

variables, existing complications and treatment status) are used to estimate the transition probabilities for different events with HbA1c acting as the key variable in the model. Patient behaviour was also incorporated in the cost-effectiveness model by updating HbA1c and other variables in time based on the patient's behaviour. Furthermore, the model is capable of performing probabilistic sensitivity analysis allowing us to capture the effects of parameter uncertainty and report the likelihood that interventions are cost-effective. **RESULTS:** A number of cost-effective analyses were performed and the trade-offs between costs and QALYs are presented for different treatment/interventions. Screening strategies were also evaluated by comparing the cost savings and improvements in life expectancy. **CONCLUSIONS:** The flexible individual patient level discrete event simulation model developed enables cost-effectiveness evaluations of a number of treatments and interventions for Type-1 diabetes. The model allows tracking the history of each of the patients and this enables identification of different sub-groups for targeted interventions.

DIABETES/ENDOCRINE DISORDERS – Patient-Reported Outcomes & Patient Preference Studies

PDB63

COMPARING MEDICATION ADHERENCE, PERSISTENCE AND DISCONTINUATION RATES TO PREGABALIN AND DULOXETINE AMONG TYPE 2 DIABETIC PATIENTS

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OBJECTIVES: To compare medication adherence, persistence and discontinuation rates to medications used to treat painful diabetic peripheral neuropathy (PDPN) in type 2 diabetic patients. **METHODS:** A retrospective cohort analysis of Texas Medicaid prescription claims data of type 2 diabetic patients between 18 and 64 years who were on either pregabalin or duloxetine. Data were extracted from June 2003 to October 2009. Eligible patients must have been on oral antidiabetic (OAD) medications at least 6 months prior to the index date and have continuous eligibility for at least 12 months post-index. Cohorts were constructed through propensity scoring while controlling for baseline differences in demographics and pre-index medication use. The outcome variables were medication possession ratio (MPR), persistence and discontinuation rates. Sensitivity analyses were conducted for both persistence and discontinuation rates. **RESULTS:** The two study cohorts included 652 pregabalin and 652 duloxetine patients with an overall mean age of 51.9 ± 7.9 . Mean MPR for duloxetine ($85.6\% \pm 18.2\%$) was significantly higher compared to pregabalin ($68.6\% \pm 25.0\%$); $t = 14.03$; $p < 0.0001$. The proportion of adherent patients (MPR $\geq 80\%$) on duloxetine (72.1%) was higher compared to pregabalin (40.2%); $X^2 = 134.74$; $p < 0.001$. Mean persistence for duloxetine ($222.9 \text{ days} \pm 130.5$) was significantly longer compared to pregabalin ($165.1 \text{ days} \pm 128.3$) when a 60-day gap period was used; $t = 7.98$; $p < 0.0001$. Results of sensitivity analysis using 30, 90 and 120 days gap periods were robust. Also, the proportion of patients on duloxetine (65.5%) who discontinued their medication was lower compared to pregabalin (79.8%) when a 90-day gap period was used ($X^2 = 38.94$; $p < 0.0001$). Results of sensitivity analysis using 60 and 120 day gaps were also robust. **CONCLUSIONS:** Type 2 diabetes patients on duloxetine had significantly higher medication adherence and persistence with lower discontinuation rates compared to patients on pregabalin.

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THE ECONOMIC IMPACT OF INCREASING THE LEVEL OF DRUG ADHERENCE IN DIABETIC PATIENTS AT THE MEXICAN INSTITUTE OF SOCIAL SECURITY (IMSS)

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OBJECTIVES: The lack of adherence to diabetic drugs may reduce the effectiveness of the treatment increasing the hospitalization rates and costs. The purpose of this study is to estimate the economic savings derived from comparing different diabetic drug adherence scenarios at the Mexican Institute of Social Security (IMSS). **METHODS:** For patients with non-complicated diabetes mellitus, 19 pharmacological treatment patterns and their distribution were identified by a panel of experts from primary medical units and general and specialized hospitals. The total population of diabetic patients at IMSS in the year 2010 was obtained from the diabetes census; the percentage of patients under pharmacological treatment came from the institutional health survey of 2010. Four drug adherence scenarios derived from institutional studies were considered. All-cause hospitalization rates among diabetes drug adherent and non-adherent patients were derived from the international literature due to the lack of national estimations. The annual total costs included the pharmacological and all-cause hospitalization estimates for each treatment pattern. The exchange rate was \$12.34 pesos per dollar. **RESULTS:** The metformin-glibenclamide combination was the most prescribed pharmacological treatment at the Institute (26.6%) followed by metformin-insulin NPH (11.8%) and metformin (11.2%). The diabetic drug adherence baseline scenario was 16% ; this was compared with three scenarios of 17.2% , 27% and 54.2% respectively. The annual total costs were 6.05 times greater in non-adherent compared with adherent patients in the baseline scenario. The economic savings increases as the level of compliance scales up. This can be attributed to the cost reductions compared to non-adherent patients mainly due to hospitalization. In the year 2010, savings varied from USD\$1.48 million to USD\$47.01 million. **CONCLUSIONS:** Health policies that aim to increase adherence to diabetic drugs among patients are needed at the institution in order to avoid unnecessary costs mainly among non-adherent patients.

PDB65

THE ASSOCIATION BETWEEN NON-ADHERENCE AND HbA1C AMONG TYPE 2 DIABETES PATIENTS USING BASAL INSULIN ANALOGUES

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OBJECTIVES: The aim of the current study was to determine the association between medication non-adherence and HbA1c levels among type 2 diabetes patients currently using basal insulin analogues. **METHODS:** Data from the 2011 U.S. National Health and Wellness Survey (NHWS) were used. The NHWS is a patient-reported survey fielded to a demographically-representative sample of the adult US population ($N=75,000$). Analyses were restricted to those who reported a diagnosis of type 2 diabetes, were currently using insulin glargine or insulin detemir, had non-missing self-reported HbA1c values, and had non-missing medication adherence data (assessed using the Morisky Medication Adherence Scale (MMAS)). The association between medication non-adherence and HbA1c was examined using multiple regressions controlling for sociodemographics, health behaviors, and comorbidities. **RESULTS:** A total of 768 patients met the study inclusion criteria. These patients were mostly male (64.71%), had a mean age of 61.39 ($SD=9.85$), were predominantly obese (72.92%), and reported a mean HbA1c level of 7.31% ($SD=1.41\%$). A third of patients (33.20%) reported engaging in at least one non-adherent behavior; the most common was being forgetful with their medication (28.52%) followed by being careless with their medication (13.02%). Adjusting for covariates, a higher non-adherence score was significantly associated with increased HbA1c ($b=0.33$, $p<.0001$). When entering all non-adherent behaviors from the MMAS separately into the model being careless ($b=0.44$, $p=.008$) was the strongest predictor of increased HbA1c levels. **CONCLUSIONS:** The results suggest that a sizeable proportion of T2D patients using basal insulin analogues engage in some form of non-adherent behavior, the most common being forgetfulness and carelessness with the administration of their medication. Even after adjusting for confounding variables, the presence of non-adherent behaviors (particularly carelessness) was associated with significantly higher levels of HbA1c. Improved adherence of these patients may result in clinical benefits.

PDB66

INSTRUMENTS MEASURING TREATMENT ADHERENCE AND COMPLIANCE IN DIABETES MELLITUS: A LITERATURE REVIEW

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OBJECTIVES: To provide an overview of subjective and objective measures used in clinical trials to assess adherence or compliance to medical treatment in diabetes mellitus, to identify trends in the measurement of adherence/compliance, standardization, and/or tool usage frequency. **METHODS:** The search was performed on September 1, 2011 and was limited to articles written since 2000. The following keywords and their descriptors in Medline via OVID were used: patient compliance, adherence, clinical trials, and diabetes mellitus. Once the abstracts had been retrieved, they were carefully reviewed and either selected or rejected, according a ranking process. **RESULTS:** A total of 508 references were retrieved and 108 selected. Forty-eight measures were identified: 36 to assess adherence, and 12 to assess compliance. Among the adherence measures, 27 were subjective measures such as patient-reported outcome (PRO) instruments and nine, objective. The most-quoted subjective measures used were the Diabetes Self-Management Profile (DSMP) conventional or flexible regimen versions (four times); the Summary of Diabetes Self-Care Activities (SDSCA) (four times); the five-item Medication Adherence Report Scale (MARS-5) (two times); the Morisky Medication-Taking Adherence Scale (MMAS) (two times); and the Brief Medication Questionnaire (BMQ) (two times). The most-quoted objective measures to assess adherence were the refill of repeat prescriptions (cited six times) and pill cap monitoring systems (five times). As for the assessment of compliance, only two were subjective measures and ten were objective. The PRO measures retrieved were the Chronic Disease Compliance Instrument and a Medication Compliance Scale. The most frequently used objective measure was the evaluation of return of study drugs. **CONCLUSIONS:** Diabetes is a challenging disease to manage successfully and the associated costs of non-adherence are high. This review shows a lack of standardization/consistency in the measurement of adherence/compliance in diabetes. More research is needed on what are the "best" tools to use to measure adherence-related behavior in diabetes.

PDB67

IMPACT OF ADHERENCE TO ORAL DIABETES MEDICATION ON SHORT-TERM DISABILITY COSTS IN AN EMPLOYER POPULATION

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OBJECTIVES: The impact of adherence to hypoglycemic agents on the medical/pharmacy costs of diabetes patients has been examined frequently in the literature, but the analogous impact on disability costs is not well-documented. This study assesses the relationships between medication adherence and short-term disability costs in a large manufacturing company. **METHODS:** A retrospective analysis of pharmacy claims was conducted to identify individuals within a large manufacturing company who were continuously eligible for a three-year time frame (between 2001 and 2007) and who received a prescription for an oral hypoglycemic during that time; in those cases where an individual's eligibility spanned a longer time period, the most recent three-year span was chosen. Individuals on insulin were excluded from the study population. The resulting sample included both treatment-naïve and treatment-experienced patients, reflective of real-world employer experience. Medical, pharmacy, and short-term disability costs were cal-