tient age, sex, number of pre-index antidiabetic medications (1.9±0.9), pre-index HbA1c (8.2±1.5%), or Charlson Comorbidity Index (0.45±0.78, all p>.05). Mean (SD) ADD was 16.7 mcg (±9.22; label range 10-20 mcg) for exenatide patients and 1.43 mg (±0.69, label range 0.6-1.8 mg) for liraglutide patients. Among patients with post-index HbA1c tests, mean values did not differ at the first (7.9), second (7.8), or third (7.8, all p>.05) tests. Exenatide patients were more likely than liraglutide patients to continue pre-index anti-diabetic medications (67.1% vs. 60.3%, p=.027) or to start concomitant anti-diabetic medications at index (32.2% vs. 25.0%, p=.013); however, exenatide patients were less likely to augment treatment post-index (15.8% vs. 22.5%, p=.027). Post-index, 9.3% exenatide and 10% liraglutide patients discontinued GLP-1 therapy (p>.05). **CONCLUSIONS:** Results suggest that some differences exist between German patients initiating exenatide or liraglutide, with respect to prescribing physician specialty, pre-and post-index treatment patterns, and ADD. Both GLP-1s show comparable post-index HbA1c.

PDB70

**BASELINE CHARACTERISTICS AND ANTIDIABETIC EXPOSURE IN PATIENTS WITH TYPE-2 DIABETES TREATED WITH LIRAGLUTIDE**

McAdam Marx C[1], Bouchard J[2], Aagren M[2], Conner C[3], Brixner D[1]
[1]*University of Utah, Salt Lake City, UT, USA,* [2]*Novo Nordisk, Inc., Princeton, NJ, USA,* [3]*Novo Nordisk, Inc., Redmond, WA, USA*

**OBJECTIVES:** This study describes baseline characteristics and prior antidiabetic therapy of patients in an electronic medical record (EMR) prescribed liraglutide, a once-daily GLP-1 agonist, relative to non-liraglutide patients. **METHODS:** Adults (≥18 years) with T2DM, a new prescription for liraglutide from 3/10/2010 to 7/16/2010 (index date), and EMR activity ≥395 days pre-index to ≥1 day post-index were identified. Demographics, comorbidities, and pre-index antidiabetic prescriptions orders were compared to adults with T2DM, ≥1 non-liraglutide antidiabetic order from 1/1/2010 to 7/16/2010 (index date), and EMR activity ≥395 days pre-index to ≥1 day post-index. Bootstrapping was used to provide robust mean (95% CI) estimates for comparison patients due to sample size (n=247,922). **RESULTS:** Of 1,162 liraglutide patients, 58.8% were female and mean (95% CI) age was 55.5 (54.9, 56.2) years vs. 53.0% female and 60.9 (60.1, 61.6) years for comparison patients. For liraglutide vs. comparison patients, mean baseline HbA1c was 8.1% (8.0, 8.2) vs. 7.6% (7.5, 7.8), BMI was 38.3 kg/m$^2$ (37.8, 38.8) vs. 34.1 kg/m$^2$ (33.6, 34.6), body weight was 109.5 kg (108.0, 111.0) vs. 96.7 kg (95.1, 98.3). Comorbidities in liraglutide vs. comparison patients included dyslipidemia (87.1% vs. 79.2%), hypertension (73.6% vs. 73.8%), and cardiovascular disease (18.2% vs. 22.4%). Of liraglutide patients, 5.6% were antidiabetic drug naive pre-index vs. 42.0% of comparison patients. The most common antidiabetics prescribed any time the year pre-index were metformin and sulfonylureas, respectively, for liraglutide (64.5%, 37.5%) and comparison (28.7%, 19.6%) patients, followed by insulin (33.8% liraglutide vs. 19.6% comparison). Pre-index orders for multiple antidiabetics occurred in 75.6% of liraglutide and 22.5% of comparison patients (p≤0.01 for all comparisons except hypertension p>.05). **CONCLUSIONS:** Early data suggest that liraglutide is being utilized in very obese patients who failed to achieve HbA1c goal on other antidiabetics. Longitudinal research is warranted to assess liraglutide outcomes and changes in antidiabetics post-liraglutide.

PDB71

**CHARACTERISTICS OF EARLY ADOPTERS OF EXPENSIVE MEDICATIONS**

Juarez DT, Davis J, Fujimoto R, Chung RS
*Hawaii Medical Service Association, Honolulu, HI, USA*

**OBJECTIVES:** To examine characteristics of physicians who are early adopters of new expensive drugs **METHODS:** Retrospective analysis of pharmacy claims from 2006-2010 for 3 expensive diabetes drugs (exenatide, saxagliptin, and sitagliptin) identified by medical directors and pharmacists at large health plan in Hawaii. We examined how physician specialty and urban setting affected likelihood of being an early prescriber. We calculated total paid costs and days supply by quarter for each physician. We also examined whether same physicians tended to be early adopters of all drugs. **RESULTS:** Characteristics of early adopters differed by medication. For saxagliptin, during first 2 quarters, 53% of prescriptions were made by internists, 30% by general/family practitioners, 17% by other specialists and <1% by endocrinologists. This distribution stayed fairly stable over time. In contrast, for exenatide, in first 2 quarters usage was highest for endocrinologists (28%), Medicaid providers (29%) or other specialists (25%). By the end of 2010, however, most exenatide prescriptions were being made by internists or general/family practitioners. The trends for sitagliptin were similar to that of exenatide with endocrinologists (32%), Medicaid (34%) and other specialists (30%) being early adopters with a shift toward more prescriptions by primary care physicians. Early adopters tended to be in urban areas. 75% of physicians were early prescribers of one drugs, 25% were early prescribers of two drugs, and none were early prescribers of all three medications. **CONCLUSIONS:** Research of this nature may enable us to target intervention programs to promote cost-effective prescribing patterns.

## Diabetes/Endocrine Disorders – Research on Methods

PDB72

**TWO-WAY INTERACTION EFFECT ANALYSIS OF DIABETES COMPLICATIONS ON HEALTH COSTS AND HEALTH OUTCOMES IN MEDICARE INPATIENTS**

Wang X
*University of Louisville, Louisville, KY, USA*

**OBJECTIVES:** The purpose of this project is to investigate the interaction effects of diabetes complications on Medicare expenditures, length of hospitalization, claim frequency and mortality of diabetes inpatients in the Medicare population. **METHODS:** The analysis is based on inpatient claims data with 244,299 records for the year 2004, from CMS (the Centers for Medicare and Medicare Services) chronic condition data warehouse. In this study, the RXMATCH function, summary statistics and 0-1 indicator functions are used to generate the predictor variables, heart disease, kidney disease, neurologic disorder, ocular disease and hypertension. The generalized linear model with a gamma distribution is employed for the analysis of interaction effects of complications on Medicare payments and length of stay (LOS). The Poisson regression model is applied to analyze the effects on the frequency of claims. The logistic regression model is utilized to study the effects on mortality. **RESULTS:** Results demonstrate that several two-way interactions such as heart disease and eye disease, heart disease and hypertension are significant to costs and LOS. The effects between kidney disease and cardiovascular disease are significant in the Poisson regression model. The interaction effect between renal disease and cardiovascular disease is significant to mortality. **CONCLUSIONS:** After the study, we can conclude that for inpatients with other diabetes complications, there are differences in health costs and health outcomes between the inpatients who have cardiovascular disease and those who do not have. There also exist big differences in outcomes between the patients who have renal disease and those who do not have.

PDB73

**A CLAIMS-BASED EMPIRIC APPROACH TO ASSESSING MEDICATION POSSESSION FOR PATIENTS INITIATING THERAPY WITH INSULINS**

Buysman E[1], Conner C[2], Liu F[1], Aagren M[3], Bouchard J[4]
[1]*i3 Innovus, Eden Prairie, MN, USA,* [2]*Novo Nordisk, Inc., Redmond, WA, USA,* [3]*Novo Nordisk, Inc., Princeton, NJ, USA,* [4]*Novo Nordisk, Inc., Plaistow, NH, USA*

**OBJECTIVES:** An important challenge addressing researchers studying adherence among insulin-requiring patients with diabetes is the discrepancy between the point-of-sale (POS) entered days supply and the actual time of medication possession. Significant deviation between these two can result in misleading medication passion ratio (MPR) estimates, especially in cases where the quantity dispensed is known to differ significantly, as is the case with insulin detemir delivered in a 15mL FlexPen® (IDetFP) pack versus NPH insulin delivered in a 10mL vial. This research expands upon an approach used by Klienman et al., and suggests an alternative measure of medication possession for insulins. **METHODS:** Data were gathered from a large US national payer retrospective claims database, and included only patients ≥ 18 years of age with type 2 diabetes that had ≥ 2 retail pharmacy fills of IDetFP or NPH vial in a 12-month observation period. Patients with claims for any other insulin, other than the index insulin during the 12-month observation period, were excluded. Median empirically-derived days supply (EDDS) estimates, based on median time-to-next-refill intervals, and POS entered days supplies were compared within and between cohorts. **RESULTS:** Median POS days supply estimates were identical for both the IDetFP and NPH cohorts, 30.00 days for both; however, median EDDS were significantly different between IDet and NPH cohorts, 45.00 vs. 36.00, respectively (p<0.001). In addition, within-group comparisons of POS days supply and EDDS in both cohorts revealed significant differences (p <0.001 for both tests). **CONCLUSIONS:** Drawing meaningful conclusions about adherence with insulins using pharmacy claims remains a significant challenge. Our analysis demonstrates that POS days supply entries, commonly used for adherence analysis, may deviate substantially and significantly from EDDS estimates. This study explores a novel, alternative, and empirically-based approach to determining medication possession. Research to further refine this and suggest other alternative methods should be encouraged.

PDB74

**BETA-VERIFICATION OF A DIABETES MODELING FRAMEWORK AGAINST PUBLISHED COHORT TRIALS**

Furiak N, Bansal M, Gahn JC, Smolen H
*Medical Decision Modeling Inc., Indianapolis, IN, USA*

**OBJECTIVES:** To perform a beta-verification of a novel diabetes modeling and analysis framework (DMAF) designed to accommodate growing demand for analysis on ever-shifting special subpopulations, new interventions, and updated care algorithms. A Monte Carlo microsimulation model assuming standard oral and subsequent insulin therapy generated mean outcomes as defined by recently published trials: 1) ACCORD-BPLI; 2) ACCORD-GLI; 3) ASPEN; and 4) ADVANCE. **METHODS:** Diabetes is increasing in prevalence, and its 20-year history of diabetes care has witnessed a shift from treating complications to prevention based on evidence from: The United Kingdom Prospective Diabetes Study, Diabetes Control and Complications Trials, and the Wisconsin Epidemiological Study of Diabetic Retinopathy. All have confirmed that tight control of hemoglobin A1c reduced the incidence of complications. Recent trials of diabetics have evaluated targeted interventions for clinical factors and impact on complication rates. Evidence from these trials suggests that aggressive A1c targets may not be suitable for all patients. The evolution of decision models for diabetes has paralleled that of care. Increased prevalence has placed pressure on health care costs and expectations that new interventions impart significant benefits. New evidence has in turn motivated development of decision models that evaluate new interventions, treatments, and care algorithms. **RESULTS:** The DMAF was reasonably consistent with well-defined composite endpoints for ASPEN (15.0% vs. 17.1%); ADVANCE: Secondary (10.5% vs. 9.6%), fatal MI (5.7% vs. 5.5%), all coronary events (11.9% vs. 10.3%); and ACCORD-BPLI non-fatal MI (1.4% vs. 1.3%). DMAF showed results within orders of magnitude for endpoints such as ASPEN angina (2.6% vs. 3.1%); ACCORD-BPLI: heart failure (0.5% vs. 0.8%), major coronary event (3.1% vs. 2.4%), primary outcome (3.6% vs. 2.1%); ACC ORD-GLI non-fatal MI (6.5% vs. 4.6%). **CONCLUSIONS:** Trial outcomes defined as "new or worsening" were not well-matched by DMAF due possibly to uncertainty in definitions and suitability for modeling.