



Medical cost analysis of a school district worksite wellness program

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ABSTRACT

Objective: To evaluate whether participation in a worksite wellness program differs by age and sex and is associated with frequency and average cost of medical claims. **Methods:** Healthcare cost data were available for school district employees during the academic years ending in 2009 through 2014. The wellness program was available in the later 3 years. The frequency and the average cost of medical claims were compared between the 3 years prior to and the 3 years during the wellness program. **Results:** Wellness program participation increased from 65.6% 2011–2012 to 79.7% 2012–2013. The increase occurred within age-groups and for males and females. The average age of program participants was significantly lower in 2011–2012 (48.2 vs. 49.4, $p = 0.0099$), but similar in the next 2 academic years. Participation in at least one behavior change campaign in each year was 52.1%, 53.7%, and 73.7% of all wellness program participants, respectively. Female employees were significantly more likely to complete one or more behavior change campaigns in each year of the wellness program ($p < 0.0001$). The percentage of employees filing at least one claim per time period was higher for those in the wellness program ($p < 0.0001$), but average medical claims payments were lower for those in the wellness program. After subtracting program costs, the cost savings from the wellness program was \$3,612,402. The benefit-to-cost ratio was 3.6. **Conclusion:** Participation in the wellness program resulted in lower average medical claim costs than non-participation but number of claims were higher in program participants.

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Introduction

The cost of insurance premiums and employee medical claims costs have increased in recent years and are at an all-time high (The Henry J. Kaiser Family Foundation, 2014). According to the Kaiser Family Foundation and Health Research & Educational Trust, the average cost of health insurance premiums for a family of 4 has increased by 69% in the last 10 years (to \$16,834) with employee contributions increasing by 81% (Trust, K. F. F. and H. R. E., 2014). Additionally, in the Western United States among companies consisting of 200 or more employees, premiums and worker contributions among employees covered by employer-sponsored coverage increased from \$2194 in 1999 to \$6353 in 2014 (The Henry J. Kaiser Family Foundation, 2014). In an attempt to curb rising costs, many employers are adopting worksite health promotion programs (Allen, 2015; Caloyeras et al., 2014; Liu et al., 2013; Merrill, 2013; LeCheminant and Merrill, 2012; Henke et al., 2011). Several studies have identified medical cost savings resulting from employee-based health promotion programs (Maeng et al., 2013; Merrill et al., 2011; Patel et al., 2011; Patel et al., 2010; Naydeck

et al., 2008; Aldana et al., 2005; Serxner et al., 2003; Serxner et al., 2001; Aldana, 2001). Reducing health care costs is not the only rationale for worksite wellness programs, but they can help employees be more responsible for their lifestyle choices, promote better general health, improve employee productivity, reduce absences and illness, shift the healthcare paradigm from treatment to prevention, improve productivity, increase employee job satisfaction, increase retention, increase morale, and so on (Chen et al., 2015; CDC, 2014; Michaels and Greene, 2013; Niessen et al., 2012; Witt et al., 2013).

Nevertheless, the effectiveness of worksite wellness programs has been questioned (Felter et al., 2013; Frakt, 2014; Mattke and Liu, 2015), particularly for their ability to produce a financial return on investment (Baxter et al., 2014). In a systematic review of 33 methodologically rigorous peer-reviewed U.S. wellness program reports, the authors found evidence for positive effects on diet, smoking, alcohol use, exercise, physiologic markers, and health care costs but limited evidence for absenteeism and mental health (Mattke et al., 2012). A recent review of the financial return on investment associated with worksite health promotion programs showed that the quality of the study design was important; the return on investment ranged from 0.26 (high-quality study designs) to 2.32 (low-quality study designs) (Baxter et al., 2014). Notably, Baxter et al. also reported that the 12 randomized controlled trials included in this study produced, on average, a negative financial return on investment (Baxter et al., 2014). Other

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published studies have reported similar unfavorable findings (Rongen et al., 2013).

However, it has been noted that some programs have better success than others, likely depending on the extent that best practices are utilized (Goetzel et al., 2014). Based on a systematic review of the literature, Kaspin et al. (2013) suggested that characteristics of successful health promotion programs often include (1) a corporate culture of wellness; (2) supportive company leadership; (3) participation-friendly corporate policy and physical environment; (4) programs adapted to employee needs; (5) community health organizations provided support, education, and treatment; (6) utilized technology to facilitate health risk assessments and health education; and (7) decreased health risks and lower healthcare costs. Nevertheless, it appears that additional research is needed to better understand the effectiveness of worksite health promotion, particularly when comprehensive programs are implemented.

Since the 2011–2012 academic year, the district has utilized a wellness program provided by WellSteps, LLC. The program incorporated known practices thought to improve the health of employees, including several of the components of a successful program noted in the review cited above (Kaspin et al., 2013). The aim of the program was to improve employee health behaviors, lower elevated health risks, prevent chronic diseases, and consequently, curb increasing healthcare costs. Previous research has assessed health behaviors and outcomes in the district (LeCheminant et al., 2015; Merrill and Sloan, 2014). The district program is unique in that it was applied over 3 years to a multi-site school district with the majority of the employees being teachers. Little evidence is currently available showing the effect of the wellness program on healthcare costs over time for this population.

The purpose of the current study was to extend previous research by evaluating the extent participation in the worksite wellness program was associated with frequency and average cost of submitted medical claims. Participation in the wellness program was also assessed by age and sex, and the association between wellness program participation and the primary outcome measures were adjusted for these variables. We hypothesized that wellness program participation would differ according to age and sex, and that it would be associated with the frequency and average cost of submitted medical claims, after adjusting for age and sex.

Methods

A retrospective cohort design was used that involved existing wellness program participation status and healthcare claims data. Previous research has assessed the same employee population in terms of the effectiveness of the wellness program on decreasing health risks (LeCheminant et al., 2015; Merrill and Sloan, 2014). Each academic year employees were invited to complete a personal health assessment (PHA), biometric screening, and selected behavior change campaigns. The PHA and biometric screening were generally completed in the fall, and the behavior change campaigns were offered throughout the year.

Participants were employed by the district. The school district included 6 high schools, 8 junior high schools, and 31 elementary schools. Only eligible employees for healthcare coverage were included in the current study. While data for this study cover the academic years 2008–2009 through 2013–2014, the wellness program was offered in the academic years 2011–2012, 2012–2013, and 2013–2014. The study was approved by the Institutional Review Board at Brigham Young University (IRB E1 5259).

Data on healthcare medical claims costs were also used in this study. The district is fully insured with a retained-retention agreement that makes the plan act very much like a self-funded health plan. Each month the district pays a health insurance premium for the cost of medical care and a small premium for reinsurance of catastrophic claims. High cost (catastrophic) claims above \$250,000 are reinsured by a stop loss policy and are not paid for by the school district. Therefore,

any annual per person claims above \$250,000 are capped at \$250,000. The annual medical claims data, as well as the biometric screening, PHA, and WellSteps campaign data reflect the academic calendar.

Wellness program

Enrollment in the wellness program was voluntary. The overall program included the following components: administrative planning, evaluation, culture change and communication strategy analysis, screenings for biometric measures, and health campaigns focused on changing behavior (LeCheminant et al., 2015; Merrill and Sloan, 2014).

The biometric screenings (BMI, blood pressure, cholesterol, and glucose) were available to all employees at no cost to them. Participants had the option to be screened on location and have a health nurse review the results, or receive screening and review of results through their family physician.

The 36-question PHA was written at a 6th-grade level, available to all employees, and assessed nutrition, physical activity, health status, life-satisfaction, sleep quality, smoking, demographics, productivity, absenteeism, and job satisfaction outcomes. The survey questions were based on the 2006 Behavioral Risk Factor Surveillance System (BRFSS) survey (Centers for Disease Control and Prevention, 2006), combined with several nutrition questions from another validated instrument (Block et al., 1990). Upon completion, employee PHA data were used to generate behavior specific health scores. For each behavior and each biometric category, a letter grade (A–E) was assigned based on established risk categories. Hence, a summary health report card was generated for each employee. High grades were recognized and individuals were given ideas on how to maintain corresponding behaviors. Low grades were flagged and used to create individualized programs for change. Poor health behaviors and elevated risks were also used to create achievable goals that each person can choose to pursue. The summary health report card was reviewed with the employee by a nurse or physician in order to evaluate and improve the employee's health.

Details of the WellSteps campaigns are presented in Table 1. Each campaign typically lasted about 5 weeks and covered topics related to health, such as diet, physical activity, weight loss, posture and balance, and health maintenance. Three to five campaigns were available to employees each year.

Benefits-based incentive plan requirements

Program participation was promoted using incentives. In the academic year ending in 2012, employees who completed the PHA and biometric screening had a \$20 lower copay on doctor's office visits and their deductible was \$350 versus \$700. In the academic year ending in 2013, employees who completed the PHA and biometric screening had up to a \$20 lower copay on doctor's office visits, their deductible was \$350 versus \$700, and they also received a \$40 monthly premium discount. In the academic year ending in 2014, the same incentives were applied, but now employees needed to complete the PHA, biometric screening, and one or more WellSteps campaign, or submit a form that had options such as a community fitness event, proof of gym membership attendance, meeting with a dietician, completing a course to quit smoking, or any class where the focus was to improve health or relieve stress. In this study, completion of the wellness program in any given year means the participant completed the PHA and biometric screening. The behavior change campaigns were optional.

Statistical techniques

Analyses were based on 4133 eligible employees of the district during the academic years ending in 2009 through 2014. Of this number, 2438 (59.0%) were employed continuously over these 6 years. Data were analyzed using the statistical software package PC-SAS (version 9.4; SAS Institute, Inc., 2014) and Microsoft® EXCEL 2013.

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