Physician Practice Speciality and Types of Anti-diabetic Treatments for Patients with Type 2 Diabetes: Are They Associated?—A Large National Observational Study in a Managed Care Setting

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Objective: To examine whether physicians' practice specialties are associated with the types of anti-diabetic treatments for patients with type 2 diabetes (T2D). Methods: A retrospective study design was used. All T2D patients’ (N = 1,819,323) medication histories in a 12 month period were examined and classified into 9 treatment types (no anti-diabetic medication, oral anti-diabetic medication (OAD), basal insulin only, prandial insulin only, basal insulin with OAD, prandial insulin with OAD, basal/prandial insulin, basal/prandial insulin (including premixed insulins) with OAD, other insulin regimens). Physicians practice specialties were classified into five categories (family medicine, internal medicine, other primary care specialists, endocrinologists, other specialties). A two-way contingency table was created with Chi-square test and Fisher’s exact test to examine the possible association between physicians’ practice specialty and the types of anti-diabetic treatments they prescribed. Results: Both the Chi-square test and the Fisher’s exact test had p < 0.0001, indicating that physicians’ practice specialty and their patients’ anti-diabetic treatment choices were statistically significantly associated. The contingency table suggests that the percent of patients receiving no anti-diabetic medications varied across specialties from 36.0% in patients who visited an endocrinologist to 49% and 52% in patients who visited a family medicine physician or internist, respectively. The percent of patients receiving OAD only varied across specialties from 33.1% in patients who visited an endocrinologist to 46.8% in patients who saw a family medicine physician, and 43.6% in patients under the care of an internist. And the percent of patients receiving insulin as part of their regimen varied across specialties from 4.12% in those who visited a family medicine physician to 12.3% in patients who visited an endocrinologist. Conclusion: Physicians’ practice specialty is strongly associated with anti-diabetic medications prescribed for patients with T2D. Further research to examine outcomes differences across physician specialties is needed.

Comparison of Four Health State Preference Measures Among Patients Enrolled in the Action to Control Cardiovascular Risk in Diabetes (ACCORD) Trial

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Objective: In the Action to Control Cardiovascular Risk in Diabetes (ACCORD) trial (a 10-year, 70 site study of diabetes treatments), four health state preference measures (HSPMs), which vary in theoretical constructs, are being collected. Our objectives were to compare baseline values of the feeling thermometer (FT), the Health Utilities Index, Mark 2 and Mark 3 (HUI-2 and HUI-3), and the SF-6D, derived from the Short Form 36 and to explore associations between each HSPM and 29 baseline clinical and demographic characteristics. Methods: Participants (n = 2053) were randomly selected for the cost effectiveness sub-study of ACCORD. To compare the HSPMs, we determined correlations between the measures, by overall score and within each quartile range. We used multivariate regression models to identify relationships between clinical and demographic characteristics for each HSPM. Results: The mean ± standard deviation HSPMs were: FT = 0.756 ± 0.167, HUI-2 = 0.823 ± 0.146, HUI-3 = 0.712 ± 0.260, and SF-6D = 0.684 ± 0.085. Although all 4 measures were significantly correlated with each other (Spearman r = 0.29–0.84 (p < 0.0001)); relationships were weaker between the FT and the other measures (0.29–0.38) and strongest between the two HUI measures (0.84). By quartiles of HSPM, significant correlations were more common at the lowest quartile. In multivariate regression analyses, we identified significant associations (p < 0.01) between HSPM values and age (positive), gender (lower for females), years of education (positive), and race (lower for non-white). Clinical characteristics inversely associated with HSPMs were duration of diabetes, current smoking, secondary cardiovascular disease, total cholesterol, waist circumference, and body mass index. Number of medications (blood pressure, glycemic, or lipid) were not significantly associated with HSPMs. Glycosylated hemoglobin values were inversely related to FT only. Conclusion: Our results suggest that the four instruments, result in different HSPM values. Relationships with clinical and demographic variables vary by HSPM. Therefore, results of cost-effectiveness results may be impacted by the specific HSPM applied.

Health Care Utilisation and Expenditures Associated with Treatments of Diabetes Mellitus Within the Slovak Republic

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Objective: The aim of this study was to collect comparable and reliable data about consumption of drugs for treatment of diabetes mellitus in Slovakia during the period 1996–2006. Methods: Data of wholesalers (following ATC/DDD), who are legally obliged provide this information to the Slovak Institute for Drug Control, was used for the analysis. The results were expressed in the numbers of the packages, finance units (€) and defined daily doses per 1000 inhabitants per day (DID). Results: The collected data shows a moderate increases in the antidiabetics’ consumption from 1996 to 2006 in term of DID (1996 (27.03), in 2001 (32.62) and in 2006 (37.90). A slight increase in A10AB group (Insulins and analogues, fast-acting) in 1996 (1.88), in 2001 (2.79) and in 2006 (4.64), a slight decrease in A10AC group (Insulins and analogues, intermediate-acting) in 1996 (4.25), in 2001 (3.74) and in 2006 (3.35), a moderate increase in A10AD group (Insulins and analogues, intermediate-acting combi.) in 1996 (0.51), in 2001 (2.36) and in 2006 (3.25), a steady increase in A10AE (Insulins and analogues, long-acting) in 2001 (0.03) and in 2006 (0.89), a dramatic increase in A10BB (Biguanides) in 1996 (4.45), in 2001 (5.75) and in 2006 (9.46), relatively stable consumption in A10BB (Sulfonylureas, urea derivatives) in 1996 (15.33), in 2001 (17.19) and in 2006 (14.76).
and a moderate increase in A10BD (Biguanides and sulfonylureas in combination) in 2001 (0.07) and in 2006 (1.41) in term of DID can be seen from this analysis. Financial expenditures for antidiabetics were in (1996 ($9,772,000), in 2001 ($18,169,000) and in 2006 ($26,541,000). CONCLUSION: Inseparable components of the Slovak drug policy must be viewed realistically with regard to the antidiabetics’ consumption. Adherence to principles of diabetes mellitus treatment’s guidelines lead to fundamental short and long term financial savings within health care systems.

**PDB67**

**DESCRIPTIVE ANALYSIS OF BODY WEIGHT AND CLINICAL EFFECTIVENESS MEASURES ASSOCIATED WITH TYPE 2 DIABETES THERAPIES IN A PRIMARY CARE ELECTRONIC MEDICAL RECORD DATABASE**

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**OBJECTIVE:** In the treatment of type 2 diabetes (T2D), achieving glucose control often requires multiple therapies. The class of antidiabetic agents called incretin mimetics offers an alternative mechanism to diabetes management. This work describes the baseline demographic and clinical characteristics of a T2D population in a primary care setting before they initiated treatment with the incretin mimetic, exenatide. **METHODS:** Patients were extracted from the General Electric (GE) electronic medical record (EMR) database from January 1, 2000 through June 30, 2007. Patients with T2D (diagnosis, oral antidiabetic drug prescription, two consecutive fasting blood glucose levels ≥126 mg/dL, or A1C ≥7.0%) were identified, as were those with at least one prescription for exenatide. Using these data, descriptive statistics were calculated for these populations. **RESULTS:** Of the 11,601 patients with a prescription for exenatide, nearly all had T2D (96%). A total of 7,425 of the patients with a prescription of exenatide were ≥18 years of age and had at least 395 days of records prior to the index date. Compared to the 510,623 T2D patients on other treatments with these same age and records restrictions in the GE EMR, those patients on exenatide were significantly heavier (204.2 lbs. vs. 244.2 lbs. (p < 0.001)). The portion of the exenatide population was obese or extremely obese than the population on other treatments (89% vs. 61% (p < 0.001)). A larger percentage of the exenatide population was obese or extremely obese than the population on other treatments (89% vs. 61% (p < 0.001)). The portion of the exenatide population with baseline A1C ≥9.0 was higher than that of the population on other treatments (56% vs. 12% (p < 0.001)).

**CONCLUSION:** These results suggest that exenatide is being added to T2D treatment regimens in obese patients with relatively high A1C levels to achieve better diabetes control.

**PDB68**

**AN ASSESSMENT OF THE IMPACT OF THE COVERAGE GAP UPON MEDICARE PART D BENEFICIARIES UTILIZING INSULIN**

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**OBJECTIVE:** To assess the extent of, exposure to, and medication expenditure trends associated with insulin-treated patients reaching the Medicare Part D standard beneficiary prescription coverage gap (i.e., ‘doughnut hole’) and catastrophic coverage.

**METHODS:** Patients receiving various insulin formulations and mixtures throughout 2006 were investigated via a prescription transaction-level retrospective database that captured 50% of all retail dispensing activity within the U.S. Analyses focused upon the coverage gap and catastrophic coverage within standard beneficiaries regarding: 1) the number of patients entering; 2) the month of entry; and 3) medication expenditures. **RESULTS:** Overall, 324,430 Medicare beneficiaries received an insulin regimen in 2006, consisting of 41% dual-eligibles (n = 131,611), 32% low-income subsidiaries (n = 105,151), and 27% standard beneficiaries (n = 87,668). Across all coverage groups, oral antidiabetic agents and insulin comprised 66–72% of monthly drug expenditures. Of those potentially being exposed to a coverage gap, 46% reached the ‘doughnut hole’ (12% of all Part D beneficiaries) and 12% entered catastrophic coverage (3% of all Part D beneficiaries). Among the near 55,300 standard beneficiaries (63% of 87,668) enrolling in Part D by March 2006, prescription expenditures peaked in the month prior to entering the coverage gap, followed by an immediate 20–25% drop in the month thereafter. Decreased expenditures broadly corresponded to a decrease in the number of diabetes agents dispensed. **CONCLUSION:** This analysis found that 46% of all insulin-treated patients covered by the Medicare Part D standard benefit (12% of all Part D beneficiaries) were exposed to the coverage gap in 2006, characterized by a shifting of full financial responsibility to beneficiaries for outpatient medications. Entry was followed by a 20–25% decrease in expenditures and, more generally, in the number of diabetes agents received. These findings warrant continued evaluation of coverage policies and any subsequent cost-shifting or deferrals in care that may occur, particularly for chronic diseases.

**PDB69**

**COMPARISON OF HEALTH CARE UTILIZATION AND COSTS IN TYPE 2 DIABETES PATIENTS INITIATING ANALOG AND HUMAN INSULINS**

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**OBJECTIVE:** Use of adjunctive insulin therapy with oral antihyperglycemic agents in patients with type 2 diabetes (T2D) has been growing in the US following demonstration in the U.K. Prospective Diabetes Study that intensive therapy regimens increased glycemic control and reduced microvascular complications. The primary objective in this study was to compare the effect of analog insulin with human insulin usage on all-cause and diabetes-attributable direct health care costs and utilization in patients with type 2 diabetes. **METHODS:** Using the MarketScan Research Database, commercially insured patients were selected who initiated insulin therapy with analog or human insulins during 2001–2005, had no insulin claims 12 months prior to starting therapy, and a type 2 diabetes diagnosis during the study period. Patients were followed 12-months from insulin therapy initiation, and were stratified according to their therapy as receiving analog insulin only (n = 18,205), human insulin only (n = 7035), or both analog and human insulins (n = 5040). Health care utilization and expenditures were compared between treatment groups and between pre-index and post-index periods. Generalized multi-valued propensity score weighting was used to control for observable differences in distributions of pretreatment variables among treatment groups. **RESULTS:** Although mean costs for insulin and other prescriptions were lowest for patients receiving only human insulin, mean post-index total all-cause health care costs for analog insulin patients ($17,059)