Poster Tour Guide Packet

ISPOR 2022

Poster Session:	**In-Person and Virtual Poster Session 2**
Tour Name:	**Diabetes/Endocrine/Metabolic Disorders**
Tour Time:	Monday, May 16, 2022, 5:30 - 6:30 PM
Tour Area:	Area A, Prince George Exhibit Hall

Acceptance Code:	EE116
Abstract Title:	Implications of Utilizing Survey Versus Administrative Claims Data to Evaluate the Cost of Diabetes Among Medicare Beneficiaries with Cancer: A Methods Study
Presenting Author:	Cassidi McDaniel

Abstract Body:

OBJECTIVES: Accurately measuring the cost of illness is critical to understanding the financial burden of Medicare beneficiaries with concurrent diabetes and cancer. This study aimed to assess the congruency of the estimated cost of diabetes among Medicare beneficiaries with cancer from survey versus from administrative claims of the Medicare Current Beneficiary Survey (MCBS) data.

METHODS: This serial cross-sectional study utilized the MCBS survey and claims components from 2006-2012. Eligibility criteria required beneficiaries to be ≥65 years old, non-institutionalized, diagnosed with cancer, and enrolled in Medicare Parts A, B, and D. To identify diabetes and cancer diagnoses, we collectively used survey self-reports and claims for ICD-9 diagnosis codes following algorithms from the CMS Chronic Conditions Data Warehouse. The cost of diabetes was operationalized as the difference in total annual direct costs among beneficiaries with cancer and diabetes compared to those with cancer only. Costs from each year were converted to 2012 U.S. dollars. The congruency of total annual direct cost estimates from survey versus claims data was compared using the Wilcoxon signed-rank test.

RESULTS: Among 4,918 Medicare beneficiaries with cancer from 2006-2012, 1,275 (26%) were diagnosed with diabetes. Significant disagreements in the estimated total annual cost of diabetes from survey versus claims data were present in 2006-2009 and 2012 for beneficiaries with cancer and diabetes ($p<0.001$ for all) and all years for beneficiaries with cancer only ($p<0.001$ for all). The mean total annual cost of diabetes from survey data was $7,575 per capita in 2012 dollars. Majority (74%) of the total annual cost of diabetes was spent on medical costs, and the remaining 26% was spent on Medicare Part D prescriptions.

CONCLUSIONS: The decision to use the MCBS survey or claims components for economic evaluations will likely have implications on research findings, and caution is recommended when using either component alone.

Poster Tour Guide Packet

ISPOR 2022

Poster Session:	**In-Person and Virtual Poster Session 2**
Tour Name:	**Diabetes/Endocrine/Metabolic Disorders**
Tour Time:	Monday, May 16, 2022, 5:30 - 6:30 PM
Tour Area:	Area A, Prince George Exhibit Hall

Acceptance Code:	HPR31
Abstract Title:	Impact of Telehealth Use during the COVID-19 Pandemic on Glycemic Control and Other Biomarkers Among Type 2 Diabetes Patients
Presenting Author:	Yixue Shao

Abstract Body:

Objectives: The reimbursement of telehealth has expanded during the COVID-19 pandemic to reduce exposure for both patients and providers. We aimed to evaluate the effects of using telehealth during the pandemic on diabetes care in Louisiana.

Methods: We used electronic health records from the Research Action for Health Network (REACHnet) database to select patients with type 2 diabetes. The study included two-year pre-period (February 2018 to February 2020) and one-year post-period (March 2020 to February 2021). The treatment cohort was defined as patients who used any telehealth since March 1st, 2020. Others were assigned in the control group. Propensity score weighting was used to obtain comparable treatment and control groups at two-year baseline. We then used a difference-in-difference (DID) approach to compare glycemic control measured by HbA1c and other clinical measures (low-density lipoprotein [LDL], systolic blood pressure [SBP], diastolic blood pressure [DBP], body mass index [BMI]) between telehealth users and non-telehealth users.

Results: We included 12,811 patients in the treatment group and 18,520 patients in the control group to evaluate glycemic control. Compared with patients that did not receive telehealth during the pandemic, patients receiving any telehealth had a mean reduction in HbA1c of 0.065 % ($p<0.05$). Receiving any telehealth decreased the percentage of patients having HbA1c over 7% by 1.8 percentage points ($p<0.05$). We also found that receiving any telehealth service was associated with a reduction in LDL of 0.931 mg/dL ($p<0.05$), and a decrease in BMI of 0.107 kg/m2 ($p<0.05$). We found no significant improvement in SBP and DBP.

Conclusions: This study found clinical benefits of using telehealth in glycemic control and some other clinical measures in diabetes care. Factors unmeasured in this study would need to be further explored to truly understand the impact of telehealth.

Poster Tour Guide Packet

ISPOR 2022

Poster Session:	**In-Person and Virtual Poster Session 2**
Tour Name:	**Diabetes/Endocrine/Metabolic Disorders**
Tour Time:	Monday, May 16, 2022, 5:30 - 6:30 PM
Tour Area:	Area A, Prince George Exhibit Hall

Acceptance Code:	RWD38
Abstract Title:	Early Treatment Modification for Type 2 Diabetes in a US Real-World Population: Impact on Glycemic Control, Diabetic Complications, and Healthcare Utilization
Presenting Author:	Chioma Uzoigwe

Abstract Body:

Objectives: To evaluate the prevalence of early treatment modification and estimate its impact on glycemic control, diabetic complications, and healthcare utilization in patients with type 2 diabetes (T2D) and HbA1c ≥9%.

Methods: A retrospective cohort of 28,529 patients with T2D between 18 and 90 years of age were indexed at their first HbA1c measure ≥9% between January 1 and December 31, 2016, using the Optum® Clinformatics® Data Mart Database. Patients were segmented into two groups: 1) early treatment modification (within 90 days of index HbA1c ≥9%) and 2) delayed (>90 days post-index) or no treatment modification, defined as the addition or switching of T2D medication. Post-index ΔHbA1c was assessed at 6-12 months; diabetic complications and healthcare utilization were assessed at 36 months.

Results: Most (59%, n=16,904) patients received early treatment modification, while 41% of patients (n=11,625) received delayed or no treatment modification. There were higher proportions of delayed treatment with increased treatment complexity at index date: metformin (40%), two oral antidiabetics (54%), three oral antidiabetics (65%). Follow-up HbA1c values were available for 68% of patients in both the early (n=11,534) and delayed (n=7,897) treatment groups. Baseline mean HbA1c levels were significantly higher in the early treatment group than the delayed treatment group (10.3% vs 10.1%, $p<0.01$), and decreased by a significantly greater amount at follow-up (-1.46 vs -1.05, $p<0.01$). Diabetes Complication Severity Index (DCSI) scores were significantly lower for the early treatment group at baseline (1.80 vs 2.04, $p<0.01$) and 36 months (3.42 vs 3.56, $p<0.01$). The early treatment modification group had significantly fewer outpatient visits (53.51 vs 54.93, $p=0.02$) at 36 months.

Conclusions: Early treatment modification was significantly associated with improved glycemic control and decreased outpatient visits in this cohort of patients with elevated HbA1c levels. Further work is needed to understand impact of treatment modification on diabetes complications.

Poster Tour Guide Packet

ISPOR 2022

Poster Session:	**In-Person and Virtual Poster Session 2**
Tour Name:	**Diabetes/Endocrine/Metabolic Disorders**
Tour Time:	Monday, May 16, 2022, 5:30 - 6:30 PM
Tour Area:	Area A, Prince George Exhibit Hall

Acceptance Code:	EE205
Abstract Title:	Cost-Effectiveness Analysis of Empagliflozin Versus Albiglutide Among Individuals with Type 2 Diabetes in the US
Presenting Author:	Alaa Alshehri

Abstract Body:

Objective: Recent trials have shown that Empagliflozin and Albiglutide can both reduce the risk of cardiovascular death and complications. It is unclear which one can produce higher clinical benefits and is more cost-effective. The study aimed to compare the cost-effectiveness of empagliflozin versus albiglutide among individuals with type 2 diabetes (T2D) in the US.

Method: A one-year tree-based cost-effectiveness model of cardiovascular death, hospitalization for heart failure, nonfatal myocardial infarction, and nonfatal stroke in individuals with T2D were developed from a US payer perspective. Complication risks for empagliflozin were extracted from the EMPA-REG trial. Complication risks for albiglutide were estimated using results from a meta-analysis that reported the relative risks of complications between empagliflozin and albiglutide. Direct medical cost inputs with an inflation rate of 3% and utilities were taken from published literature. Cost-effectiveness was determined using $50,000 willingness to pay per QALY. Sensitivity analyses were performed accordingly.

Result: Compared with albiglutide, the use of empagliflozin was associated with risk reductions in cardiovascular death (-33%) and hospitalization for heart failure (-8%), but risk increase in nonfatal myocardial infarction (+16%), and nonfatal stroke (+37%). The use of empagliflozin was associated with a higher cost (+$486) but also a higher QALY (0.013) in one year. The incremental cost-effectiveness ratio (ICER) is $ 37,721/QALY, suggesting a favorable economic value for empagliflozin over albiglutide. Results from sensitivity analysis show that our results are robust to parameter uncertainties.

Conclusion: Empagliflozin is cost-effective compared to albiglutide from the US payer perspective.

Poster Tour Guide Packet

ISPOR 2022

Poster Session:	**In-Person and Virtual Poster Session 2**
Tour Name:	**Diabetes/Endocrine/Metabolic Disorders**
Tour Time:	Monday, May 16, 2022, 5:30 - 6:30 PM
Tour Area:	Area A, Prince George Exhibit Hall

Acceptance Code:	EE366
Abstract Title:	Contrasting Three HbA1c Progression Equations Using the IQVIA Core Diabetes Model
Presenting Author:	Mafalda Ramos

Abstract Body:

OBJECTIVES: Diabetes management guidelines recommend escalating treatment when a certain HbA1c threshold is reached. Thus, predicting in an accurate way the natural progression of HbAc1 and as such treatment duration is of key importance in diabetes models (shorter or longer use of expensive therapies). Recently, the UK Prospective Diabetes Study (UKPDS) investigators published progression equations for several risk factors including HbA1c (UKPDS90). The aim of this study was to assess the duration to treatment escalation applying the different HbA1c progression equations included in the IQVIA Core Diabetes Model v9.5Plus (CDM9.5Plus).

METHODS: In CDM9.5 two HbA1c progression equations were available in type 2 diabetes: the UKPDS68 equation and the Swedish National Diabetes Registry (SweNDR) equation. In CDM9.5Plus the UKPDS90 equations was added. A hypothetical diabetes population with an HbA1c of 8% was chosen. First year HbA1c decrease was assumed to be 1.5%. Then, the time to reach an HbA1c threshold of 7.5% was measured. This value was chosen as it is the threshold for treatment escalation used in many countries.

RESULTS: The time to reach the threshold of 7.5% was 4, 10 and 3 years for UKPDS68, SweNDR and UKPDS90 respectively. UKPDS68 and 90 are based on the same study population, only the time of follow up in UKPD90 was longer. The simulated time to escalation is comparable. However, the larger annual increase in HbA1c with UKPDS 90 is unexpected. Novel treatments classes like DPP4-inhibitors SGLT2-inhibitors and GLP-1 receptor agonists were not used in the UKPDS study, however used to a certain extent during the period the SweNDR progression equation was developed. Also, patients with diabetes are very well controlled in Sweden.

CONCLUSIONS: Annual HbA1c increase is highest with UKPDS90. This can influence outcomes in cost-effectiveness analyses. There is a need for progression equations that include newer treatment strategies.