

#### PDB41 TRENDS IN THE BURDEN OF OUT OF POCKET PAYMENTS IN DIABETES CARE: AN ANALYSIS OF THE MEDICAL EXPENDITURE PANEL SURVEY

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**Objectives:** High Out of Pocket (OOP) costs may act as a barrier to health care access and treatment compliance in diabetes care. We explored the burden of pharmaceutical OOP costs among individuals with diabetes and analyzed trends across multiple years using a nationally representative sample. **Methods:** Retrospective, cross sectional research data was obtained from the Medical Expenditure Panel Surveys (MEPS), for the years 2011 through 2015. Individuals ( $\geq 17$  years) with diabetes were identified using a self-reported question. Per-individual annual OOP cost for anti-diabetic medications were calculated by aggregating all OOP cost for these medications within each year. Multivariable generalized linear models with a log-link function and gamma distribution were used to produce adjusted comparisons of OOP costs across the years. The complex survey design of MEPS was incorporated by using sample weights for stratum, cluster, and individual persons to produce national estimates. Statistical analyses were performed using SAS software (version 9.4 SAS Institute Inc., Cary, NC, US). **Results:** From 2011 through 2015, 10,250 individuals having diabetes were identified. The mean annual OOP for diabetic medications among diabetics for 2011 to 2015 was \$308.98, \$294.49, \$286.06, \$247.58 and \$326.54 respectively. Similarly, between 2011 and 2015, the out of pocket cost for these diabetic medications accounted for 47.16%, 45.19%, 42.02%, 38.54% and 33.16% respectively of the total out of pocket drug expenditure. **Conclusions:** Our findings demonstrate a steady decrease in OOP on anti-diabetic medications among diabetics from 2011 to 2014, followed by a dramatic rise in 2015. The proportion of the total out of pocket drug costs that these anti-diabetic medications accounted for showed a steady decrease from almost half the total costs in 2011 to a third of the total costs in 2015.



#### PDB42 THE IMPACT OF MEDICATION ADHERENCE ON HEALTHCARE UTILIZATION AMONG ELDERLY PATIENTS WHO RECEIVED PRESCRIPTION ASSISTANCE THROUGH A STATE FUNDED PROGRAM

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**Objectives:** To evaluate the relationship between adherence to oral antidiabetic medications (OAMs) and hospital inpatient service utilization among elderly patients who received prescription assistance through a state funded program. **Methods:** The retrospective analysis used Pharmaceutical Assistance Contract for Elderly (PACE) programs' database to identify elderly with diabetes and to calculate medication adherence as proportion of days covered (PDC) for 12-month post-index observation period. PDC  $\geq 80\%$  was defined as 'adherent', PDC  $< 80\%$  as 'nonadherent'. Healthcare utilization was estimated using Pennsylvania Health Care Cost Containment Council's (PHC4) hospital inpatient discharge records. Adjusted multiple logistic regression was performed to assess the relationship between medication adherence and risk of hospitalization. Zero-inflated negative binomial regression model was used to determine the association between medication adherence and hospital services utilization, while controlling for pre-defined covariates (age, sex, race, ethnicity, annual income, marital status, lived in a pharmacy desert or not, number of unique medications and OPP). Hospital service utilization measures included all-cause and diabetes-related number of inpatient hospital admissions and length of stay. **Results:** Among 9,497 elderly PACE enrollees with diabetes, 81% were adherent and 21% were hospitalized. The odds of being hospitalized were higher for non-adherent patients by the factor 2.030 than adherent patients (OR= 2.030, 95% CI: 1.784, 2.310). After controlling for covariates, non-adherent patients had significantly 27% more number of all-cause (IRR 1.2727; 95% CI 1.1937-1.3569), 21% more diabetes-related (IRR 1.2106; 95% CI 1.0495-1.3965) hospital visits than adherent patients. After adjusting for covariates, LOS for non-adherent patients was 24.0% longer for all-cause (IRR 1.2388; 95% CI 1.1706-1.3111), 12.7% longer for diabetes-related (IRR 1.1271; 95% CI 1.0357-1.2267;) hospitalization than adherent patients. **Conclusions:** Among elderly who received prescription assistance through a state funded program, nonadherence to OAMs was significantly associated with increased risk of hospitalization and higher rates of hospital service utilization.



#### PDB43 SYSTEMATIC REVIEW OF THE COST EFFECTIVENESS ANALYSIS OF LIFESTYLE INTERVENTION VERSUS STANDARD CARE FOR PREVENTION OF TYPE 2 DIABETES

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**Objectives:** Several studies showed lifestyle intervention was effective and cost-effective to prevent type 2 diabetes compared to standard care. The aim of this study was to perform a systematic review of cost effectiveness of lifestyle intervention to determine if lifestyle intervention provide a good value for money compared to a standard care or placebo. **Methods:** A database search using the Cost-Effectiveness Analysis (CEA) registry was performed using the search terms 'Diabetes prevention', 'Physical activity for diabetes prevention', 'Prevent diabetes', 'Prevent type 2



Diabetes'. To meet the inclusion criteria, a study needed to have Quality Adjusted Life Years (QALYs) as an outcome measure and intensive lifestyle intervention as the treatment against usual care or no intervention/ placebo. Moreover, it must be a cost effectiveness study where the study population was at risk of developing type 2 diabetes. Published studies that considered healthcare or/and societal perspective from 1996-2017 were included. Studies were included if lifestyle was not the intervention or outcome was not reported in QALYs. **Results:** In total, 43 papers were identified. Duplicates were removed and 24 articles that met the inclusion criteria were selected by two independent reviewers and included in the final analysis. The median Incremental Cost Effectiveness Ratio (ICER) of lifestyle intervention versus standard care or placebo was \$ 13,200/QALYs. We also reviewed the ICERs from a health care system and societal perspective. The ICER was 8,900/QALYs and 20,900/QALYs from Healthcare system and societal respectively. A willingness to pay \$50,000 per QALYs was assumed as threshold and the median ICER was below that threshold. Therefore, lifestyle was identified as cost effective compared to a standard care or placebo. **Conclusions:** Lifestyle intervention was very cost effective and offers a good value of money compared to the standard care.

#### PDB44 INCREMENTAL HEALTHCARE EXPENDITURES ASSOCIATED WITH DYSLIPIDEMIA AMONG PATIENTS WITH THYROID DISEASES

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**Objectives:** Little is known about the real-world prevalence of dyslipidemia among patients with thyroid diseases and associated incremental healthcare expenditures, this study was set out to do so. **Methods:** This retrospective, pooled cross-sectional study used data from Medical Expenditure Panel Survey (MEPS) on alternative years (2009 - 2015). Prevalence of dyslipidemia and comorbidities were calculated based on clinical classification codes and self-report results. Ordinary least square regressions on log-transformed total medical expenditures were performed to estimate the incremental expenditures associated with lipid metabolism disorders after controlling for demographic and clinical variables. **Results:** Among the 5,951 un-weighted observations with thyroid diseases, 45% patients had dyslipidemia. Patients with dyslipidemia were more likely to be White female, aged between 55 to 74 years old, living in the south, covered by public insurance, with higher BMI value. For chronic diseases, patients with dyslipidemia had three-fold and four-fold higher prevalence of having coronary heart disease and diabetes, respectively. The unadjusted total medical expenditure was \$4,293 higher among patients with dyslipidemia. Prescription medicine and inpatient stay were two major sources contributing to the incremental medical expenditure. After adjusting for covariates, significant higher total medical expenditures persisted for patients with dyslipidemia (\$11,721; 95% CI \$10,602-\$12,841 vs. \$9046; 95% CI \$8,338-\$9,754;  $p < 0.0001$ ). **Conclusions:** Dyslipidemia were widely prevalent among patients with thyroid diseases. As the treatment of dyslipidemia is often neglected in clinical practice among patients with thyroid diseases, our evidence will help healthcare givers to tailor treatment and be a possible way to reduce healthcare expenditures.



#### PDB45 EVALUATING THE SHORT-TERM COST-UTILITY OF INSULIN DEGLUCED VERSUS INSULIN GLARGINE U100 IN BASAL-BOLUS REGIMENS FOR TYPE 2 DIABETES IN CHINA

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**Objectives:** Insulin degludec (degludec) is an insulin analog with an ultra-long duration of action, low risk of hypoglycaemia and confirmed cardiovascular safety demonstrated in DEVOTE trial (NCT01959529). The study aimed to evaluate the short-term cost-utility of degludec versus insulin glargine 100 units/mL (glargine) for the treatment of type 2 diabetes (T2DM) receiving basal-bolus insulin therapy in China based on data from subgroup results of the DEVOTE trial. **Methods:** A short-term health economic model programmed in Microsoft Excel was conducted to compare costs in patients receiving once daily degludec or glargine over a 2-year time horizon. Clinical inputs and patient characteristics were taken exclusively from DEVOTE trial, whilst China-specific costs (the most current drug provincial bidding price in china) were obtained from the literature. Both costs and health effects had not been discounted annually for such a short time horizon. Sensitivity analyses were conducted to assess the robustness of the results. **Results:** Degludec was associated with a mean improvement of 0.00649 quality-adjusted life-years (QALYs) compared with glargine, with improvements driven predominantly by lower rates of severe hypoglycaemia with degludec versus glargine. degludec was associated with mean cost savings of 289.35 CNY per patient relative to glargine in patients with type 2 diabetes. Cost savings were primarily driven by the reduction in risk of diabetes-related complications with degludec, which offset the higher treatment costs relative to glargine. Insulin relative cost of degludec was 1040.36 CNY (16.98%) more than glargine. However, the costs of Non-fatal myocardial infarction, Non-fatal stroke, severe hypoglycaemia, and self-monitoring of blood glucose were reduced by 764.56 CNY (28.51%), 119.71 CNY (19.47%), 195.06 CNY (21.35%), and 210.13 CNY

