A Successful Occupational Health Nurse-Driven Health Promotion Program to Support Corporate Sustainability

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Health promotion programs offer an opportunity to support the health of employees, their families, and the communities in which they reside. By integrating health promotion programs with a company’s sustainability efforts, the occupational health nurse can directly impact the company’s bottom line by ensuring the benefits from a healthy, safe, and fully productive employee who is able to remain in the workplace for some time. This article discusses a successful health promotion program developed and implemented by an occupational health nurse in support of a company’s sustainability effort.

For more than a century, nurses have accepted the challenges and opportunities in promoting the public’s health, both in the community and at the worksite. Throughout the past 100 years, a major strategy to eliminate or mitigate health risks has been worksite health promotion programs designed to address the health education needs of clients. For example, at the turn of the century, a fledging oil refining company hired nurses to visit newly hired immigrant employees at their homes and educate employees and their families on health and hygiene (Fisher, 1995).

Today, as companies are increasingly looking to sustain their profitability, occupational health nurses have an opportunity to support and contribute to these efforts. “Sustainability is rapidly becoming a core strategy for business, focusing on the triple bottom line: people, planet and profits” (Weiss, 2009, p. 298). Weiss further states, “Occupational health nurses have a unique opportunity to demonstrate the value they bring to employers by focusing their attention on the triple bottom line” (p. 298). A successful health promotion program not only promotes healthy behaviors among employees but also brings value to the bottom line and supports a company’s profitability and sustainability objectives by reducing costs associated with both work- and non-work-related injuries and illnesses. The expectation is that by identifying health risks and implementing strategies to eliminate or mitigate these risks, costs can be reduced. The cost of loss includes the direct costs of health care, workers’ compensation, and wage replacement during short- and long-term disability. The cost of loss also includes indirect costs. Guidotti, Cowell, Jamieson, and Cowell (1993) identified indirect costs as 5 to 15 times the cost of replacement wages in both nonwork- and work-related absences. These indirect costs include worker replacement and retraining costs as well as loss of productivity from disruption of the business process. When properly tracked, measured, and calculated, the indirect costs of absence represent a significant expense to the company (Kalina, 1998, 1999). The development and implementation of successful health promotion programs provides an opportunity to improve employee health and provide significant savings to the company by reducing illness, injury, and absenteeism. These potential savings bring value to the company’s bottom line. As health care costs continue to rise, the focus of a comprehensive absence and disability management program should include health education to prevent illness and injury. Properly planned and executed health promotion pro-
grams that include a strong educational component can assist employees in preventing injury and illness as well as educate employees and their families to maintain healthy lifestyles resulting in reduced health care utilization costs. Critical to achieving positive clinical and business outcomes is a well planned, managed, and measured program based on existing health care data. Review of existing data is crucial in developing a program that will not only address established needs but also produce measurable results to support the business objectives of the organization. Once data are validated, the occupational health nurse can capture meaningful business data, such as identifying what health conditions represent the largest current expenditure to the employer, relevant to estimates of return on investment. As companies increasingly evaluate the impact of dedicated health care dollars, including the cost of on-site programs, health promotion programs must demonstrate return on the investment. Baker et al. (2008) concluded that using a return on investment model to project program savings is a practical way to provide financial justification for investing in worksite health promotion programs when risk reduction data are available.

LITERATURE REVIEW

The breadth of current health promotion, health education, and prevention literature indicates continuing interest and growth in worksite health programs. According to Gerson, Commissio, Fuente, Newman, and Benson (2009), the workplace remains an excellent site for health education and promotion. Goetzl et al. (2009) concluded that private-public partnerships that promote employee health have the potential to reduce health risks, precursors to chronic disease.

Of increasing interest is the relationship between health and the prevention of work-related injury and illness. A healthy worker is a safe worker with less risk of workplace injury. For example, in an occupational health screening program (i.e., a forklift driver health screening), a physical examination plus relevant biological testing is completed and an examiner validates that the employee is fit to operate the forklift. Another example of risk mitigation is a successful return-to-work program that includes a fitness for duty evaluation based on the physical demands of each job. During the fitness for duty evaluation, the occupational health nurse includes a health education component that focuses on illness and injury prevention. Using these strategies, the occupational health nurse can reduce the risk of injury and resulting costs to the employee and the employer (Kalina, 1998, 1999).

According to LaDou (2006), employers are now focusing on employee health and its effect on productivity. Employers realize that the direct costs of insurance premiums related to all health insurance and disability programs are not the only cost negatively affecting the bottom line. In addition to these direct costs, the indirect cost of presenteeism is now considered to significantly impact the bottom line. LaDou defines “presenteeism” as lessened job performance due to chronic health problems. Using the findings from several surveys, Goetzl et al. (2009) estimated the cost of health, absence, short-term disability, and lowered productivity for 10 health conditions. Gerson et al. (2009) note that the findings presented in the article by Goetzl et al. suggest hypertension has the highest economic burden. According to Cawley, Rizzo, and Haas (2007), health-related spending for adults who are overweight or obese totaled an estimated $93 billion per year (2007 dollars). The incidence of morbid obesity (body mass index [BMI] of 40 or higher) has increased even faster than that of obesity, a trend that Cawley et al. identify as particularly troubling because the morbidly obese have even higher health care costs. Gates, Succop, Breheim, Gillespie, and Sommers (2008) conclude that the relationship between BMI and presenteeism is characterized by a threshold effect in which extremely or moderately obese workers are significantly less productive than mildly obese workers.

BACKGROUND

The occupational health program maintained within a Georgia factory is one of many worksite programs within the global occupational health program of a large international light manufacturing company. The company’s global occupational health program uses globally benchmarked best practices and accepted occupational health standards of practice. One of the standards within this company’s global occupational health program is a “Health Promotion Standard.” At a minimum, the Health Promotion Standard (Kalina & Byczek, 2003, 2008) requires site-specific health promotion policies and procedures, program planning and development, delivery strategies, awareness and education programs, screening programs, and lifestyle behavior change programs. Further, a plan must be devised to capture each factory’s on-site health promotion program’s implementation and evaluation parameters. Each program must contain a participant satisfaction survey and pre- and posttest instruments to measure participants’ understanding after the educational program. A further requirement is an economic impact measurement.

The company’s global occupational health program including the comprehensive health promotion program’s focus is on the prevention of illness and injury, health education designed to reach employees, their families, and the community, development of strategies for behavior change, and movement to optimal health. The programmatic delivery strategy used to implement the health promotion program was designed to support the program’s overall goals and objectives. Thus, the company’s global health promotion program’s delivery strategies are varied based on demographics of the population and may include:

- Awareness and education programs.
- Screening programs.
Lifestyle behavior change programs.
Work-culture enhancement programs.

Program evaluation begins in the planning and development phase and indicates the extent to which the program has met its goals, objectives, and outcomes. The global occupational health program requires that the health promotion program be evaluated on a regular basis. After the evaluation, new ideas and concepts are introduced. Likewise, unpopular and poorly attended or underutilized programs are discarded. The company’s global Health Promotion Standard has a requirement for providers to consider the structure, process, and outcome of each program. From a structural standpoint, this consideration includes:

- Qualifications and adequacy of program personnel.
- Appropriateness of program equipment and supplies.
- Appropriateness of program facilities.
- Management’s continued commitment.

From a process standpoint, this consideration by the occupational health care provider includes:

- Review of components that characterize the program.
- Review of program building and outcome components:
  1. Review of injury, illness, and absenteeism records.
  2. Collection and review of data reflecting behavioral choices (e.g., smoking cessation rates).
  3. A cost-benefit analysis.
  4. Pre- and posttest instruments.
  5. Satisfaction survey.

The Health Promotion Standard requires that several years, usually 3 to 5 years, of valid data be analyzed before changing a successful program. The data that are collected and analyzed can easily be found in:

- Absence and turnover rates.
- Disability trend reports.
- Occupational health activity logs.
- Accident or injury rates and trend reports.
- Most expensive and most frequent health insurance claims.

Workers’ compensation data.
Health risk appraisal aggregate reports.

Once the review of data is complete, the occupational health nurse can determine what type of health promotion program would most benefit employees and develop a plan accordingly.

THE PROGRAM

The program discussed in this article supported the company’s development of targeted health promotion strategies with measurable outcomes. The company’s occupational health care providers supported the company’s sustainability efforts by creating a program and culture that would not only promote the health and well-being of employees but also had the opportunity to add value to the bottom line. This first comprehensive program laid a foundation for all future programs at this factory site.

The factory in which this health promotion program was implemented is a light manufacturing site employing 911 regular, full-time employees. The factory, located in the southeastern United States, operates 5 days a week, 24 hours a day, with scheduled overtime based on production demands.

The average age of the employees is 45 years, with 72% of the workforce older than 41 years. Seventy-two percent of the workforce is male, and 31% of the regular workforce consists of minority workers. The majority of employees, 81.3%, are machine operators (37.2%), general workers (20.1%), mechanical/maintenance workers (14.8%), material supply workers (5.3%), warehouse workers (3%), and laboratory technicians (0.9%). The remaining (18.7%) are employed in leadership or administrative roles such as exempt management (10.1%), line supervisors (6.4%), and office/clerical (2.2%). The average employee has 11.4 years of service with the company.

The factory has an on-site Occupational Health Clinic staffed by an occupational health nurse.

One of the many services offered to employees through Occupational Health Services is routine blood pressure screening. Through these routine screenings, the occupational health nurse identifies past, current, or future health problems in the workplace and develops appropriate interventions. A growing number of employees with pre-hypertension and hypertension have been identified since initiating screening. The American Heart Association (AHA) defines pre-hypertension as an untreated systolic blood pressure of 120 to 139 mmHg or an untreated diastolic blood pressure of 80 to 89 mmHg (AHA, 2009d). In addition, a health care provider has not told these workers on at least two occasions that they have hypertension.

The AHA further defines hypertension as an untreated systolic blood pressure of 140 mmHg or higher, a diastolic blood pressure of 90 mmHg or higher, taking antihypertensive medication, or workers’ being told at least twice by a health care professional that they have high blood pressure. Hypertension can be broken down further into Stage 1 or Stage 2. Stage 1 hypertension is a systolic measurement of 140 to 159 mmHg or a diastolic measurement of 90 to 99 mmHg. Stage 2 hypertension is a systolic measurement of 160 mmHg or higher or a diastolic measurement of 100 mmHg or higher.

In January 2009, the occupational health nurse began to sort through historical records to extract data from routine unscheduled visits. At this site, the method of recording routine blood pressure readings was to document the measurement on an index card. The index card was used each time an employee returned for another blood pressure reading so a chronological history of measurements was available. These cards offered several years of data, but for this program the occupational health nurse used data from 2008 only. The analysis revealed that in 2008 a total of 116 employees (12.7% of the factory population) used Occupational Health Services for a total of 470 routine blood pressure screenings.
From these screenings, the occupational health nurse determined the number of employees within each risk category: normal, 13.8%; prehypertension, 40.4%; Stage 1 hypertension, 37.1%; and Stage 2 hypertension, 8.7%.

Because the review of historical data validated an increasing number of employees with pre-hypertension and hypertension at this site, the occupational health nurse determined new strategies were needed to address risks, behaviors, and knowledge of employees related to hypertension.

The AHA reports an estimated 80 million American adults have been diagnosed with one or more types of cardiovascular disease (CVD) (AHA, 2009c). The total direct (health expenditures) and indirect (lost productivity) cost of CVD in the United States is estimated at $475.3 billion. Hypertension alone affects 1 in 3 adults in the United States, with an estimated cost (direct and indirect costs combined) of $73.4 billion (2009 dollars). In 2006, the Georgia Department of Human Resources (2008) reported that the state experienced a cardiovascular death rate 9% higher than the national average.

THE PLANNING PROCESS

Because even small behavior changes can substantially reduce health risks, the occupational health nurse decided to launch a program that would reach a greater number of employees who might not realize they had elevated blood pressure. An event was planned to offer biometric screenings, education, and behavioral risk reduction. By identifying and reducing CVD risk factors through screening, education, and behavior change, the occupational health nurse had an opportunity to reduce illness and disability related to hypertension and CVD among workers.

For this program, the occupational health nurse used a health promotion grid to assist with planning the event. The grid included pertinent aspects of the program, including a time line, expenses, roles, issues, and concerns. It served as an aid to assist the occupational health nurse in making appropriate decisions that would ensure the program objectives were met. For this health promotion program, the occupational health nurse proposed three outcomes:

1. Thirty percent of factory employees on all three shifts will be screened for elevated blood pressure.
2. Associates will identify the signs, symptoms, and consequences of and ways to prevent hypertension and other CVD comorbidities (e.g., heart attack and stroke), as well as describe healthy lifestyle behaviors.
3. Employees will be supported and motivated to make health behavior changes via workplace strategies based on screening results.

With these outcomes established, the occupational health nurse planned an event for February 2009 in support of American Heart Month. To market the event, posters were created and placed in various locations throughout the factory. The occupational health nurse also used bulletin boards, e-mail blasts, and workplace television messages. Supervisors supported the initiative by promoting the program at their daily team meetings.

To meet the outcome of screening 30% of all employees, the occupational health nurse faced several challenges. Time is precious in manufacturing, where employees are often evaluated on productivity. To support the manufacturing process, the occupational health nurse was available at peak traffic times (i.e., before, during, and after breaks and around shift changes), allowing employees to participate without feeling pressured to return to the factory floor. The event was staged in the main hallway leading into the factory to increase visibility and convenience for employees. A simple spreadsheet was created so the occupational health nurse could quickly and easily document the number of employees screened and sort the measurement data by risk category.

Once health risks were identified, the occupational health nurse began teaching employees how to eliminate the risks to their health using both health education and behavior modification. The occupational health nurse planned the educational program to accommodate various learning styles and created a suitable learning environment by identifying what motivates employees. In this program, the occupational health nurse provided education addressing the risk factors most associated with CVD (e.g., hypertension basics, early identification of heart attack and stroke, sodium intake, lifestyle changes, and physical activity). Handouts and resources relevant to cardiovascular health from the AHA’s Learn to Live® program were chosen because they are appropriate for both patients and consumers. To appeal to the visual learner, display boards about hypertension, heart attack, and stroke recognition were created. The display boards grabbed attention and were successful in attracting employees to participate. Because employees cannot take printed materials into the manufacturing environment, the boards provided an opportunity for those passing by to review important facts without immediately securing printed material.

After completing the screening, the employee also received a biometric screening form (Figure) and one-on-one consultation with the occupational health nurse. This provided immediate feedback and an explanation of the results. Employees received interventions based on screening risk category (Table 1).

BLOOD PRESSURE SCREENING RESULTS

As employees visited the event, their blood pressure was checked manually using a hand-held aneroid sphygmomanometer. A total of 324 employees were screened. 35.6% of the total factory population. The following results were obtained from the blood pressure measurements: normal blood pressure, 21.9%; prehypertension, 41.4%; Stage 1 hypertension, 29.9%; and Stage 2 hypertension, 6.8%.
To assess the employees’ knowledge of hypertension fundamentals, a nine-question, multiple-choice “knowledge check” was created and distributed when the employees completed the blood pressure screening. Incentives encouraged participation, completion, and return of the knowledge check. A total of 324 knowledge checks were distributed, with 158 (48.7%) returned (Table 2).

Figure. Biometric screening form.

The results of the knowledge check offered an additional opportunity to target specific knowledge deficits through future health promotion programs. At the conclusion of the event, the data collected validat-
ed that the incidence of hypertension among factory employees supported the need for additional risk reduction programs.

### MOTIVATING WORKERS TO CHANGE BEHAVIOR

According to O’Donnell and Ainsworth (1984), an educational program only attempts to provide employees with information they can use to improve their health. A behavior change support system not only provides a health screening and educational component but also addresses the conditions needed to motivate a change in behavior. They go on to state this change in behavior will affect the type of change in a participant’s lifestyle that is required to impact health. According to the National Heart, Lung, and Blood Institute (NHLBI, 2003), “the most effective therapy prescribed by the most careful clinician will control hypertension only if the patients are motivated. Motivation improves when patients have positive experiences with, and trust in, the clinician” (p. xiii). In the work setting, an occupational health nurse can build trust, motivate employees during difficult times, and translate new habits into long-term lifestyle changes. Adoption of a healthy lifestyle is crucial for the prevention of high blood pressure and an indispensable part of blood pressure management.

### NEXT STEPS

To foster a change in employee behavior, the occupational health nurse must implement additional workplace health promotion strategies to support and motivate employees to accept a healthy lifestyle. The next step in motivating workers to change their behavior is to assess, plan, and implement additional health promotion programs that will focus on multiple lifestyle modifications to avoid or control hypertension. The introduction of additional programs (i.e., weight reduction, healthy eating, physical activity, and smoking cessation) will support behavior changes that will reduce workplace incidence of not only hypertension but also other health conditions.

#### Weight Reduction

A major lifestyle modification shown to lower blood pressure is weight reduction among employees who are overweight or obese. According to the NHLBI (2008), for ev-

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**Table 1**

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<thead>
<tr>
<th>Blood Pressure Category</th>
<th>Recommendation</th>
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<tr>
<td>Normal</td>
<td>Employees were congratulated and told to “keep up the good work.”</td>
</tr>
<tr>
<td>Pre-hypertension</td>
<td>Employees were briefly counseled on lifestyle behaviors that affect blood pressure, given a packet of handouts specific to hypertension, and encouraged to return to Occupational Health Services monthly for blood pressure monitoring.</td>
</tr>
<tr>
<td>Stage 1 hypertension</td>
<td>Employees were encouraged to discuss their result with their health care providers, given a packet of handouts specific to hypertension, and encouraged to return to Occupational Health Services weekly to monitor their blood pressure until it reaches an acceptable level.</td>
</tr>
<tr>
<td>Stage 2 hypertension</td>
<td>Employees were encouraged to visit their health care providers immediately for an evaluation, given a packet of handouts specific to hypertension, and encouraged to return to Occupational Health Services as directed by their health care providers for additional blood pressure monitoring.</td>
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**Table 2**

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<tr>
<th>Knowledge Area Assessed</th>
<th>Correct Responses</th>
</tr>
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<tbody>
<tr>
<td>1. What is a normal blood pressure reading?</td>
<td>88.4%</td>
</tr>
<tr>
<td>2. What are the causes of high blood pressure?</td>
<td>24.7%</td>
</tr>
<tr>
<td>3. Which minorities have a higher incidence of hypertension?</td>
<td>82.5%</td>
</tr>
<tr>
<td>4. What are the risk factors for developing high blood pressure?</td>
<td>98.1%</td>
</tr>
<tr>
<td>5. When are blood pressure medications usually prescribed?</td>
<td>98.1%</td>
</tr>
<tr>
<td>6. What type of lifestyle contributes to high blood pressure?</td>
<td>83.8%</td>
</tr>
<tr>
<td>7. Can you identify the risk factors of heart attack and stroke?</td>
<td>94.9%</td>
</tr>
<tr>
<td>8. Do cold and flu medications interfere with blood pressure?</td>
<td>68.2%</td>
</tr>
<tr>
<td>9. Can you identify the major symptoms of a stroke?</td>
<td>98.1%</td>
</tr>
</tbody>
</table>
Every 10 kg of weight lost, the systolic blood pressure will decrease between 5 and 20 mmHg. To support this lifestyle modification, the occupational health nurse can implement an on-site weight-loss program or support groups that offer employees daily motivation, support, the convenience of an on-site program, and a healthy environment. Implementing departmental challenges and incentives can foster a competitive spirit and further motivate employees to succeed. Lunch and learn sessions are another way occupational health nurses can target specific weight-reduction programs for employees. Many local health systems or universities are willing to provide these programs free of charge or for a nominal fee. Classes including nutrition basics, reducing dietary sodium, and reading and understanding food labels are relatively easy to implement. An interactive alternative is healthy cooking demonstrations during which employees learn to prepare healthy meals.

Reducing Dietary Sodium and Healthy Eating

For facilities with on-site food service operations, the provision of food at the worksite can meet some of the health requirements of employees while providing an opportunity to support employees in their weight-reduction efforts. The food service can also provide healthy food choices at the worksite. Healthy eating is about balance and empowering individuals to make “informed choices” based on positive or negative health benefits associated with a particular food or meal. An on-site health promotion program focused on healthy food choices should be planned, implemented, and evaluated in collaboration with the occupational health nurse or registered dietician. To educate employees to make healthy food choices, nutritional values of each entrée or selection along with recommended daily requirements should be posted. A focused effort to raise awareness about reducing dietary sodium in food preparation will further support employees’ effort to adopt a healthier lifestyle. According to Ard (2006), individuals with high blood pressure should reduce their daily dietary sodium intake to 1.5 g. By doing so, an average systolic blood pressure reduction of 2- to 8-mmHg could be realized.

Physical Activity

According to the AHA, physical inactivity is a major risk factor for CVD, and most Americans are not physically active enough to gain any health benefits (AHA, 2009b). In October 2008, the U.S. Department of Health and Human Services announced that adults gain substantial benefits from 2½ hours of moderate intensity aerobic physical activity or 1 hour and 15 minutes of vigorous physical activity each week (U.S. Department of Health and Human Services, 2008). Implementing a health promotion program at the worksite that promotes physical activity supports employees’ risk reduction goals. Occupational health nurses can develop programs such as walking groups where employees can share their desire to walk with others. Several group health administrators offer local fitness center discounts and incentives to their members. Occupational health nurses can research and educate employees about this benefit while working with centers to create workplace programs. Local fitness centers are often motivated to develop relationships with on-site occupational health nurses. Occupational health nurses might organize a lunch and learn and have a personal trainer or fitness counselor speak to employees about the benefits of increased physical activity. They may encourage management to have meetings “on the go”; such meetings are conducted while engaged in some form of physical activity. Occupational health nurses can also explore the feasibility of on-site fitness centers, exercise classes, or yoga classes.

Smoking Cessation

The AHA reports that cigarette smoking is the most frequent preventable cause of premature death in the United States (AHA, 2009a). Smoking increases blood pressure, decreases exercise tolerance, and increases the risk of coronary heart disease. More than 4 in 5 smokers say they want to quit, so occupational health nurses have a unique opportunity to intervene by developing interventions directed toward individual

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**IN SUMMARY**

**A Successful Occupational Health Nurse-Driven Health Promotion Program to Support Corporate Sustainability**

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1. A well-developed health promotion program offers an employer the opportunity to support the health of employees, their families, and the communities in which they reside.

2. Adoption of a healthy lifestyle is crucial to preventing hypertension and an indispensable part of blood pressure management.

3. A comprehensive health promotion program focused on the identification and reduction of risk factors offers occupational health nurses the opportunity to reduce health care costs and losses associated with illness, disability, and presenteeism while contributing to company profit and sustainability.
smokers. These interventions can include individual counseling, group therapy, and nicotine replacement. Occupational health nurses should ask about tobacco use at every employee visit, advise all smokers to quit, assess their readiness to quit, and assist smokers with a plan for quitting. Occupational health nurses should also schedule subsequent visits with employees to support their plans. Occupational health nurses should serve as advocates and encourage management to support on-site health promotion programs by creating a smoke-free environment. Occupational health nurses can easily implement on-site smoking cessation programs using ones already developed (e.g., Surgeon General’s Office, the American Cancer Society, or the AHA). Local health departments can often provide valuable local resources (e.g., peer facilitators and telephone quit lines).

COST

According to Brownson et al. (1996), community-based programs, even with modest resources, show promise in reducing the risk of CVD within a relatively brief period. Developing a high-quality health promotion program does not require a large financial commitment. Although additional future costs may be incurred, the program discussed in this article was developed and managed by on-site staff at a reasonable cost; the total cost was $790, which included office and printing supplies ($43), display boards ($27), incentives ($180), and staffing costs ($540).

CONCLUSION

Occupational health nurses can demonstrate how a well-planned health promotion program can positively affect profitability of the company by reducing the direct and indirect costs associated with illness, injury, and presenteeism.

REFERENCES