In 2011, the estimated prevalence of diabetes in the United States was 8.3%. Diabetes is also the principal cause of new blindness cases among adults aged 20-74 years in the United States. A recent study by the American Diabetes Association reported that patients with diagnosed diabetes have medical expenditures that are 2.3 times higher than they would be if the patients did not have diabetes. Individuals with type I or type II diabetes mellitus are at risk of developing diabetic retinopathy (DR) and diabetic macular edema (DME) as complications of diabetes. This study was designed to evaluate the burden of DME and DR on employees in the United States.

**INTRODUCTION**

- In 2011, the estimated prevalence of diabetes in the United States was 8.3%.
- Diabetes is also the principal cause of new blindness cases among adults aged 20-74 years in the United States.

**METHODS**

**Study Design**

This study was a retrospective cohort analysis using the HCIS Research Population Database (HCIS-RPB), Cheyenne, WY. The analysis started with the data collected in 2005 to include a follow-up period of 12 months. Only males and females who were aged 18-64 years and employed at some time between January 1, 2005, and December 31, 2011, were included in the study. The study included individuals who had type 1 or type 2 diabetes or were at risk for developing diabetes. The primary endpoint was the percentage of each cohort using each direct and indirect benefit type during the study period.

**Health Benefit Costs**

- Health-benefit cost components were derived from benefits provided by employers to employees.
  - Direct components: medical (healthcare) and prescription costs.
  - Indirect components: payments made to the employee by the employer for absences due to sick leave, short- and long-term disability, and Workers’ Compensation.

**Likelihood of Using Health Benefits**

- Likelihood of using health benefits was defined as the percentage of each cohort using each direct and indirect benefit type during the study period.

**Inflation Adjustments**

- All annual and direct and indirect cost outcomes were inflation-adjusted to June 2012 U.S. dollars by the Bureau of Labor Statistics (BLS) Consumer Price Index (CPI).
  - Medical Cost Components: Medical Services CPI
  - Prescription Drug Cost Components: Prescription Drugs CPI
  - Other cost elements: All Consumer Goods CPI

**Statistical Analysis**

- Descriptive statistics were used to compare the demographics of the cohorts included in the analyses.
  - T-test/ANOVA: tests were used to determine if differences in continuous demographic variables were statistically significant (P<0.05).
  - Chi-square test analyses were used to determine the significance of differences between dichotomous demographic variables.

- Two-part regression modeling was used to estimate each outcome component, and the results were used to determine the proportion of the population with an outcome.

- Logistic regression was used to model the likelihood of an outcome (e.g., those with a disability claim vs. those without).

- Generalized linear models (GLMs) were used to estimate cost differences as a proportion of the population with an outcome.

- Likelihoods were calculated using logistic regression modeling that controlled for differences between cohorts.

**RESULTS**

**Descriptive Statistics of US Employees**

- Descriptive statistics for the 2012 US employees identified and included in the analyses are shown in Table 2.

**Comparison of Health Care Costs**

- Medical and prescription costs were significantly different between most cohorts (P<0.0001). Notable exceptions included all DME vs. DR comparisons and the DME vs. Diabetes prescription drug cost (Figure 2).

**Comparison of Likelihood of Using Health Benefits**

- No comparisons between the DME and DR cohorts were significant.

**Comparison of Likelihood of Using Health Benefits**

- The DR cohort had higher likelihoods in medical, prescription drug, and short- and long-term disability compared with the Diabetes cohort (P<0.001) and a higher likelihood of using SEICR (P<0.001).

**LIMITATIONS**

- Though all included subjects had medical and drug eligibility, eligibility for indirect components varied by element. Thus, there was no direct way to calculate the significance of the totals costs or total.

**REFERENCES**


3. JeSTaRx Group, Newfoundland, NJ; The HCIS Research Group, Cheyenne, WY; The Retina Research Group, Abilene, TX; The JeSTaRx Group, Dallas, TX; Genentech, Inc., South San Francisco, CA.