 2006, Medicare beneficiaries will be "locked into" their MA plan, enrollment and disenrollment behavior under monthly open enrollment rules can provide plans with important lessons for targeted marketing, information materials, and product design. Such data have been used to inform Medicare policy but have rarely been analyzed from the perspective of lessons for health plan managers.

Study Design: Cross-sectional multivariate logistic regression analysis using the complete Medicare history of all individuals enrolled in a Medicare Group Health Organization (GHO)

during 1999-2002. Extract from Medicare's Enrollment Database is linked to health plan and market characteristics to examine GHO enrollment, disenrollment, and post-disenrollment plan choice by beneficiary, plan, and market characteristics. CAHPS Reasons Disenrollment survey and the MCBS enhance the understanding of why and which types of beneficiaries leave MA plans and/or are most reluctant to join one.

Population Studied: GHO database: 1999-2002 census of Medicare GHO enrollees (n=6.7-7.5 million annually); CAHPS: 2000 GHO community-based voluntary disenrollees (n=27,000); MCBS: 1998-2001 "MA resistant" beneficiaries (n=1,500 annually). Key outcomes: health plan elections; MA disenrollment reasons linked to post-disenrollment plan choice; non-enrollment reasons.

Principal Findings: Findings with health plan implications include: very little "multiple" health plan switching although this is more common among several traditionally vulnerable beneficiary subgroups, greater "rapid" disenrollment by new Part B eligibles, and greater disenrollments and likelihood of joining Original Medicare for dual eligibles and first-ever GHO enrollees. Beneficiaries citing inadequate plan information as their most important disenrollment reason were more likely to: disenroll to Original Medicare, be of racial/ethnic minority status, under-age-65 disabled, or in poor or declining health; those who cited prescription drug coverage issues (e.g., disabled beneficiaries) more frequently joined another GHO. A high proportion of beneficiaries who had never joined a Medicare managed care plan said they would not consider joining one, this being more likely in areas with an MA option and for those with higher incomes or education or with Medigap. Medicaid eligibles and beneficiaries with no supplemental insurance were more likely to not enroll because of insufficient knowledge of managed care or indifference to MA plans, particularly in areas with MA availability.

Conclusions: Enrollment/disenrollment decisions under Medicare's monthly open enrollment rules that allow beneficiaries to regularly "vote with their feet" provide many lessons for health plan marketing, benefits, and information material design. These lessons will not be as transparent under the MA lock-in rules but the underlying reasons for beneficiary reluctance to join or remain in a plan will still be relevant.

Implications for Policy, Delivery, or Practice: Learning from past behavior, MA plans may be able to more efficiently target marketing efforts to those most likely to enroll, design specific informational materials to increase enrollment and reduce rapid disenrollments and returns to Original Medicare, and fashion prescription drug benefits to reduce inefficient health plan "churning." Findings indicate that opportunities exist for addressing the needs of beneficiaries living in MA underserved areas and for less affluent individuals, new Medicare eligibles, first-ever GHO enrollees, racial/ethnic minorities, those with no supplemental coverage, and under-age-65-disabled beneficiaries.

Primary Funding Source: CMS

●**Weight Problems, Chronic Conditions, and Health Care Cost among Medicare Beneficiaries Aged 65-74**

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Research Objective: Data from Medicare Current Beneficiaries Survey (MCBS) indicate that the proportion of Medicare beneficiaries with weight problems, defined as being overweight and obese, has been increasing in the past 10 years. Estimated prevalence of obesity (OB) (Body Mass Index (BMI) index > 30) steadily grew from 16 % in 1992 to 23% in 2001; and another 36% of the population are overweight (BMI index: 25-29.9). Beneficiaries aged 65 to 74 are at a significantly higher risk of being OW or OB. This paper intends to substantiate the relationship between weight problems, chronic conditions, and health care cost among a relatively younger and healthier subgroup of Medicare beneficiaries. Specifically, it will: 1) identify the groups of elderly Medicare beneficiaries with a higher risk of weight problems; 2) compare prevalence of chronic conditions; and 3) compare levels of health care expenditures by BMI groups.

Study Design: The study uses data from CY2001 MCBS Cost and Use Public Use Files (PUFs). We use self-reported weight and height data in calculating BMI and classify the sample into BMI subgroups. We compare differences in socio-demographics, chronic conditions, and health care expenditures among BMI subgroups. Multivariate analyses were conducted to examine differences in health care cost. The underweight group was not included in these analyses.

Population Studied: Noninstitutionalized Medicare beneficiaries age 65 - 74.

Principal Findings: Preliminary results indicate that weight problems are prevalent (67.1%) among Medicare beneficiaries aged 65 – 74. Yet, the following groups are at a higher risk of having a weight problem, including the Blacks, females, those living with children/others, those with less education, and the dually eligibles. The OB group reported significantly higher rates of poor health and functional limitations. However the OW group reported a higher rate of excellent to good health and lower rate of functional limitations. In terms of chronic conditions, the OW and OB groups reported significantly higher rates of hypertension, diabetes, arthritis, and heart diseases. The OB group also shows higher rates of mental diseases and urinary incontinence. The OB group reported significantly higher per capita health care cost than the other three BMI groups, including personal health care expenditures (PHCE) (45% higher), and spending on prescription medicine (46% higher), outpatient care (48% higher), physician care (41% higher), skilled nursing facility care (SNF) (3 times higher). It also reported higher spending on inpatient and home health care compared with the OW and the acceptable group. Results of multivariate analyses also indicated that, after controlling for the effect of socio-demographic and chronic conditions, obesity is significantly correlated with higher PHCE, and spending on PM, OP, and MP care. On the other hand, the comparison of health care spending between the OW and the other two BMI groups is inconclusive, except for higher PM spending.

Conclusions: These findings confirm that OW/OB has become an epidemic among 65-74 Medicare beneficiaries.

The weight problems, in tandem with higher prevalence of costly chronic conditions, have contributed to higher levels of health care spending.

Implications for Policy, Delivery, or Practice: The Medicare population spends a disproportionately higher share of the total U.S. health care cost. With the OW/OB epidemic becoming a nationwide problem, policy makers need to design and implement extensive educational and intervention programs targeting the Medicare population.

Primary Funding Source: CMS,

●**A Ten-Year Retrospective: Does the ‘Hsaio’ Distribution of Medicare Fee Schedule Work Relative Values Still Exist?**

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Research Objective: In 1992, HCFA implemented a resource-based relative value system (RBRVS) for Medicare physician payment in place of the historical charge-based payment system. By 2002, roughly half of the CPT codes in use in the Medicare Fee Schedule (MFS) were either new (since 1992) or had their work relative value units (RVUs) reviewed and typically revalued. In addition, resource-based practice expense (PE) and malpractice RVUs were phased in during 1999-2002 and 2000-2002, respectively. Our research objective was to assess whether and how the distribution of work volume and payments across types of service has changed after 10 years of operation of the MFS.

Study Design: Using summary files of 100% Medicare physician/supplier claims in 1992 and 2002 supplemented with files of Medicare RVUs, new codes, and reviewed codes from the American Medical Association, we analyzed price and revenue changes over the 10-year period, by Berenson-Eggers type of service (BETOS). The Paasche index method was used in price analyses.

Population Studied: All physician/supplier services used by beneficiaries and paid on the MFS in 1992 and 2002.

Principal Findings: Of MFS codes in 2002, 47% were new or reviewed under a 5-year comprehensive review or annual update process. These codes reflected 78% and 80% of work volume and payments, respectively. Major Procedures and Other Procedures (particularly Cardiovascular Major Procedures) comprise 67% of work volume associated with new codes. Evaluation and Management (E&M) services reflect 72% of 5-year reviewed code volume. The first 5-year comprehensive review affected prices and revenues of mainly E&M services, raising them by 20% on average. The second 5-year review impacted services across all service types, and also raised prices and revenues by about 20% on average. A much higher proportion of codes' RVUs were raised under the second than the first 5-year review (92% and 31%, respectively), but the shares of work volume associated with these increased RVUs are more similar (82% and 69% in the second and first reviews, respectively). Despite differences between new and reviewed codes by BETOS, different emphases in the first and second comprehensive reviews, and implementation of resource-based PE and malpractice payments, the distribution of total volume and payments

revenues varied little across BETOS between 1992 and 2002. Similarly, distributions by specialty varied little during the period.

Conclusions: While roughly 50% of service codes (or 80% of revenues) have undergone new or revised work RVU valuations since 1992 and resource-based PE and malpractice RVUs have been implemented, the distribution of revenues by BETOS in 2002 is remarkably similar to the distribution reflected in the initial MFS.

Implications for Policy, Delivery, or Practice: After the first decade of implementation, the major modifications to the RBRVS now have been accomplished. The findings suggest that an original objective of the MFS—redistribution of Medicare physician payments by type of service and specialty—has been effectively frozen at 1992 distributions. Policy makers can now determine whether preserving the status quo in distribution of revenues is consistent with their goals for physician payment policy.

Primary Funding Source: Medicare Payment Advisory Commission

•Who Won, Who Lost: Impact of Implementing Resource-Based Practice Expense Payments on Physician Specialties
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Research Objective: Payments to physicians comprise about 30% of all Medicare payments, and practice expenses (PE) are 42% on average of physician payments under the Medicare physician fee schedule. In 1994, Congress required that a resource-based system be developed for PE payments and replace the prior payment system based on physicians' PE charges. The new PE system was phased in during 1999 through 2002. Congress mandated that the system be budget neutral, thus requiring that PE payment increases for some services be offset by payment decreases for others. This study assessed the impact of the new payment policy on PE relative value units (RVUs) and total Medicare payments per service, by physician specialty and service type within specialty, and analyzed changes in beneficiary service use during the period.

Study Design: The study used RVU files and data from the 100% Medicare physician/supplier claims in 1998 and 2002. Service utilization was held constant using 2002 utilization. Sensitivity analyses were conducted in terms of 1998 versus 2002 utilization as the constant; results were similar for each analysis and findings are reported using 2002 utilization as the constant.

Population Studied: Medicare physician fee schedule services common to both analysis years, 1998 and 2002.

Principal Findings: Resource-based PE payments negatively impacted per service payments for 5 of the 15 specialty groups analyzed. Thoracic surgeons and gastroenterologists experienced the largest losses in PE RVUs per service (-10.6% and -8.9% average annual change, respectively) and in total payments per service (-4.3% and -3.7% annual change, respectively.) Dermatologists and urologists experienced the largest gains in PE RVUs per service (13.8% and 10.1%, respectively) and total Medicare payments per service (6.4% and 4.4%, respectively). Specialty-specific estimates of the

effects of moving to resource-based PE RVUs were related to the relative importance of particular service groups to a specialty and the PE changes affecting those services. Service counts and RVU volume per beneficiary increased over the period by all specialties except thoracic surgeons, who saw no increase in services or volume per beneficiary. Annual increases in per beneficiary utilization ranged from 1.5% and 1.0% in service counts and RVU volume, respectively, for general surgeons to 5.9% and 8.2% for cardiologists.

Conclusions: Positive and negative impacts by specialty on payments per service were found due to resource-based PE payments, while per beneficiary utilization grew across all specialties except thoracic surgery. Variation in beneficiary utilization is not consistently related to the magnitude or direction of payment changes by specialty. For example, beneficiary utilization increases were largest among cardiologists, while their total payments per service declined due to PE RVU changes. But a volume offset was not evident among thoracic surgeons.

Implications for Policy, Delivery, or Practice: With the possible exception of thoracic surgery, the widespread increases in per beneficiary utilization suggest that access problems were not apparent by specialty during this period. The low volume growth for thoracic surgery needs to be assessed within the context of technological changes that could be resulting in the need for fewer Major Procedures in this area and in growth in other less invasive services.

Primary Funding Source: Medicare Payment Advisory Commission

•Hospital Cost Shifting, Provider Segmentation, and the Game of Medicare Payment Policy

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Research Objective: The goal of our paper is to gain a better understanding of some of the leading factors that influence Congress' annual adjustment of Medicare payment policy and how medical providers (primarily hospitals) respond to changes in reimbursement by public health insurance programs.

Study Design: Based in part on a recent invitational meeting sponsored by the Robert Wood Johnson Foundation, the design of this paper's study is two-fold: (1) A quantitative analysis (Pearson's correlation) of hospital payment-to-cost ratios for Medicare, Medicaid, and private payers (1980-2003), based on Medicare cost report data and the American Hospital Association's Annual Survey of Hospital Costs; and (2) a qualitative analysis of how and why policymakers use this data to annually adjust Medicare's payment rates, based on personal interviews with senior government health care officials and representatives of the hospital industry. The payment-to-cost ratio for each payer category (Private, Medicare, Medicaid) is computed using the charges and payments by category reported by each hospital in the AHA's Annual Survey of Hospitals (n=6,800). For more information, see:

<http://www.hospitalconnect.com/healthforum/hfstats/datasources.html> or <http://www.pop.psu.edu/data->

[archive/daman/ahas.htm](#) for complete description of and access to the AHA's Survey.

Population Studied: U.S. hospital industry

Principal Findings: We find a strong relationship in the aggregate (at the state and national levels) between shifts in levels of payment by Medicare and Medicaid and corresponding shifts in levels of payment by private payers. Because Medicare is a "first mover" in the annual payment game and reimburses a prospectively set administered price that medical providers cannot negotiate, arguably a better measure of any relationship between a change in public payment and a change in private payment is to compare Medicare and Medicaid's payment-to-cost ratios from 1984-1996 and 1980-2002 with private payment-to-cost ratios from 1985-1997 and 1981-2003, respectively: 1984-1997: Medicare and Private ratios: $r = -.86$ 1980-2003: Medicare and Private ratios: $r = -.73$ 1984-1997: Medicaid and Private ratios: $r = -.39$ 1980-2003: Medicaid and Private ratios: $r = -.56$

Conclusions: We find that policymakers manipulate Medicare's administered price system in response to both empirical and anecdotal evidence of: (1) hospitals' use of revenue-enhancing accounting techniques, and (2) larger federal budget pressures. We also find that policymakers have a general idea of what Medicare ought to pay for, but they continually debate the extent to which Medicare should subsidize graduate medical education, Medicaid, and charity care provided by hospitals that serve a disproportionate share of poor persons.

Implications for Policy, Delivery, or Practice: Apparently, how much Medicare pays providers in any given year is not primarily an analytical but rather a political decision, based on how much the government can afford and which parts of the health care system politically "push" the hardest and most effectively. The paper concludes that cost shifting is becoming an increasingly important issue for individuals, because they have assumed a disproportionate share of the dramatic increase in health care costs that have occurred in recent years.

Primary Funding Source: RWJF

●Use of VA Pharmacy Services by Medicare Enrolled Veterans

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Research Objective: Prior work suggests that many Medicare enrolled veterans view the Department of Veterans Affairs (VA) as a preferred source of pharmacy services, even when they have access to pharmacy coverage elsewhere. The objective of these analyses was to examine the overall contribution of the VA health system as a pharmacy provider to the Medicare population.

Study Design: We combined national fiscal year (FY) 2002 Medicare enrollment data for Medicare-enrolled VA users with

FY 2002 pharmacy cost records from the VA's national Decision Support System (DSS) files. Medicare-enrolled VA users were identified as a Medicare managed care plan (HMO) enrollee if they were enrolled in a Medicare HMO at any time during FY 2002. Annual VA pharmacy cost data was aggregated for each individual VA user within each VA medical center (VAMC). We calculated the percent of all Medicare enrolled males and females (both HMO enrolled and non-enrolled) who received pharmacy services from the VA, the total pharmacy costs attributable to Medicare enrolled veterans nationally and at each of 127 individual VAMCs, as well as the percentage of those costs accounted for by Medicare HMO enrolled VA users.

Population Studied: Analyses were performed on data for Medicare-enrolled veterans who had any use of VA pharmacy services during FY 2002.

Principal Findings: In FY 2002, 2.3 million Medicare enrolled veterans received some or all of their medications from the VA. This amounted to 5.4% of all Medicare enrollees (11.5% of all male Medicare enrollees and 0.7% of female enrollees). Nationally, the VA pharmacy services provided to Medicare-enrolled veterans totaled \$2.4 billion, or 67% of all VA pharmacy costs. 13.3% of Medicare enrolled VA pharmacy users were enrolled in a Medicare HMO for all or part of FY 2002, and accounted for 11.2% of all VA pharmacy costs attributable to Medicare enrolled veterans. Across the 127 individual VAMCs there was wide variation in the percentage of HMO enrollees among Medicare enrolled pharmacy users (from < 1% to > 50%) and in the percentage of pharmacy costs associated with their use (from < 1% to > 43%). These percentages appear to parallel the percentage of HMO enrollment among the overall Medicare population in each VAMC's geographic area.

Conclusions: In meeting its mission of providing quality healthcare services to eligible veterans, the VA health system has coincidentally become one of the largest single providers of pharmacy services to Medicare enrollees nationally, serving almost half as many Medicare enrollees as all Medicare managed care plans combined. VA users who are enrolled in Medicare HMOs continue to use VA pharmacy services, even though the large majority of them have access to pharmacy coverage through their HMO plans.

Implications for Policy, Delivery, or Practice: Although the implementation of the Medicare prescription drug benefit in 2006 is expected to increase access to prescription drugs for Medicare beneficiaries, it is likely that the VA will remain a significant pharmacy provider for Medicare enrolled veterans.

Primary Funding Source: VA

● **Income Based Drug Coverage: Impact on Costs, Access, and Equity**

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Research Objective: Recent changes in public drug coverage in British Columbia provide insight into the effects of a financing option of increasing interest: an income-based drug benefit. The BC government historically covered virtually all drug expenses for seniors and 'catastrophic' expenses -- beyond a \$1,000 deductible -- for non-seniors. In May 2003, the government eliminated special coverage for seniors by creating a new drug benefit, called "Fair PharmaCare," for residents of all ages. Deductibles for public coverage would be a percentage of household income, ranging from zero for households earning \$15,000 or less, to 3 percent for households earning over \$30,000. In-depth interviews with policy makers revealed that the intent of the policy changes was to reduce government spending on prescription drugs, to encourage more consumer responsibility in decision-making, and to improve equity by allocating public subsidy based on needs rather than age. We measured these impacts at a population level.

Study Design: We employed a longitudinal research design using a dataset containing a record of every prescription dispensed in the province from January 1996 to December 2004. Over 350 million records were in the dataset. We analysed financing dynamics using non-stochastic expenditure decompositions. The effect of policy was analysed using time series analysis.

Population Studied: The study cohort included all of the 4.1 million residents of BC except for registered First Nations, veterans, and the Royal Canadian Mounted Police. Analyses were stratified by five age categories and five socio-economic quintiles.

Principal Findings: Relative to pre-policy trends, the income-based benefit reduced government expenditure by 20.6 percent. Private payments offset much of this fall: thus, total expenditure on prescriptions fell by only 2.2 percent relative to trend. The change in total expenditure was attributable to less than predicted increases in utilization, not to changes in the trends for prices or product choices. Rates of access to medicines did not significantly differ from trend for any of the age or SES strata. Public subsidy was reallocated across age and SES. The average subsidy for seniors of higher SES fell-- $p < 0.001$ --while the average subsidy for non-seniors of lower SES increased-- $p < 0.05$. Average subsidies for non-seniors of higher SES and seniors of lower SES were not significantly affected.

Conclusions: The policy was successful at attaining two of the stated goals. Aggregate public subsidy was reduced and redistributed based on income. Furthermore, changes in average rates of access to prescription drugs were not significant. Income-based drug coverage did not, however, increase consumer cost-consciousness in product selections.

Implications for Policy, Delivery, or Practice: An income-based public drug benefit may be as effective at promoting access to medicines as more comprehensive programs. There are, however, two drawbacks to such a policy. First, control over spending is dampened because evidence-based coverage policies, such as generic substitutions or tiered formularies, do not have "teeth" until after households have exceeded deductibles. Second, households with chronic illnesses will bear a disproportionate financial burden under income-based drug insurance programs. These households can expect to pay their deductibles every year, thereby reducing the 'horizontal' equity of an income-based drug benefit.

Primary Funding Source: Canadian Institutes of Health Research

● **Diffusion of New Prescription Drugs and Patient Characteristics: The Case of Alendronate Sodium**
Melissa Morley, MA

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Research Objective: The purpose of this study is to examine the relationship between the adoption and diffusion of alendronate sodium, a prescription drug for the treatment and prevention of osteoporosis, and patient characteristics, including socioeconomic factors, insurance status, and health status.

Study Design: Bivariate analysis were performed to compare the characteristics of Medicare beneficiaries filling a prescription for alendronate sodium to other Medicare beneficiaries with a diagnosis for osteoporosis, but not filling a prescription for alendronate sodium, in each of first five years after the drug was approved by the Food and Drug Administration (1996-2000). Multivariate logistic regression was also performed on all five years of data to identify patients characteristics significantly related to the use of alendronate sodium.

Population Studied: Beneficiaries filling a prescription for alendronate sodium (N=1,049) and beneficiaries with a diagnosis for osteoporosis, but not filling a prescription for alendronate sodium (N=4,043), were identified using survey responses and linked medical claims from the 1996-2000 Medicare Current Beneficiary Survey (MCBS). The study population was restricted to non-HMO, non-institutionalized Medicare beneficiaries.

Principal Findings: The number of Medicare beneficiaries using alendronate sodium tripled over the first five years it was on the market. Beneficiaries filling a prescription for alendronate sodium as a percentage of those with a diagnosis for osteoporosis grew from 20% in 1997 to 31% in 2000. Differences in patterns of alendronate sodium's use by patient characteristics were observed over the period. In 1996, the first year of alendronate sodium's introduction, beneficiaries filling a prescription for alendronate sodium were more likely to be white ($p = 0.0457$), to have higher income levels ($p = 0.0220$), to have prescription drug insurance ($p = 0.0003$), and to be in better health ($p = 0.0016$). By 2000, differences in levels of health status, prescription drug insurance, and urban residence were observed between groups, but race and income were no longer significant. The results of the logistic

regression revealed that the variables gender, education, prescription drug insurance, urban residence, and health status were each significant in predicting the probability of filling a prescription for alendronate sodium from 1996-2000.

Conclusions: The results of the analyses reveal that there is a relationship between patient characteristics and the adoption and diffusion of alendronate sodium, but that the significance of each of these characteristics changes over the study period. The analyses reveal that several patient characteristics may be barriers to accessing alendronate sodium in the early years after its approval, though this impact may lessen over time.

Implications for Policy, Delivery, or Practice: The patterns of adoption and diffusion of new prescription drugs are important to understand given the impact that prescription drugs have both on the total cost of treating illness, and in improving health status and quality of life.

Primary Funding Source: AHRQ

●Voluntary Disenrollment from Medicare Managed Care: Health Status and Plan Effects

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Research Objective: Prior research on selection bias in Medicare managed care has demonstrated favorable enrollment of healthier beneficiaries into plans compared with those remaining in traditional Medicare. Total selection bias, however, is a function of not just who enrolls but also who disenrolls. Few studies examine selectivity in disenrollment, and it is unclear how managed care enrollees who subsequently disenroll differ from those who remain. This study examines health status and plan characteristics as potential predictors of voluntary disenrollment from Medicare managed care.

Study Design: Baseline data on beneficiaries are from the 1998 Medicare Health Outcomes Survey (HOS) designed for administration to all enrollees in Medicare HMOs (response rate=60%). 24-month follow-up of enrollment status and linked CMS data on plan characteristics are also used. Logistic regression with robust variance estimation modeled beneficiary disenrollment status (voluntary disenrollment versus continuous enrollment) within 24 months after completing the HOS as a function of beneficiary perceived health in 1998 (measured by the SF-36), average plan market share in county between 1998-2000, changes in drug benefit availability between 1998-2000, premium changes between 1998-2000, plan model and tax status, duration of plan contract, region, and average plan payments in county between 1998-2000. Background variables were age, gender, race, education, Medicaid eligibility, and enrollment duration.

Population Studied: The sample included 109,882 community-dwelling elderly beneficiaries, aged 65 and older, enrolled in Medicare managed care plans in 1998, who were alive and did not involuntarily leave their plan (because of plan withdrawals or service reductions) between 1998-2000.

Principal Findings: Poor perceived physical health increased the odds of voluntary disenrollment by 10%, whereas poor perceived mental health increased the odds of disenrollment by 20% ($p<0.001$). Enrollees in plans with low market share

had 3-fold higher odds ($p<0.001$) of voluntary disenrollment than those in plans with high market share. Independent practice association plan enrollment was associated with 66% higher odds ($p<0.001$) compared with group or staff model enrollment. Those in plans that increased premiums had 52% higher odds of disenrollment (relative to no change; $p<0.001$), and those who gained drug coverage in their plan had 36% lower odds of disenrollment (relative to no coverage; $p<0.05$).

Conclusions: Medicare managed care plans experience favorable selection bias in part because sicker beneficiaries are more likely to disenroll than healthier counterparts. Plan features, such as market share and out-of-pocket costs, were the strongest predictors of disenrollment.

Implications for Policy, Delivery, or Practice: Medicare plans experience stronger favorable selection bias than previously suggested by enrollment studies alone. Plan-level policies that influence market share and benefits also have important effects on enrollee retention, irrespective of health effects on disenrollment. Understanding both individual and plan influences on leaving or staying enrolled, and their impact on service populations, is critical to informed decisions on policy changes such as implementation of "lock-ins," which could impact seriously ill beneficiaries who cannot disenroll at any time, or who do not join plans because they know this, thus exacerbating bias at enrollment. Because disenrollment may also reflect plan quality and affects interpretation of performance measures, analyzing the determinants of disenrollment can complement quality assessment efforts.

Primary Funding Source: AHRQ

●Cost of Caring for Medicare Beneficiaries with Parkinson's Disease: Impact of the CMS-HCC Risk-Adjustment Model

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Research Objective: Previous studies have demonstrated that Medicare risk-adjusted capitation models do not adequately compensate programs serving primarily disabled or frail population. Here we assess the accuracy of the CMS-HCC Medicare risk adjustment model in predicting Medicare expenditures for beneficiaries with Parkinson's disease (PD) and functional impairments.

Study Design: Using the Medicare Current Beneficiary Survey (MCBS) Cost and Use file and Medicare claims data, we calculated the actual Medicare cost ratios by level of functional impairment measured by limitations in the Activities of Daily Living (ADL). For each ADL level (0,1,2...6), the cost ratios were calculated by dividing the average annual Medicare cost of the beneficiaries at that functional level by the mean Medicare cost for the population. Using the CMS-HCC software, we estimated the predicted cost ratios, by ADL impairment level. The actual and the predicted cost ratios were calculated separately for beneficiaries with and without PD. The relative error in the CMS-HCC model was computed as the percentage difference between the CMS-HCC predicted

cost ratio and the actual Medicare cost ratio. We also compared comorbidity profiles for the different ADL impairment levels for beneficiaries with and without PD. Comorbidity was measured as a number of hierarchical coexisting conditions, HCCs. The correlation between ADL level and comorbidities was assessed using Pearson correlation coefficient.

Population Studied: 50,673 MCBS participants representing Medicare fee-for-service beneficiaries, including 997 PD patients during the 1992-2000 time period.

Principal Findings: As previously shown, the CMS-HCC model over-predicts medical expenditures for people without functional limitations by 17% ($p < 0.001$). The model increasingly under-predicts medical expenses as the level of disability increases - from 16% for those with 1 ADL ($p = 0.04$) to 34% with 6 ADL limitations ($p = 0.001$). However, no such relationship was observed for PD patients, with the difference between the actual and predicted ratios varying between -12% and 8%, $p > 0.05$. At all ADL levels, no statistically significant difference was detected between the actual cost ratios and HCC-predicted scores for PD population. In addition, for persons without PD, the number of comorbidities correlated positively with the ADL level (correlation coefficient 0.36 ($p < 0.001$)). However, for PD patients, the number of comorbidities had a weaker relationship with the ADL level (0.30, $p < 0.001$).

Conclusions: This study demonstrates that the relationship between functional disability and medical costs may depend on the underlying illness. The cost variation across different ADL levels is smaller among PD beneficiaries compared to other Medicare subscribers. Although more research is needed, it appears that the disability resulting mainly from one condition (PD) is less expensive than functional impairment resulting from coexisting comorbidities.

Implications for Policy, Delivery, or Practice: If CMS-HCC payment model were to apply to programs that draw a significant fraction of their participants from the PD community (e.g., disease management programs and specialty clinics), these programs are likely to be compensated fairly. More research is needed to understand possible synergy between PD and functional disability, and the effect of PD on healthcare utilization.

Primary Funding Source: NIA

● **Defective Design: An Inconsistent Approach to Regional Competition in the Medicare Modernization Act Threatens the Availability of Drug Coverage for many Beneficiaries**
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Research Objective: The Medicare Prescription Drug, Improvement, and Modernization Act (MMA) of 2003 relies on private plans, principally preferred provider organizations (PPOs), to make outpatient drug benefits available to beneficiaries currently without access to health maintenance organizations (HMOs). Beginning in 2006, these plans will bid to offer coverage throughout each of 26 large regions. This paper applies economic theory and recently published

statistical methods to make predictions about the availability and cost of coverage in each region.

Study Design: This is an analysis of secondary data using county-level data from the Centers for Medicare and Medicaid Services and the Area Resource File. We employ an ordered probit to estimate the payment rates that would have been necessary to attract exactly one HMO to each county in 2001. Next, we infer the value of additional benefits offered by existing HMOs and simulate costs for regional PPOs under different assumptions about competitive strategy.

Population Studied: The national population of 40 million Medicare beneficiaries is represented in our data.

Principal Findings: If regional PPOs attempt to compete with HMOs in highly paid and densely populated areas, PPO premiums will have to be too high to attract significant enrollment (\$163 per month compared to \$35 for HMOs). If PPOs avoid competition with HMOs, subsidies available through the Stabilization Fund will permit premiums for non-drug benefits to be reduced from \$60 per month to \$15 per month for 20% of beneficiaries.

Conclusions: The economics of market entry and recent experience suggest that PPOs will initially seek to enroll those without access to HMOs, but that enrollments will be small due to high costs and heavily dependent on temporary subsidies from the federal government. When regional requirements are relaxed in 2008, we predict that PPOs will abandon many of these beneficiaries.

Implications for Policy, Delivery, or Practice: Unless funds are available to provide additional subsidies, regional PPOs in Medicare will offer unstable coverage featuring meager benefits and high premiums, leaving untested stand-alone prescription drug plans as the only remaining hope for affordable drug coverage for many beneficiaries.

Primary Funding Source: RWJF

● **Profiling Physician Group Practices for the Medicare Fee-for-Service Program**

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Research Objective: To demonstrate the feasibility of profiling physician group practice quality and efficiency for the Medicare fee-for-service program.

Study Design: A large MSA is selected to demonstrate the feasibility of quality and efficiency profiling of physician group practices serving Medicare fee-for-service (FFS) beneficiaries. Medicare claims data from calendar year 2002 for beneficiaries residing in the Boston MSA are used in the study. Physician organizations are identified by their Internal Revenue Service Tax Identification Number. Physician groups belonging to networks in the Boston MSA are identified from publicly available information, and networks are profiled as well as groups. Beneficiaries are assigned to groups based on utilization of Medicare-covered services. A beneficiary who receives a plurality of their 'office or other outpatient' evaluation and management services from a group is assigned to the group. Claims-based quality and efficiency measures are used to profile physician groups. Claims-based

quality profiling measures are selected from the Medicare Doctor's Office Quality (DOQ) Project. The Centers for Medicare and Medicaid Services Hierarchical Condition Categories (CMS-HCC) concurrent risk adjustment methodology is used to develop an efficiency index by comparing actual expenditures to expected expenditures based on casemix.

Population Studied: Medicare beneficiaries.

Principal Findings: There are 354,153 Medicare FFS beneficiaries identified as residing in the Boston MSA in 2002. The largest physician group practice, Lahey Clinic, is assigned 17,628 beneficiaries. About 25 percent of beneficiaries are assigned to groups that are members of one of the three major physician networks in the Boston MSA: Partners HealthCare, CareGroup Healthcare System, and Caritas Christi Health Care. Quality profiling indicators vary noticeably among large groups and physician networks. For example, the percentage of coronary artery disease (CAD) patients receiving at least one lipid profile ranges from 47 to 70 percent for groups with at least 5,000 assigned beneficiaries. Efficiency performance also varies, and is sensitive to adjustments for casemix, teaching status, and residence of patients.

Conclusions: Profiling the efficiency and quality of care received by Medicare fee-for-service beneficiaries at the physician group practice level is feasible. Profiling at the group level is attractive because of large sample sizes for statistical validity and feedback mechanisms within groups for quality improvement.

Implications for Policy, Delivery, or Practice: Medicare can provide profiles of physician group efficiency and quality that can help beneficiaries choose among groups, and create pressures for efficiency and quality improvement in the fee-for-service program. Profiling is the first step along a path that could eventually attach financial incentives to efficiency and quality performance, or even lead to selective contracting.

Primary Funding Source: CMS

●Evaluation of Risk Adjustment Instruments Among Hip Fracture Patients

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Research Objective: To evaluate the performance of three diagnoses-based risk adjustment instruments among a cohort of hip fracture patients while altering the source data (Medpar vs. part B) and time frame (time of the index fracture vs. a one-year preperiod) from which comorbid conditions were identified.

Study Design: Data used in this analysis came from Center for Medicare and Medicaid Services (CMS) 1998-2000 Medpar and part B evaluation and management (E&M) administrative claims files. A prospective cohort design was used to identify incident cases of hip fracture in 1999. Three risk adjustment instruments, the Iezzoni index, the Deyo adaptation of the Charlson Index, and the Clinical Classification System (CCS) were used to identify comorbid conditions among hip fracture patients. Each risk adjustment

instrument used International Classification of Disease 9th revision (ICD-9-CM) diagnosis codes to identify comorbid conditions from Medpar data alone, part B E&M data alone, and Medpar plus part B E&M data and at the time of the index fracture or during the 365 days preceding the index fracture. We implemented a restriction, that a comorbid condition would only be flagged in the part B E&M claims if it appeared two or more times, at least 7 days apart, during the preperiod. Logistic regression was used to predict one-year mortality. In all, 34 models were fit to these data, reflecting all of the possible time frame and data source combinations to which each risk adjuster was applied.

Population Studied: Medicare enrollees who, at the time of the index event in 1999, were between the ages of 65 and 99, were eligible for Medicare parts A and B (individuals enrolled in a Medicare health maintenance organization (HMO) were excluded), and who were hospitalized with a primary diagnosis of hip fracture (N = 44,754).

Principal Findings: One-year mortality following hip fracture in this cohort was 23%. When applied to The Charlson Index, the Iezzoni index, and the CCS all outperformed simple age, sex, and race adjustment in predicting one year mortality following hip fracture. Adjustment for age, sex, and race proved to be a weak predictor of mortality following hip fracture ($c = 0.628$). The CCS performed best overall ($c = 0.768$), followed by the Iezzoni ($c = 0.723$) and Charlson models ($c = 0.698$). Varying the data source (Medpar vs. part B) and the timeframe (index vs. preperiod) to which each instrument was applied had trivial effects on model performance. Models performed most favorably when applied to Medpar or Medpar + part B E&M claims vs. part B E&M claims alone, and when comorbidities were considered during the preperiod vs. at the index event.

Conclusions: Altering the source data and time frame used to identify comorbid conditions offers little advantage when predicting one-year mortality among hip fracture patients. Model performance should be weighed against the model's complexity and ease of use when the predictive ability is similar for different risk adjustment instruments.

Primary Funding Source: NIA

●Patients' Blaming and Voicing: Consequences of Disrupted Trust in Physicians and Health Plans

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Research Objective: When expectations about health services are violated, patients evaluate whether the violation signals that their doctor or health plan are not trustworthy. This paper examines how Medicare patients engage in one phase of this "disrupted trust" process: how they decide whether to blame the doctor or plan, and whether to express dissatisfaction (by complaining or "voicing"). The research further aims to identify how blaming and voicing are affected by 1) managed care enrollment, 2) problems with care, coverage or access to health services.

Study Design: A national telephone survey of consumer trust in health care was conducted in 2002. Multivariate analyses (OLS, logistical regression, ordered logit) were used to analyze

responses about patients' expectations and experiences with physicians and plans. In 2003, semi-structured interviews were conducted with volunteers, expanding on the questions in the survey. These responses were examined for repeated categories and themes, and for insights into patients' perspectives.

Population Studied: Three hundred eighty-one Medicare beneficiaries were studied from a national survey of 5000 adults. In-depth interviews were conducted with 107 Medicare beneficiaries at six sites in New Mexico and New Jersey.

Principal Findings: Survey and interview responses provided new insights into how older patients make decisions about blaming a doctor or plan, and complaining ("voicing") about their dissatisfaction. Qualitative data revealed that patients blame doctors for poor communications after a problem occurs, but blame health plans when poor communications result in a problem. Survey data showed that patients only blame the doctor if their health gets worse ($p < .01$). Similarly, they complain to the doctor for care-related problems ($p < .05$) or worsening health ($p < .05$). Although managed care patients blame the plan for services problems ($p < .01$), they complain about these problems to the doctor ($p < .05$). Patients also blame the plan if they have lost trust in either the doctor ($p < .01$) or plan ($p < .05$). They will complain to the plan if they have an adequate choice of plans ($p < .05$), or if their problem was related to their insurance coverage ($p < .05$). Losing trust in the plan resulted in patients' complaining to their doctor ($p < .05$), but not to the plan.

Conclusions: Managed Medicare enrollment was a significant predictor of patients' actions following services problems. Managed care patients will voice complaints to their physician, but not to the plan. Conversely, managed care patients blame the plan, but not the physician. Loss of trust in either doctor or plan is results in blaming the plan, but not the doctor. Problems with care result in both blaming the doctor and complaining to the doctor, while problems with coverage, as well as having adequate choice of plans, result in complaining to the plan.

Implications for Policy, Delivery, or Practice: The "disrupted trust" process can result in patients' dissatisfaction and switching providers. Policymakers and plan administrators should take account of the importance of providing an adequate choice of plans, and appropriate mechanisms for communication and feedback to maintain quality. Medicare patients' decisions about blaming and complaining as a consequence of health services problems: 1) are integral parts of the evaluation by beneficiaries of their health care services, as managed care enrollment expands under Medicare Advantage. 2) affect plan selection and patients' decisions about quality of care. 3) affect utilization of services and compliance with physician recommendations.

Primary Funding Source: AHRQ, Aspen Institute – Nonprofit Sector Research Fund

●What Happens With Hospital-based Skilled Nursing Facilities Close?: A Propensity Score Analysis

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Research Objective: The Balanced Budget Act of 1997 resulted in sharp declines in payments for most hospital-based skilled nursing facilities (HBSNFs), as intended by Congress. Researchers have shown that many HBSNFs, following these payments changes, exited the market. This study assesses the effects of HBSNF closures on health care utilization, spending, and outcomes among Medicare fee-for-service beneficiaries.

Study Design: This analysis aggregates individual episode-level data on utilization and outcomes to the hospital level based on the site of the hospital stay that initiated the episode. We then use a difference-in-differences approach to compare changes in hospital-level patterns of care and health outcomes among hospitals that closed their HBSNF between 1997 and 2001 versus those that did not. Hospitals were stratified according to propensity scores (i.e. predicted probability of closure from a logistic regression) and analyses were conducted within these strata.

Population Studied: The analysis uses 100% Medicare fee-for-service claims files for 1997 through 2002, merged with Medicare Provider of Services files and beneficiary-level enrollment records. The analysis includes the universe of acute care hospitals in the U.S. that provided services to Medicare beneficiaries throughout the period from 1997 through 2001 and that hosted an HBSNF in 1997.

Principal Findings: The results indicate that HBSNF closures were associated with increased utilization of alternative post-acute care settings, and longer acute care hospital stays. For example, HBSNF closures increased the probability of freestanding SNF use by about 2.4 percentage points. Because of increased use of alternative settings, HBSNF closures were associated with a statistically significant increase of \$342.86 in total Medicare spending per acute care hospital discharge. There are no statistically robust associations between HBSNF closures and changes in either mortality or rehospitalization.

Conclusions: HBSNF closures altered utilization patterns, but there is no indication that closures adversely affected beneficiaries' health outcomes.

Implications for Policy, Delivery, or Practice: HBSNF closures result in some patients who would have received care in the HBSNF setting receiving care instead in other settings, such as long-term care hospitals and inpatient rehabilitation facilities. The apparent substitutability of alternative sites of care lessens concern that HBSNF closures hindered access to needed care. At the same time, substitutability raises concerns that Medicare's attempts to rein in payments to one provider type may be circumvented as providers shift utilization to alternative, more-lucrative settings.

Primary Funding Source: NIA

●Persistence of High Prescription Medicine Expenditures by Noninstitutionalized Medicare Beneficiaries

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Research Objective: To compare Medicare beneficiaries with persistently high and those with persistently low prescription medicine (PM) expenditures and to evaluate the determinants of the likelihood of having persistently high expenditures.

Study Design: We tracked all noninstitutionalized, non-HMO Medicare beneficiaries present between 1999 and 2001 in the Medicare Current Beneficiary Survey (MCBS). Beneficiaries were categorized into three groups: PM expenses above median PM expenses for each of the 3 years (high PM expense group), below median PM expenditures in each of the 3 years (low PM expense group), and all others. We compared the high expense with the low expense group using 2001 data on demographic characteristics, primary health insurance and drug coverage, measures of health status, and source of PM funding. With the same data, we conducted a multivariate analysis to model the likelihood of inclusion in the high PM expense group.

Population Studied: All community-dwelling Medicare beneficiaries who were covered by Medicare Fee-For-Service between 1999 and 2001 in the MCBS (n=3093).

Principal Findings: Beneficiaries in the high PM expense group are more likely to report having some PM coverage. They are in poor health: i.e., they are more likely to have chronic health conditions, functional limitations (ADLs) and fair/poor health status. They include more of the disabled (aged less than 65), and include fewer minorities and low income beneficiaries. They tend to be users of home health, hospital inpatient and outpatient services. These and other services are used intensively. Among those with high PM expenses, drug costs tend to be covered by either private insurance or Medicaid, supplemented by out-of-pocket payments. A logistic regression analysis of the likelihood of inclusion in the high PM expense group reveals the independent effects of health status, insurance coverage and sources of payment, and demographics. Private insurance coverage raises the likelihood, as does the presence of any chronic conditions. Users of inpatient, medical provider and outpatient services are more likely to be high PM spenders, although those reporting multiple hospital or SNF stays are less likely. If any PM expenses are funded by other sources, the beneficiary is more likely in the high PM expense group.

Conclusions: Certain characteristics of Medicare beneficiaries may help to identify those with persistently high PM expenditure without requiring PM expenditure data from previous years. Surprisingly, PM coverage by itself, though more prevalent, does not have a significant impact on the likelihood of persistently high PM spending. The primary driver is poor health accompanied by greater usage of many healthcare services. Beneficiaries with private insurance coverage or Medicaid are more likely to be high PM spenders.

Implications for Policy, Delivery, or Practice: With soaring PM expenditures and the advent of the recently legislated Part D benefit, an understanding of the factors that identify Medicare beneficiaries with persistently high (or low) PM

expenditures may enable Medicare to craft policies to better manage the drug benefit to be offered in 2006.

Primary Funding Source: CMS

●Impact of “SeniorCare” Pharmacy Assistance Programs for Low-Income Seniors on Medication Use and Financial Hardship in Illinois and Wisconsin

Donald S. Shepard, Ph.D., Musetta Leung, MS, William Stason, M.D., MS, Grant Ritter, Ph.D., Cindy Thomas, Ph.D.

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Research Objective: In mid-2002, the states of Illinois and Wisconsin initiated “SeniorCare” (SC) pharmacy assistance programs (PAPs) that provide low-income persons aged 65+ with publicly funded prescription drug assistance. The programs were designed to help seniors improve prescription drug use, reduce financial hardship due to prescription costs, maintain health, and avoid entry onto full benefit Medicaid. Enrollees generally faced maximum co-payments per prescription of \$4 in IL and \$15 in WI. Enrollees with incomes up to 200% of the federal poverty limit (FPL) were funded under a Medicaid waiver. A sample of these enrollees was surveyed to assess success of implementation and first-year impact on behaviors.

Study Design: Through a stratified random sample, an academic survey research organization interviewed 2,227 participants by telephone in spring 2004 (response rate 61%). Key questions contrasted prescription purchase and “going without necessities” during the 6 months prior to joining SC to the latest 6 months in SC. A respondent who “skipped” was one who reported not filling all prescribed medications or skipping some doses for financial reasons during one of these time periods.

Population Studied: To contrast sub-populations, participants were selected from three strata: 68,292 Wisconsin members, who were all new enrollees (1,189 interviewed), 121,000 Illinois members who were previously in a limited PAP that excluded mental health and gastro-intestinal drugs and automatically rolled over into SC (termed 'IL rollovers,' 374 interviewed), and 47,782 Illinois members not previously in this PAP (termed 'IL new,' 664 interviewed).

Principal Findings: With an average age of 77 years, respondents were mostly female (73%), white (83%), had household incomes below 160% of the FPL (66%), and lived alone (53%). Only 1% of enrollees reported any problems in joining the programs. The proportion of people going without some necessities was cut in half from 35.4% before SC to 17.0% after SC. The overall share of skipping was 28.4% before SC and 12.9% after SC, representing a proportional reduction of 55%. As expected, before SC, IL rollovers were significantly less likely to skip than IL new enrollees (27.1% vs. 36.7%) but the IL rollovers still improved significantly and achieved comparable levels to IL new after SC (15.4% vs. 14.8%, respectively). When respondents were categorized by demographic and health factors into tertiles of pre-SC risk of skipping, the 3 groups achieved proportional reductions in skipping of 46% to 63%. The improvement in the absolute risk of skipping, however, was greatest in the highest tertile. While skipping in the lowest tertile fell from 14.4% to 7.8%, it

declined from 45.5% to 17.0% in the highest tertile. The absolute differences of 6.6 and 28.5 percentage-points, respectively, mean that SC averted skipping for only 1 in 15 low-risk enrollees, but for 2 out of 7 high-risk enrollees.

Conclusions: The two state PAPs studied here cut the proportion of seniors who reported going without necessities or skipping on prescribed drugs by more than half, and those at greatest risk of skipping benefited the most.

Implications for Policy, Delivery, or Practice: Pharmacy programs should be designed for and targeted to persons at greatest risk of skipping to maximize the likely health gains.

Primary Funding Source: CMS

●**Evidence of Substitution of OTC Products for Prescription-only Medications by Nursing Home Residents: The Role of Insurance and Income.**

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Research Objective: The study was designed to determine if drug coverage and income influence the relative utilization patterns of over-the-counter (OTC) and prescription-only (Rx-only) drugs among nursing home (NH) residents. We hypothesized that Rx-only drug use would be positively associated with drug coverage and higher income and that the proportion of OTCs to all drugs used would be negatively associated with coverage and income.

Study Design: The study used data from the Medicare Current Beneficiary Survey (MCBS) for 2001. NH residents were identified on a month-of-residence basis. We used the following information from the public use version of the MCBS: resident demographic characteristics, health and functional status, predicted Medicare spending from the CMS-HCC risk adjuster, Medicaid status ("full" duals and QMB/SLMB only), and whether the resident had private or other public drug coverage. Drug use variables were obtained from a special MCBS Institutional Drug Administration (IDA) file prepared by the authors for CMS. Regression analysis was used to test the study hypotheses. Drug measures used as dependent variables included counts of all medications administered per resident month, Rx-only medications, OTC medications, and the proportion of all drugs utilized that are OTC.

Population Studied: The sample of 789 NH residents was nationally representative of the population of Medicare beneficiaries residing in skilled nursing facilities in 2001

Principal Findings: In 2001, 20% of Medicare beneficiaries residing in NHs had no prescription coverage, 60% had drug coverage under Medicaid, 9% had drug coverage from another identifiable source, and drug coverage status could not be determined for the remaining 12%. Almost 37% of the resident population had incomes below the poverty level in 2001. On average, residents utilized 8.6 medications per month of which 64% were Rx-only. We found no relationship between drug use and drug coverage or income in either bivariate or multivariate comparisons. However, there was conditional evidence that residents below the poverty level substituted OTCs for Rx-only medications.

Conclusions: Medication use by nursing home residents is not sensitive to drug coverage or income. However, residents with incomes below the poverty level substitute OTCs for Rx-only medications.

Implications for Policy, Delivery, or Practice: Prior studies have estimated that fewer than 10% of nursing home residents have no prescription coverage. Our finding that the rate is more than double that means that Part D will enable a larger percentage of residents to have affordable medications. Our finding of no insurance effect implies that the centralized medication management in NHs makes it difficult for institutionalized beneficiaries to express the kind of drug price sensitivity found among beneficiaries in community settings. It also implies that the generous drug benefits available under Medicare Part D are unlikely to spur any significant increase in Rx spending in NHs per se. However, since Part D does not cover OTC medications, it is possible that Part D may induce substitution of Rx-only medications for some OTC use.

Primary Funding Source: CWF

●**Diffusion of Statin Use In Elderly Patients From 1992-2000: the Effect of Prescription Drug Insurance**

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Research Objective: Statins have emerged as a key therapeutic agent to reduce cardiovascular morbidity and mortality in at-risk patients. Little is known about the use of these agents in the elderly and the factors leading to early adoption of use in this population. We studied national trends in statin use among older patients with cardiovascular disease in the 1990s to examine whether drug insurance coverage accelerates adoption of use.

Study Design: Serial cross-sectional analysis.

Population Studied: We used cross-sectional data from the inception cohorts of the Medicare Current Beneficiary Survey (MCBS), a national probability sample of Medicare beneficiaries, for subjects enrolling in 1992-2000. Our study population was community dwelling beneficiaries aged 65 and older with a history of cardiovascular disease identified by self-report or claims data. The main outcome variable was prevalence of statin use as determined from MCBS prescription medication files. The main predictor variable was outpatient prescription drug insurance. In each year, bivariate analyses compared the prevalence of statin use by drug insurance; multivariable logistic regression was used to estimate the independent effect of drug insurance on statin prevalence adjusting for age, sex, race, income, geographic residence, functional status, health status and comorbid conditions.

Principal Findings: Between 1992 and 2000, the percentage of older adults with cardiovascular disease using statins increased from 5.7% to 35.2% ($P < .001$). Overall, there was a small increase in statin use from 1992-1996 (from 5.7 to 11.6%; $P < .001$). From 1996-2000, the prevalence rose sharply (from 11.6% to 35.2%; $P < .001$). Increased use of these medications occurred across multiple age and race groups, and for those with and without drug insurance.

However, those without drug insurance had a lower prevalence of statin use in each year. For example, statin use in 1992 was 4.4% versus 8.9% for those without and with drug insurance ($P < .001$). In 2000, statin use was 30.8% versus 38.0% ($P = .017$), respectively. After adjusting for potential confounders, the effect of drug insurance on the likelihood of statin use decreased between 1992 and 2000, from an adjusted odds ratio [AOR] of 1.94 (95% confidence interval [95% CI] 1.21 – 3.10) to an AOR of 1.29 (95% CI 0.89–1.87).

Conclusions: Drug insurance appears to contribute to the early adoption of statin utilization in older adults with cardiovascular disease. Although the effect appears to diminish over time, these data suggest that drug insurance is an important factor affecting the adoption and diffusion of emerging pharmacotherapy in chronic conditions.

Implications for Policy, Delivery, or Practice:

Implementation of the Medicare prescription drug plan may diminish lags in the diffusion of innovative pharmacotherapy among covered beneficiaries.

Primary Funding Source: NIA

● **Beneficiary Knowledge of the Medicare Program**

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Research Objective: To measure beneficiary knowledge of the Medicare program and to assess how knowledge varies by subgroups of beneficiaries.

Study Design: Working in collaboration with the Centers for Medicare and Medicaid Services, we developed and cognitively tested questions to measure beneficiary knowledge of the Medicare program. The questions were fielded during Round 36 of the MCBS in August 2003. Based on psychometric analyses, the knowledge items formed two factors: (1) knowledge of Medicare managed care (25 items; Cronbach Alpha = .89) and (2) knowledge of Original Medicare (19 items; Cronbach alpha = .78). We estimated Ordinary Least Squares (OLS) regression models with each index as the dependent variable controlling for socio-demographic characteristics, self-reported health status, insurance, and health services utilization.

Population Studied: The sample included 2,634 elderly and disabled Medicare beneficiaries residing in community settings.

Principal Findings: For the Medicare managed care index, the overall mean percentage correct was 48. The percentages of correct responses for individual items ranged from 25 percent for a question that assessed beneficiaries' knowledge of how often a Medicare HMO can change its monthly premium to 74 percent for a question that asked beneficiaries if the Medicare program offers information and help in various ways. For the Original Medicare index, the overall mean percentage correct was 67. The percentages of correct responses ranged from 34 percent for a question that assessed beneficiaries' knowledge of whether they could get a Medigap or supplemental plan back at any time if they dropped it to 88 percent for a question that asked whether

Medicare covers an annual flu shot. Preliminary results from our OLS models indicate that beneficiaries ages 75 and older, non white, and with lower levels of education and income had lower levels of knowledge on both the Original Medicare and Medicare managed care indices. Factors associated with higher levels of knowledge included being in excellent or very good self-reported health and being enrolled in any managed care plan during the past year for the Medicare managed care index and being enrolled in any private insurance plan and having at least one doctor office visit in the past year for the Original Medicare index.

Conclusions: Beneficiary knowledge of the Medicare program is quite low in some areas and knowledge levels vary by beneficiary subgroup. Beneficiary subgroups with knowledge gaps across both indices include beneficiaries who are older, non-white, those with lower education levels, and lower incomes.

Implications for Policy, Delivery, or Practice: Medicare is a complex and evolving program. Understanding the changes that are occurring would help beneficiaries better navigate the health care system and make informed health plan choices. Understanding the factors associated with lower knowledge levels can help the Medicare program target their educational efforts and resources.

Primary Funding Source: CMS

● **Historical Trends in Medicare Spending Growth**

Chapin White, MPP, Ph.D.

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Research Objective: To measure the rate of growth in Medicare spending over the period from 1975 through 2002, and to identify important variations in growth rates across types of service and time periods.

Study Design: Total Medicare spending, from National Health Expenditures data, is combined with Census data and data from the Bureau of Economic Analysis on the gross domestic product price deflator. Real growth in Medicare spending per capita is broken into the following components: population aging, growth in real output per capita, and "excess" growth. Excess growth in Medicare spending represents the difference between the annual rate of growth in age-adjusted Medicare spending per beneficiary and the annual rate of growth in GDP per capita.

Population Studied: The U.S. population.

Principal Findings: Real Medicare spending per capita increased from \$199 in 1975 to \$857 in 2002, an annual growth rate of 5.4%. Of the 5.4% annual growth, population aging (which includes the increase in Medicare beneficiaries as a share of the population) accounted for 1.1%, and real growth in output per working-age person accounted for 2.1%. The remaining 2.3% represents excess growth. The rate of excess growth in Medicare spending has been highest for post-acute care, and lowest for hospital care. In recent years, excess spending growth has slowed substantially across all service types.

Conclusions: Slowdowns in Medicare spending growth appear to coincide roughly with the implementation of cost

containment provisions, such as the inpatient prospective payment system and the physician fee schedule. This is consistent with the notion that Medicare's spending trends are driven, at least in part, by changes in Medicare's payment policies and regulations.

Implications for Policy, Delivery, or Practice: This research shows that rates of Medicare spending growth exhibit substantial variation over time. One important question facing Medicare policymakers and forecasters is whether the slower Medicare growth in the more-recent period reflects a short-term aberration, or a longer-term shift.

Primary Funding Source: No Funding Source

●How Do Medicare Payment Rates Affect the Volume of Services?

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Research Objective: To measure the association between changes in Medicare's payment rates for skilled nursing facilities (SNFs) and the volume of SNF services provided.

Study Design: I use a difference-in-differences approach, with the 3000+ hospital service areas (HSAs) as the units of observation. Beneficiaries are assigned to HSAs based on their zip code of residence. For each HSA, I measure Medicare SNF payments per resident-day in 1997, and in 2001. The change in Medicare SNF payment rates between 1997 and 2001 is adjusted to account for input price increases and changes in HSA-level casemix. Payment rates changed dramatically over this period, due to the phasing in of a new prospective payment system beginning in 1998. At the HSA level, I also measure the volume of SNF services provided. I define volume as Medicare-covered SNF days per beneficiary per year. Changes in volume are also adjusted for HSA-level casemix. I measure the volume response for all SNFs, and I also measure a separate volume response for freestanding versus hospital-based SNFs. Volume responses are decomposed into volume changes due to SNF entry and exit and volume changes among SNFs that remained open throughout the period.

Population Studied: Fee-for-service Medicare beneficiaries.

Principal Findings: An increase in Medicare payment rates is associated with an increase in the volume of SNF services, with an elasticity of approximately 0.2. The volume of hospital-based SNF services was much more responsive to payment rates than the volume of freestanding SNF services. Changes in hospital-based SNF volume were driven primarily by facility closures, whereas changes in freestanding SNF volume were driven by changes in the volume among freestanding SNFs that remained open throughout the period.

Conclusions: Increases with Medicare payment rates are associated with increases in the supply of SNF services.

Implications for Policy, Delivery, or Practice: In coming years, Congress will likely target Medicare for spending constraints. One method of limiting Medicare spending is to reduce Medicare's payment rates. This research shows that the volume of SNF services responds to changes in Medicare payment rates, and that SNFs' responses are consistent with

an upward-sloping supply curve. Previous research that has examined physicians' responses to changes in Medicare fees has generally found fee reductions to be associated with volume increases. This research shows that we should not assume that institutional providers, such as SNFs, respond to Medicare payment changes in the same way as physicians. The impact of payment rates on Medicare beneficiaries, and on the federal budget, depends on the magnitude of payment-driven volume changes, and on whether volume changes in one setting (e.g. SNFs) are offset by volume changes in other settings (e.g. inpatient rehabilitation facilities). Further research should focus on measuring volume responses in other settings besides SNFs, and on measuring the extent of offsetting volume changes in alternative settings.

Primary Funding Source: No Funding Source

●Lung Cancer Treatment Costs: What Benefit to the Elderly?

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Research Objective: Lung cancer, the number one cause of cancer mortality, takes a large toll in the United States, in terms of both expenditures and lost lives. However, the value of spending on the treatment of lung cancer, particularly in the elderly population, has not been conclusively demonstrated. To better elucidate the relationship between use of resources and improvements in survival, we evaluated the direct costs and benefits of medical care for lung cancer for the elderly U.S. population.

Study Design: Direct costs for lung cancer detection and treatment were determined using Part A and Part B charges and reimbursements from the Continuous Medicare History Sample File (CMHS) data. The CMHS data were linked with Surveillance, Epidemiology, and End Results (SEER) data from the National Cancer Institute in order to calculate the average charges and reimbursements attributable to the care for cancer for those diagnosed with lung cancer in 1980, 1990 and 1995. Benefits were deemed to be the change in life expectancy, comparing life expectancy when diagnosed at different points in time from 1980 to the mid-1990s. More specifically, lung cancer survival data from the SEER Program were used to calculate life expectancy after a diagnosis with lung cancer in the years 1980, 1990 and 1997.

Population Studied: The population studied was therefore Medicare beneficiaries included in both CMHSF and SEER.

Principal Findings: Preliminary results indicate that life expectancy for both men and women diagnosed with lung cancer improved only minimally over this time span. Meanwhile, initial costs, roughly defined as costs in the year of diagnosis, rose over this time span whereas continuous and terminal costs, roughly defined as those costs in the last year of life, rose less markedly or fell. The exception to this trend of spending less in the terminal phase may perhaps be for those diagnosed in the localized stage of lung cancer, although such an early diagnosis is still a relatively rare occurrence given how

lung cancer is typically diagnosed with the onset of symptoms in later stages.

Conclusions: Our results raise a number of concerns regarding the overall rate of return of medical spending on the treatment for lung cancer patients diagnosed over the age 65.

Implications for Policy, Delivery, or Practice: In addition, we discuss whether cost trends in the terminal phase reflect practitioners' restriction of potentially futile care among those with advanced cancer.

Primary Funding Source: NIA

●Predictors of Inappropriate Medication Use Among a Cohort of Medicare Beneficiaries with Supplemental Insurance

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Research Objective: To estimate prevalence and identify predictors of inappropriate use among a cohort of community-dwelling elders. This is part of a larger study examining the association of medication use factors and transitions to nursing home.

Study Design: Cross-sectional design. Annual prevalence of drug use was obtained from prescription claims. Twenty-two categories of inappropriate drugs were defined using criteria developed by Beers and others, using the most recently published (2003) list. Annual use of these drugs (yes/no) was the dependent variable. Predictors included sociodemographic and clinical variables available in enrollment, inpatient and outpatient claims files. Predicted Medicare spending (PMS) using the Diagnostic Cost Group/Hierarchical Coexisting Condition, a risk adjuster derived from Medicare claims, was used to control for comorbidities. Multivariate logistic regression was used to assess predictors of inappropriate drug use; odds ratios (OR) and 99% confidence intervals (CI) are reported.

Population Studied: Subjects were obtained from Medstat's MarketScan Medicare database, a convenience sample of privately insured Medicare beneficiaries. A retrospective cohort to study predictors of nursing home transitions was assembled from three years of data. Subjects were included in the cohort if they met all of the following criteria: (1) At least 1 year of enrollment/prescription coverage during 2000, 2001, or 2002; (2) Age 65 years or older; (3) No nursing home admissions during the 1-year study period.

Principal Findings: 487,383 subjects were eligible for inclusion. Mean (sd) age was 73.8 (6.8) years; 56% were female. Annual prevalence of any inappropriate drug was 41.9%. Of these, 11.4% had >12 prescriptions for inappropriate drugs during the year, indicating chronic or continuous use. Over 2/3 of inappropriate drug users had prescriptions for >1 classes of inappropriate drugs. Annual prevalences for individual classes of inappropriate drugs ranged from 0%-14%. Hormones was the most prevalent of the inappropriate drug classes (14%). Annual prevalence of inappropriate drug use, excluding hormones, was 35%. Use of inappropriate

analgesics (10%) and antihistamines (9.3%) was also high. Based on the multivariate analysis, factors associated with inappropriate drug use included younger age (age 65-69 vs. age 85+, OR 2.55, 99%CI 2.46-2.64); female (OR 2.56, 99%CI 2.52-2.60); retired (vs. working, OR 1.13, 99%CI 1.11-1.16); living in a non-MSA (OR 1.13, 99%CI 1.08-1.19), geographic region (South vs. Northeast, OR 2.02, 99%CI 1.97-2.07) and depression (OR 1.57, 99%CI 1.48-1.66). Hospitalizations and high PMS were also associated with inappropriate drug use. The gender disparity was diminished when hormonal drugs were excluded from the definition of inappropriate drug use. Other patterns of association were similar as when hormones were included.

Conclusions: Inappropriate drug use was high in this relatively healthy Medicare cohort. Use of inappropriate drugs varied by demographics, region, insurance type, and some clinical factors. In addition, some factors associated with inappropriate drug use varied by how inappropriate use was defined.

Implications for Policy, Delivery, or Practice: Given policy changes in Medicare drug coverage, it is important to have measurements of appropriateness and quality of care, and to be able to apply these measures at a population level to assess care delivery. However, there is little information on outcomes associated with inappropriate drug use. It is important to know whether inappropriate drug use, as defined by Beers and others, is associated with adverse health outcomes. If so, then further research should be targeted at interventions to reduce inappropriate drug use. However, if use of these inappropriate drugs is not associated with adverse outcomes, then perhaps additional research is needed on refining measurements of inappropriate drug use. Next steps for this research agenda include predictive validity of measures of quality and appropriateness of drug therapy. That is, given the high prevalence of inappropriate drug therapy as measured in this study, what are the outcomes associated with use of these drugs, and how is utilization of other health care services influenced by inappropriate drug use?

Primary Funding Source: NIA