tatin treatment results in a reduction of cardiovascular (CV) events during the first year of treatment. This study was conducted to estimate the early clinical and economic consequences of initiating statin therapy with atorvastatin vs. simvastatin from a Canadian societal perspective. METHODS: A cost-consequence model was developed to estimate CV events and costs over the first 2 years of treatment associated with initiating atorvastatin or simvastatin in a hypothetical cohort of 100,000 patients. Four groups of new users were considered, including patients with: 1) diabetes; 2) multiple CV risk factors; 3) coronary heart disease; and 4) acute coronary syndrome. RCT data were used to estimate the CV event rate for each statin. CV events included myocardial infarction, stroke, and revascularization procedures. Corresponding direct costs (i.e., health care utilisation, drug) were obtained from the Ontario Drug Benefit and Ontario Case Costing Initiative. Estimates of indirect costs (loss of productivity) were obtained from Statistics Canada. All costs were expressed in 2007 Canadian dollars. Multivariate (Monte Carlo simulation) and univariate sensitivity analyses were conducted on model assumptions. RESULTS: Within two years of treatment initiation, the use of atorvastatin is predicted to prevent 1648 CV events (95% CI: 1343–1956) per 100,000 new patients compared with simvastatin. Similarly, the cost of CV events was reduced by $50.8 million (95% CI: $41.9–$59.8). The incremental cost associated with atorvastatin treatment was $31.3 million. This resulted in a net saving of $19.5 million (95% CI: $10.7–$28.7). Savings were also observed across all four groups considered. Results were sensitive to assumptions regarding simvastatin efficacy and levels of persistence. CONCLUSION: Based on this model, atorvastatin use is predicted to result in cost savings to the Canadian society over simvastatin use within 2 years of therapy initiation.

**Drug and Health Services Use Research**

**DH1**

**Follow-Up Visits for Patients with Major Depressive Disorder During Initiation of Antidepressant Treatment**

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**OBJECTIVE:** Clinical guidelines recommend frequent follow-up visits for patients initiating antidepressant treatment in order to provide patient support, adjust dosage, and monitor side effects and clinical response. We examined the frequency of follow-up visits and factors associated with having guideline concordant care during the acute phase of antidepressant treatment.

**METHODS:** Medical and prescription claims from a large national health plan affiliated with i3 Innovus were analyzed with a retrospective cohort design. Adults newly diagnosed with major depressive disorder (n = 4447) from July 2000 to December 2002 who started a course of antidepressant treatment were included. Follow-up visits during the first three months after the index prescription were counted, and patients were classified as receiving guideline-concordant care if they had at least three visits. Logistic regression was used to explore the predictors for having the minimum number of recommended follow-up visits.

**RESULTS:** The mean number of follow-up visits during acute phase treatment was 2.68. Only 43.4% of patients received guideline-recommended level of follow-up care. In regression analysis, an initial prescription from a psychiatrist was the strongest predictor (OR = 2.66, 95% CI = 2.30–3.07). Receiving psychotherapy, having comorbid anxiety, and having a lower copayment was also positively associated with the probability of guideline-recommended follow-up care (P < 0.05).

**CONCLUSION:** Routine care for antidepressant management falls short of guideline recommendations, especially in primary care. Modifiable factors such as provider of care and copayments appear to influence the likelihood of receiving guideline-concordant care.

**DH2**

**Impact of Adhering to Lipid Management National Guideline Recommendations on Cardiovascular Events and Costs in a Managed Care Population**

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**OBJECTIVE:** Estimate the impact of adhering to lipid treatment guidelines [National Cholesterol Education Program’s Third Report on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults Treatment Panel’s (NCEP-ATP III)] on cardiovascular disease (CVD) events and associated costs in a managed care population.

**METHODS:** A retrospective analysis was conducted using the HealthCore Integrated Research Database on patients with laboratory values on low-density lipoprotein-cholesterol (LDL-C), high-density lipoprotein-cholesterol (HDL-C), & triglycerides (TG) between January 1, 2003-December 31, 2005 [index date], no lipid therapy 6-months pre-index date, and minimum 12 months health plan eligibility pre- and post-index date. Baseline lipid levels and the first post-index follow-up lipid panel (goal attainment), and risk stratification per NCEP-ATP III guidelines were used to categorize patients as appropriately (AM) or inappropriately managed (IAM). End points included counts of CVD events (ischemic heart disease, peripheral vascular disease, stroke and related occurrences and interventions) through Poisson regression and associated annual total CVD-attributable costs ($CV) during follow-up (multivariate generalized linear model regression) between groups after controlling for baseline clinical and demographic differences.

**RESULTS:** A total of 8176 patients (3493 AM; 4683 IAM) were identified. AM patients were significantly older [mean (SD) ages of 51.4 (9.1) vs. 50.0 (9.6); p < 0.01] and comprised of fewer males [43.2% vs. 56.2%; p < 0.01]. Baseline Deyo-Charlson comorbidity scores were significantly lower among AM patients (0.20 ± 0.44 vs. 0.32 ± 0.56; p < 0.01). During follow-up, AM patients had a 10% reduction in the annual rate of CV events [Annual Event Rate (AER) = 0.90; 95% CI, 0.86–0.93] as compared to IAM patients. A 12% reduction in annual total $CV [Estimate: 0.88 (95% CI, 0.80–0.98) $696 vs. $788; p = 0.02] was observed among AM patients versus IAM patients.

**CONCLUSION:** Comprehensive dyslipidemia management reflecting clinical guideline treatment recommendations was associated with reductions in CVD events and $CV in this managed care population.

**DH3**

**The Impact of Drug Vintage on Patient Survival: A Patient-Level Approach Using Quebec’s Provincial Health Plan Data**

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**OBJECTIVE:** There is much controversy about the value of new medications and the substantial spending on R&D associated with new treatments. The current study aimed at evaluating the impact of drug innovation on longevity in three important disease areas using patient-level data.

**METHODS:** An analysis of health claims from Quebec’s provincial health plan data
between 1997 and 2006 was conducted. Elderly patients with continuous health plan coverage, ≥ drug prescription per calendar year, and ≥ diagnosis for 1) asthma; 2) cancer; or 3) cardiovascular disease (CVD) were selected. Drug vintage, defined as the ingredient’s earliest marketed date, was drawn from Health Canada Drug Product Database. A multivariate analysis was conducted to estimate the impact of drug vintage on patients’ probability of dying using time-varying Cox proportional hazard model. The covariates used for adjustment in the regression model were: demographics characteristics, guaranteed income supplement (GIS) status, medical resources utilization, concomitant drug utilization, and comorbidities. RESULTS: A total of 6912, 12,341, and 29,394 elderly subjects formed the asthma, cancer, and CVD study populations, respectively, of which 1220 (18%), 3479 (28%), and 6043 (21%) died during the observation period. Overall, mean age was 68 years; 49% of subjects were women. After controlling for confounding factors, the use of recent medications (i.e. Post-1990 ingredients) was consistently associated with a significant risk reduction of mortality (hazard ratios <1.0, p < 0.001 for all disease areas), relative to older ingredients, suggesting that recent drug innovation had a significant beneficial impact on longevity in patients with asthma, cancer, or CVD. Other covariates associated with an increased risk of mortality included age, gender, GIS beneficiaries, hospitalization, and number of comorbidities. CONCLUSION: This analysis showed that drug innovation, in particular medications launched after 1990, had a significant beneficial impact on longevity of elderly patients in three important disease areas.

MARKET DISCONTINUATION OF PHARMACEUTICALS IN THE UNITED STATES: ANALYSIS OF NEW DRUGS APPROVED FROM 1980 TO 2007
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OBJECTIVE: Safety, efficacy, and financial concerns are important considerations when evaluating the reasons for market discontinuation of drugs. In this study, market discontinuation of new chemical entities (NCEs) approved by the FDA in the period 1980–2007 were analyzed according to therapeutic class, regulatory changes, orphan drug status, and priority review. METHODS: Data was derived from the FDA, Micromedex and Medline. A drug was considered discontinued if deleted from the FDA’s Orange book. Withdrawals of approval were also included in the study. Descriptive statistics and chi-square tests were performed. RESULTS: A total of 703 NCEs were approved during the study period. In December 31, 2007, 71.8% NCEs remained in the market; 14.9% were discontinued; 5.4% NCEs had the brand discontinued, but the generic was available; 7.0% had changes in route, dosage form or strength; and 0.9% were over-the-counter drugs. Safety was the primary reason for withdrawal of 30 (4.3%) NCEs; 14 (2.0%) NCEs had Federal Register determination for not being discontinued for safety or efficacy reasons; and 61 (8.7%) had no reasons stated by the FDA. Compared to other classes antibiotics were more likely (p < 0.05) to be discontinued. Analyses of priority review, orphan drug status, and the sponsor company’s country (US or non-US) with respect to market withdrawal were not significant. Comparisons of pharmaceuticals withdrawn due to safety reasons with therapeutic class and implementation of Prescription Drug User Fee Act were also not significant. CONCLUSION: One in seven NCEs approved during the study period were discontinued from the market. A small percentage of drugs were discontinued due to safety or financial reasons. An ongoing evaluation of NCEs in the market place is important to determine which products provide optimal benefits in terms of efficacy, safety, and value compared to other products overall and other products within the same therapeutic class.

RESEARCH ON MEDICARE PART D AND REIMBURSEMENT POLICIES I

MD1

MEDICARE PART D: EARLY EVIDENCE ON PRESCRIPTION DRUG TREATMENT PATTERNS, HOSPITALIZATION OFFSETS AND MEDICARE SPENDING
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OBJECTIVE: The U.S. Medicare drug benefit (Part D) was implemented in January 2006 to reduce cost-related underuse of medications, experienced by 25% of older patients in the US. This study evaluated the impact of Part D on medication use patterns and cost-savings for subsequent medical services. METHODS: We collected all claims of 20,645 members from a large Medicare managed care plan between January 1, 2005 and December 31, 2006. We used a time series and comparison group design to measure the changes in outcomes before and after Part D. Intervention group included members who had no drug coverage or quarterly caps in drug spending and whose coverage became more generous after Part D. The comparison group had no limits on drug spending before and after Part D. We estimated the impact of Part D on 1) out-of-pocket pharmacy spending and non-drug medical spending using generalized linear models; 2) number of monthly drug scripts, medication adherence, and counts of hospitalization and ED visits using Poisson regressions; and 3) adherence for antihypertensive, lipid-lowering, anti-diabetic, and antipsychotic agents using generalized-estimating-equation models. RESULTS: Part D reduced out-of-pocket expenditures by 20%–50% depending on members’ drug limits. Part D increased number of monthly drug scripts by 0.5, among members without drug coverage who prescribed 3 scripts per month and members with quarterly $150 cap who prescribed about 3.5 monthly scripts in 2005. We did not find improvements on medication adherence for selected drug classes. We found total medical and inpatient spending reduced by 10% (not statistically significant) for members who had a previous $625 quarterly cap. We did not find any cost offsets for members with other drug limits. CONCLUSION: Part D decreased out-of-pocket pharmacy expenditures and increased demand for drugs but did not induce savings from subsequent medical services.

THE IMPACT OF MEDICARE PART D ON THE PERCENT GROSS MARGIN EARNED BY TEXAS INDEPENDENT PHARMACIES FOR DUAL ELIGIBLE BENEFICIARY CLAIMS
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OBJECTIVE: Since the implementation of Medicare Part D, numerous anecdotal descriptions and a few small studies have reported low reimbursements to community pharmacies. The purpose of this study was to quantitatively assess the impact of Medicare Part D on percent gross margin earned by independent pharmacies in Texas using prescription claims data collected by a pharmacy claims switching company for dual eligible beneficiaries. METHODS: The study evaluated a total of 457,611 claims for prescriptions dispensed in the fourth quarter of 2005 (n = 152,521) and the second and third quarters of 2006 (n = 305,090). The prescriptions were dispensed by 313 indepen-