mental scores or work productivity. Greater increases in pharmacy costs for the DTM cohort were partially offset by smaller increases in medical costs, resulting in similar total health care costs for DTM patients compared with controls.

ME2

THE EFFECT OF MEDICARE PART D PRESCRIPTION DRUG COVERAGE GAP ON MEDICATION ADHERENCE

Said Q, Li C, Souder E, Hastings JK

University of Arkansas for Medical Sciences, Little Rock, AR, USA

OBJECTIVES: To investigate the impact on medication adherence for patients with common chronic conditions who reach the Medicare Part D coverage gap versus those who do not. The study is unique because it included characteristics of Medicare Part-D enrollees that are typically not available in administrative databases. **METHODS:** A survey based on the Seniors' Prescription Coverage, Use and Spending Survey and the Brief Medication Questionnaire was distributed to elderly persons seeking care at the pharmacies within the University of Arkansas for Medical Sciences Advanced Practice Network. Patients recruited were ≥65 years, enrolled in Medicare Part D in 2007 or 2008, and had the following conditions: hypertension, hyperlipidemia, diabetes, asthma/COPD, or depression. Adherence was a composite measure based on responses to several questions asking if subjects skipped doses, took smaller doses or decided to not fill at all. Logistic regression was run to evaluate the impact of being in coverage gap on medication adherence, adjusting for age, sex, race, income, and education levels. **RESULTS:** A total of 152 subjects (62% female, 44.1% greater than 75 years of age, and 92.7% white) completed the survey. A total of 44.7% reached coverage gap in 2007 or 2008 and 31.6% reported non-adherent. 45.4% had monthly income of $2000 or less and 34.2 had no college education. Subjects in the coverage gap were twice as likely to be non-adherent to medication regimen as compared to those not in the gap (adjusted odds ratio = 2.07, p-value = 0.051). **CONCLUSIONS:** There is likely significant impact of falling in the coverage gap on medication adherence for the elderly, which may have adverse health consequences. Decision makers ought to be cognizant of these implications.

ME3

IMPACT OF COST SHARING ON TREATMENT AUGMENTATION IN PATIENTS WITH DEPRESSION

Gibson TB[1], Jing Y[2], Bagalman E[1], Cao Z[1], Bates J[2], Hebden T[2], Forbes RA[3], Doshi JA[4]

[1]Thomson Reuters, Ann Arbor, MI, USA, [2]Bristol-Myers Squibb Company, Plainsboro, NJ, USA, [3]Otsuka Pharmaceutical Development & Commercialization, Princeton, NJ, USA, [4]University of Pennsylvania School of Medicine, Philadelphia, PA, USA

OBJECTIVES: Patients with depression may not respond to first-line antidepressant (AD) therapy. Treatment options include changing from one AD to another and augmenting AD treatment with another concurrent AD, a stimulant, a mood stabilizer, or a second generation antipsychotic (SGA). While treatment decisions are primarily based on clinical considerations, they may also be influenced by patient cost-sharing. This study examines the relationship between cost-sharing and the use of augmentation among depressed patients who are already filling prescriptions for AD treatment. **METHODS:** Patients aged 18–64 in employer-sponsored plans with a diagnosis of depression and at least one antidepressant prescription were found in the 2004–2008 MarketScan Database. Twelve months of continuous medical and prescription coverage were required before and after the initial antidepressant prescription. Patients with certain psychiatric diagnoses (e.g., schizophrenia) were excluded, resulting in a sample of 48,865 patients. Logistic regression models estimated the probability of augmentation within 12 months as a function of a plan-level cost-sharing index for brand and generic antidepressant and augmentation medications, controlling for demographic and clinical characteristics. Results are reported as odds ratios (OR) and 95% confidence intervals (CI). **RESULTS:** A $10 increase in the cost-sharing index for all augmentation classes was associated with a 5% decrease in the odds of any augmentation (OR 0.947, 95% CI 0.916–0.979, N = 48,795). A $10 increase in the cost-sharing index for antidepressants was associated with a 6% decrease in the odds of augmentation with a second antidepressant (OR 0.939, 95% CI 0.902–0.977, N = 47,269). **CONCLUSIONS:** Prescription drug cost-sharing appears to influence the decision to augment AD treatment. Financial barriers may prevent patients from receiving additional care.

ME4

THE IMPACT OF MEDICARE PART D ON HEALTH CARE UTILIZATION AND HEALTH OF THE MEDICARE BENEFICIARIES

Liu FX[1], Alexander GC[2], Crawford SY[3], Pickard AS[3], Hedeker DR[3], Walton S[3]

[1]Baxter Healthcare Corporation, Deerfield, IL, USA, [2]University of Chicago, Chicago, IL, USA, [3]University of Illinois at Chicago, Chicago, IL, USA

OBJECTIVES: To examine, using nationally representative data, the impact of Medicare Part D on out-of-pocket-costs, emergency room visits, hospitalization, and general health among civilian non-institutionalized Medicare beneficiaries. **METHODS:** The primary data were from the Medical Expenditure Panel Survey (MEPS) panel 10 data, which included Medicare beneficiaries aged 65 and older in 2005. Near elderly respondents in MEPS (aged 55 to 63 years old) in 2005 served as control subjects. Raw and adjusted difference-in-differences were used to identify the effects of Medicare Part D on Medicare beneficiaries in terms of out-of-pocket costs, emergency room visits, hospitalization, and general health according to a preference-based summary score (SF-12 based utility scores). **RESULTS:** Controlling for secular trends, Medicare Part D prescription drug benefit resulted in a 22% (95% CI: 7%–37%) reduction in out-of-pocket costs among Medicare beneficiaries ($p = 0.0020$). However, the Medicare Part D benefit did not significantly impact emergency room visits (OR = 1.15, 95%CI: 0.59–1.71), hospitalization (OR = 1.64, 95% CI: 0.68–2.60), or overall health ($\beta = -0.0057$, 95% CI: −0.0210–0.0096) among Medicare beneficiaries compared to controls. **CONCLUSIONS:** In the first year following the implementation of Medicare Part D, out-of-pocket costs for prescription drugs were reduced among Medicare beneficiaries. However, Medicare Part D was not associated with improved health outcomes of Medicare beneficiaries as measured by reductions in emergency room visits and hospitalization and improvement in their health utility score. Further research should follow Medicare beneficiaries for a longer period of time after its implementation or focus on beneficiaries with diseases that might be more sensitive to Medicare Part D.

PODIUM SESSION II: STUDIES DEALING WITH SELECTION BIAS

SB1

EXPENDITURE OF DISEASE MODIFYING ANTI-RHEUMATOID TREATMENT—LAGGED TREATMENTS AS INSTRUMENTAL VARIABLES IN PANEL DATA

Kawatkar AA[1], Nichol MB[2]

[1]Kaiser Permanente Southern California, Pasadena, CA, USA, [2]University of Southern California, Los Angeles, CA, USA

OBJECTIVES: To compare the incremental medical expenditure associated with alternative disease modifying anti-rheumatoid drug (DMARDs) choices in Rheumatoid Arthritis. **METHODS:** Retrospective cohorts were constructed from California Medicaid paid insurance claims between January 1, 1998 to December 31, 2005. Non-overlapping monthly panels were created from pharmacy claims for biologic (adalimumab and etanercept) and standard (methotrexate, lefluonomide, hydroxychloroquine and sulfasalazine) DMARDs. Final sample included 59,788 observations on 7,025 patients. Covariates included age, gender, race, location of beneficiary's county in either Northern or Southern California, population density in beneficiaries county, exclusive fee-for-service reimbursement used in beneficiary's county, Medicare and Medicaid dual eligibility, Charlson comorbidities index excluding Rheumatoid arthritis, and expenditures associated with pharmacy, out-patient, inpatient, inpatient-MD, LTC, and ER visits in the 3-months prior to treatment. We compared parameter estimates between naïve fixed effects (FE) and instrumental variables based fixed effects (IV-FE) panel data models. First lag of the observed treatment served as the instruments for the endogenous variables in IV-FE models to mitigate time-varying endogeneity. The primary dependant variable was total monthly expenditure. Secondary analysis included monthly expenditures associated with pharmacy, out-patient, inpatient, inpatient-MD, LTC, and ER visits. **RESULTS:** Based on the FE model, as compared to methotrexate, incremental monthly total expenditure associated with adalimumab ($1623.4, $p < 0.001$), etanercept ($1185.3, $p < 0.001$) and leflunomide ($467.3, $p < 0.001$) was significantly higher. Based on the IV-FE model, total expenditure associated with adalimumab ($2129.9, $p < 0.001$), etanercept ($1604.1, $p < 0.001$) and leflunomide ($686.8, $p < 0.001$) exhibited significant increase in magnitude of the parameter estimates, again with baseline as methotrexate. Under identification test based on Anderson's canonical correlation LM statistic, strongly rejected the null hypothesis in all the IV-FE models. **CONCLUSIONS:** The incremental acquisition cost associated with adalimumab, etanercept and leflunomide may not be offset by commensurate reductions in routine and catastrophic resource utilization in the California Medicaid population.

SB2

COMPARING BINARY PROPENSITY SCORE ANALYSIS WITH MULTIPLE PROPENSITY SCORE APPROACH AMONG PATIENTS WITH CHRONIC HEART FAILURE

Chitnis AS, Aparasu RR, Chen H, Johnson ML

University of Houston, Houston, TX, USA

OBJECTIVES: Propensity scores (PS) are often used with the binary treatments. However, in day to day practice multiple treatment settings are experienced rather than binary treatments. Therefore extension of binary PS analysis to multiple PS will add to the empirical knowledge of use of PS. We compared binary PS analysis with multiple PS approach by examining clinical effectiveness in patients with Chronic Heart Failure (CHF). **METHODS:** The study was a retrospective analysis of a national cohort of patients diagnosed with CHF identified from the Department of Veterans Affairs electronic medical records system. PS analysis (binary and multiple) was used to balance 47 baseline patient characteristics between the different Angiotensin Converting Enzyme Inhibitors (ACEIs). For multiple PS we used multinomial logistic regression and for binary PS we split our cohort into separate models. Effect of different ACEIs on time to death was assessed using a multiple PS weighted Cox proportional hazard model and three separate binary PS weighted Cox proportional hazard models. Captopril was used as reference in all models. The statistical significance of effect of individual ACEIs on mortality was compared between the two propensity approaches. **RESULTS:** For binary propensity approach the adjusted hazards ratio from three different PS-weighted Cox models were 1.003 (95% CI: 0.724–1.390) for enalapril, 0.740 (95% CI: 0.688–0.796) for fosinopril and 0.823 (95% CI: 0.770–0.879) for lisinopril compared with captopril. For multiple propensity approach the adjusted hazards ratio were 1.033 (95% CI 0.739–1.445) for enalapril, 0.738 (95% CI: 0.685–0.796) for fosinopril, and 0.819 (95% CI: 0.767–0.875) for lisinopril. **CONCLUSIONS:** We found the 2 propensity approaches produced similar