Obesity in the Workplace: Impact on Cardiovascular Disease, Cost, and Utilization of Care

Alberto M. Colombi, MD, MPH; G. Craig Wood, MS

Background: In forecasting the future of cardiovascular disease (CVD), the American Heart Association calls for preventive strategies with particular attention to obesity. The association between obesity and CVD, including coronary artery disease (CAD) and diabetes, is well established. The rising prevalence of obesity in the workforce may have additional implications for employers and employees besides the demonstrated effects on absenteeism and workers’ compensation.

Objective: This study was undertaken to determine the impact of population obesity on care utilization and cost of cardiovascular conditions such as hypertension, CAD, and cerebrovascular disease (or stroke) in a large US population of employees engaged in a major corporate wellness program.

Study sample: Using data from a single large industrial employer across 29 geographically distinct worksites in the United States, 179,708 episodes of care from 2004 to 2007 for 10,853 employees were included.

Methods: The population-based economic impact of obesity was calculated on the basis of the frequency of episodes of care per 1000 employees and on the amount eligible for payment per episode of care in US dollars. Data were obtained from a wellness program databases, episode of illness inventories, and pharmacy and medical claims. High and low prevalence rates of obesity, by obesity quartile, were used to create linear mixed models to examine associations with disease outcomes, while controlling for correlation within each worksite.

Results: Worksites with a high rate of obesity (ie, in the fourth quartile) had 348.4 more episodes of care of any kind per 1000 employees (P < .001), 38.6 more hypertension episodes of care per 1000 employees (P = .017) compared with worksites in the lower 3 quartiles. A worksite in the fourth obesity rate quartile had $223 greater cost per any kind of episode (P < .001), $169 greater cost per hypertension episode (P = .003), and $1620 more per CAD episode (P = .005) compared with worksites in the lower 3 quartiles. The overall economic impact per 1000 employees was calculated by combining episode frequency and eligible amount for payment per episode. For sites in the lower 3 quartiles of obesity, the eligible amount per 1000 employees for any kind of care was $4.01 million. However, for sites in the highest obesity quartile, the eligible amount for payment per 1000 employees was $5.26 million. This translates into $1250 greater cost per employee. Similar calculations were used to evaluate the effect of obesity on the amount eligible for payment per employee for hypertension, CAD, and cerebrovascular disease episodes, with an estimated $69, $89, and $8 greater cost, respectively, per employee.

Conclusion: Worksites with greater obesity prevalence rates were associated with numerically more frequent and more expensive episodes of care than worksites with low obesity prevalence.

In forecasting the future of cardiovascular disease (CVD), the American Heart Association calls for preventive strategies, with particular attention to obesity. The facts related to the current obesity epidemic are familiar, stark, and bode bad news not only for the physical health of the US population but also for its economic health. Obesity is a common denominator in and a risk factor for many chronic conditions, including diabetes, coronary artery disease (CAD), stroke, and hypertension.
KEY POINTS

- According to the Centers for Disease Control and Prevention, the medical costs for obese persons are $1429 higher than for normal-weight individuals.
- The American Heart Association has called for implementing prevention strategies, with particular attention to obesity, to reduce the burden of heart disease.
- This study examined the impact of obesity on care utilization and cost in a large population of employees enrolled at a wellness program in 29 worksites at PPG Industries.
- Results showed that the mean number of episodes of care per 1000 employees was higher in sites with the highest rates of obesity compared with sites with lower rates of obesity, including episodes of care for coronary artery disease, stroke, and hypertension.
- The wellness program enrollees who were more obese had 348.4 more episodes of care per 1000 employees annually, with a total annual cost of $1250 per patient.
- These results demonstrate that worksites with higher proportions of obese employees have higher utilization rates and higher costs of care, which are of particular concern for financially marginal or stressed employers, and for the self-insured employers who cover the healthcare costs of their employees.

In 2008, the annual direct and indirect costs of obesity were estimated to be $147 billion. Recent estimates of the financial cost of obesity range from a few hundred dollars for the mildly overweight male to almost $7000 for the female with a body mass index (BMI) >40 kg/m² (ie, grade 3).

The Centers for Disease Control and Prevention has proposed that “persons who are obese have medical costs that are $1429 higher than those of normal weight.” The contributions to this cost include increased workers’ compensation, absenteeism, presenteeism (ie, being at work but underproductive), direct medical costs, and costs attributable to the contribution of obesity to the development and exacerbation of a chronic condition. The longitudinal trend is such that the prevalence of obesity in adults in the United States has doubled between 1984 and 2004.

The recent National Health and Nutrition Examination Survey analysis showed that the prevalence of obesity in almost every age-group and in both sexes exceeded 30%. In light of these daunting epidemiologic and fiscal trends, there is intense focus in the political and the research spheres to “bend the cost curve” down. Several approaches have been proposed, including some that are multifactorial, addressing patient needs beyond the clinical encounter. One multifactorial approach is the chronic care model developed by Wagner and colleagues that is intended to improve outcomes by changing chronic disease care from an acute and reactive model to a proactive, planned, and population-based model that incorporates community resources, information technology, and self-management support in care.

Wellness programs also comprise a multifactorial approach to health improvement and health promotion, including the management of chronic conditions. Unlike care models with a more macro, system-level focus, wellness programs have been studied extensively over the past 30 years.

A recent review showed strong evidence linking wellness programs to improvements in tobacco use, alcohol use, nonuse of seatbelts, dietary fat intake, blood pressure, absenteeism, and healthcare service use. Such programs characteristically focus on understanding patient-level risk and in supporting patients in achieving beneficial, proximal outcomes, such as smoking cessation, weight reduction, and reduced alcohol intake. Wellness programs have been developed by employers to reach potential or actual patients where they work, and address employee health, absenteeism, presenteeism, and escalating costs.

This study was undertaken to determine the impact of population obesity on care utilization and cost of certain cardiovascular conditions in a large population of employees engaged in a major corporate wellness program.

Methods

PPG Industries—a global supplier of coatings, optical products, specialty materials, chemicals, glass, and fiberglass—is headquartered in Pittsburgh, PA, had more than 30 US manufacturing sites and about 15,000 employees at the time of this study. In the context of a company wellness program described elsewhere, the incremental effect of worksite population obesity prevalence on care utilization and cost of certain CVD conditions (ie, hypertension, CAD, and cerebrovascular disease [or stroke]) at several worksites was assessed. Claims provided by group health insurance contracts where the employer is self-insured were trusted to be complete, whereas claims derived from fully insured health maintenance organizations were considered to be incomplete. The only worksites included in this study were those that as of December 31, 2007, were self-insured, had at least 50 employees, and at least 70% of their employees had taken the online health risk appraisal at least once. The health risk of the population was based on the responses of those who took
the health risk appraisal at least once. The claims were all the claims available for each worksite.

Data from 29 such worksites—including active, full-time PPG employees aged 35 to 74 years during 2004-2007—were then analyzed as to care claims utilization and cost. Employees in each worksite were exposed to PPG’s Wellness Program Inventory, a wellness program modeled after the “10 Keys to Healthy Aging” program developed at the University of Pittsburgh.17

**Data Collection, Outcome Measures**

An online health risk appraisal provided through Infotech’s Wellness Checkpoint was available to all employees during the study period.18 Wellness Checkpoint also provided comprehensive data on employee health and risks relevant to population level health and wellness measurement tracking and management.

Worksite (health risk appraisal) responses—designed to provide employees with individualized information on health risks and health priorities—completed by employees online from 2004 to 2007 were aggregated to create population rates and indicators of risk. Medical and pharmaceutical claims data for PPG employees were obtained from Thomson Reuters Advantage Suite database, a commercially available database.19

Healthcare utilization data were collected for employees who had at least 320 days of healthcare coverage benefits during each of the study years of interest. Each patient’s data were limited to episodes of care that occurred while the individual was employed at 1 of the 29 PPG worksites during the study period. The data were available at each worksite and were stratified by sex, age, and year.

Within each stratum, healthcare utilization measures were grouped into episodes of care using Thomson Reuters Medical Episode Grouper software,20 which combines all inpatient, outpatient, and/or prescription treatments related to a single discrete occurrence of illness. During the study period, all distinct episodes of care of any type and episodes of care for 3 specific conditions—CAD, cerebrovascular disease, and hypertension—were identified.

Utilization and cost of care were the primary outcome measures. For each of 4 categories of episode grouping (overall, CAD, cerebrovascular disease, and hypertension), 4 metrics were summarized, including the total number of episodes of care, the number of episodes per 1000 active employees, the total amount eligible for payment per episode, and the total amount eligible for payment per 1000 employees.

**Definitions**

“Utilization” was defined as the number of episodes of care per 1000 active employees. This measure was created by calculating the average number of episodes of care per 1000 members who had medical insurance coverage during the year.

“Episodes of care” was defined as a summary of inpatient, outpatient, and prescription treatment related to a given illness episode associated with the underlying details occurring within a defined time window.

“Episodes per 1000” was defined as the average number of episodes of care per 1000 active employees who had medical coverage annually ([episodes/(employees’ months of medical coverage/1000)] × 12).

“Cost” was defined as the total allowed amount that was eligible for payment per episode of care. This was therefore defined as the total amount of submitted charges eligible for payment for facility, medical, and prescription included in the episodes of care. It is the amount eligible after applying pricing guidelines but before deducting third-party, copayment, coinsurance, or deductible amounts. As such, it measured the total eligible cost of an episode of care. Although “eligible amount” is not always the actual paid amount—which is a function of health insurance negotiations with care providers—it provides a comparable common denominator across different group health plans servicing various worksites.

The primary independent variable for this study was obesity prevalence status at each worksite. Because the obesity status of individual claims was not available, obesity status was estimated by aggregating the health risk appraisal responses of percent health risk appraisal users at each worksite. Only worksites with at least a 70% health risk appraisal completion rate were included.

Within each worksite, the percent of employees who were obese (BMI >30 kg/m²) based on their aggregate responses was calculated. We then stratified each worksite’s obesity prevalence into quartiles, based on the percent of obesity reported at each site. These percentages were used to categorize the worksites into quartiles, based on highest (and lowest) percent obese. For analytic purposes, worksites in the fourth quartile were classified as a high-rate obesity.

Other independent variables in the analysis included sex (male or female), age (5-year increments from 35-49 to 50-64 and 65-74), year (2004, 2005, 2006, 2007), and total number of episodes (a surrogate measure for size of a given site).

Statistical analyses were conducted using SAS version 9.2 (Cary, NC). The analyses aimed to determine if worksite obesity status was associated with increased frequency of episodes of care and higher costs for all episodes, and then, separately, for hypertension, CAD, and cerebrovascular disease episodes of care. Linear
mixed models were used to examine associations while controlling for correlations within a given worksite. This model was chosen to preserve the overall sample size of 29 worksites while controlling for the effects of site size, sex, age, and year of observation. In sensitivity analysis, 1 possible outlier was identified; however, this did not have an influence on the results. The same results were observed whether the outlier was included or not. As a result, we conducted the analysis without removing the outlier. All tests were 2-sided, and \( P < .05 \) was considered significant.

### Results

A total of 179,708 episodes of care across 29 worksites were examined. Across the entire study population, the average number of episodes per 1000 employees was 3504, and the average allowed amount per episode was $1252. Of these episodes, 8493 (4.7%) were for hypertension, 1611 (0.9%) were defined as CAD, and 467 (0.3%) were defined as cerebrovascular disease (stroke) (and 5.9% related to the 3 subgroups examined further).

From 2004 to 2007, 10,853 employees participated in the health risk appraisal while employed at 1 of the 29 PPG worksites that met the inclusion criteria. Across all worksites, 71% of the employees were men. The percentages of employees by age-groups included 13% aged 35 to 39 years; 17% aged 40 to 44 years; 23% aged 45 to 49 years; 24% aged 50 to 54 years; 17% aged 55 to 59 years; and 6% aged ≥60 years. The number of employee participants in each of the 29 sites (range of employees per site, 50-3568) included 2 sites with <100 participants, 12 sites with 100 to 999 participants, and 15 sites with >1000 employee participants. Men had considerably fewer episodes of care per 1000 than women; younger employees had fewer episodes of care than older employees.

The (unadjusted) mean number of episodes per 1000 employees was higher in sites with the highest rates of obesity compared with sites in the lower 3 quartiles of obesity. This relationship was consistent for all episode types and for episodes of hypertension, CAD, and cerebrovascular disease.

### Table 1

<table>
<thead>
<tr>
<th></th>
<th>Episode type</th>
<th>Any</th>
<th>Hypertension</th>
<th>CAD</th>
<th>Cerebrovascular disease</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Mean number of episodes per 1000 active employees, N</td>
<td>Obese site</td>
<td>3795</td>
<td>201</td>
<td>42</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>Nonobese site</td>
<td>3388</td>
<td>156</td>
<td>33</td>
<td>7</td>
</tr>
<tr>
<td>B. Mean allowed payment per episode, $</td>
<td>Obese site</td>
<td>1418</td>
<td>1098</td>
<td>7418</td>
<td>2919</td>
</tr>
<tr>
<td></td>
<td>Nonobese site</td>
<td>1186</td>
<td>929</td>
<td>5674</td>
<td>2599</td>
</tr>
<tr>
<td>C. Economic impact per 1000 active employees (A × B), $</td>
<td>Obese site</td>
<td>5,381,310</td>
<td>220,698</td>
<td>311,556</td>
<td>37,947</td>
</tr>
<tr>
<td></td>
<td>Nonobese site</td>
<td>4,018,168</td>
<td>144,924</td>
<td>187,242</td>
<td>18,193</td>
</tr>
<tr>
<td></td>
<td>Ratio</td>
<td>1.33</td>
<td>1.52</td>
<td>1.66</td>
<td>2.09</td>
</tr>
</tbody>
</table>

*Obese sites were defined as the 8 sites with the highest obesity rates (ie, fourth quartile of obesity). CAD indicates coronary artery disease.
changes in cost over time (ie, to help offset the opposing forces of inflation and increases in efficient healthcare).

Worksites with a high rate of obesity (ie, in the fourth quartile) had 348.4 more episodes of care per 1000 employees (P <.001), 38.6 more hypertension episodes of care per 1000 employees (P <.001), and 2.5 more cerebrovascular episodes of care per 1000 employees (P = .017) compared with a worksite in the lower 3 quartiles (Table 2). Total number of episodes, age, sex, and year were also significantly related to number of episodes per 1000 employees.

A worksite with a high rate of obesity (ie, in the fourth quartile) had $223.2 greater cost per any episode (P <.001), $169 greater cost per hypertension episode (P = .003), and $1620 greater cost per CAD episode (P = .005) compared with worksites in the lower 3 quartiles (Table 3). Similarly, the total number of episodes, age, sex, and year were significantly related to the cost per episode of care.

To evaluate the overall economic impact of obesity per 1000 employees, the episode rate was multiplied by the corresponding amount eligible for payment per episode. For sites in the lower 3 quartiles of obesity, the eligible amount per 1000 employees was $4.01 million (mean episodes per 1000 employees [3388] × allowed amount per episode [$1186]).

However, for sites in the highest obesity quartile, the eligible amount per 1000 employees was $5.26 million (mean episodes per 1000 employees [3388 + 348] × allowed amount per episode [$1186 + $223]). This difference translates into $1250 more per employee. Similar calculations were used to evaluate the effect of obesity on eligible payment amount per employee for hypertension, CAD, and cerebrovascular disease episodes, with an estimated $69, $89, and $8 greater cost per employee, respectively.

The overall economic impact was 1.33 higher for any episode, 1.52 higher for hypertension episodes, 1.66 higher for CAD episodes, and 2.09 higher for cerebrovascular disease episodes in worksites having the highest rates of obesity (ie, sites in the fourth quartile for obesity) compared with sites in the lower 3 quartiles of obesity.

### Table 2: Association of Episodes per 1000 Employees with Each Independent Variable, by Episode Type

<table>
<thead>
<tr>
<th>Variable</th>
<th>Any episode</th>
<th>Hypertension</th>
<th>CAD</th>
<th>Cerebrovascular disease</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Estimate, N</td>
<td>P value</td>
<td>Estimate, N</td>
<td>P value</td>
</tr>
<tr>
<td>Intercept</td>
<td>5497.1</td>
<td>.59</td>
<td>356.9</td>
<td>&lt;.001&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Increase of 10 episodes</td>
<td>1.0</td>
<td>.59</td>
<td>23.5</td>
<td>&lt;.001&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Year 2004</td>
<td>–147.6</td>
<td>.070</td>
<td>–78.6</td>
<td>&lt;.001&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Year 2005</td>
<td>–24.2</td>
<td>.76</td>
<td>–6.3</td>
<td>.57</td>
</tr>
<tr>
<td>Year 2006</td>
<td>49.1</td>
<td>.53</td>
<td>–7.1</td>
<td>.52</td>
</tr>
<tr>
<td>Year 2007</td>
<td>Reference</td>
<td>Reference</td>
<td>Reference</td>
<td>Reference</td>
</tr>
<tr>
<td>Women</td>
<td>1474.6</td>
<td>&lt;.001&lt;sup&gt;a&lt;/sup&gt;</td>
<td>–21.8</td>
<td>.010&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Men</td>
<td>Reference</td>
<td>Reference</td>
<td>Reference</td>
<td>Reference</td>
</tr>
<tr>
<td>Age 35-49 yrs</td>
<td>–3127.9</td>
<td>&lt;.001&lt;sup&gt;a&lt;/sup&gt;</td>
<td>–208.2</td>
<td>&lt;.001&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Age 50-64 yrs</td>
<td>–2225.7</td>
<td>&lt;.001&lt;sup&gt;a&lt;/sup&gt;</td>
<td>–101.4</td>
<td>&lt;.001&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Age 65-74 yrs</td>
<td>Reference</td>
<td>Reference</td>
<td>Reference</td>
<td>Reference</td>
</tr>
<tr>
<td>Highest quartile of obesity (Q4)</td>
<td>348.4</td>
<td>&lt;.001&lt;sup&gt;a&lt;/sup&gt;</td>
<td>38.6</td>
<td>.001&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Lowest quartiles of obesity (Q1-Q3)</td>
<td>Reference</td>
<td>Reference</td>
<td>Reference</td>
<td>Reference</td>
</tr>
</tbody>
</table>

NOTE: Estimates are in number of episodes.
<sup>a</sup>Significant difference, P <.05.
CAD indicates coronary artery disease.
Discussion

Among patients exposed to a workplace wellness management program, we found that higher obesity rates are associated with more frequent and more expensive episodes of care. In this study, worksite obesity prevalence is associated with a significantly higher occurrence of episodes of care of all types, including those for hypertension, CAD, and stroke.

Obesity prevalence is associated with a significant increase in costs per episode for hypertension and CAD, but the cost is not significantly greater for stroke.

These results confirm the general conclusions in the literature that obesity increases care incidence, prevalence, and the cost of cerebrovascular disease, and that it is therefore a worthy focus for cost reduction through management. That these findings were not obtained through a disease filter but from wellness program enrollees—as described elsewhere—suggests that a workplace focus on obesity prevention may prove useful in designing programs meant to lower costs and morbidities.

As our results demonstrate, worksites with higher proportions of obese employees have higher utilization rates and higher costs of care. Such costs are of particular concern for financially marginal or stressed employers and for the self-insured employers who ultimately cover the healthcare costs of their employees. The impact on non-self-insured employers is also significant, because they must either absorb—or require employees to absorb via increased premiums—the costs associated with insuring companies with higher rates of obesity.

In this study we did not directly evaluate the impact of the wellness program itself. There is clearly an opportunity to make marked gains in health and healthcare utilization at such sites, because workplace wellness programs have demonstrated improvements in outcomes.

There is also evidence that the management modalities (the “how”) of worksite wellness implementation are as important as the type of wellness programs (the “what”) offered in ultimately mitigating chronic disease–related healthcare costs. In this prospective population, health management acquires a renewed interest.

Table 3  
Association of Cost Amount Eligible for Payment per Episode of Care and Each Independent Variable, by Episode Type

<table>
<thead>
<tr>
<th>Variable</th>
<th>Any episode</th>
<th>Hypertension</th>
<th>CAD</th>
<th>Cerebrovascular disease</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Estimate, $</td>
<td>P value</td>
<td>Estimate, $</td>
<td>P value</td>
</tr>
<tr>
<td>Intercept</td>
<td>2128.1</td>
<td></td>
<td>1284.2</td>
<td>.36</td>
</tr>
<tr>
<td>Increase of 10 episodes</td>
<td>1.3</td>
<td>.36</td>
<td>32.5</td>
<td>.23</td>
</tr>
<tr>
<td>Year 2005</td>
<td>–172.1</td>
<td>.009*</td>
<td>136.0</td>
<td>.036*</td>
</tr>
<tr>
<td>Year 2006</td>
<td>–80.8</td>
<td>.22</td>
<td>32.4</td>
<td>.61</td>
</tr>
<tr>
<td>Year 2007</td>
<td>Reference</td>
<td>Reference</td>
<td>Reference</td>
<td>Reference</td>
</tr>
<tr>
<td>Female</td>
<td>–237.3</td>
<td>&lt;.001*</td>
<td>16.1</td>
<td>.74</td>
</tr>
<tr>
<td>Male</td>
<td>Reference</td>
<td>Reference</td>
<td>Reference</td>
<td>Reference</td>
</tr>
<tr>
<td>Age 35-49 yrs</td>
<td>–668.0</td>
<td>&lt;.001*</td>
<td>–371.0</td>
<td>.001*</td>
</tr>
<tr>
<td>Age 50-64 yrs</td>
<td>–365.0</td>
<td>&lt;.001*</td>
<td>–115.9</td>
<td>.26</td>
</tr>
<tr>
<td>Age 65-74 yrs</td>
<td>Reference</td>
<td>Reference</td>
<td>Reference</td>
<td>Reference</td>
</tr>
<tr>
<td>Highest quartile of obesity (Q4)</td>
<td>223.2</td>
<td>&lt;.001*</td>
<td>169.0</td>
<td>.003*</td>
</tr>
<tr>
<td>Lowest quartiles of obesity (Q1-Q3)</td>
<td>Reference</td>
<td>Reference</td>
<td>Reference</td>
<td>Reference</td>
</tr>
</tbody>
</table>

*aSignificant difference, P <.05.

CAD indicates coronary artery disease.
risk factors, such as obesity (much of which depends on health behavior change), is a complex task for patients and for their caregivers. Further research is needed to understand how to effect the necessary behavior change and which changes are best addressed in a clinical versus a workplace environment.

Limitations

In this study we did not assess the role of the surrounding communities, particularly in regard to the availability of primary care, which is important for the detection, management, and intensity of episodic treatment and cost.

We used population-level data rather than individual-level data to characterize the relationship between obesity and utilization and obesity and costs. The results of our ecologic analysis, therefore, may not reflect individual-level relationships.

Our assessment of the rate of obesity within specific worksites is based on health risk appraisal data. We required 70% health risk appraisal participation at included worksites. We do not know whether health risk appraisal respondents differ from nonresponders in meaningful ways (eg, BMI).

In addition, we cannot determine the directionality of the association between obesity and utilization and costs, although worksites striving to reduce their population obesity rate may be encouraged by the association.

Finally, our data reflect one employer in a particular industry, and our results, therefore, may not extend to other employers in the same industry or to employees in different industries, although the “business case” for worksite obesity programs is reinforced.

Conclusion

Workplace wellness program enrollees in a single large manufacturing company who are more obese experience 348.4 more episodes of care per 1000 employees annually, which are also more expensive, with an annual total of $1250 per patient. These relationships hold true for all episodes of care and in particular for episodes involving hypertension, CAD, and cerebrovascular disease. Such costs are of particular concern for financially stressed employers, and for self-insured employers who cover the healthcare costs of their employees. Efforts aimed at controlling costs of healthcare might appropriately regard obesity as a marker for higher costs and episodes of care and design nutrition, physical activity, and weight management programs to reduce these clinical outcomes.

Acknowledgments

Data extraction and statistical processing costs were supported by an unrestricted research grant from AstraZeneca, which had no role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; or preparation, review, or approval of the manuscript. We thank Nirav R. Shah, MD, for providing insight to this effort and to the integrity of the data and the accuracy of the data analysis.

Author Disclosure Statement

Dr Colombi and Mr Wood reported no conflicts of interest.

References


Stakeholder perspective on page 278
**Employers’ Obesity Initiatives in the Workplace: A Wakeup Call for Health Plans**

Dr Colombi and Mr Wood provide important messages for employers and their supporting health plans. In their study described in this issue of *American Health & Drug Benefits*, Dr Colombi and Mr Wood have demonstrated how employer engagement and population-based proactive analyses of employees’ experiences can identify meaningful areas for aligned and coordinated intervention.

**HEALTH PLANS:** The employer, as a health plan sponsor, is a partner that has a significant role to play in ensuring the effective identification of employees’ risk factors and appropriate disease management. Such workplace-based functions initiated by employers supplement actions taken by health plans on behalf of the employee. The impact of these activities is important, in part, because these actions represent a population (not an individual patient) level, data-supported tactical application of resources and are not redundant with community-based disease management initiatives that are started after the recognition of a diagnostic claim.

The experience described in this article should serve as a wakeup call for health plans to coordinate and supplement employer initiatives to the financial benefit of employees and the health plan sponsor. To assist in this goal, health plans should develop and make available effective data analytics that will highlight important comorbidities associated with conditions such as obesity to initiate disease management plans that carry greater impact for the patient as a whole rather than reflecting a single-organ system orientation. As employers identify worksites with greater risk (eg, higher obesity rates), this information may be leveraged to greater advantage for health plans that support other groups in the same geographic location.

**EMPLOYERS:** PPG Industries should be applauded for supporting the use of their data to identify health risks in their employees that are normally receiving only a token response from the traditional services provided by health plans. This employer experience demonstrates costs that are silently “accepted” by employers who do not support and promote worksite risk factor identification and modification.

Obesity’s effects on cardiovascular disease progression and on the utilization and cost of care are areas of modifiable expenses. The challenge for the US healthcare system is that the intervention needed is more behavioral than clinical, more preventive than therapeutic, and more population-based than patient-applied. Although employers often hear about the obesity epidemic, the majority of employers fail to recognize the costs to the employer plan sponsor and to their employees for not taking action regarding obesity interventions. These costs affect the employer’s ability to meet business goals and more favorable cost structures in very direct ways. Employees’ good health is good business.

As the prevalence of obesity accelerates beyond 30% of the US population, the cost differentials described in this article will prove increasingly conservative: the actual costs and opportunities will be far greater, because the data in this study reflect on employees who chose to participate in these workplace wellness programs. Many other employees with similar risk factors chose not to participate in such supportive programs, yet they incur excess care utilization and costs. This experience represents the results of a secondary filter not of those who participate in health plan programs but rather of those who are proactively engaged via population-based worksite initiatives.

Wayne M. Lednar, MD, PhD  
Global Chief Medical Officer  
EI du Pont de Nemours, Wilmington, DE