

MEASURING THE IMPACT OF CARDIO-METABOLIC SYNDROME IN AN EMPLOYED POPULATION AND THE RELATIONSHIP BETWEEN PERFORMANCE COMPENSATION AND PHARMACY COMPLIANCE

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OBJECTIVES

- > To evaluate the prevalence and associated cost implications of cardio-metabolic syndrome (CMS) in an employed population.
- > To assess the impact of performance compensation on pharmacy compliance for CMS related conditions (specifically diabetes).

METHODS

Measures

- > The analysis is a Retrospective Database Analysis using data drawn from the Human Capital Management Services (HCMS) Research Reference Database, which includes the following data elements:
 - Over 1,100,000 employees and covered dependents from 2001 – 2007.
 - Demographic, enrollment, payroll, wellness, lost-time, and medical claims data from multiple large employers from across the United States with representation from retail, service, manufacturing, and financial industries.

- > Primary ICD-9 codes from medical claims data were used to classify individuals into disease cohorts.

- > Integrated cost includes plan-paid costs from medical and pharmacy claims data, income replacement costs for short-term and long-term disability, and both medical and income-replacement costs from workers' compensation (including reserves).

Populations

- > Two distinct populations were used for analysis, corresponding to each main objective.
- > Population one consists of approximately 16,000 employees eligible for medical, pharmacy, short-term disability, long-term disability, and workers' compensation during all of 2006. This population was used to measure the prevalence and cost of CMS. Subsequently, increased estimates of CMS prevalence were produced at 1-year, 3-year, and 5-years into the future due to an aging work-force.
- > Population two consists of approximately 750 employees with Type II diabetes and at least one pharmacy record for an oral or insulin treatment. This population of employees was also eligible for some form of performance compensation, and this population was used to measure the association between performance compensation and pharmacological compliance during the 12-months following each employee's first treatment date.

CMS Definition

- > The term "Cardio-Metabolic Syndrome" is typically used to refer to the presence of a cluster of risk factors that indicate an increased risk for cardiovascular and related diseases. The cluster of risk factors include high cholesterol, elevated blood glucose, elevated blood pressure, and an overweight status.

- > Risk factors are difficult to measure with claims data and this analysis examines CMS through diagnosed cases of Coronary Artery Disease, Diabetes, Obesity, and Hypertension. This methodology may underestimate prevalence as it includes only those employees with a diagnosed case and does not capture those who are still at-risk. It may also over-estimate costs for employees with CMS since only the more severe cases will result in a diagnosis.

Statistical Analysis

- > For population one, multivariate statistical methods were used to isolate the impact of age on CMS incidence and the impact of CMS on total integrated costs.
- > For population two, multivariate statistical methods were used to isolate the impact of performance compensation on pharmacological compliance.
- > All statistical analyses were performed with version 9.1 of the SAS system for Windows (SAS Institute, Inc., Cary, NC).

RESULTS

- > CMS prevalence was measured at 21 percent of employees, and is projected to increase to 29 percent within 5 years due to an aging work-force (see Figure 1).
- > CMS-diagnosed employees were nearly \$3,400 more expensive on an annual basis than non-CMS employees ($p < 0.001$, see Figure 2).
- > When spread across all employees, the increased cost due to CMS is estimated at \$711 per employee per year (PEPY) and is projected to increase to \$982 PEPY within 5 years (see Figure 3).
- > Employees whose performance compensation was at least 25% of total compensation were more likely to comply with pharmacological treatment for diabetes medication ($p = 0.058$, see Figure 4).

Figure 1: CMS Prevalence

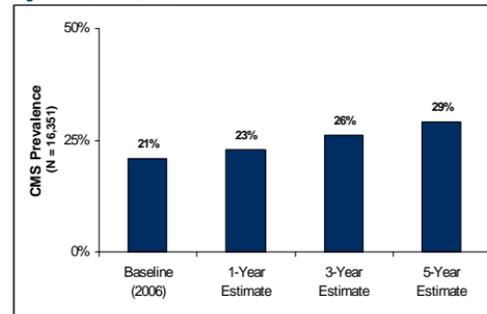


Figure 2: Total Integrated Cost

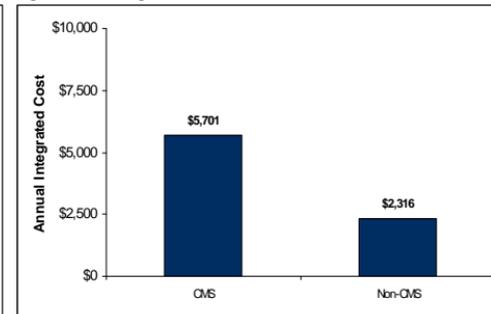


Figure 3: CMS Cost per Covered Employee per Year

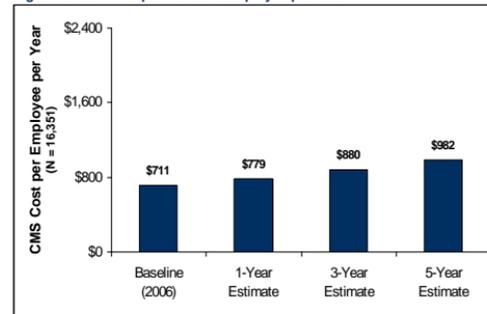
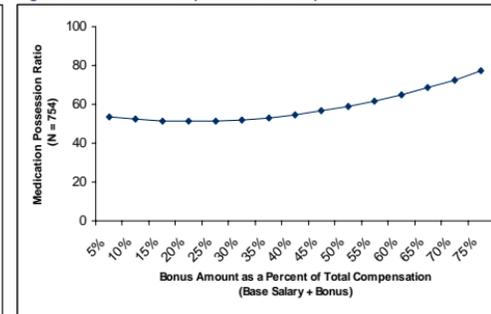


Figure 4: Performance Compensation vs. Compliance



CONCLUSIONS

CMS has significant and increasing cost implications for large employers. Employees with greater relative performance compensation have higher pharmacy compliance, consistent with a "Health as Human Capital" philosophy. As employers consider health intervention strategies, there is evidence to suggest they should also consider the impact of compensation programs as part of their strategy.