to be adherent than females ($p = 0.05$). CONCLUSIONS: American Diabetes Association guidelines recommend statin therapy in every diabetes patient of age 40 years and above, regardless of their low-density lipoprotein level. Low adherence can result in the development of cardiovascular diseases, which can lead to increases in outpatient visits, inpatient stays, and costs. In the health care setting, lower adherence to statins was suboptimal among this study population. This presents an increased risk of developing cardiovascular diseases, which can lead to increases in the health care costs for this self-insured university.

**PDB47**

**IMPROVING OUTCOMES AND PRODUCTIVITY FOR EMPLOYEES WITH DIABETES**

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OBJECTIVES: To examine the effect of a community pharmacy-based medication therapy management program (MTM) on patient outcomes over one year. METHODS: A one-year, pre-post longitudinal study. Patients served as their own controls. Community pharmacists provided MTM services to the City of Toledo employees and their dependent employees. Diabetes patients were seen every 3 months at one of seven participating pharmacy sites. Participants received a 3-month supply of medications at the cost of one co-pay as an incentive. Data collected: quality of life scores (SF-36), self-reported adherence (Modified Morisky scale of 1–5, 1 being always adherent and 5 being never adherent), number of sick days, and patient satisfaction with services (Likert scale of 1–5, 1 being highly unsatisfied and 5 being highly satisfied). Data was analyzed using SPSS v 16.0 for one year using descriptive statistics and Friedman tests. RESULTS: One hundred one employees enrolled at baseline; patient had improved scores on physical functioning, role physical, bodily pain, and social functioning. The physical component summary remained roughly the same. Mental component scores decreased, but not significantly. Self-reported adherence improved significantly from 3.3 to 3.68 (p < 0.001) over 12 months. There was a decrease in the use of sick days from 1.3 to 3.32 at baseline to 0.09 ± 0.39 (p = 0.368) at the end of the study. Patients who reported using sick days at baseline on average reported less use of sick days over one year. Overall patient satisfaction significantly increased from 3.26 to 4.52 ($p < 0.001$) over 12 months. Experience with the pharmacist and experience with pharmacy services were the highest rated items. CONCLUSIONS: Improved quality of life and adherence can help increase productivity of employees and can help reduce costs for employers by reducing disease-related missed days of work. Employers looking to save costs and improve productivity can utilize the services provided by pharmacists.

**PDB48**

**ASSESSING QUALITY OF LIFE IN SHORT STATURE YOUTH – THE QOLISSY PROJECT FOCUS GROUP AND COGNITIVE DEBRIEFING EXPERIENCE**

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OBJECTIVES: Since pediatric growth disorders such as Growth Hormone Deficiency (GHD) and Idiopathic Short Stature (ISS) may affect subjective wellbeing and functioning, we aimed to investigate if this was the case in the translations, determine a potential pattern should there be differences and make recommendations on the basis of the results. METHODS: This investigation was carried out as follows: 1) Comparison of the 29 identical items with the Teen, Adult and Child reports of the PCS/QOL for adolescents with medium to high PCS-12, obese patients had higher MC and LPC than normal characteristics and comorbidities. LPC were calculated based on missed working days due to illness and average hourly wage using a two part model for working adults. All costs were converted to 2008 U.S. dollars. RESULTS: The study identified 3,621 diabetic patients. Patients with low PCS-12 had more complications, compared to those with high PCS-12 (17.0% vs. 4.4%). A similar trend was also observed for MC-12 (11.8% vs. 8.2%). In general, patients with lower PCS-12 had higher MC ($12,203 in low-QOL vs. $3,172 in high-QOL) and LPC ($1,632 in low-QOL vs. $293 in high-QOL). A similar trend was found in the relationship between MCS-12 and both costs, but this relationship was weaker than that of PCS-12. Among patients with medium to high PCS-12, obese patients had higher MC and LPC than normal overweight patients. CONCLUSIONS: Lower levels of QOL were associated with a higher economic burden on diabetic patients, especially the physical QOL component. Among diabetic patients with higher levels of physical QOL that are less conditioned by disease severity and complications, the impact of obesity on economic burden was observed.

**PDB51**

**THE IMPACT OF NON-SEVERE HYPOGLYCEMIC EPISODES ON WORK PRODUCTIVITY AND DIABETES MANAGEMENT: A FOUR COUNTRY PERSPECTIVE**

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OBJECTIVES: The objective of the study was to understand of the impact of diabetes-related non-severe hypoglycemic episodes (NSHE’s) on work productivity and diabetes management. METHODS: A web-based survey was developed based on literature, expert input and 68 patients participating in focus-group or individual interviews. Persons with self-reported diabetes in US, France, Germany, and UK participated in the survey. NSHE’s were classified as occurring in the past month, either daytime (while at work or not at work) or during sleep. RESULTS: A total of 6756 persons were surveyed of whom 972 (14.4%) worked for pay and 1148 (17.2%) NSHE. The average age of the sample was 41.3 ± 13.5. There were no significant country differences for % on insulin vs. oral or % type1 vs. type 2 subjects. Fifty-nine percent of type 1 subjects (range 30.7% in France – 70.9% in US, p = 0.001) and 34.8% of type 2
subjected (range 31.4% in US – 38.1% in France, p = 0.827) reporting having a NSHE at least weekly. Diabetes management was impacted as 20.9% of insulin dependent subjects reported decreasing their normal insulin dose on average 18.7 units per day over 3.2 days. Further, a mean of 7.0 extra blood glucose tests were conducted in the week following the last NSHE. For those whose last NSHE was at work (n = 483), work productivity was impacted with 28.6% reporting missed work (e.g., leaving early) due to this NSHE. For those whose last NSHE occurred during the day but outside of work (n = 368), 18.2% of respondents reported work absenteeism due to this NSHE. For those whose last NSHE was during sleep (n = 121), 16.5% of respondents reported subsequent work absenteeism. CONCLUSIONS: NSHE’s have a considerable impact on work loss productivity across these countries. The seriousness of NSHE’s may be underestimated and should be considered an important part of diabetes management.

PDB52

ATTENDED WEIGHT LOSS OR REGULAR EXERCISE: IMPACT ON QUALITY OF LIFE AMONG ADULTS WITH AND WITHOUT TYPE 2 DIABETES MELLITUS

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1Midwestern Endocrinology, Overland Park, KS, USA. 2Strategic Healthcare Solutions, LLC, Manchester, MD, USA. OBJECTIVES: Weight management and exercise are key self-management treatments for patients with type 2 diabetes mellitus (T2DM). This study examined the association between trying to lose weight or exercising regularly and health-related quality of life among individuals with and without T2DM. METHODS: Respondents to the USA-based 2010 National Survey on Healthy Eating (NSHE) and the 2010 National Survey of Food and Physical Activity (NSFA) were used. Summary measures of weight loss and physical activity were calculated. Linear regression models were adjusted for age, gender, race, education, household income, body mass index (BMI), and diabetes status. RESULTS: Among T2DM respondents, 71% reported trying to lose weight in the past 12 months and 20% reported exercising regularly for >6 months, compared with 64% of respondents without diabetes reporting trying to lose weight and 23% exercising regularly. After adjusting for demographics, BMI and diabetes status, trying to lose weight was not associated with higher PCS scores (p = 0.87), but was independently associated with higher MCS scores (p = 0.01) in the subsequent year. After adjustment, exercising regularly was significantly associated with higher subsequent PCS and MCS scores (p < 0.001). CONCLUSIONS: Respondents with T2DM who reported exercising regularly had significantly better physical quality of life, compared with respondents without diabetes who exercised regularly. Respondents with T2DM who reported trying to lose weight or exercising regularly for >6 months had better mental quality of life, compared with respondents without diabetes who tried to lose weight or exercised.

PDB53

IMPACT OF HYPOGLYCAEMIA ON PATIENT REPORTED OUTCOMES: A SYSTEMATIC LITERATURE REVIEW

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1Bristol Myers Squibb, Plainsboro, NJ, USA. 2AstraZeneca, Wilmington, DE, USA. OBJECTIVES: Hypoglycemia can be a critical issue in T2DM management and may impact patients in many ways. Using published data we aimed to identify and evaluate the impact of these events on patient quality of life and treatment satisfaction. METHODS: A systematic review of literature databases (no date limit, 1866 citations retrieved) and conference proceedings (2007–2009) was carried out. Studies reporting the effect of hypoglycemic events on quality of life or treatment satisfaction using generic or hypoglycemia-specific measures were included. RESULTS: Seventeen studies were identified that provided useful information for the study question, mostly in European populations. All studies relied on self-reporting of hypoglycemic episodes, with heterogeneity in methods and classification used. Seven of eight studies reported negative correlations between reporting (and in three studies also severity) of hypoglycemic events and QoL measures using the EQ-5D instrument; the difference between patients reporting and not reporting events (summary score: 0.08–0.20 on 0–1 scale; VAS: 4–11.3 to 0–20.0 on 100 scale) suggests clinical importance. No correlation was observed in the sole study examining insulin-treated patients. Four additional studies reported correlations between experience of hypoglycemia and lower QoL scores using other generic instruments; three studies reported lower scores on the Treatment Satisfaction Questionnaire for Medication in oral antidiabetics (OAD)-treated patients experiencing hypoglycemia. The results of three studies indicated that occurrence and severity of hypoglycemia were associated with higher Worry scores in the Hypoglycemia Fear Survey-B in OAD-treated patients, with one study further identifying this as a clinically important difference when related to treatment satisfaction. CONCLUSIONS: This review identifies a body of data which describe the relationship between hypoglycemia and patient-reported outcomes. Despite variation in methods and instruments used, the results of these studies indicate hypoglycemic events have a notable and clinically important impact on quality of life in T2DM patients, including those treated with OADs.

PDB54

CLINICAL AND ECONOMIC OUTCOMES OF A DIABETES MEDICATION MANAGEMENT PROGRAM

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1Scott & White Health Plan, Temple, TX, USA. 2University of Texas, College of Pharmacy, Austin, TX, USA. OBJECTIVES: A central Texas HMO plan implemented a pharmacist-led diabetes medication management program (MMP) offering co-pay waivers. Medication adherence and diabetic control were compared between patients enrolled in the MMP vs. control patients. Health care costs and utilization were also compared. METHODS: Patients who were enrolled in the MMP had baseline A1C levels of >6.5% and at least 6 months of diabetologist supervision throughout the study period (“rolling” enrollment from August 2006–July 2008). The enrollees and controls were matched 1:1 by age, gender, baseline A1C, and Charlson comorbidity index (CCI). A1C and adherence (Medication Possession Ratio (MPR)) were measured on average by year before and after implementation. Paired t-tests compared the changes in MPR and A1C. Health care costs and utilization were analyzed by year, group, types of service, and diabetes-related vs. all-cause claims. RESULTS: A total of 1,166 patients were enrolled in the MMP for at least 1 year (46 of those enrolled for two years). A1C decreased 3% in controls and 12% in MMP patients; the difference between groups was statistically significant (P < 0.001). The MPR for oral hypoglycemics increased from 76% to 81% one year after in MMP enrollees, whereas MMP remained at 76% in controls; the difference was not statistically significant (P = 0.159). The baseline health care costs were 23% higher in MMP enrollees than controls, possibly due to a few outliers. After one year, the average per member per month (PMPM) cost increased by 21% and 14% in MMP and control groups, respectively; the larger increase was mainly attributable to growth in diabetes-related drug and outpatient claims. Over two years post-implementation, the average by 2%, while the average control PMPM increased by 14%. CONCLUSIONS: The medication management program improved patients’ outcomes. Although one-year costs increased, the slowdown of costs over 2 years in MMP patients compared to controls indicates potential savings over the long term.

PDB55

THE IMPACT OF DIABETIC NON-SEVERE HYPOGLYCAEMIC EPISODES ON FUNCTIONING AND DIABETES MANAGEMENT: A 4 COUNTRY PERSPECTIVE

Brod M1, Christensen T1, Layger Thomsen T1, Bushnell G2
1The Brod Group, Mill Valley, CA, USA. 2Koetinger Hygienisk Forskningsinstitut, Copenhagen, Denmark. OBJECTIVES: To increase our understanding of the impact of diabetes-related non-severe hypoglycemic episodes (NSHE’s) on patient functioning and diabetes management. METHODS: A web-based survey of adults with diabetes (US, France, Germany, and UK). NSHE’s were classified as occurring in the past month, either during the day or during sleep (nonsynchronous; NSHE’s). RESULTS: 6,756 persons with diabetes were surveyed, 2,430 had at least one NSHE in the past month. The mean age was 46.1 ± 14.8 (range 18–90). 1,379 (56.7%) were female and average duration of diabetes was 12.8 ± 11.8 years (range 0.08–72.8). 89.2% (n = 2,167) reported at least 1 daytime NSHE and 44.4% (n = 1,086) had at least 1 nocturnal NSHE. In the past month, $45.64 out-of-pocket was spent on foods, glucose products, transportation, etc. to either prevent or cope with these NSHE’s. For daytime NSHE’s, the average amount of time respondents reported not functioning at their usual level was 9.0 ± 24.9 hours if the NSHE occurred while they were active and 12.4 ± 62.3 hours for NSHE occurring while not active. On average, 8.3 extra blood glucose monitoring test strips were used and insulin was decreased on average by 10 units over the following 6 days. For sleep related NSHE’s, on average, it took 1.4 ± 1.9 hours to return to sleep with 15.6% not being able to go back to sleep at all after the episode. 81.9% (n = 889) reported being tired the following day as a result of the event. Sleep related NSHE’s resulted in an average 11.4 ± 8.4 extra blood glucose monitoring test strips used and insulin was decreased on average by 13.8 units over the following 6 days. CONCLUSIONS: NSHE’s have a considerable impact on daily functioning as well as add to the financial burden of living with diabetes. The seriousness of NSHE’s may be underestimated and should be considered an important part of diabetes management.

PDB56

RELATIONSHIP BETWEEN CARE FINANCING STRUCTURE AND DIABETES/ENDOCRINE DISORDERS – Health Care Use & Policy Studies

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1Bristol Myers Squibb, Plainsboro, NJ, USA. 2AstraZeneca, Wilmington, DE, USA. OBJECTIVES: The impact of diabetes care indicated services in adult type 2 diabetes management was explored in a state Medicaid population and associations between receipt of services in Fee-For-Service (FFS); Care Management (CM), i.e., fee-for-service plus care coordination; and Managed Care (MC) subprograms. METHODS: A retrospective cohort analysis of Indiana Medicaid 2006 and 2007 eligibility, claims, and encounter files was conducted. Persons 18 to 64 yrs, with diabetes based on ICD-9 codes or NDC codes, and ≥12 months continuous eligibility in one subprogram were included. Exclu-