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Tarheel Footprints in Healthcare

Recognizing unusual and often unsung contributions of individual citizens who have made healthcare for North Carolinians more accessible and of higher quality

Sharon Nicholson Harrell, DDS, MPH
Director, Dental Care Centers, FirstHealth of the Carolinas, Pinehurst, NC

Sharon Nicholson Harrell, DDS, MPH

North Carolina is facing one of the most severe shortages of dentists and primary dental care of any state. Nationally, there are 5.7 dentists per 10,000 population. As of 2004, North Carolina had 4.2 dentists per 10,000. The ratio of dentists-to-population is quite different in metropolitan and rural areas of the state, where there were 4.8 dentists per 10,000 population in urban areas and only 3.1 dentists per 10,000 population in rural areas.

North Carolina's ratio of dentists-to-population is 27% lower than the national average. In fact, North Carolina ranks 47th among the states in terms of the dentist-to-population ratio. Moreover, the maldistribution in this state that has resulted in four eastern North Carolina counties not having a single dentist, three other counties having only a single dentist, and as many as 40 counties in North Carolina where there is no dentist willing to serve a Medicaid patient. This means that small, rural counties in our state are in a considerably more underserved situation than are our urban areas. Even in our metropolitan counties, obtaining services can be difficult if one is covered only by the Medicaid program or otherwise dependent on subsidized (or free) care through local public health departments, migrant or community health centers, or other "safety net" providers.

The good news is that there are dentists in this state, and a few major healthcare organizations, who have stepped up to the plate and taken on the huge task of finding a better way of organizing and providing needed primary dental care services for those most in need. One of those organizations is FirstHealth of the Carolinas, a not-for-profit integrated healthcare system headquartered in Pinehurst in Moore County, but serving a primary service area that includes five North Carolina counties. One of those dentists is Dr. Sharon Nicholson Harrell, who came to FirstHealth in 1998 to launch a dental care program serving those least able to obtain dental care in the counties served by FirstHealth. Through her efforts, three clinics have been opened under the sponsorship of FirstHealth (a full-time clinic in Southern Pines and part-time clinics in Troy and Raeford). These dental centers employ four dentists, 13 full-time staff, and several fill-in dentists and auxiliaries. These dental centers have served more than 13,000 children since they opened the first clinic in Southern Pines in 1998. Approximately 70% of children seen in the first year had either never seen a dentist or had not seen a dentist within the last year.

Dr. Harrell came to her position in Moore County after having served for seven years as Dental Director of the Cumberland County Health Department in Fayetteville, and before that for three years as a public health dentist in York, Pennsylvania. After graduation from the University of North Carolina (UNC) School of Dentistry, she was a fellow in general dentistry at the University of Maryland and then received a master's of public health degree at the UNC School of Public Health. When she was hired by FirstHealth, she was charged with the tasks of planning, designing, and opening three regional centers to provide comprehensive dental care to low-income children up to age 18, administering the centers, serving as an area dental public health consultant, and functioning as the liaison with private dentists in the local area and the state. In each of these arenas, Dr. Harrell has become widely recognized as highly effective, and her opinions and experience in the organization and provision of dental care to the most in-need populations of our state have been sought by many, both in North Carolina and nationally. FirstHealth's new dental care program for low-income children was funded by the Kate B. Reynolds Charitable Trust and The Duke Endowment.

Charles Frock, CEO of FirstHealth, had this to say about Dr. Harrell: "She has distinguished herself professionally in many ways. She has been nationally recognized for the way she mentors young dental health professionals. She is recognized throughout North Carolina for her public health approach to dental care for the underserved, and she is known by her patients and her colleagues as a completely caring, compassionate, and accessible caregiver."

Although meeting the primary dental health needs of underserved children through such special-purpose "safety net" programs as the one begun by FirstHealth of the Carolinas is not likely to meet the majority of unmet need for these services statewide, the 1,000 patient visits these clinics now offer each month, including 8,000 preventive dental sealants they provide yearly, and the 100 new patients they enroll each month are significant and grateful beneficiaries of a model program now being studied and replicated elsewhere. In Dr. Harrell's own words, "It's not only about filling cavities. It's about filling a big need in our community."

For her untiring efforts and considerable accomplishments in meeting the dental healthcare needs of so many children in our state, the Editors of the *North Carolina Medical Journal* are pleased to recognize Dr. Sharon Nicholson Harrell and FirstHealth of the Carolinas for these contributions to the health of the Tar Heel State.

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The Relationship between Patient's Perceived Waiting Time and Office-Based Practice Satisfaction

Fabian Camacho, MS; Roger Anderson, PhD; Anne Safrit, BS; Alison Snow Jones, PhD; and Peter Hoffmann, MD, MPhil

Abstract

Background: *The amount of waiting time a patient experiences in a primary care or specialty care outpatient setting may have an effect on patient satisfaction and may depend on other visit characteristics. We sought to investigate and quantify the association between waiting time and satisfaction outcomes in clinics belonging to the Wake Forest University Baptist Medical Center and assess how this relationship varies by time spent with the provider.*

Methods: *Cross-sectional survey data was collected at point of care from 18 primary and specialty care clinics at the Center. Overall satisfaction with provider care, the office ratings, and willingness to return were each rated on a 0-to-10-point scale. Multivariate and logistic regressions were performed to examine the relationship between waiting time and outcomes. Covariates included visit time spent with physician, patient care processes, visit convenience, and demographics.*

Results: *2,444 cases were analyzed. Waiting time significantly predicted provider ratings. When time spent with the physician was five minutes or less, provider ratings decreased by 0.3 rating points for each 10-minute increase in waiting time. When time spent with the physician was greater than five minutes, provider ratings decreased by 0.1 rating points for each 10-minute increase in waiting time. The association between waiting time and office satisfaction showed a similar pattern; increased waits also decreased willingness to return (odds decrease by 2% per minute).*

Limitations: *Results may be affected by unreliability of the measures used and from possible selection bias. There is also concern over missing confounders.*

Conclusions: *Our findings confirm that reduced waiting time may lead to increased patient satisfaction and greater willingness to return in primary and specialty care outpatient settings. Furthermore, increased waiting time combined with reduced time spent with the physician coincide with noticeable drops in patient satisfaction.*

Key words: *Patient satisfaction, waiting times, CAHPS*

Introduction

A source of dissatisfaction with healthcare, often noted by patients, is the amount of time they wait during an office or clinic visit. Several studies have documented the relationship between waiting for service and overall satisfaction, with longer waiting times being associated with decreased patient satisfaction. This relationship is not only localized to individual organizations or types of care, but is well documented in general situations involving waiting customers.[1,2]

The strength of the association between waiting time and overall patient satisfaction in healthcare settings varies across the literature. Much of this research has been conducted in emergency departments, where waiting time may be considerable and the level of patient discomfort may be high.[3-7] Results in this area may not apply to traditional primary and specialty care settings, since qualitative differences between situational emergency care and outpatient settings are substantial. Most studies conducted in primary care outpatient settings find a detectable relationship between waiting times and satisfaction,[8-13]

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though results seem to be less uniform than in emergency care.

The literature on perceived quality of primary care indicates that key attributes of healthcare valued by patients are patient-centered, including time spent with the physician, willingness of the physician to listen to the patient, and other measures of patient empathy.[14-16] It is uncertain how waiting times combine with these attributes to affect patient satisfaction, even though understanding such combinations may translate to improvements in patient care. For instance, examining how perceived wait times and time spent with the physician combine to influence satisfaction may help preserve satisfaction levels when time and professional staff resources are tightly constrained, as is typically the case.

In this study, we sought to investigate the association between perceived waiting time and satisfaction in outpatient settings of a large North Carolina hospital after accounting for other factors. At the same time, we included an interaction effect of waiting time and time spent with the provider into our models in order to highlight how certain combinations may be associated with particularly low satisfaction levels. Perceived waiting time was conceptualized as a measure of a patient's time investment in accessing a specific set of healthcare services, which we call "willingness to wait." Patients who perceived themselves as having to wait long periods of time to see a healthcare provider on the day of their visit were hypothesized to have a larger investment in the visit.

Methods

Sample

This study was observational and cross-sectional across primary and specialty care clinic settings. Data were collected using a validated survey methodology,[17] in which a handheld computer was used throughout a clinic business day to collect information from a patient immediately after the patient's clinic visit. Convenience samples were collected from two primary and 16 specialty care clinics in the Wake Forest University Baptist Medical Center from May 2004 to September 2004, for an aggregated total of 2,535 patients distributed throughout 18 clinics. Only patients who were 16 years or older in age were selected into the sample.

Measurements

We assessed three distinct dimensions of patient satisfaction: an overall rating of the provider seen by the patient using the Consumer Assessment of Health Plans Study (CAHPS) global item[18] ranging from 0 (worst provider) to 10 (best provider); a global rating for office staff ranging from 0 (worst) to 10 (best); and 'willingness to return for medical care' rating dichotomized into willing to return versus not willing to return. These items were taken from a more comprehensive set of items that assessed satisfaction with quality of care provided by the physician, which were included in our standard survey. The three global measures were selected as dependent variables for this based on parsimony and ease of interpretation, consistent with scientific literature on this topic.[19]

Perceived waiting times at the office were captured by patient self-report after the physician-patient encounter, using an item consisting of six categories: 1-5 minutes waiting time in office, 6-15 minutes, 16-30 minutes, 31-45 minutes, and 46 minutes to 1 hour, and more than 1 hour. The shorter time intervals at the start were chosen in order to capture waiting time with more precision, since previous pilot data suggested approximately 70% of the patients waited less than 15 minutes. Waiting times in the exam room were captured in a similar manner.

Dansky[1] showed, out of several definitions of waiting time, that total time spent waiting in the office and exam room was the strongest predictor of satisfaction. For this analysis, we summed both waiting time variables to create a total waiting time composite. We interpolated the categories of waiting time by their midpoints (assuming an average wait of 1 hour and 15 minutes for the relatively few patients who waited more than 1 hour) and summed the midpoints to produce a continuous measure of time.

Potential predictors of patient satisfaction considered in this study are listed in Table 1. These include visit time spent with the healthcare provider, whether visit was to a primary or specialty care clinic, whether the patient was new to the office, self-reported

Table 1.
Population Characteristics[a] (N = 2,444)

	Descriptive Statistics
Mean waiting time in minutes[b]	20.97 (14.71)
Visit time with provider	
0-4 minutes	14.3%
5-10 minutes	85.7%
Visit was convenient	86.0%
White ethnicity	82.6%
Patient saw preferred provider	34.7%
Age in years[b]	45.9 (16.97)
Highest possible provider empathy score	41.3%
Patient stress reported	45.6%
First visit	22.1%
Visit was for routine check-up	50.5%
Patient had multiple appointments	18.3%
Male gender	34.7%
General practice clinic	7.5%
Office staff rating[b]	8.76 (2.26)
CAHPS provider rating[b]	9.37 (1.23)
Willing to return	83%

a Restricted to patients who had a total waiting time of 75 minutes or less.
b Means are shown with standard deviations in parenthesis.

convenience of visit, reason for visit, whether the patient had multiple appointments during the day, patient stress, gender, age groups, and ethnicity (white versus other minorities combined). Patient perceived stress was measured from a single item asking "Overall, how stressful was your visit today?" Responses were categorized into no patient stress reported versus at least some patient stress reported.

We also used a scale developed and validated for use on a computer platform in order to assess provider empathy.[17] This scale is based on the premise that quality of care can be conceptualized as the patient's perception of provider empathy, concern, friendliness, and compassion.[8] Consistent with previous work, the Cronbach Alpha of this scale in the study sample was 0.93. For analysis purposes, the scale was dichotomized into perfect scores and scores less than perfect.

Statistical Analysis

Multivariate regression and logistic regression models predicting the three satisfaction ratings were estimated using the Generalized Estimating Equations (GEE) method implemented in the SAS System v9 procedure, proc genmod.[20] In order to adjust for clustering, an exchangeable working correlation matrix was specified where the observations were clustered according to clinic. The default robust standard errors in proc genmod were used.

Since 20% of the observations had missing values, we treated missing data by conducting multiple imputations as described in Rubin (1991).[21] The MCMC method in the SAS system's multiple imputation[22] was used to derive imputed values for all the variables listed in Table 1. These same variables were included in the imputation model, as well as the interaction between waiting time and visit time. Three data sets with imputed values were used to conduct the analysis. Wherever possible all estimates and statistics were calculated using combined estimates of three multiply imputed data sets.[23]

Results

Only patients who waited for 75 minutes or less (N = 2,444) were selected for the analysis, as the waiting time variable for patients waiting more than 75 minutes was considered too unreliable, and only 3.6% patients were lost as a result.

From Table 1, mean total waiting time was estimated to be 21 minutes (Standard Deviation = 15), mean age was 46 years (SD = 17), 83% were white and 35% male. Mean office rating was 8.76 (SD = 2.27), mean CAHPS provider rating was 9.37 (SD = 1.23), and 83% of patients were willing to return for care.

Regression results are shown in Table 2. Model predictors explained approximately 23% of the variation for both the CAHPS provider rating and willingness to return, but only 7% of the variation for office rating. No multi-collinearity problems

Table 2.
Regression Results[a]

	CAHPS Provider rating (0 - Worst, 10 - Best) Regression Coefficients	**Office Staff Rating (0 - Worst, 10 - Best)** Regression Coefficients	**Willingness to Return** Odds Ratios
Intercept	8.76 (0.14)***	8.54 (0.23)***	
Waiting time in minutes	-0.03 (0.01)***	-0.03 (0.01)**	0.98 (0.98, 0.97)
More than 5 minutes spent with provider	0.13 (0.13)	-0.23 (0.25)	1.59 (2.39, 1.06)
Visit was convenient	0.41 (0.10)***	0.58 (0.13)***	2.12 (2.60, 1.73)
White ethnicity	-0.04 (0.06)	-0.20 (0.14)	0.92 (1.13, 0.75)
Patient saw preferred physician	0.04 (0.05)	-0.01 (0.10)	1.03 (1.23, 0.86)
Highest possible provider empathy score	0.63 (0.04)***	0.64 (0.08)***	3.81 (4.89, 2.97)
Age in years	0.01 (0.00)***	0.01 (0.00)	1.02 (1.02, 1.02)
Patient stress reported	-0.42 (0.05)***	-0.50 (0.12)***	0.46 (0.60, 0.36)
First visit	-0.23 (0.06)**	0.01 (0.10)	0.53 (0.66, 0.42)
Visit was for routine check-up	0.11 (0.04)**	0.06 (0.07)	1.27 (1.52, 1.06)
Patient had multiple appointments	0.01 (0.06)	0.00 (0.11)	1.07 (1.47, 0.78)
Male gender	-0.13 (0.05)*	0.09 (0.10)	1.00 (1.42, 0.71)
Generalist care clinic	-0.07 (0.04)	0.18 (0.15)	1.50 (2.05, 1.11)
Interaction of total time verses visit	0.02 (0.01)**	0.02 (0.01)***	
R-square estimate	0.24	0.07	0.23[b]

a Standard Errors are shown in parenthesis. 95% Confidence Intervals are shown next to odds ratios. Sample was restricted to patients who waited less than 75 minutes (97% of original sample). Coefficients and values are derived from multiple imputations with three replications. * implies p-value of significance test is < 0.05, ** is < 0.01, and *** is < 0.001.

b Adjusted R-square as described in Nagelkerke (1991).

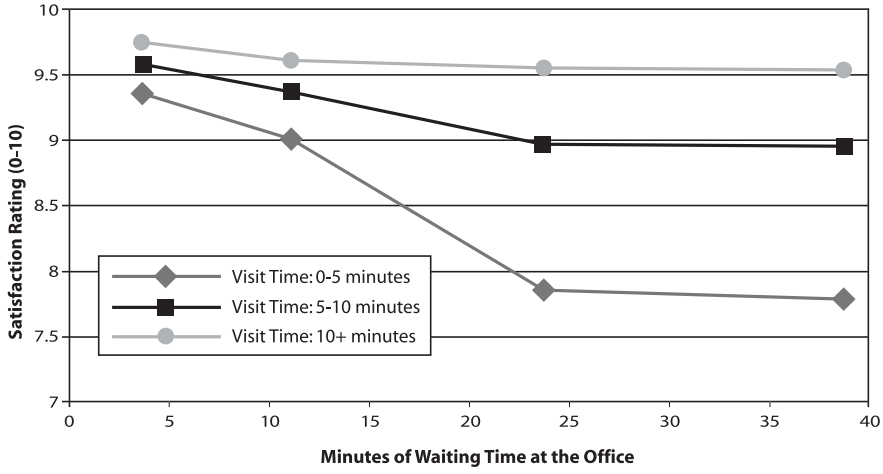
were detected in any of the three regressions, with the lowest tolerance detected at 0.85.

We found that physician satisfaction was lower than expected for patients who waited more than 20 minutes and who had short visit times of 0-5 minutes, as illustrated in Figure 1. The interaction term consisting of waiting time and visit time with physician tested for significance when added to the model (p-value < 0.01).

Satisfaction with the provider decreased by approximately -0.10 rating points per 10 minute increase in waiting when visit times were five minutes or more and -0.30 rating points when visit times were less than five minutes; office satisfaction declined by the same rates; and the odds of willingness to return decreased by 2% per minute.

In addition, satisfaction with the provider was associated with: convenience, quality of care rating, patient age, having a stressful visit, nature of visit, and gender. The findings were consistent by showing that a longer wait, a shorter visit time, a more stressful visit, and lower quality rating were independently associated with lower global satisfaction scores.

Figure 1.
Mean Provider Ratings by Waiting Time and Visit Time



Discussion

This study suggests that increased waiting time is an important source of patient dissatisfaction. For situations in which the time spent with the doctor exceeds five minutes, the regression equations suggest the difference in provider satisfaction may become clinically important after a 50-to-60-minute total wait, at which time the decrease in provider satisfaction exceeds the $^1/_2$ the standard deviation of the CAHPS provider rating distribution. In addition, the findings suggest longer waits and shorter visits with the physician are, in synergy, associated with increased erosion of overall patient satisfaction (see Figure 1).

We conjecture that a patient's time investment or 'willingness to wait' for healthcare may itself be an indicator of patient satisfaction, analogous to measures of revealed preference for health outcomes, such as the standard-gamble or time trade-off methods.[24] It certainly conforms to methods employed by economists that use consumers' reactions to changes in price and income to learn about their valuation of purchased goods and services.[25] Economic theory predicts that patients will be willing to incur time and money costs that approximately equal their valuation of the benefit that they expect to receive from this expenditure of time and money.[26,27] In this framework, waiting time is an important component of time price, and willingness to wait should rise with patients' perceptions of increased quality of care. Patients' willingness to wait or their "willingness to pay" for care in time units will also depend on their wage rates and on the severity and chronic nature of their illness. Waiting time can also be conceptualized as eroding the value derived from a treatment.[28] In this sense, it can be viewed as the amount an individual would be willing to pay for a reduction in waiting time.

Willingness to wait for medical care could serve as a readily observable indicator for ranking clinics or patient visits by patients' satisfaction levels. However, this does not suggest that perspectives on the timeliness of care are unimportant. It is important to offer brief waiting times so that patients do not feel discomfort or perceive barriers to care, and to communicate respect for the patient. Our results, however, suggest that the threshold for what is satisfying is partially determined by the visit experience and suggest that patients weigh their inconvenience or resource investment against their gain to determine their willingness to return.[29-31] Future work is needed to examine the concept of "willingness to wait" more directly and to explore its value as a measure of patient satisfaction or quality of care.

There are several limitations to this study. The documented reliability of the CAHPS provider rating is fairly low, ranging as low as 0.19 for one subgroup.[32] However, despite this apparent instability, there is a consistent pattern of predictors, which in many cases correspond to the predictors observed for the other two markers of satisfaction, particularly willingness to return. This agrees with other findings in literature that have noticed an association between willingness to return and other measures of patient dissatisfaction.[9,33]

Our survey did not collect additional confounders, which may play a role in changing study results, such as general health status,[30] arriving early,[8] wage rates, travel time to clinic, or additional technical aspects of care, such as provider thoroughness. Of the omitted predictors, general health and wage rate may be strong predictors of the relationship between waiting time and satisfaction. If the reason for visit proxies health status, one might expect people in poor health to be willing to wait longer for care since they would most likely be seeing specialists. It is not

clear that they would rate providers lower on quality. Results here suggest that patients who visit for a routine check-up rate their providers higher.

Despite these limitations, our findings confirm that timeliness is an important component of quality of care in this setting, and that clinically significant drops in satisfaction may be observed after a one hour wait. Although measures of patient empathy and, thusly, of interrelated factors, such as personal attention, communication, and interpersonal style may play a more important role in determining satisfaction, these results suggest that timeliness should not be ignored if patient satisfaction rates are to be maintained, especially if the provider cannot devote much time to his or her patients. **NCMedJ**

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REFERENCES

1 Dansky KH, Miles J. Patient satisfaction with ambulatory healthcare services: waiting time and filling time. Hospital &Health Services Administration 1997;42(2):165-177. [PMID: 10167452]

2 Katz K, Larson B, et al. Prescription for the waiting line blues: entertain, enlighten, and engage. Sloan Management Review 1991 Winter;32(2):44-53.

3 Thompson DA, Yarnold PR. Relating patient satisfaction to waiting time perceptions and expectations: the disconfirmation paradigm. Acad Emerg Med. 1995 Dec;2(12):1057-1062. [PMID: 8597916]

4 Mowen JC, Licata JW, et al. Waiting in the emergency room: how to improve patient satisfaction. J Health Care Mark. 1993 Summer;13(2):26-33. [PMID: 10127062]

5 Taylor C, Benger JR. Patient satisfaction in emergency medicine. Emerg Med. J 2004 Sep;21(5):528-532. [PMID: 15333521]

6 Trout A, Magnusson, AR, et al. Patient satisfaction investigations and the emergency department: what does the literature say? Acad Emerg Med. 2000 June;7(6):695-709. [PMID: 10905652]

7 Boudreaux ED, D'Autremont S, et al. Predictors of emergency department patient satisfaction: stability over 17 months. Acad Emerg Med. 2004 Jan;11(1):51-58. [PMID: 14709428]

8 Huang XM. Patient attitude towards waiting in an outpatient clinic and its applications. Health Services Manage Res. 1994 Feb;7(1):2-8. [PMID: 10133292]

9 Zoller JS, Lackland DT, et al. Predicting patient intent to return from patient satisfaction scores. J Ambul Care Manage. 2001 Jan;24(1):44-50. [PMID: 11189796]

10 Bar-Dayan Y, Leiba A, et al. Waiting time is a major predictor of patient satisfaction in a primary military clinic. Mil Med. 2002 Oct;167(10):842-845. [PMID: 12392252]

11 Probst JC, Greenhouse DL, et al. Patient and physician satisfaction with an outpatient care visit. J Fam Pract. 1997 Nov;45(5):418-425. [PMID 9374968]

12 van Uden CJ, Ament AJ, et al. Patient satisfaction with an out-of-hours primary care in the Netherlands. BMC Health Serv Res. 2005 Jan;5(1):6. [PMID: 1561997]

13 Leddy KM, Kaldenberg DO, et al. Timeliness in ambulatory care treatment. An examination of patient satisfaction and wait times in medical practices and outpatient test and treatment Facilities. J Ambul Care Manage. 2003 Apr-Jun;26(2):138-149. [PMID: 12698928]

14 Fiscella K, Meldrum S, et al. Patient trust: is it related to patient-centered behavior of primary care physicians? Med Care. 2004 Nov;42(11):1049-1055. [PMID: 15586831]

15 Thom DH, Hall MA, et al. Measuring patients' trust in physicians when assessing quality of care. Health Aff (Millwood). 2004 Jul-Aug; 23(4):124-132. [PMID: 15318572]

16 Anderson RT, Weisman CS, et al. Evaluation of the quality of care in the clinical care centers of the National Centers of Excellence in Women's Health. Womens Health Issues. 2002 Nov-Dec;12(6):287-290. [PMID: 12457572]

17 McBride JS, Anderson RT, et al. Using a hand-held computer to collect data in an orthopedic outpatient clinic: a randomized trial of two survey methods. Medl Care. 1999 July;37(7):647-651. [PMID: 10424635]

18 Hargraves JL, Hays RD, et al. Psychometric properties of the Consumer Assessment of Health Plans Study (CAHPS) 2.0 adult core survey. Health Serv Res. 2003 Dec;38(6.1):1509-1527. [PMID: 14727785]

19 Weisman CS, Henderson JT, et al. Gender and patient satisfaction in managed care plans: analysis of the 1999 HEDIS/CAHPS 2.0H Adult Survey. Womens Health Issues. 2001 Sep-Oct;11(5):401-415. [PMID: 11566283]

20 Lipsitz SH, Fitzmaurice GM, et al. Performance of generalized estimating equations in practical situations. Biometrics. 1994 Mar;50(1)270-278. [PMID 8086610]

21 Rubin DB, Schenker N. Multiple imputation in health-care databases: an overview and some applications. Stat Med. 1991 Apr;10(4):585-598. [PMID 2057657]

22 Yuan CY. Multiple imputation for missing data: concepts and new developments. SAS Institute 2001. Available at http://support.sas.com/rnd/app/da/new/dami.html.

23 Rubin DB. Multiple Imputations for nonresponse in surveys. J Wiley & Sons, New York 1987.

24 Torrance GW. Measurement of health state utilities for economic appraisal: a review article. J Health Economics. 1986;5(1):1-30. [PMID: 10311607]

25 Samuelson PA. Economics. McGraw-Hill New York: 1980.

26 Becker, GS. A theory of the allocation of time. The Economic Journal. 1965;75(299):493-517.

27 Grossman, M. On the concept of health capital and the demand for health. J Political Economy. 1972;80(2):223-255.

28 Yeung RYT, Leung GM, et al. Waiting time and doctor shopping in a mixed medical economy. Health Econ. 2004 Nov;13(11):1137-1144. [PMID: 15386684]

29 Acton JP. Nonmonetary factors in the demand for medical services: some empirical evidence. J Political Economy. 1975;83(3):595-614.

30 Zapka JG, Palmer RH, et al. Relationships of patient satisfaction with experience of system performance and health status. J Ambul Care Manage. 1995 Jan;18(1):73-83. [PMID: 10139348]

31 Coffey RM. The effect of time price on the demand for medical-care services. J Human Res. 1983;18(3):407-424.

32 Hays RD, Shaul JA, Williams VSL, Lubalin JS, Harris-Kojetin LD, Sweeny SF, Cleary PD. Psychometric properties of the CAHPS 1.0 survey measures. Consumer assessment of health plans study. Med Care. 1999 Mar;37(3 Suppl):MS22-31. [PMID: 10098556]

33 Burroughs TE, Davies AR, Cira JC, Dunagan WC. Understanding patient willingness to recommend and return: a strategy for prioritizing improvement opportunities. Jt Comm J Qual Improv. 1999 Jun;25(6):271-287. [PMID: 10367265]

POLICY FORUM

Worksite Health Promotion and Wellness

COMMENTARIES

"...50% of chronic disease in the United States population results from preventable causes related to lifestyle choices, and half of all deaths can be attributed to a limited number of preventable behaviors. Health risks drive present and future costs for employers and employees."

INTRODUCTION

Policy Forum:
Worksite Health Promotion and Wellness

Ever since the United States Department of Health and Human Services initiated the decennial publication of the *Healthy People* goals for the nation, which began under the Administration of President Carter, ways have been sought to advance the cause of national health improvement through initiatives that would couple a concern for health and health improvement with some of the everyday functional activities of the American people. For the health of children, the schools have been an important venue for a variety of health promotion program initiatives. For working-age adults, the workplace has figured as an important target of opportunity for addressing the fundamental health issues of our population, from disease screening to immunizations to chronic disease self-management to lifestyle modification and health risk factor reduction. With huge proportions of employees spending at least 40 hours per week in one or more occupational settings and consuming a third of their meals during their time at-work, program initiatives that focus on stimulating healthy lifestyle changes can not only improve the prospects of long-term health outcomes, but significantly impact the healthcare cost obligations of the employing organization as well.

In this issue of the *North Carolina Medical Journal*, we have chosen to focus our attention on the potential these types of initiatives may have for businesses and industries, the reasons why some companies have seen benefit in making such investments, why it may not be so easy to establish (or quantify) the "return on investment" (or ROI) that can provide the rationale for these investments, and the kinds of incentives necessary to assure adequate levels of employee participation in such programs when they are offered at the workplace.

We have invited a distinguished group of North Carolinians and national figures in the health promotion field to address these issues, and we are fortunate that so many accepted our invitation. Following an extensive Issue Brief on critical issues in this field by Dr. Joyce M. Young, the person responsible for health promotion and wellness activities in the United States for IBM Corporation, each author offers a particular set of observations on the way this movement in American business has developed. We are also pleased that Dr. Alexandra Farrow, a friend and colleague of many years who studies these issues in the United Kingdom and Western Europe offers her own view of how these same issues have been faced on the other side of the Atlantic.

North Carolina has a number of large, national (or international) corporations with the capacities to provide impressive and effective health promotion programs for their employees at the workplace. But, our state is characterized by having one of the largest proportions of small companies, many of which could never afford to offer such services to their employees. Many cannot even afford to offer healthcare insurance. Hence, a consideration of the value and potential of workplace-based health promotion efforts is a matter of seemingly less importance to North Carolina health policy deliberations than would be the case in other states. This is why our readers need to give serious attention to the commentaries in this issue of the Journal. In these pages, one can discover not only the argument in support of workplace-based health promotion programs, but options for small businesses to consider if they wish to leverage local community resources and programs in support of the health promotion interests and needs of their employees. The health of all North Carolinians is at stake.

A Personal Editorial Note:

With this issue, the 30th under our editorship, we conclude our stewardship of the *North Carolina Medical Journal* in its new format, a venture we began in January 2002. We want to express our deep appreciation to the hundreds of authors, reviewers, Editorial Board members, and our colleagues at the North Carolina Institute of Medicine and The Duke Endowment who have given us this opportunity to engage the leading policy makers, healthcare professionals, and the lay public in lively information exchange and debate on important matters for the health of North Carolinians and our nation as a whole. We welcome Dr. Thomas C. Ricketts III as the Journal's new Editor-in-Chief and wish him and his colleagues the very best as they continue this important work. Having a person of his national reputation and ability accept this responsibility is itself a testimonial to the quality of what this Journal has set out to achieve.

Gordon H. DeFriese, PhD
Editor-in-Chief

Kristie W. Thompson, MA
Managing Editor

Promoting Health at the Workplace:
Challenges of Prevention, Productivity, and Program Implementation

Joyce M. Young, MD, MPH

Over the period since the 1980s, American business and industry spokespersons have often expressed their frustration and dismay over the rapid escalation of the annual costs of medical care for their employees, dependents, and retirees. As these companies have been forced to re-examine their contributions to healthcare insurance, they have been prone to focus on the impact these expenditures have on their bottom-line and their competitive position domestically and internationally.

In this period, there is rising concern about the ability of businesses to manage healthcare investments, especially since, in comparison with other nations who spend less per capita on healthcare, life expectancy, days of disability, and overall health status put the United States at an unfavorable disadvantage. Business and industry leaders have been forced to look carefully at ways to stem the tide of annual increases in healthcare costs for their employees, dependents, and retirees. In addition to shifting some of the burden and responsibility for healthcare costs to employees through higher co-insurance, deductibles and other out-of-pocket expenses, American business and industry leaders are beginning to give attention to employee health-related lifestyle choices and behaviors. Choices and behaviors related to diet, exercise, tobacco and alcohol use, and stress management affect an individual's health risks and, in turn, their healthcare costs.

"Since 63% of the adult population is employed, workplaces provide an excellent opportunity to expose a large number of adults to health promotion programs."

In an attempt to reduce their employees' health risks (and use of healthcare services), many American companies, particularly larger ones, have chosen to invest in health promotion and wellness programs. These programs may be in addition to conventional health and safety efforts, and some are based at the worksite, while others are offered through arrangements with local commercial health and fitness centers or non-profit organizations, such as local YMCAs. Companies making such investments have used a number of rationales, some having to do with their desire to respond to employee interest in health and fitness; others related to concerns for overall corporate productivity, job performance, and workplace environment, in addition to their concerns about the cost of healthcare and its impact on the corporate bottom line.

These programs sponsored (or arranged) by employers vary a great deal depending on the physical location of the employer's facilities, the characteristics of the employed workforce, and the availability of staff to lead such efforts.

In consideration of the issues related to worksite health promotion and wellness program investments, their cost and their impact on employee and community health, the editors of the *North Carolina Medical Journal* have decided to devote this installment of the Journal's Policy Forum to this topic. While there is considerable evidence of positive benefit accumulating from national examples of worksite health promotion initiatives, the extent of implementation and value of these programs here in North Carolina is not so well documented.

North Carolina has its own mix of large and small companies, but a sizeable proportion (42%) of the state's employed population works for companies with fewer than 100 employees; 30% work for companies with fewer than 25 employees, and 20%

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work for companies with fewer than 10 employees. North Carolina, compared to all other states, has the 14th highest proportion of employees working for firms with fewer than 25 employees.[1] For these smaller companies, where nearly half of all North Carolinians work, the capability of offering any kind of workplace-based health promotion options are limited. Yet, there are other options for small companies choosing to support their employees' personal choices to promote their own health and the health of their families.

In his commentary in this issue of the *North Carolina Medical Journal*, David Chenoweth of East Carolina University describes the interest and adoption of these health promotion programs in North Carolina businesses over recent decades.[2] As he points out, the content of these programs has been expanded from simple health risk appraisals and clinical health screenings to include a variety of worksite modifications, which include outdoor walking and jogging trails, lunch 'n learn tutorials on health promotion topics, health-focused newsletters, healthful vending machine options, and Web-based instructional programs.

In this Issue Brief, current patterns of investment in worksite health promotion and wellness programs in the United States are described, along with discussion of the rationale used by businesses for these investments and the return on investment that may be expected. The Issue Brief will also give attention to some of the issues surrounding the development of these programs and their potential for influencing the health of the workforce in those industries where these programs have developed.

The Workplace as a Focus of Health Promotion Programs

Historically, the workplace has been recognized as an excellent location for employee-directed health improvement interventions. Since 63% of the adult population is employed,[3] workplaces provide an excellent opportunity to expose a large number of adults to health promotion programs.[4] Just as schools are seen as an opportune venue for improving the health of our children, worksites offer many advantages as a health promotion venue. One advantage is the social nature of the work environment. Employees interact with each other frequently, have socially important relationships, and provide social support for each other, which suggests that co-workers have the potential to influence each other's health behavior. Existing communication channels between employers and employees also facilitate health messaging,[a] which through repetition has the potential to impact health behavior. Positive health messaging can even extend beyond the workplace to affect employee dependents.

Beyond the logistical advantages, the importance of the workplace as a health promotion venue has grown each year as double-digit increases in healthcare costs have required employers to devote much greater effort to the challenge of allocating and managing health-related resources. Providing health insurance is one of the largest components of employee benefit costs, averaging 10.5% of payroll.[5] Many employers regard health insurance as a benefit, focusing on these costs and ways to contain further increases. As a consequence, opportunities to maximize the value of these investments by ensuring the availability of services that include improving health as a key component have become a higher priority for American business and industry leaders. Including health improvement and risk reduction as a focus in the corporate healthcare strategy provides a means for employers (and employees) to optimize their healthcare spending.

In general, employees view access to and the provision of wellness programs and activities positively. They view it as an indication of their employer's commitment to their well-being and, thus, view the employer more favorably. The United States Department of Health and Human Services has announced the goal of having as many as 75% of *all worksites*, regardless of size, offering *comprehensive* health promotion program opportunities to their employees as part of the *Healthy People 2010* initiative.[4] As Jennifer Childress and Garry Lindsay point out in this issue of the *North Carolina Medical Journal*,[6] recent surveys of business and industry employers find that only 6.9% offer the program elements that experts would consider the five key elements of such "comprehensive" programs: viz., (1) health education, (2) links to related employee services, (3) supportive physical and social environments for health improvement, (4) integration of health promotion into the organization's culture, and (5) employee screenings with adequate treatment and follow-up. In other words, the national goals for worksite-based/sponsored health promotion are ambitious, despite significant progress in this direction among some of the nation's leading business organizations.

In this issue of the *North Carolina Medical Journal*, Michael O'Donnell, President of the *American Journal of Health Promotion*, provides a commentary[7] explaining the rationale for federal governmental incentives to encourage American businesses and industry to invest in workplace health promotion programs and describes proposed legislation introduced in the United States Congress by Senator Tom Harkin of Iowa.

Shifting the focus to regard healthcare (when it includes health promotion and wellness components) as an *investment* rather than merely a *cost*, necessitates identifying outcomes and specifying measurement goals for that investment. Reasonable expected outcomes in health improvement would include: increasing the use of health screenings and immunizations and reducing the health risks associated with tobacco use, physical inactivity, and stress. Adopting benefit strategies with targeted health outcomes are increasingly seen as yielding higher returns than strategies designed only to contain and control healthcare costs. The Towers Perrin 2007 Health Care Cost Survey documented that employers who made aggressive efforts to manage health program performance—including implementing health improvement features—succeeded in slowing the upward spiral

a Health messaging includes newsletters, web sites, posters, and other communication vehicles devoted to educating and providing information on health related topics.

in their own program costs when compared to similar companies that did not make efforts to manage program performance.[8] Surveyed companies with lower cost trends offered a variety of health management programs, including those directed toward health improvement and disease management.

American Business-Sponsored Health Promotion Programs Offerings and Issues

As early as the 1970s, national interest in the potential of workplace-focused health promotion programs had emerged as a new emphasis in public health. Fielding and colleagues[9] authored the first industry survey reporting on the extent to which large companies had invested in these types of programs. This initial survey was followed by others,[10] and together these sequential surveys revealed a clear trend in the direction of more widespread investment in workplace health promotion programming. Whereas most companies responding to these surveys in the 1970s considered worksite programs that had a specific focus on worker *safety* as "health promotion;" by the 1990s, company respondents to these surveys included a much wider variety of options for employee consideration, and most options were directly related to the enhancement of health status, not merely addressing on-the-job issues of safety.

In this issue of the *North Carolina Medical Journal*, Laura Linnan and Ben Birken,[11] as well as Jennifer Childress and Garry Lindsay[6] offer extensive discussion of not only the trend toward a wider spectrum of employer offerings in the area of health promotion and wellness, but also give a picture of the range of companies, both large and medium-size, now opting for investment in this area.

The goal of workplace health improvement programs is to help employees maintain good health and prevent disease by adopting healthy lifestyles, lowering health threats, and increasing the use of proven clinical preventive medical services. The methods employ change strategies designed to help individuals incorporate beneficial health habits into their regular life routines. These include health education with self-care and consumerism, health risk assessments, and behavior change programs. Delivering these methods through a coordinated delivery infrastructure multiplies the impact of individual initiatives. Comprehensive integrated programs are needed to achieve greater impact. These are comprised of: workplace policies and provisions that advocate and support a healthy work culture; benefit design coverage for screening, clinical prevention, health provider counseling and medications that assist tobacco cessation and weight loss for higher classes of obesity; access to tools for medical information search and use, including medical treatment decision making and consumerism (commonly called "health decision support"); Health Risk Appraisals (see text box page 420); and effective behavior change methods and program evaluation that assesses the effects on employee health status, health cost, and productivity.

Even comprehensive wellness programs need to be integrated within an overall strategy for employee healthcare that addresses the other important aspects for optimal personal and business health management, and successful implementation poses a number of challenges. Many employees know from their own personal experience and failure that improving health behavior is not easy, especially when the time and energy needed to devote is already taken up by work, family, and other commitments. Employees may not fully understand how additional medical expense and reduced work output personally impacts them. These and other factors make it challenging for employers and program managers to achieve sufficient participation in wellness offerings. A pervasive problem is that many organizations' programs are not robust enough to achieve the desired outcomes. Often educational and awareness programs are good at raising awareness, but are ineffective in changing behavior or reducing risk. Workplace behavior change interventions are frequently offered as stand-alone initiatives that only reach a limited proportion of the work community and are too short in duration to affect lasting change. In addition, the lack of data access and integration prevents the feedback and monitoring needed for improvement and performance measurement.

While implementation is hard to do well (given it is not a simple prospect) doing nothing worsens risks, costs, and productivity losses. Employers choose from a mix of approaches using human resource personnel and employee wellness committees, health plan offerings, hiring outside vendors, or a combination of approaches. Education and awareness campaigns (employee- or plan-sponsored) are the most common and frequent interventions. Integrated, comprehensive programs are the most infrequent. Improving health is a process that requires time, and insufficient program duration hampers impact as much as ineffective interventions. Lacking vendor standards or certification, employers have to develop their own vendor selection criteria and methods to select which suppliers are the best fit for their work environments.

Rationale for Company Investment in Health Promotion Programs

It is frequently noted that 50% of chronic disease in the United States population results from preventable causes related to lifestyle choices, and half of all deaths can be attributed to a limited number of preventable behaviors.[12] Health risks drive present and future costs for employers and employees. Many companies do not recognize that the presence of common health risks among employees may account for 15-35% of their annual medical claims cost.[13] This is magnified by the fact that a large portion (approximately 80%) of health claims costs are generated by a small portion of the insured employee workforce (5% to 20%). The smaller segment draws the attention, but the larger segment (employees in "moderate-to-good" health) offers the better option for health promotion-driven cost savings. In this issue of the *North Carolina Medical Journal*, Dee Edington[14] of the University of Michigan argues for the support of workplace health promotion programs that can help this larger group *maintain* a lower level of health risks. Learning that greater healthcare savings could be made through incremental reductions in health risks among the larger group of an organization's more healthy employees can be a surprising finding for many companies. It is Edington's thesis, based on the data he and his colleagues

Health Risk Assessment or Health Hazard Appraisal
What does it mean to complete an "HRA?"

Workplace health promotion or wellness programs in most settings conventionally ask participants to complete a brief questionnaire that summarizes key individual characteristics and health information through which a statistical estimate of one's overall health risk status can be determined at the outset of program participation. These questionnaires (or surveys) are often referred to as "health risk assessments." Years ago, and still in some forms, they were referred to as "health hazard appraisals," but in either case they are most commonly referred to by the initials: HRA.

These instruments take a number of index informational items and from them calculate an assessment of one's life expectancy, based on "risk factors" and the profile they represent. Comparisons are often made to populations of persons of a similar age, with similar patterns of health risk status and behaviors, for whom mortality (and often morbidity) outcomes are known. The results then are summarized in terms of one's "achievable" age IF certain risk factors are modified through systematic behavioral and biomedical change (e.g., weight loss, increased physical activity, better nutrition, alcohol and tobacco use, etc.).

HRA instruments, and the methods by which results are calculated and communicated to those who complete them, vary a great deal. Some go through elaborate calculations based on population-specific epidemiological profiles of mortality risk associated with particular patterns of behavior and biomedical characteristics. Others offer simple summaries of key current risk factors (often displayed in colorful diagrams) followed by specific advice as to which of these are most amenable to modification through intentional efforts toward a more healthy lifestyle and personal health behaviors.

Most would agree that completion of an HRA alone will not likely result in a significant change in one's overall health risk profile. What most experts recommend is that all HRAs should be followed by specific risk-factor counseling and opportunities to participate in health promotion interventions (like nutrition counseling, organized physical activity, or smoking cessation programs) relevant to the significant modifiable risk factors identified through the completion of an HRA.

HRA results, when aggregated in a confidential manner across multiple members of a workplace population, and where HRA results are periodically available from the same respondents, can provide useful and powerful means of tracking the impact of workplace health promotion and wellness programs over time. For this reason, most experts in the field recommend that HRAs be the fundamental starting point in any workplace health promotion effort and that these measures serve as the primary measuring gauge of program impact and effectiveness.

have collected from many companies, that preventing this larger population of "healthy" employees at low-risk from moving to a higher level of health risk holds the key to long-run savings for any company sponsoring health promotion initiatives.

The same common risk factors that affect healthcare expenditures also negatively impact attendance, work output, disability, and job safety. Burton et al[15] found that 10 of 12 health risk factors were significantly associated with self-reported work limitations. Musich et al[16] found increased presenteeism (employees present for work, but unable to contribute at their usual level) associated with high stress, life dissatisfaction, back pain, and absenteeism were associated with overweight, poor perception of health, and chronic disease. In studying 2,200 employees in the northeast, Boles et al[17] found that participants with higher numbers of personal health risk factors reported greater productivity losses.

Recent research has demonstrated that employees are capable of reducing their health risk in the setting of employer-sponsored health improvement programs. Goetzel et al[18] reported that participants in Johnson & Johnson's *Pathways to Change* program achieved significant risk reduction in eight of 13 risk categories over an average of $2\,^{3}/_{4}$ years. Pelletier,[19] who has been reporting on this topic for decades, found that results from randomized clinical trials and quasi-experimental designs suggest that providing individualized risk reduction for high-risk employees within the context of comprehensive programming is the critical element of worksite interventions. Herman et al[20] demonstrated that combining a cash incentive with a physical activity intervention resulted in increased participation and significant levels of health risk reduction. Finally, Pelletier et al[21] reported that individuals who reduced one health risk factor improved their presenteeism by 9% and reduced absenteeism by 2%.

Expected Returns on Investment (ROI) in Worksite Health Promotion Programs

A cynical examination of employer investment trends in health promotion programming would expect that there could be no other motivation for such investments than corporate "bottom-line" returns. But, just how important (or critical) are these ROI considerations to these investments?

Research evidence substantiates the presence of risks among employees and the negative impact on health costs and productivity and the ability of health promotion interventions to reduce both employee risks and associated costs. However, a major reason why businesses have been slow to fully embrace

risk reduction programs is the difficulty of quantifying their impact on the overall healthcare cost picture.

Determining the economic impact of wellness has been vexing for many years, primarily due to lack of data and systems to capture and measure information about the relationship between interventions and their impact on cost. It is more common for objective data on productivity to be unavailable than available. Since worksites are not laboratories, randomized trials assessing impact are rare. Likewise, health plans have not translated data into actionable information. Many organizations lack access to claims data and analytic methods for evaluation. In addition, businesses customize their wellness programs, drawing from a wide spectrum of approaches, which limits comparisons and benchmarking. An easy-to-implement, universally applicable approach for calculating potential and actual ROI is not readily available. Employers consistently express concerns about not being able to factor ROI into program evaluations and investment decisions.

However, changing trends and efforts to integrate data from multiple sources to conduct valid systematic analysis are surfacing through numerous publications and the work of organizations like the Integrated Benefits Institute (www.ibi.org) and the Institute for Health and Productivity Management (www.ihpm.org). Reductions in healthcare cost among wellness participants as compared to non-participants and ROI values are reported more frequently. A comprehensive review of current ROI literature determined that results for programs in operation an average of 2.5 years experienced an average annual cost reduction range of 2% to 4% of total healthcare claims for comprehensive health promotion disease prevention. The corresponding ROIs or cost-benefit ratios ranged from 1:1.5 to 1: 3.0.[22] Ozminkowski, Goetzel et al[23] used company data and information from published studies to estimate the amount of risk reduction needed to break even on that company's health promotion programs. They found that a 1.08% to 1.42% per year reduction in lifestyle-related health risk was needed to break even on the costs of the intervention program.

Drs. Goetzel and Ozminkowski have also written, in this issue of the *North Carolina Medical Journal*,[24] a commentary on why employers should (or should not) consider investing in worksite health promotion or wellness programs. In their analysis, Goetzel and Ozminkowski summarize the extant evidence that these programs can have a positive ROI, but acknowledge the difficulty some employers may have in realizing these returns and the factors that may affect these results.

Cost avoidance or reducing the upward trend and velocity of healthcare cost increases is one of the key interests of employers who invest in workplace wellness interventions. In this instance, if the increase in healthcare expenses is less than expected (i.e., reflects a reduced trend) because wellness-driven health improvement and/or risk reduction leads to reductions in health services utilization, then these investments are considered worthwhile. Identifying and quantifying the avoided cost requires a specific analysis that also accounts for the impact of other influences, such as plan design changes or risk pool ratings. Cost avoidance can be determined by comparing the health cost experience of wellness program participants to those of non-participants at the individual level. Achieving a measurable financial impact on the entire employee population can require a robust (i.e., 80% or greater) rate of employee participation in proven interventions shown to be effective—an achievement few organizations are able to realize.

Health promotion's impact on worker productivity is probably larger than it's impact on healthcare cost, amounting to, in some studies, values that are three times higher. Measuring changes in productivity, especially as office workers comprise larger segments of the employment landscape, relies on mechanisms to quantify lost work time or absence and work output, both requiring specific methods for capturing time and assessing productivity. Recording attendance is increasingly less meaningful for knowledge workers. Options to measure productivity include quantitative indicators, such as days worked or units produced; simulation in hypothetical situations (e.g., a typing test); and self-report through surveys or health risk assessment questions. The most frequently used and easiest to administer though, not the most accurate, is self-report. Both attendance and work output can be assessed through self-report. Methods can be as simple as incorporating two to five questions in the HRA or as comprehensive as the 25-item Work Limitations Questionnaire or the Health and Labor Questionnaire that measure as many as four dimensions. A convincing example of health promotion's effect on attendance can be seen in the $600,000 annual savings achieved during a five-year period from reductions in absenteeism in a manufacturing environment.[25] Larry Chapman's meta-evaluation of 56 high quality health promotion economic return studies[26] found an average 26% reduction in the use of sick leave among 44.6% of the studies. Reductions in the use of sick leave ranged from 11% to 68% in this analysis.

In this issue of the *North Carolina Medical Journal*,[27] Larry Chapman of WebMD Health Services, argues that as we raise the expectations of health outcomes of worksite wellness programs (e.g., significant amounts of body weight lost, increasing levels of physical activity, smoking cessation rates, etc.), we should expect to have to raise the incentives and rewards for program participants, including possible monetary rewards. Rewards have the potential to reduce corporate ROIs and require alignment with the Health Insurance Portability and Accountability Act (HIPAA) to avoid ethical and legal complications that could stem from employees' inabilities to engage in these activities at the level of reward eligibility.

The negative impact of employee absence is magnified by the changing nature of work. Work that relies on skills, company-specific knowledge, critical thinking, and innovation cannot easily be performed by substitutes. Given the interdependencies among the work teams present in many companies, the productivity of whole teams of employees may be diminished by the absence of an individual. Therefore the savings from health promotion's ability to reduce absenteeism (as trends indicate) has the potential to be greater than healthcare cost savings.

In this issue of the Journal, Alexandra Farrow of Brunel University in the United Kingdom[28] reviews the history of investment in workplace health and safety programs in that

country as well as in Western Europe. Her commentary shows how efforts to stimulate and encourage workplace investment in health promotion in Britain and Europe have been integrated with overall national public health strategies for population health improvement. In this country, where private businesses and local public health agencies have worked in tandem, considerable benefit can be brought to employees who need and seek health promotion opportunities in the larger surrounding community when they are not available through their place of work.

Health Promotion Options for Small Employers

Given the fact that so many of North Carolina's employees work for firms having fewer than 100 employees, and at least a third of all of the state's workers are employed by firms with fewer than 25 employees, the prospects for extensive (and certainly not "comprehensive") worksite health promotion programs seem remote. Many firms with few employees do not offer healthcare insurance to their employees, so the risk to these small firms from employee illness and disability are direct risks to the productivity of the firm and not to the overall bottom-line cost of paying for the healthcare services their employees may need at the time of illness or injury. But, these productivity costs, plus the cost of recruitment and training of new employees, may still present sufficient economic incentive for investment. Moreover, many of these smaller firms have deep and lasting personal commitments to their employees, with whom both the company's productivity and the quality of relationships with business clients have been built over a long period of time. The desire to offer opportunities for employees to realize a more positive health status outlook and to maintain long-term capacity for work and life satisfaction is sufficient motivation for many small business owners to entertain the possibility of offering health promotion opportunities to employees.

In this issue of the *North Carolina Medical Journal*, Ben Birken and Laura Linnan[29] provide an extensive discussion of the prospects for small businesses offering health promotion programming for their employees. While the number of small businesses currently offering such opportunities is still small, there are ways in which these businesses may be encouraged to offer such opportunities to their employees. Both federal and state governments have considered tax incentives for small businesses offering wellness programs, but at present these have not been enacted except in a few states.

One of the most promising avenues for small businesses to consider, if they are interested in encouraging employee participation in health promotion initiatives, is to explore linkages with local YMCAs, hospitals, or other community organizations (such as schools) to make available local recreational resources and programs in which these small business employees may participate. Employers should take full advantage of local advocacy group initiatives that provide training at lower cost on ways to effect health along with creating employer networking opportunities. One such organization is NC Prevention Partners (www.NCPreventionPartners.org), which supplies a wealth of easy-to-use and accessible tools and support to businesses interested in initiating health promotion and wellness programs.

An incentive arrangement might include some time from normal work routines to engage in physical activities or health-related counseling (e.g., weight loss consultation) through these community-based programs. Moreover, screening programs can be arranged in cooperation with local public health agencies or hospitals and conducted on-site at the workplace. As Birken and Linnan point out, many of these initiatives work best if employees serve as the steering committee leading these efforts and have the responsibility for promoting employee participation in these programs once these arrangements have been worked out.[29]

It should be pointed out that many health promotion initiatives in the workplace can be offered at little or no cost. There is little employer cost to implementing policies for smoke-free workplaces, healthy choices in vending machines and cafeterias, and communications (e.g., signage) encouraging physical activity during the day, like stair use and walking opportunities. Government Web sites often contain templates for policies that can easily be implemented in businesses of any size. Benefit plans, including high deductible plans, should include low-cost health risk assessments (HRAs), preventive screening and counseling, and immunizations. Many states have set aside Tobacco Settlement funds for smoking cessation and prevention programs, and employees can be encouraged to take advantage of these where they are available. North Carolina's robust *Quit Now NC* program (www.quitnownc.org) that promotes and sponsors tobacco cessation interventions is highly accessible throughout the state.

Cautions and Prospective Pitfalls in Workplace Health Promotion Programs

Despite the promise and potential of health promotion initiatives based at the worksite, there are some words of caution. First, there are important confidentiality and privacy considerations that should be a part of any workplace-based health promotion initiative. Employees who voluntarily agree to the completion of a standardized health risk assessment (HRA) should have the confidence that his/her responses to such questions will be held in strict confidence and not shared with employers or supervisors unless explicitly agreed to by the responding employee. Questions about health practices and personal risk behaviors should not become a part of the employee's personal employment record. Data derived from the administration of an HRA within a company should be summarized in a general way for management only, and results should not be transmitted in a way that make it possible to identify individual employees with specific health risks. This can be particularly important in small companies with few employees where statistical summaries of data can make confidentiality problematic.

Second, participation in health promotion programs at the workplace should be entirely voluntary, and participation should not be tied in any way to wages or other incentives that effectively discriminate against those who choose not to participate. That said, it is still worthwhile to offer incentives, even monetary

incentives, to employees to encourage their participation in programs to both maintain and enhance their overall health status.

One of the ways in which health promotion programs have taken the matter of employee participation into account is through the use of employee-interest surveys at the outset of program planning. As an example, the Running the Numbers section of this issue of the *North Carolina Medical Journal*[30] includes an account of the way in which the North Carolina Department of Health and Human Services conducted such a survey before beginning departmental participation in the State Employees Health Plan Health*Smart* program. Strong support was forthcoming from the chief executive of the Department, Secretary Carmen Hooker Odom. The employee-interest survey (with responses received from more than a third of all employees either on-line and in writing) revealed great interest in ways to increase daily physical activity and the establishment of tobacco-free workplaces. These responses made it possible to target program content to address employee priorities rather than to offer program elements based on the presumed employee interests and needs. Another commentary in this issue of the Journal, by George Stokes, Executive Administrator of the State Health Plan, and his colleagues[31] describes the way in which the six components of the Health*Smart* program (viz., health tracking, including an HRA; centrally designed health promotion interventions; targeted disease management; health coaching services available 24/7; high-risk case management; and worksite wellness) were developed in partnership with state and local health departments, how pilot demonstrations of the program were first implemented, and how employees themselves were involved in planning the initiative itself.

Fourth, health promotion and wellness initiatives undertaken by business organizations of any size will obviously face the inevitable question of staffing such efforts. Although volunteer leaders of these efforts can often be identified from within employee groups, having persons with expertise in relevant fields (e.g., nutrition, exercise and physical activity, stress management, etc.) and having personnel involved in offering such services who are not employee colleagues or members of corporate management can make initiatives more acceptable to a wider spectrum of employees. Just as there are concerns over the privacy and confidentiality of information provided via HRAs, so it is that many employees prefer to receive instruction and other types of health-specific services from persons whose professional roles seem distinct from those of other corporate staff. Moreover, the kind of program elements that are most likely to benefit participating employees and attract the interest of persons who should participate are those that have been carefully designed using the best available knowledge in the technical subfields of health promotion. In some cases, such skills can be acquired from outside the organization and arranged on a contractual or short-term basis. However, some companies may choose to hire their own health promotion staff and not share their time with other organizations. Bonnie Rogers, a nurse and specialist in the field of worksite health promotion, offers a detailed discussion of considerations for the staffing of worksite health promotion programs in this issue of the *North Carolina Medical Journal*.[32]

Summary

In the current complex employment landscape providing employer-sponsored benefits involves much more than offering financial protection when employee illness drives a need for costly medical treatment. The transitions in work from product/service production to knowledge generation, along with the transitions in the predominant health and disease conditions from acute illness to preventable chronic disease, require employers to recognize the need to manage their health investment more strategically. This includes the more recent requirement to maximize their investment by ensuring that provisions for maintaining and improving employee health status are incorporated into their health benefits approach. Meanwhile employee health improvement, a highly active but emerging field, is in the process of incorporating experience, research, and more effective methods that result in favorable and demonstrable employee health (and corporate cost-benefit) outcomes. **NCMedJ**

REFERENCES

1 Current Population Survey, US Bureau of the Census, 2003-2005. Data suppled by Mark Holmes, Cecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill.

2 Chenowith D. Workplace health promotion: a North Carolina assessment of progress. NC Med J. 2006;67(6):449-450.

3 US Department of Labor–Current Employee Statistics (CES). Employment Situation Summary. 2005. Available at: http://www.bls.gov/news.release/empsit.nr0.htm. Accessed January 8, 2007.

4 US Department of Health and Human Services. 2000. Healthy People 2010–Objective 7.5 Available at: www.healthypeople.gov. Accessed January 8, 2007.

5 Parmenter EM. Controlling health care costs: Components of a new paradigm. Journal of Financial Services Professionals 2003;57:59.

6 Childress J, Lindsay G. National indications of increasing investment in workplace health promotion programs by large and medium-size companies. NC Med J. 2006;67(6):451-454.

7 O'Donnell M. The rationale for federal policy to stimulate workplace health promotion programs. NC Med J. 2006;67(6):455-457.

8 Towers Perrin HR Services. Towers Perrin 2007 Health Care Cost Survey. Available at: http://www.towersperrin.com/tp/jsp/hrservices_home.jsp?selected=home.

9 Fielding JE, Piserchia PV. Frequency of worksite health promotion activities. Am J Public Health. 1989;79(1):16-20.

10 US Department of Health and Human Services Public Health Service. 1992 National Survey of Worksite Health Promotion Activities: Summary. Am J Health Promot. 1993;7(6):452-464. Association for Worksite Health Promotion. 1999 National Worksite Health Promotion Survey. The Association: Northbrook,

Il. 1999. Results of the most recent survey of American business interest and commitment to worksite health promotion are forthcoming in the *American Journal of Public Health* and authored by contributors to this issue of the *North Carolina Medical Journal* (Linnan and Lindsay). Linnan L, Bowling M, Lindsay G, et al. Results of the 2004 National Worksite Health Promotion Survey. Am J Public Health (in press).
11 Linnan L, Birken B. Small businesses, worksite wellness, and public health—a time for action. NC Med J. 2006;67(6):433-435.
12 Mokdad AH, Marks JS, Stroup DF, Gerberding JL. Actual causes of death in the United States, 2000 JAMA. 2004;291:1238-1245.
13 Wright D, et al. Comparing excess costs across multiple corporate populations. JOEM. 2004;46:937-944.
14 Edington D. Who are the intended beneficiaries (targets) of employee health promotion and wellness programs? NC Med J. 2006;67(6):425-427.
15 Burton WN, Chen CY, Conti DJ, Schultz AB, Pransky G, Edington DW. The association of health risks with on-the-job productivity. JOEM. 2005:47:769-777.
16 Musich S, Hook D, Baaner S, Edington DW. The association of two productivity measures with health risks and medical conditions in an Australian employee population. AJHP. 2006;20:353-362.
17 Boles M, Pelletier B, Lynch W. The relationship between health risks and work productivity. JOEM. 2004;46:737-745.
18 Goetzel RZ, Ozminkowski RJ, Bruno JA, Rutter KR, Isaac F, Wang S. The long-term impact of Johnson & Johnson's Health & Wellness Program on employee health risks. JOEM. 2002;44:417-424.
19 Pelletier K. Review and analysis of the clinical-and cost-effectiveness studies of comprehensive health promotion and disease management programs at the worksite 1998-2000 update. AJHP. 2001;26107-116.
20 Herman C, Musich S, Lu C, Sill S, Young J, Edington D. Effectiveness of an incentive-based online physical activity intervention on employee health status. JOEM. 2006;48:889-895.
21 Pelletier B, Boles M, Lynch W. Change in health risks and work productivity over time. JOEM. 2004;46:746-754.
22 Serxner S, Baker K, Gold D. Guidelines for analysis of economic return from health management programs. AJHP. 2006;20:1-18.
23 Ozminkowski RJ, Goetzel RZ, Santoro J, Saenz BJ, Eley C, Gorsky B. Estimating risk reduction required to break even in a health promotion program. AJHP. 2004;18:316-325.
24 Goetzel RZ, Ozminkowski RJ. What's holding you back: why should (or shouldn't) employers invest in health promotion programs for their workers? NC Med J. 2006;67(6):428-430.
25 Schultz A, Chifung L, Barnett T, Yen L, McDonald T, Hirschland D, Edington D. Influence of participation in a worksite health-promotion program on disability days. JOEM. 2002;44:776-780.
26 Chapman L. Meta-evaluation of worksite health promotion economic return studies: 2005 update. AJHP. 2005;19:1-10.
27 Chapman L. Employee participation in workplace health promotion and wellness programs: how important are incentives and which work best? NC Med J. 2006:67(6):431-432.
28 Farrow, A. Workplace-focused health promotion programs in the United Kingdom and Ireland. NC Med J. 2006;67(6):458-462.
29 Birken B, Linnan L. Implementation challenges in worksite health promotion programs. NC Med J. 2006;67(6):438-441.
30 Running the Numbers. NC Med J. 2006;67(6): 468-470.
31 Stokes G, Henley N, Herget C. Creating a culture of wellness in workplaces. NC Med J. 2006;67(6):445-448.
32 Rogers B. Worksite health promotion: skills and functions of professional staff. NC Med J. 2006;67(6):442-444.

Who Are the Intended Beneficiaries (Targets) of Employee Health Promotion and Wellness Programs?

Dee W. Edington, PhD

The medical journals and medical-related popular press are filling pages with the news about the increasing levels of obesity, diabetes, and other health-related behaviors, risks, and diseases. This development is not new, but has been on the increase for several years. In the early 1970s, some companies began providing health promotion and wellness programs, primarily to their executives and later extended the programs to other employees. The purpose of the programs was to improve the health of the employee, with the company also benefiting from that improved health through lower levels of healthcare costs and increased likelihood of the employee remaining at work. The programs were simplistic and focused on getting to the high-risk individuals, which were typically defined as employees who have the risks for cardiovascular disease. Second generation programs were more inclusive of other risks and behaviors, such as the use of safety belts, but still were primarily focused on metabolic diseases and high-risk individuals.

After 25 years of measuring and evaluating these programs, it has become clear that the current programs are meeting with success only at the margins. Few companies or locations can demonstrate less obesity, more physical activity, and less disease than the benchmarks of 20 years ago. In addition, the overall adoption of these programs was unexpectedly slow until the rapid rise healthcare costs came into focus.

In response to the marginal success of health promotion and wellness programs, it is clear that a different approach is necessary in order for organizations to effectively address the higher levels of obesity and diabetes, for example, and the growing burden of healthcare costs and decreasing productivity. The solution is to expand the economic outcome metrics; to include programming for worksite environmental factors; to include programs for all employees, regardless of risk levels; to expand the programs to families; to seek professional partners in these efforts; and to install measurement metrics that will provide internal feedback for program revisions. With these Next Generation Programs, the benefits derived from health promotion and wellness programs span the total employee population, their respective families, the sponsoring organization, and extend well into the community and eventually to the state.

The economic and personal value of a healthy and productive worksite and workforce is indisputable by most measures of success. Individual employees and their families define health outcomes of employee-targeted health promotion and wellness programs by their level of vitality, quality of life, and freedom from the pain and suffering associated with disease. Employers rely on measures of the energy level, productivity, and creativity of the employees and the moderated medical and pharmacy costs that can be associated with these programs. Communities and states measure health outcomes by the number and sustainability of healthy and productive companies within the community or state.

Although the value of these outcomes is widely shared, obtaining a healthy and productive worksite and workforce has eluded most companies and their employees. The reasons for this are obvious, given the "natural flow" of individual health risks, the "natural flow" of individual medical care costs, and the escalating high-stress worksite cultures that have developed in most modern companies. The natural flow of health risks within a population is toward high-risk, in the absence of programs targeted at maintaining the population at low-risk. The natural flow of medical costs follows the natural flow of risks. Increasing marketplace competition results in a more stressful worksite, unless attention is being paid to the workplace environment.

Companies such as the SAS Institute and IBM, located in the Research Triangle, have been leaders in beginning to design total solution and total population programs for their employees and employees' families. Dow Chemical and Pitney Bowes are also companies beginning to expand the breath and depth of health promotion and wellness programs into a more comprehensive health management solution for the full population. Most cities and states in this country now have healthcare coalitions, wellness councils, and local examples of companies who began with the early programs, but are now looking for more effective solutions.

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At the urging of General Motors, we began to model the best of the 22 major companies in our corporate consortium and to learn from other companies to design the Next Generation of Health Management Programs on a total population level, since it was clear that focusing only on the small percent of high-risk individuals has not been successful in changing the clinical and economic outcome measures. In addition, other companies such as Matria, a population health enhancement company, is rolling out its Next Generation Program as are some of the national health plans including Anthem, Aetna, and CIGNA. These Next Generation programs are expected to be available in the spring of 2007.

Next Generation Health Management Programs

It is now clear that *something* was missing from the early (1975-2005) worksite health promotion program strategies and that *something* is really *two* things: (1) paying attention to everyone in the population and (2) paying attention to the worksite culture and environment itself. If employees are the beneficiaries, then all employees need to be given access to programs addressing health promotion objectives and to the incentives that drive participation, and eventually full engagement, in the process. In our thinking about the Next Generation of Health Management Programs, there are seven components that are critical if the employees (and other beneficiaries) are to fully benefit from these initiatives.

1. Corporate leadership must set the vision for health management throughout the company.
2. All environmental policies and procedures must be aligned with the goal of a healthy and productive worksite and enlistment of critical partners in the effort.
3. Health Risk Appraisals should be available to all employees (and spouses/significant others).
4. All individuals should be risk-status stratified and offered access to health promotion interventions and resources appropriate to their needs (risk categories) and interests.
5. Population-based health promotion programs should be available to all employees.
6. Appropriate incentives for program participation should be available to all employees.
7. Measurement, evaluation, and decision support should be conducted to drive program decisions.

The first hallmark of a successful program is the clear and observable vision of the organization's senior leadership. In addition to announcing the vision, leadership must share the vision with everyone in the organization. The next step is to ensure that the organization's policies and procedures are aligned with the goal of a healthy and productive worksite. This includes such things as smoking policies, stairwell access, vending machines, cafeterias, job design, flexible working hours, and benefit design. Critical partners in this effort require the enlistment of the health plan, benefit consultants, primary care physicians, health enhancement companies, and pharmaceutical companies.

Health Risk Appraisals (HRAs) are a core technology for health and wellness programs and need to be completed by everyone in the organization. The critical choice of an HRA depends upon the program's overall objective. Some HRAs are focused on health education, others focus on longevity, but our bias is on a more comprehensive approach, which includes vitality or quality of life, medical and pharmacy utilization, disability absences, and presenteeism. The customized individual profiles obtained from HRA completion focus on vitality and risk and behavioral factors leading to quality of life and possible disease. The organizational reports summarize (in aggregate form) the individual health risk profiles and then the data are combined (or modeled) with outcome data to create a scorecard of the health-status of the population.

Once a person completes an HRA, they then need to contact a coach, advisor, or advocate to discuss their risk/health status profile and to create goals to maintain or improve their current health status. This is a very critical step and one that could continue indefinitely. The fifth step is to provide wellness programs to the total population. "Know-your-numbers," "no weight gain," and a "1,000-step pedometer" are examples of programs or interventions that can serve this function well.

Crown Equipment Corporation

Crown Equipment Corporation, located in New Bremen, Ohio, manufacturers battery powered material handling equipment. Crown is the first company to adopt the components of the Next Generation Health Management Program to move toward a Champion Company.

After successfully rolling out its HRA and wellness screening initiatives with over 90% participation in 2004 to all Crown locations, Crown decided to adopt the full set of health management components while planning for 2007. The president and senior management set the vision to become a Champion Company. The Medical Director, Benefits Manager, and the Program Manager were given the task of implementation to 5,500 employees throughout the company's several locations.

Benefit design is the driver of the program. Participation begins with an impressive benefit credit for employees and spouses to engage in the program, including the HRA, wellness screenings, and health coaching. The company engages outside vendors to assist with its programs for 2007. The health advising initiative is particularly innovative and designed to maintain 90% or higher participation to reach total engagement of the employees and spouses in understanding personal health accountability. Participation with the health advisor is driven by a significant cash award for employees and spouses. Resources are made available to any employee or spouse who wants to further engage in any program designed to help them maintain or improve their health risks and lifestyle behaviors.

The company also has an innovative healthier vending program, including offering a healthy drink and healthy snack during break.

For more information, contact Karen O'Flaherty at 419-629-6330 or healthwise@crown.com.

Incentives and measurement are the sixth and seventh steps in the Next Generation Program. We now know that the success of a program requires 80% to 95% participation and engagement of the total population, regardless of risk level. Anything less than that falls short of meeting the objectives of a healthy and productive worksite and a healthy and productive workforce.

One of our major learnings over the 30 years we have been studying the health management of populations is that paying attention to healthy (or low-risk) employees is the secret to creating and maintaining a healthy and productive workforce: that is, *keep the low-risk people low-risk*. The second secret is to *first create winners* in the population. For example, initiatives like "know your numbers" and "no weight gain" programs give employees the opportunity for realizing early accomplishment and serve to motivate further attention to personal health risk issues as interventional opportunities are made available. Most programs go immediately for reductions in blood pressure, cholesterol, and body weight; and most individuals end up right back where they started within one or two years.

Benefits to Employees

Most people immediately think of the employee as the first and foremost beneficiary of these programs, and most programs over the past three decades were focused on the high-risk employees (perceived beneficiaries) in particular, while the low-risk employees were ignored. While a few of the high-risk employees and their families were helped as a result of this strategy, the overwhelming evidence is that high-risk employees (and employed workforce health in general) are no better off by nearly any measure of success than we were 30 years ago.

Three strategies have emerged within the Next Generation Programs. The first strategy is to continue to work with the high-risk individuals, but on a *whole person* and *self-leader* approach, rather than a lifestyle risk or disease management approach. The reason for this is that previous risk reduction strategies focused on single risk factor reduction and tended to ignore other risks that might have influenced the person (e.g., weight loss while ignoring smoking or job satisfaction). In addition, the teaching opportunity is such that each individual could be taught to value their own risk-status and serve as their own leader in maintaining positive risk and behaviors and modifying the rest. The second strategy is to work with all the employees regardless of risk level with the same type of intervention strategy. This strategy is somewhat counter-intuitive, and the goal is to convince the participant to value remaining at a relatively low-risk level. The third strategy flows from the environmental component where the organization creates a working environment and benefits that are aligned with a healthy and productive worksite and healthy and productive individuals.

Benefits to Employers

Employers most often sponsor these programs hoping to improve overall productivity and decrease medical and pharmacy spending. However, there is an even greater benefit to employers: survival and prosperity. It is clear that as the world moves toward a global economy and world-wide competition, any company committed to maintaining a competitive position will need to develop and maintain a healthy and productive worksite and workforce.

Also, given the emerging demographics of the American workforce, the value of older workers will increase exponentially. Companies will find that facilitating good health status offsets the medical costs of older workers and the increased company knowledge and relationship possessed by the older workers can be retained by the company. In this era of the "knowledge worker," older workers are likely to be the reservoirs of much of the important knowledge needed in the future.

The Next Generation Programs were designed in part to engage the maximum number of employees. Previous strategies have suffered from low participation rates (somewhere around 30%) and the obvious avoidance of the programs by the high-risk individuals who felt targeted and stigmatized by the focus on the high-risk interventions. The Next Generation approach attempts to engage all employees—making everyone feel included—and participation rates are now approaching 90% or higher in companies adopting this philosophy and approach.

Employers recognize that they cannot accomplish their goals without help from partners. Health plans, benefit consultants, primary care physicians, health enhancement companies, and pharmaceutical companies all have a major role to play in order for all the benefits to be derived from comprehensive health management programs. Even the most conservative estimates of these programs' economic benefits in relation to medical and pharmacy costs put the benefit at the break-even point, while the most common return is estimated at 3.0. When absentee days, disability days, and worker's compensation costs are added to the calculations, the estimated returns are even greater.

Benefits to Communities and States

Communities and states should encourage employers to sponsor these programs with the intention of improving the overall working environment, an overall decrease in the cost of disease care, and an improvement in productivity, which drives increased revenue for the overall economy and, thus, increased tax revenue. Healthy residents lead to lower medical utilization and higher productivity. When worksites and their workforces are characterized in this way, fewer companies will look for relocation options, and more companies will look to relocate to the state and community where these conditions exist.

Summary

There is nearly no downside to clinically and economically effective health management programs since each stakeholder is a beneficiary: the family, the employee, the employer, the community, and the state. These programs drive both the cost and the revenue sides of the economic equation. **NCMedJ**

What's Holding You Back:
Why Should (or Shouldn't) Employers Invest in Health Promotion Programs for Their Workers?

Ron Z. Goetzel, PhD; and Ronald J. Ozminkowski, PhD

A question we are often asked is: How can I convince my senior management that investing in the health and well-being of workers will save money and produce a positive return on investment (ROI)? If leadership of the organization has already made up its mind that health promotion programs are a waste of time and money, then it is next to impossible to convince them otherwise. If, on the other hand, leaders have not yet made up their minds, and importantly, if they have not been exposed to the body of evidence suggesting that worksite programs have the potential to improve workers' health and lower company expenses, then there is hope.

Below, we offer the main arguments in favor of increased employer investment in health promotion. We emphasize the economic rationale for such investment, rather than arguing that it is the "right thing to do" and a socially responsible way of treating one's workers. We contend that health promotion programs not only improve worker health and well-being, but also produce bottom line effects.

"...health promotion programs not only improve worker health and well-being, but also produce bottom line effects."

Reasons to Invest In Worksite Health Promotion Programs

Some support for our view can be found in the book, *Corporate Responsibility and Financial Performance: The Paradox of Social Cost*,[1] written by two accounting professors, Pava and Krausz. They analyzed the financial performance of 53 companies identified as "socially responsible," and compared them to a control sample of firms matched by industry and size. Among the activities considered reflective of social responsibility were health promotion programs, which the authors described as "viable and legitimate" institutional mechanisms to alleviate an important social problem—poor health habits among workers. The authors concluded that, across almost every one of the financial outcome measures examined, "socially responsible firms … perform no worse and, perhaps, … better than non-socially responsible firms."

But, should employers pay additional money for health promotion programs? We believe the answer is "yes." The rationale for such investment can be summarized as a series of hypotheses, stated as follows. (1) Many of the diseases and disorders from which employees suffer are preventable. (2) Modifiable health risk factors are precursors to a large number of these diseases and disorders. (3) Many modifiable health risks are associated with increased healthcare costs and reduced worker productivity, within a relatively short-time window. (4) Modifiable health risks can be improved through workplace-sponsored health promotion and disease prevention programs. (5) Improvements in the health risk profile of a population can lead to reductions in healthcare costs and absenteeism and improve worker productivity. (6) Well-designed and well-implemented worksite health promotion and disease

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prevention programs can save companies money.

Below, we note some of the salient studies addressing the previous hypotheses.

Many Diseases and Disorders Are Preventable, Yet Costly

A large body of medical and epidemiological evidence shows the links between common, modifiable, behavioral risk factors and chronic disease.[2] Preventable illnesses make up approximately 70% of the total burden of disease and their associated costs.[3] Half of all deaths in the United States are caused by behavioral risk factors and behavior patterns that are modifiable.[4,5] In particular, the United States has been witnessing alarming increases in obesity, diabetes, and related disorders for many years.[6] These diseases strain the resources of the healthcare system, as individuals who experience them generate significantly higher healthcare costs.[7] Employers pay over one third of the total national annual medical bill for these and other conditions.[8]

Modifiable Health Risks Increase Employer Costs

Analyses by Anderson et al[9] show that 10 modifiable health risk factors account for approximately 25% of all healthcare expenditures for employers. Moreover, employees with seven risk factors (tobacco use, hypertension, hypercholesterolemia, overweight/obesity, high blood glucose, high stress, and lack of physical activity) cost employers 228% more than those lacking those risk factors.[10] Workers with these risk factors are more likely to be high-cost employees in terms of absenteeism, disability, and reduced productivity.[11] Synthesizing the health promotion literature spanning 15 years, Aldana concluded that there is consistent evidence that a relationship exists between obesity, stress, and multiple risk factors, and subsequent healthcare expenditures and worker absenteeism.[12]

Workplaces Offer an Ideal Setting for Health Promotion

Most people agree that the workplace presents an ideal setting for introducing and maintaining health promotion programs. Individuals generally spend over half of their waking hours at work. The workplace contains a concentrated group of people, usually situated in a small number of geographic sites, who share a common purpose and common culture. Communication and information exchange with workers are relatively straightforward. Individual goals and organizational goals, including those related to increasing profitability, generally are aligned with one another. Social support is available when behavior change efforts are attempted. Organizational norms can help guide certain behaviors and discourage others. Financial or other incentives can be introduced to encourage participation in programs. Measurement of program impact is often practical using available administrative data collection and analysis systems.

Worksite Health Promotion Can Positively Influence Employees' Health Risks

Given the previous information, is there evidence that worksite programs can change habits of worker populations? It appears the answer is "yes." Heaney and Goetzel examined 47 peer-reviewed studies, over a 20-year period, focused on the impact of multi-component worksite health promotion programs on employee health and productivity outcomes.[13] The authors concluded that there was "indicative to acceptable" evidence supporting the effectiveness of multi-component worksite health promotion programs in achieving long-term behavior change and risk reduction among workers. The most effective programs offered individualized risk-reduction counseling, coaching; and self-management training to the highest risk employees within the context of a healthy company culture and supportive work environment.[13] The reviewers concluded that a more comprehensive approach to worksite health promotion across multiple risk factors was preferred to one that is single-risk factor-focused where only a small selected group of employees benefit.

Worksite Health Promotion Can Achieve a Positive Return on Investment

So, if worksite programs can change health habits, can they also save money and even pay for themselves? Several literature reviews that weigh the evidence from experimental and quasi-experimental research studies suggest that programs grounded in behavior change theory and that utilize tailored communications and individualized counseling for high-risk individuals achieve cost savings and produce a positive return on investment.[14-16] The ROI research is grounded in evaluations of employer-sponsored health promotion programs. Studies often cited with the strongest research designs and large numbers of subjects included those performed at Johnson & Johnson,[17,18] Citibank,[19] Dupont,[20] the Bank of America,[21,22] Tenneco,[23] Duke University,[24] the California Public Retirees System,[25] Procter and Gamble,[26] and Chevron Corporation.[27] Even accounting for certain inconsistencies in design and results, most of these worksite programs produced positive cost outcomes.

In the most recent review summarizing results from 42 qualifying financial impact studies conducted over the past two decades, Chapman concluded that worksite programs achieve a 25-30% reduction in medical and absenteeism costs in an average period of about 3.6 years.[28] In a widely cited example of a rigorous ROI analysis, Citibank reported a savings of $8.9 million in medical expenditures from their health promotion program as compared to their $1.9 million investment on the program, thus achieving an ROI of 4.56 to 1.0.[19]

Conclusion

In this commentary, we put forth the main arguments in favor of employer investment in health promotion programs for their workers. There are also legitimate and powerful reasons

why some employers have been reticent to spend money on health promotion. Generally, these have to do with philosophical reasons that reflect a desire to avoid the potential for perceived intrusions into the private lives of employees, despite the fact that an economic business case in support of these appears incontrovertible.

As for small businesses that cannot afford to conduct and/or evaluate their own programs, we recommend that they press federal agencies to support collective health promotion purchaser consortia. These consortia would define common health and business objectives, achieve consensus on health promotion program designs, issue a request for proposal to vendors and health plans that can offer desirable programs, and put in place specific guarantees regarding the performance of these programs. Importantly, purchaser consortia should include a requirement for vendors to support rigorous, independent evaluations of the health and economic outcomes from their programs, with reasonable definitions of success and a timetable for reporting results. Making the result of such evaluations public will enhance the credibility of the vendor's programs and contribute to the ability of the human resources manager to make a successful business case. **NCMedJ**

REFERENCES

1 Pava ML, Krausz J. Corporate Responsibility and Financial Performance: A Paradox of Social Cost. Westport, CT: Quorum Books, 1995.
2 Amler R, Dull, HB (ed). Closing the gap: The burden of unnecessary illness. Am J Prev Med. 1987;3(Sep 5).
3 US Department of Health and Human Services. Healthy People 2000: National Health Promotion and Disease Prevention Objectives. Pub. No. (PHS) 91-50213, Washington, DC: US Government Printing Office, 1991.
4 McGinnis J, Foege WH. Actual causes of death in the United States. JAMA. 1993;270:2207-2212.
5 Mokdad A, Marks JS, Stroup DF, Gerberding JL. Actual causes of death in the United States. JAMA. 2004;291:1238-1245.
6 Ogden CL, Fryar CD, Carroll MD, and Flegal KM. Mean Body Weight, Height, and Body Mass Index, United States 1960-2002. Atlanta, GA: Centers for Disease Control and Prevention: Advance Data from Vital and Health Statistics. Publication No. 347. October 27, 2004.
7 Finkelstein E, Fiebelkorn C, Wang G. The costs of obesity among full-time employees. Am J Health Promot. 2005;20:45-51.
8 Koretz G. Employers tame medical costs: but workers pick up a bigger share. Business Week. 2002 January 17;26:26.
9 Anderson DR, Whitmer RW, Goetzel RZ, Ozminkowski RJ, Wasserman J, Serxner S (HERO Research Committee). The relationship between modifiable health risks and group-level health care expenditures. Am J Health Promot. 2000;15:45-52.
10 Goetzel RZ, Anderson DR, Whitmer RW, Ozminkowski RJ, Dunn RL, Wasserman J (HERO Research Committee). The relationship between modifiable health risks and health care expenditures. JOEM. 1998;40:843-854.
11 The Ultimate 20th Century Cost Benefit Analysis and Report. The University of Michigan; 2000.
12 Aldana SG. Financial impact of health promotion programs: a comprehensive review of the literature. Am J Health Promot. 2001;15:296-320.
13 Heaney CA, Goetzel RZ. A review of health-related outcomes of multi-component worksite health promotion programs. Am J Health Promot. 1997;11:290-308.
14 Goetzel RZ, Juday TR, Ozminkowski RJ. What's the ROI?—A systematic review of return on investment (ROI) studies of corporate health and productivity management initiatives. Association for Worksite Health Promotion. 1999;Summer: 12-21.
15 US Department of Health and Human Services. Prevention makes common "cents." September 2003. Available at: http://aspe.hhs.gov/health/prevention/prevention.pdf. Accessed December 7, 2006.
16 Pelletier KR. A review and analysis of the health and cost-effective outcome studies of comprehensive health promotion and disease prevention programs at the worksite: 1993-1995 update. Am J Health Promot. 1996;10:380-388.
17 Breslow L, Fielding J, Herman AA, et al. Worksite health promotion: its evolution and the Johnson and Johnson experience. Prev Med. 1994;9:13-21.
18 Bly J, Jones R, Richardson J. Impact of worksite health promotion on health care costs and utilization: evaluation of the Johnson and Johnson LIVE FOR LIFE program. JAMA. 1986;256:3236-3240.
19 Ozminkowski RJ, Dunn RL, Goetzel RZ, Cantor R, Murnane J, Harrison M. A return on investment evaluation of the Citibank, NA Health Management Program. Am J Health Promot. 1999;14:31-43.
20 Bertera R. The effects of worksite health promotion on absenteeism and employee costs in a large industrial population. Am J Public Health. 1990;80:1101-1105.
21 Leigh J, Richardson N, Beck R, et al. Randomized controlled trial of a retiree health promotion program: the Bank of America Study. Arch Intern Med. 1992;152:1201-1206.
22 Fries J, Bloch D, Harrington H, Richardson N, Beck R. Two-year results of a randomized controlled trial of a health promotion program in a retiree population: The Bank of America Study. Am J Med. 1993;94:455-462.
23 Baun W, Bernacki E, Tsai S. A preliminary investigation: Effects of a corporate fitness program on absenteeism and health care costs. J Occupational Med. 1986;28:18-22.
24 Knight K, Goetzel R, Fielding J, et al. An evaluation of Duke University's LIVE FOR LIFE health promotion program on changes in worker absenteeism. J Occupational Med. 1994;36:533-536.
25 Fries J, Harrington H, Edwards R, Kent L, Richardson N. Randomized controlled trial of cost reductions from a health education program: The California Public Employees Retirement System (PERS) study. Am J Health Promot. 1994;8:216-223.
26 Goetzel R, Jacobsen B, Aldana S, Vardell K, Yee L. Health care costs of worksite health promotion participants and non-participants. JOEM. 1998;40:341-346.
27 Goetzel R, Dunn R, Ozminkowski R, Satin K, Whitehead D, Cahill K. Differences between descriptive and multivariate estimates of the impact of Chevron Corporation's Health Quest program on medical expenditures. JOEM. 1998;40:538-545.
28 Chapman L. Meta-evaluation of worksite health promotion economic return studies: 2005 update. The Art of Health Promotion, July/August, 2005.

Employee Participation in Workplace Health Promotion and Wellness Programs:
How Important Are Incentives, and Which Work Best?

Larry Chapman, MPH

Health promotion and wellness efforts for working populations are receiving significant attention. American employers, faced with unacceptable rates of increase in employee health plan costs are moving to introduce more expansive and better designed wellness programs for their employees.[1] During the past decade, dozens of well-designed studies have documented the health improvements and economic return outcomes from a wide variety of worksite settings.[2]

Also emerging as a *sine quo non* for the field is the equation… participation/engagement = risk reduction = economic return.[3] Generating high levels of participation and engagement is essential to the success of all prevention programs. In the early days of the field, it was thought that by vigorously promoting program activities, offering them during work time, and building cultural awareness and acceptability was all one needed to do to produce high levels of program participation. However, program managers have learned differently. Once the "newness" and curiosity of a wellness/health promotion program has worn off, employee participation will almost always drop significantly. This has led to the almost universal use of incentives for program participation.

"The relative effectiveness, or overall participation levels, … is directly related to the dollar value of the rewards."

Beginning with simple program participation incentives, employers are usually moving through three basic incentive phases. The first phase is usually marked by token incentives, typically limited to inexpensive trinkets (under $10 in cost), such as water bottles, t-shirts, sun visors, or pens. Employees receive these trinkets for participating in programs. For example, they may receive a t-shirt for completing a health risk assessment, attending at an educational workshop, using of an E-Health Web site, or participating in a biometric screening event. The second phase usually capitalizes on moderately priced gift merchandise, such as emergency road kits, flashlights, gift coupons, lamps, and other merchandise in the $20 to $50 cost range. When employees participate in the second phase, they typically accumulate points, which are then redeemed for merchandise. The third phase usually involves significantly larger dollar values and in more easily redeemable forms, such as cash, debit cards, or reductions in health plan payroll deductions. The magnitude of incentives in this third phase is often in the $300 to $1,200 per-employee per-year range, and it usually involves meeting several wellness "criteria," including program participation and wellness achievements, such as maintaining a healthy body weight, healthy cholesterol fractions, and controlled blood pressure. The relative effectiveness, or overall participation levels, of these three phases is directly related to the dollar value of the rewards. The higher the average dollar reward the greater the participation levels. In phases two and three, employers often use lottery or raffle approaches for reward distribution, but this type of approach, where uncertainty is added to reward attainment, rarely equals the participation levels associated with known and surer receipt of rewards.

As we raise the bar of expectations for wellness achievements to include more demanding and difficult achievements, such as losing significant amounts of body weight, increasing physical activity levels, overcoming tobacco use habits, and others, it is clear that the magnitude of the reward has to be raised as well. This also tends to create a concern that, as the reward size gets larger; it is going to be more difficult to maintain a positive level of economic return or return on investment (ROI). Many employers are therefore beginning to realize that they can add

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the projected incentive cost and the wellness program costs to their health plan premium and through premium contributions can have employees share this cost. Employees who don't cooperate then end up paying a larger proportion of the combined premium cost than those who participate or engage in wellness programs and activities. This approach is considered to be a "play or pay" based program strategy and can make all wellness-related costs a zero sum budget expenditure for employers. Some employers have actually generated revenue with this approach.

This third phase of wellness incentives is generally built around a set of voluntary wellness criteria, such as those listed below. Due to the great flexibility inherent in the design of wellness criteria, it is likely that these types of criteria will be tested and refined over time and will help to create a dynamic tension around engaging in wellness behaviors.

For example, in a phase three approach to wellness incentives, if the individual meets any eight out of the following 10 wellness criteria, they may qualify for a $600 reduction in their health plan premium contribution for the year.[4]

- Non-tobacco user or participation in a smoking cessation program.
- Body Mass Index (BMI) less than 30 or participation in a weight management program or wellness coaching.
- Overall Wellness Score from an HRA of 85 or greater.
- Physical activity more than four times per week.
- Completion of 30-minute Webinar on wellness and consumer health.
- Current on preventive screening (form completed by their doctor).
- Agree to wear a seat belt 100% of the time they are in a motor vehicle.
- They have a Primary Care Practitioner (PCP).
- Use of medical self-care in the past three months.
- No more than three sick leave days in last 12 months.

Under the new final regulations for the non-discrimination provisions of the Health Insurance Portability and Accountability Act (HIPAA), this approach is allowable as long as the financial reward does not exceed 20% of the total health plan cost and the approach meets the other four reasonable provisions called for in the final regulations.[5]

In conclusion, incentives are absolutely essential to participation and engagement in wellness and prevention activities for virtually all populations and are likely to become a standard feature of health plans that are serious about managing the health of their members. Additionally, many employers are now demanding increasingly effective approaches to long-term health cost stabilization through health management and health improvement. **NCMedJ**

REFERENCES

1 PriceWaterhouseCoopers, Healthy Choices: The Changing Role of the Health Insurer, October, 2006.
2 Chapman LS. Meta-Evaluation of worksite health promotion economic return studies: 2005 update. The Art of Health Promotion, Am J Health Promot. 2005 July/August:12.
3 Yen L, Schultz A, Schnueringer E, Edington DW. Financial costs due to excess health risks among active employees of a utility company. JOEM. 2006 Sep;48(9):896-905.
4 Chapman LS. Using wellness incentives: positive tools for healthy lifestyles. Summex Health Management. 2005:189.
5 Nondiscrimination and Wellness Programs in Health Coverage in the Group Market; Final Rules, Federal Register, Vol. 71, No. 239, Wednesday, December 13, 2006, Department of Labor, Employee Benefits Security Administration, 29 CFR Part 2590.

Small Businesses, Worksite Wellness, and Public Health:
A Time for Action

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The United States Small Business Administration (SBA) defines a "small" business as an independent business employing 500 or fewer employees. The SBA estimates that there are approximately 25.8 million "small" businesses in the United States, and they employ roughly 50% of the working population.[1] Small businesses tend to offer less health insurance for employees.[2] While 98% of businesses with 200 or more employees offered health benefits, only 59% of firms with less than 200 workers offered health benefits to employees.[3] A lack of health insurance severely limits access to health and medical care for employees and places them in a precarious financial position if an injury or illness befalls the employee or a member of his/her family. National worksite survey results indicate that health insurance or managed care providers are the leading source of health risk appraisals, health screenings, lifestyle behavior change programs, and disease management programs offered by employers of all sizes.[4] As a result, when a small business does not offer health insurance, employees have less access to health promotion programming of all types. However, even among small businesses that offer employee health insurance, the evidence is clear that at nearly every level of employee size, smaller worksites are less likely to offer all types of health promotion programs, offer fewer environmental programs or supports, and report fewer health-oriented policies.[4] Moreover, these patterns have persisted over the past 30 years![4-7] Given growing evidence that worksite-based health promotion programs lead to improvements in employee health, morale, productivity, while helping employers address the rising cost of healthcare. It is a matter of public health concern that small businesses and the 50% of United States workers employed by them do not enjoy these important benefits. This paper will offer some plausible explanations for why small businesses offer fewer health promotion and safety programs, why this problem has persisted over time, suggest a multi-level intervention strategy for increasing the number of small businesses who offer health and safety programs for their employees, and offer a few final research-related next steps.

"When business survival is the focus, any other costs, including those linked to employee health, may be seen as prohibitive."

Why Do Small Businesses Offer Fewer Health Promotion and Safety Programs?

First, we acknowledge that understanding why some small businesses offer health promotion and safety programs (and others do not) is an important question that is worthy of additional research. There may be different reasons for different types of businesses (e.g., service, retail, manufacturing), different "size" businesses (e.g., under 15 employees vs. over 250 employees), businesses in different regions of the country, and/or businesses with different longevity (e.g., start-up, over five years, etc.). While more information would be desirable, here we offer several plausible reasons why small businesses are less likely to offer employee health and safety programs. One likely reason is the additional cost of offering these programs. Small business owners take a serious personal and financial risk to open a new business. More small businesses fail than succeed. Start-up costs for any business are

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substantial. Owners must learn how to hire and retain employees and to run a successful business. When business survival is the focus, any other costs, including those linked to employee health, may be seen as prohibitive. In addition to direct costs, a small business may be less likely to offer health and safety programming because indirect costs (e.g., time and resources) for anything other than the business enterprise are typically in short supply. Competing demands to meet production or service goals, to operate efficiently, and/or to grow the business, are constantly being juggled with human capital needs and resources in the small business environment. Thus, employee health promotion may be low on the list of priorities for small business owners.

A third possible reason why small businesses offer fewer health promotion programs is a lack of personnel dedicated to employee health and safety. National survey results indicate that worksites with a dedicated staff person for health and safety are 10 times more likely to offer a comprehensive worksite wellness program than are worksites without dedicated staff.[4] Small businesses have fewer staff members, and these staff tend to have multiple responsibilities. Thus, few small businesses employ individuals who are able to dedicate any time/effort to worksite health and safety. Interestingly, as small businesses grow in employee size, some of the barriers to offering health and safety programs may diminish. Wilson[8] conducted a nationally representative survey of small businesses and learned that employers with 50-99 employees were different than even smaller employers (i.e., those with less than 50 employees) on nearly all categories. While access to safety programming was about the same in these two categories of employers, the slightly larger worksites were more likely to offer employee health insurance, had more formalized health-related policies and practices, and offered more health promotion programming than companies with less than 50 employees. They also found that the slightly larger employers were more likely to have dedicated staff for health promotion, occupational health and safety, and employee assistance programs.[8] Having a dedicated staff person is a necessary, but not sufficient, condition for success. It is important to have dedicated and knowledgeable and/or experienced staff to successfully plan, implement, and evaluate worksite health promotion programs.

One final reason why small businesses are less likely to offer worksite health promotion and safety programs is linked to the small business culture and leadership tendencies of their owners. Here, some fundamental research has been undertaken. Eakin[9] conducted an important study on the social culture of work in small businesses and the role of manager beliefs and attitudes in framing the meaning and experience of work in those environments. She interviewed 53 small business owners and found that the prevailing way of "managing" health and safety issues was to "leave it up to the workers." Owners discounted health hazards overall and emphasized the perspective that if they tried to address employee health behaviors, they were viewed as paternalistic and/or meddling. Linnan and colleagues[10] corroborated these findings with survey results from more than 1,000 managers in 23 small-to-medium size manufacturing worksites where they found that, while managers strongly believed that safety issues are the responsibility of employers to address, they rated far lower the matter of employer responsibility for supporting employee lifestyle health and/or behavioral issues.[10] It follows that, because most United States small businesses have less than 15 employees, issues of privacy and confidentiality, which are essential to ensuring employee program participation in health promotion programs, can be compromised. As a result, some small business owners may choose not to offer any programs at all, so as to avoid the perception that they are prying into the private lives of their employees.

Despite the many reasons why small business owners are less likely to offer health and safety programs, small businesses have assets and strengths that will serve to help facilitate the adoption of these programs. Specifically, small businesses have fewer organizational layers than larger companies to consider in the decision-making process, so that if an owner wants to adopt a new program or create a new policy, it is typically not a cumbersome decision and approval process. In larger companies, these decisions involve multiple people and additional time. In addition, with fewer employees, it is easier to solicit opinions or assess health needs from the entire workforce at a small business. In larger companies with remote locations, these efforts are complicated, and some employees may be left out. Third, the influence of the leader may be more direct and, thus, stronger in small businesses. As a result, if the leader is supportive of health promotion efforts, employees may be more highly motivated to get involved in worksite-sponsored health promotion, given the stronger and more direct interpersonal relationship between managers and employees in small businesses. Small business owners also know that the health of every employee is important; and employees may be family members (or viewed as "part of

"...if the leader is supportive of health promotion efforts, employees may be more highly motivated to get involved in worksite-sponsored health promotion, given the stronger and more direct interpersonal relationship between managers and employees in small businesses."

the family"), which provides additional motivation to treat employee health as a priority issue.

Recognizing both the challenges and potential strengths of working with small businesses to address health promotion is an important first step toward addressing this public health imperative. One of the *Healthy People 2010* national objectives states that "75% of employers (of all sizes) should offer a comprehensive worksite health promotion program," which is defined as including: (1) *Health education programs* (e.g., skill development and lifestyle behavior change along with information dissemination and awareness building); (2) *Supportive social/physical environments*; (e.g., an organization's expectations regarding healthy behaviors and implementation of policies that promote health and reduce risk of disease); (3) *Integration* (e.g., of the worksite program into the organization's structure); (4) *Linkage* (e.g., to related programs like employee assistance programs (EAPs) and programs to help employees balance work and family); and (5) *Worksite screening programs* (e.g., linked to medical care to ensure follow-up and appropriate treatment). While the majority of employers offer one or more of the five key elements of a comprehensive program,[4] it is clear that small businesses offer far fewer of all programs and are unlikely to reach the 2010 national health objective. In the remainder of this commentary, we share some strategies for how to successfully increase the likelihood that small businesses offer worksite health and safety programs for their employees.

Strategies for Success—Increasing Adoption and Implementation of Health and Safety Programs among Small Business Owners

There are multiple reasons why small businesses may not be offering these programs, so a successful strategy for increasing adoption and implementation of health promotion programs among small businesses should involve multiple levels of intervention, consistent with ecological approaches.[11] Here we present a brief review of some promising strategies at three levels of the social ecologic framework (policy, community, organization) and conclude with a call for additional research.

Policy-Level Changes

Public policy at the federal, state, and local levels could be enacted to support small business owners who want to implement employee health promotion efforts. For example, legislation extending tax credits to small businesses that offer selected health promotion programs was sponsored by Senator Tom Harkin (D-IA) in the Healthy Lifestyle and Prevention America Act (S. 1074). This type of legislation was proposed at the state level in Rhode Island as well.[12] In addition to tax credit strategies, public policy changes that would offer some type of universal healthcare coverage at reduced rates to small businesses would be helpful. As noted previously, because managed care or other health plans are the primary source of employer-sponsored health promotion programs, offering health plan coverage that includes a basic health promotion package would be desirable. These public policy changes—whether at the national or state level—have the potential for making an immediate and significant impact on small business adoption and implementation of health promotion programs for employees.

Community-Level Changes

If not a part of a franchise or a larger corporate affiliation, small businesses can be isolated organizational structures without much power or leverage in a given community. Recommended community-level changes to help stimulate small businesses to adopt and implement health promotion programs is all about identifying and creating leverage points for change through partnerships. Promising community-level interventions include encouraging partnerships to address health promotion initiatives with regional Small Business Administration offices, local Chambers of Commerce, local Business Councils, and national or local Business Groups on Health. These organizations typically exist to support businesses, and if health promotion "packages" or training sessions or workshops could be developed with a small business focus, it might stimulate owners to adopt more health promotion programming. In addition, these partnerships create leverage opportunities where members could be called upon to advocate for policy changes at the national, state, or local levels. In Rhode Island, the state health department helped to organize a statewide worksite wellness council that included business leaders of all sizes, health department officials, insurers/health plans, consultants, and researchers.[12] In North Carolina, most local communities have a Healthy Carolinians Task Force that could embrace and sponsor worksite wellness initiatives. University-based partnerships can bring student skills and help; opportunities for student projects or practicum experiences; and expertise in planning, marketing, or evaluating programs. These community-level partnerships and activities could be a powerful force for change.

Organizational-Level Interventions

Here, we refer to interventions that might be initiated within the small business itself to support the adoption and implementation of employee health promotion programs. Barbeau et al[13] reported that there were no significant differences between small manufacturing sites that did/did not agree to participate in a cancer prevention research trial. Happily, there is growing research evidence that small businesses are interested in and can successfully adopt these programs and that employees who participate can improve their health. For example, Sorenson and colleagues[14] found that small businesses randomized to receive a social-contextual intervention, which included employee participation through wellness committees, and a multi-level intervention addressing employee and manager health and work conditions, were significantly more likely than control worksites to improve multivitamin use and physical activity among employee participants.

The types of strategies that an interested small business can use to develop a successful health promotion program include many of the same approaches that other businesses (of all sizes) should consider. Specifically, first it is important to mobilize all available internal and external information and resources that

might be related to health promotion (e.g., marketing, facilities, nurses, benefits, etc.). Small businesses should create a small team, task force, or wellness committee including employees who are interested in helping focus attention on employee health. This small group can provide the staffing and leadership needed to get a project underway. Second, if there is a labor union or employer-sponsored healthcare plan already present, resources/expertise available through these sources might offer possible staffing, resources, intervention materials, or expert help. Third, it would be useful to conduct an assessment to determine the top five healthcare claims costs, the top five health needs/interests of managers and employees, the behavioral risk profile of the workforce (e.g., via a Health Risk Appraisal), and the important expectations that managers and employees have for this program. Make sure the most current literature from worksite-based research studies is carefully and critically reviewed. Fourth, develop a working plan that takes into account the assessment results and current evidence about what works, as well as realistic objectives for success. It is essential to obtain approval and encouragement for implementation from top management and the wellness committee or task force established at the worksite. A systematic and tailored communications plan and a festive kick-off event can help to get the program underway. Fifth, it is important to include as program components a menu of evidence-based health promotion program offerings that take into account different learning preferences, convenience, cost, time to participate, and any privacy/confidentiality concerns that might exist among employees.

The program, once implemented, should take steps to stay visible among both employees and managers. The program should include multi-level interventions that address work conditions, as well as the physical and social environment. Ongoing visibility can be aided by E-mail messaging, events, contests, print, video, online sources, classes, support groups, and other relevant methods. In order to identify evidence-based programs for possible program inclusion, one can review the most recent published worksite-based literature, the Community Guide to Preventive Services published by the Centers for Disease Control and Prevention (www.thecommunityguide.org/worksite/), CancerControl Planet (http://cancercontrolplanet.cancer.gov/), the Centers for Disease Control and Prevention-sponsored Healthier Worksite Initiative (www.cdc.gov/nccdphp/dnpa/hwi/index.htm), and other compendia of information about effective programs and policy interventions. Specific resources (handbooks) that include examples of small business success stories can be found at the Wellness Councils of America (WELCOA) (www.welcoa.org) or Partnership for Prevention (2001) (www.prevent.org/) Web sites. Finally, successful worksite health promotion initiatives include specific plans to evaluate the health outcomes at the worksite and employee levels, as well as the process of delivering these programs, so that employees and managers can talk about their experiences and the results of these endeavors. It is important to find ways to periodically share the results with employees, the wellness committee members, and with managers. Similarly, it is important to work toward securing a budget (however small to begin with) and some portion of dedicated staff support for employee health promotion activities. Over time, individual training for health promotion program staff will build internal expertise. Successful programs will pursue all partnership opportunities in the larger community, and within their own company environment, so as to leverage small resources and expertise into successful outcomes.

Research to Benefit Practice

Ongoing research is needed to determine how to create structural, political, and economic incentives, as well as strategies for how best to motivate small business owners to adopt these programs, and then to help owners be successful once they embark on these efforts. Research is needed to decipher what the underlying and persistent barriers are to offering these programs and to determine how best to overcome identified barriers in the highly diverse and complex small business community. Divine[15] recently found that small business owners deciding to offer employee health promotion programs were less motivated by financial arguments (e.g., the programs will address a business need or rising healthcare cost), but were more persuaded by evidence that the wellness programs actually work to improve employee health. Qualitative research is critically important to uncovering the root causes of why this problem has persisted for more than three decades. How to best "tailor" a menu of health promotion offerings to the small business environment continues to be a worthy research question. Because partnerships are central to overcoming some of the barriers to offering these programs in small businesses, future research on which partnerships are most effective, how to best characterize these partnerships, and how these partnerships can grow and be sustained over time seem to be critically important scientific pursuits. The role played by managed care organizations and other healthcare provider organizations needs further investigation. Research on the policy level that uncovers examples of legislation or incentives that work to increase small business adoption is clearly needed as well.

"Because nearly 50% of American workers are employed in small businesses, we need to address this problem as a public health imperative."

For the past 30 years, while worksite health promotion programs have proliferated, and many employees and companies

have benefited from these programs, small businesses and their employees have lagged behind and, in fact, have made very few strides toward offering health promotion programs for their employees. Because nearly 50% of American workers are employed in small businesses, we need to address this problem as a public health imperative. We have offered some of the plausible reasons why small businesses have not offered health promotion programs, noted some of the challenges and opportunities, have identified some potential strategies for success, as well as research needs. As we move further into the 21st century, we must take up this challenge so that all workers can benefit equally from successful worksite health promotion efforts, regardless of whether they are employed in a corner convenience store with five employees or a Fortune 500 corporation. This public health challenge is one that we can begin to address with strong partnership models, a multi-level intervention strategy, and the political will to focus attention on this issue now. **NCMedJ**

REFERENCES

1 US Small Business Administration. Size Standards. Available at: http://www.sba.gov/services/contractingopportunities/sizestandardstopics/index.html. Accessed 2006 December 01, 2006.

2 Fronstin P, Helman R. Small employers and health benefits: findings from the 2000 Small Employer Health Benefits Survey. EBRI Issue Brief. 2000;(226):1-22.

3 Claxton G, Gabel J, Gil I, et al. Health benefits in 2006: premium increases moderate, enrollment in consumer-directed health plans remains modest. Health Aff (Millwood). 2006;25(6):w476-485.

4 Linnan L, Bowling M, Lindsay G, et al. Results of the 2004 National Worksite Health Promotion Survey. Am J Public Health, (in press).

5 US Department of Health and Human Services Public Health Service. 1992 National Survey of Worksite Health Promotion Activities: summary. Am J Health Promot. 1993;7(6):452-64.

6 Association for Worksite Health Promotion. 1999 National Worksite Health Promotion Survey. 1999, the Association: Northbrook, Il. AWHP, 1999.

7 Fielding JE, Piserchia PV. Frequency of worksite health promotion activities. Am J Public Health. 1989;79(1):16-20.

8 Wilson MG, DeJoy DM. Jorgensen CM, et al. Health promotion programs in small worksites: results of a national survey. Am J Health Promot. 1999;13(6):358-365.

9 Eakin JM. Leaving it up to the workers: sociological perspective on the management of health and safety in small workplaces. Int J Health Serv. 1992;22(4):689-704.

10 Linnan, L, Weiner B, Graham A, Emmons K. Manager beliefs regarding worksite health promotion: results from the Working Healthy Project 2. Am J Health Promot. (in press).

11 Stokols D, Pelletier KR, Fielding JE. The ecology of work and health: research and policy directions for the promotion of employee health. Health Educ Q. 1996;23(2):137-158.

12 Linnan LA, Sorensen G, Colditz G, et al. Using theory to understand the multiple determinants of low participation in worksite health promotion programs. Health Educ Behav. 2001;28:591-607.

13 Barbeau EM, Wallace L, Lederman R, et al. Recruiting small manufacturing worksites that employ multiethnic, low-wage workforces into a cancer prevention research trial. Prev Chronic Dis. 2004;1(3):A04.

14 Sorensen G, Barbeau E, Stoddard AM, et al. Promoting behavior change among working-class, multiethnic workers: results of the healthy directions—small business study. Am J Public Health. 2005;95(8):1389-1395.

15 Divine RL. Determinants of small business interest in offering a wellness program to their employees. Health Mark Q. 2005;22(3):43-58.

Implementation Challenges in Worksite Health Promotion Programs

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Effective worksite health promotion programs address challenges that occur during planning, development, implementation, and evaluation efforts.[1] In this commentary, we focus on implementation challenges faced by employers—issues that must be addressed after an organization has made a commitment to offering a worksite health promotion program. Of course, initial support from top management must be secured. But evidence suggests that management support alone does not guarantee program success.[2,3]

A nationally representative sample of employers responded to the 2004 National Worksite Health Promotion Survey and reported that the most common barriers or challenges to health promotion program success were: lack of interest among employees (63.5%); lack of staff resources (50.1%); lack of funding (48.2%); lack of participation among high-risk employees (48.0%); and lack of management support (37.0%).[4] No significant differences in barriers were reported based on industry type or worksite size except that worksites with 750+ employees were significantly more likely to report lack of participation by high risk employees as a barrier.[4] We review each of these potential implementation challenges and argue that engaging employees and managers in identifying and addressing them early in the planning process allows an organization to develop the necessary strategies to overcome them.

First, some employers clearly believe that employees are not interested in worksite health promotion programs. This tends to occur when employee participation in programs is low. It is important to both understand and clarify some of the potential underlying "causes" of low levels of employee interest and participation.[5] For example, insufficient or ineffective communication about health promotion programs could result in low levels of participation simply because employees were not aware of programs being offered. Another potential "cause" of low perceived employee interest is that employees might not participate at all (or in lower numbers) if they have to pay to join a program, or if the program is offered at inconvenient times or locations, or when child care and other issues may limit participation. Employees exposed to stressful and/or otherwise hazardous work conditions might not participate because they are skeptical of worksite health promotion programs and/or angry if these programs are being prioritized ahead of addressing work conditions.[6] Additionally, if employees believe that employers are intruding on their privacy or trying to "control" their health, they may not participate.[7] Thus, low employee participation may be caused by several of these factors and may lead to a perception among employers that employees are not "interested" in health promotion programs.

"...we encourage employers to consider funding worksite health promotion programs as an investment in "human capital" that will lead to bottom line advantages for the organization."

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Improving Employee Participation

Strategic program planning efforts can help organizations overcome problems with low participation and low perceived employee interest. First, we encourage employers to mobilize an employee wellness committee—a group of employees that represent key work teams and departments in an organization—who can be involved in planning, promoting, and developing health promotion programs at work.[8] If unions are present, be sure to work with local representatives to understand their priorities and incorporate those into the planning process. Second, develop a comprehensive marketing plan that gets the word out about program offerings through channels that reach all employees. Third, consider offering incentives to increase employee participation. For example, 25.9% of respondents to the 2004 National Worksite Health Promotion Survey reported using incentives for this purpose.[4] Such incentives, if properly designed and communicated clearly to employees, have been shown to enhance participation in worksite health promotion programs.[9] Fourth, be sure to offer high-quality health promotion programs and use a variety of educational methods (self-help, group classes, Internet options, etc.) that appeal to different employee interests and learning styles. These programs should be free, or low-cost, and convenient for employees to participate, including offering options for shift workers and employees who travel or work offsite to participate. If programs are to be held during regular daytime hours, management should be lobbied to either allow employees to participate during work time or to institute a policy of shared employee/work time or flex time. Fifth, finding program "champions" (members of the wellness committee, managers, or members of the general employee population) who both participate and enthusiastically support programs will help increase employee participation as well. Finally, addressing work conditions that are oppressive, stressful, or hazardous to employees will influence participation among employees.[10] Evidence suggests that employees who have a voice in addressing the pace or conditions of work will be more engaged in worksite wellness efforts while maintaining productivity.[11,12] If implemented early in the planning process, all of these strategies can help overcome potential problems with employee interest and/or low participation.

Addressing participation among "high-risk" employees is an implementation challenge recognized by new as well as experienced program staff. Evidence suggests that moving high-risk employees to a lower-risk category will have a positive impact on employers' healthcare costs.[13,14] However, Edington and colleagues have demonstrated that maintaining the health of low-risk employees over time is also important for ensuring long-term control of healthcare costs.[15] While evidence suggests that high-risk employees might face different barriers to participating in health promotion programs than low-risk employees,[16] more research is needed to uncover best practices (e.g., tailored approaches, engaging peer educators, or offering online options that maintain privacy) for increasing program participation among all employees, including those at all levels of risk. For example, Grosch et al[17] surveyed a representative sample of workers from the National Health Interview Survey data and found that, when access to programs was equal for all workers, traditionally "high-risk" employees (e.g., blue-collar workers and blacks) were more likely to report they participated in worksite health promotion programs than were other workers. Emmons et al[18] conducted a qualitative study to ascertain barriers to participation among working women with different health risk factor levels. Research results like these have direct application for improving strategies for success on increasing participation over time.

Overcoming a Lack of Staff Resources

Lack of staff resources was another commonly reported barrier to offering health promotion programs as reported in the 2004 National Worksite Health Promotion Survey.[4] Among large employers, staff resources might be hard to identify or they might be "discovered" through a well-planned needs assessment. Among smaller employers, resources of all types, including staff resources, may be problematic for any programs that are not directly linked to the business operation. Importantly, evidence suggests having a staff person who has dedicated responsibilities for health promotion has been shown to be the single biggest independent predictor of having a comprehensive worksite health promotion program.[4] Existing staff may be both willing and interested in helping to organize health promotion efforts at work. Through continuing education workshops or externally-sponsored training programs, an employer can address this potential implementation challenge. For example, employee wellness committees can assist a designated staff person with program planning and implementation efforts. In fact, the North Carolina State Division of Public Health has worked with the State Health Plan to develop and deliver a training workshop for state employees and teachers who want to start an employee wellness program. (More information is available at http://statehealthplan.state.nc.us/worksite-wellness.html.)

Finding Funds

Lack of funding is the third most commonly cited barrier to offering worksite health promotion programs. This problem often goes hand-in-hand with a lack of staff resources. While all employers face this challenge to some extent, many potential funding and/or sources of support exist and can be tapped for assistance. Specifically, health plans are the leading source of health risk appraisals, health screenings, lifestyle behavior change programs, and disease management programs offered by employers responding to the National Worksite Health Promotion Survey.[4] Local hospitals, voluntary health organizations, health departments, business groups on health, chambers of commerce, and other groups may provide direct assistance to employers who offer worksite wellness programs. The Centers for Disease Control and Prevention sponsored Healthier Worksite Initiative Web site (www.cdc.gov/nccdphp/dnpa/hwi/index.htm) lists resources as well as funding opportunities for worksite health promotion. However, we encourage employers to consider funding worksite health promotion programs as an investment

in "human capital" that will lead to bottom line advantages for the organization. Positive changes in employee health behaviors, healthcare claims costs, productivity, turnover, and absenteeism are possible, so program staff should be sure to include related measures in a comprehensive evaluation plan when considering the total return-on-investment perspective.

Cultivate Management Support at All Levels

One final implementation challenge universally acknowledged by employers is a lack of management support. Moreover, evidence suggests that different levels of management (e.g., line supervisors, middle managers, and top managers) report different barriers to program implementation that warrant serious consideration.[3] For example, in one study of over 1,000 managers from 23 manufacturing worksites, senior managers (vs. line supervisors) were significantly less likely to believe space or cost were barriers and were less likely than middle managers or line supervisors to believe production conflicts were a barrier to offering health promotion programs.[3] Management support should be cultivated early in the planning process, and throughout implementation.

Several strategies for ensuring management support are worth consideration. First, management representation should be included on the employee wellness committee as a visible sign that management is committed to its success and to keep management informed of the progress of the program. Second, key managers should be interviewed to ascertain their expectations for worksite health promotion programs. Third, ongoing communications with managers should take place to ensure visibility and to share success stories. Communications should include data that address managerial needs and expectations whenever possible. Finally, national (see Table 1), industry-specific or local data should be used whenever possible as benchmarks for success. Regular reports to management on progress toward achieving those goals are desirable.

Table 1.
Healthy People 2010 Worksite Setting Objectives[19]

Objective	Target
Increase the proportion of worksites that offer a comprehensive employee health promotion program to their employees.	75%
Increase the proportion of employees who participate in employer-sponsored health promotion activities.	75%

Conclusion

An employer who decides to offer a worksite health promotion program faces a number of important implementation challenges, and the underlying causes of these challenges are varied and complex. An effective planning effort can, however, address employer concerns while engaging employees in the process of planning, developing, implementing, and evaluating worksite health promotion programs that are most likely to be successfully adopted, achieve desired employee health outcomes, and sustained over time. **NCMedJ**

REFERENCES

1 Anspaugh D, Dignan M, Anspaugh S. Developing Health Promotion Programs. 2000, Long Grove, Illinois: Waveland Press, Inc. 254.
2 Orlandi MA. The diffusion and adoption of worksite health promotion innovations: an analysis of barriers. Prev Med. 1986;15(5):522-536.
3 Linnan L, Weiner B, Graham A, Emmons K., Manager beliefs regarding worksite health promotion: results from the Working Healthy Project 2. Am J Health Promot. (in press).
4 Linnan L, Bowling M, Lindsay G, et al. Results of the 2004 National Worksite Health Promotion Survey. Am J Public Health. (in press).
5 Linnan L, Sorensen G, Colditz G, Klar N, Emmons KM. Using theory to understand the multiple determinants of low participation in worksite health promotion programs. Health Educ Behavior. 2001;8(5):591-607.
6 Sorensen G, et al. Work site-based cancer prevention: primary results from the Working Well Trial. Am J Public Health. 1996;86(7):939-947.
7 Walsh DC, et al. Health promotion versus health protection? Employees' perceptions and concerns. J Public Health Policy. 1991;12(2):148-164.
8 Sorensen G, et al. Employee advisory boards as a vehicle for organizing worksite health promotion programs. Am J Health Promot. 1992;6(6):443-450, 464.
9 Glasgow RE, McCaul KD, Fisher KJ. Participation in worksite health promotion: a critique of the literature and recommendations for future practice. Health Educ Q. 1993;20(3):391-408.
10 Linnan L. The future of worksite health promotion in America. Absolute Advantage: Wellness Councils of America (WELCOA) Worksite Wellness Magazine. (2004);3(6):36-40.
11 Sorensen G, Barbeau E, Stoddard AM, et al. Promoting behavior change among working-class, multiethnic workers: results of the healthy directions—small business study. Am J Public Health. 2005;95(8):1389-1395.
12 Gomel M, Oldenburg B, Simpson JM, Owen N. Worksite cardiovascular risk reduction: a randomized trial of health risk assessment, education, counseling and incentives. Am J Public Health. 1993;83(9):1231-1238.
13 Haynes G, Dunnagan T. Comparing changes in health risk factors and medical costs over time. Am J Health Promot. 2002;17(2):112-121.
14 Wright D, et al. Comparing excess costs across multiple corporate populations. JOEM. 2004;46(9):937-945.
15 Edington DW, Yen LT, Witting P. The financial impact of changes in personal health practices. JOEM. 1997;39:1037-1046.
16 Emmons KM, et al. Women who work in manufacturing settings: factors influencing their participation in worksite health promotion programs. Womens Health Issues. 1996;6(2):74-81.
17 Grosch J, Alterman T, Peterson M, Murphy L. Worksite health promotion in the US: Factors associated with availability and participation. Am J Health Promot. 1998;13(1):36-45.

18 Emmons, K, Linnan, L, Abrams, DB, Lovell J. Women who work in manufacturing settings: factors influencing their participation in worksite health promotion programs. Womens Health Issues. 1996;6(2);74-81.

19 US Department of Health and Human Services, Healthy People 2010. 2nd ed. 2000. US DHHS: Washington, DC.

Worksite Health Promotion:
Skills and Functions of Professional Staff

Bonnie Rogers, DrPH, COHN-S, LNCC, FAAN

Health promotion and wellness programs are designed to facilitate behavioral change and maintenance, emphasizing optimal health. General agreement exists that interaction among individual, social, and environmental factors influence behavioral choices that may result in detriments to health and/or increased health risk. Alteration or modification of these risk-based lifestyle choices and non-supportive environments are needed so that optimal health outcomes can be achieved. This can best be accomplished through a series of combined strategies that often involve programs, such as risk assessment and management, smoking cessation, weight management, fitness, stress management, and selected screening or targeted disease management programs, such as high blood pressure and cancer control.

Qualified and capable staff are essential to develop, implement, and evaluate worksite health promotion programs. McCauley and McCunney point out that selecting staff may be as easy as turning over programming to existing staff that have skills in health promotion program development, or it could be as difficult as hiring new staff or selecting qualified vendors, or both. However, it is important not to assume prospective staff capability based on credentials and referrals. Assessing prospective staff capability to lead such initiatives should include considerations of substantive knowledge and worksite-based health promotion experience, as well as effective interpersonal, writing, presentation, and management skills.[1] If an itinerant health promotion leader is necessary due to the configuration of business structure and location, then the ability to adapt programs to local worksite circumstances would be essential.

Adult Learning: Constructing Knowledge

In any worksite health promotion program, staff will need to be intimately familiar with principles of adult learning. The classic work of Malcolm Knowles,[2] former professor at North Carolina State University, differentiates between adult and child patterns of learning and emphasizes the importance of teaching adults based on a framework of andragogy (teaching of adults), rather than pedagogy (teaching children). Knowles discusses that children have often been taught in traditional lecture-learner formats, although educators are finding more success and student interest when the actual principles of what is being taught are applied through hands-on experiences, field trips, and group work. Knowles points out that adults, because of their greater independence and more extensive backgrounds, bring more to the learning experience, and health promotion staff should serve as facilitators and enhancers of the teaching-learning process. Knowles' principles of adult education focus on four areas: independent learning, usefulness of past experience, readiness to learn, and problem-oriented learning.

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Independent learning emphasizes the importance of respecting the independence of workers and including them as active, self-directed participants, rather than passive recipients. This can be done by finding out what they already know about a topic, what they need to know to do the job better and safer, or what more they would like to learn.

Previous experience utilizes the wealth of life's experiences on which to base new learning. For example, an employee may have a relative who has had a heart attack and may be able to share related information about the rehabilitation process. This also presents an opportunity to assess employee baseline knowledge and to focus on areas of special concern.

Readiness to learn involves recognizing when an employee or employees are ready to engage in new learning events or when a teachable moment presents itself.[3] For example, a woman who becomes pregnant may be more interested in learning about workplace hazards or the effects of related lifestyle hazards, such as smoking, and an employee recently diagnosed with high blood pressure may be more interested in learning about dietary control strategies. Preventive information on topics such as AIDS or diabetes may not have a direct impact unless the employee knows someone affected.

Problem-oriented learning relates to helping employees address a problem area related to changing behavior of personal concern. For example, employees who have had difficulty in quitting smoking will probably consider it a health problem and, thus, be more amenable to a smoking cessation clinic or an educational program. In addition, Loos[4] asserts that adult learners:

- do not regard instruction as a means of reinforcing learning,
- utilize instruction to construct knowledge, and
- learn best what they "discover" for themselves.

Therefore, instructing adults must be an active process wherein the learner constructs knowledge rather than only acquires it, and it involves a process of supporting this construction rather than one of only communicating knowledge.

Communicating, Assessing, Planning, Conducting, and Evaluating

For many years, executives, management, and white- and pink-collar workers were the primary targets for health promotion programs.[1] Today the literature is replete with information about programs designed for special populations. For example, back care and musculoskeletal disorder care and preventive programs have been offered for petroleum workers,[5] healthcare workers,[6] municipal workers,[7] school personnel,[8] and police officers.[9] Hypertension, diabetes management, and stress reduction programs are being increasingly offered to employees from ethnically diverse populations.[10] What this means is that health promotion staff or specialists need to have not only skills and knowledge in targeted areas, but also the ability to communicate with diverse populations, including being able to deal with issues of language, culture, and literacy barriers.[3]

Health promotion programs may do one or more of the following: address an awareness level, focus on lifestyle or behavioral change programs, or encompass environments that encourage healthy lifestyles. Because the concepts of health promotion and wellness are multidimensional in nature, programs can and should encompass social, occupational, spiritual, physical, intellectual, or emotional dimensions.

Health promotion specialists should use a systematic approach to develop, plan, and implement successful health promotion programs.[11] The corporate culture needs to be assessed to determine if health promotion is valued within the organization and what the commitment of management is to health promotion. Assessing employee involvement is also critical for success. What programs would they like to have offered and when? In addition, examining existing healthcare data is critical to justify the need for programs. This information can be used to convince management to establish specific programs like prenatal education, breast self-examination and mammography, and nutrition/exercise programs. Health promotion planners should establish a wellness committee with employee representation that can assist with program planning and contribute to program success. Goals and objectives can be established along with a budget and an evaluation plan. After the program is completed, it must be evaluated. An evaluation of the program serves many important functions, including assessment of the achievement of objectives, identification of the strengths and weaknesses of the program, and analysis of its outcomes.

Specific functions of the health promotion specialist include, but are not limited to, the following activities:

- Assesses and targets health promotion program needs for the workforce.
- Develops and monitors the goals and strategies for the health promotion program.
- Develops and implements primary, secondary, and tertiary prevention programs.
- Provides programs and special events, such as health fairs and health education seminars, which increase awareness of health issues and choices, and help modify health risk behaviors.
- Collaborates with management to provide a healthy work environment.
- Selects and monitors vendor contracts.
- Conducts ongoing evaluation of the specific activities, as well as the overall health promotion program, and integrates cost-containment and cost-effectiveness aspects.
- Plans and directs the evaluation process.

Depending on the type of industry, health promotion planners will need to consider shiftwork, telecommuting, and remote locations. The latter two areas will require skills in distance education. In addition, the health promotion staff will need to be familiar with motivational readiness and concepts related to change.[12,13] For example, Prochaskas's model describes the five stages of change—precontemplation, contemplation, preparation, action, and maintenance. This model attempts to explain five

stages through which individuals engage in behavioral change. The health promotion specialist can use this model to identify the stage of change where the employee is and utilize appropriate strategies to help workers move through these change stages, which will include dealing with relapse prevention.[3]

In conclusion, health promotion staff must have knowledge and skills that have breadth and depth. Knowing the worker population and industry needs and being able to communicate with diverse populations using principles of adult learning are essential to have successful and effective outcomes in achieving optimal health. **NCMedJ**

REFERENCES

1 McCauley MJ, McCunney RJ. Health Promotion, A Practical Approach to Occupational and Environmental Medicine Philadelphia, PA: Lippincott Williams and Wilkins. 2003:153-177.
2 Knowles M.. The adult learner: A neglected species. Houston, TX: Gulf. 1984.
3 Rogers B. Occupational Health Nursing: Concepts and Practice, Elsevier, 3rd edition, 2003.
4 Loos G. Education and training on life-long learning and information on demand. Paper presented at NIOSH Conference, Cincinnati, OH. 2001 July 25-26.
5 Maniscalco P, et al. Decreased rate of back injuries through a wellness program for offshore petroleum employees. JOEM. 1999;40(9):813-820.
6 Rogers B. Improving Safety in Health Care Environments – Institute of Medicine Report AAOHN Journal. 2004;52:417-419.
7 Myers AH, et al. Back injuries in municipal worker: a case-control study. Am J Public Health. 1999;89(7)1036-1041.
8 O'Loughlin J, et al. Screening school personnel for cardiovascular risk factors: short term impact on be¬havior and perceived role as promoters of heart health. Prev Med. 1996;25(6):660-667.
9 Richmond RL. How healthy are the police: a survey of life-style factors. Addiction. 1998;93(11):1729-1737.
10 Slavin K. Health promotion projects for state workers, North Carolina Department of Health and Human Services: Raleigh, NC. 2006.
11 AAOHN. Competencies in occupational health nursing. AAOHN Journal. 2003;51.
12 Laitakari J. On the practical applicability of stage models to health promotion and health education. Am J Health Promot. 1998;22(1):28-38.
13 Prochaska JO, Velicer WF. Introduction: the transtheoretical model. Am J Health Promot. 1997;12(1):6-7.

Creating a Culture of Wellness in Workplaces

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The North Carolina State Health Plan (SHP), a self-funded plan established by the North Carolina General Assembly, provides healthcare coverage for more than 615,000 active public sector employees, retirees, and dependents. Employee members of the SHP work in 225 organizations in approximately 3,000 worksites throughout the state. Seventy percent of the health plan's medical and pharmacy costs are attributed to preventable chronic diseases related to poor nutrition/obesity, physical inactivity, tobacco use, and stress. In 2003, more than 164,000 SHP members were treated for one or more chronic diseases, an increase of 37% from 2000.[a] In response to these findings, the SHP launched NC Health*Smart*, a healthy living initiative for all eligible members in 2005.[1] The initiative includes six components: health tracking, including a health risk assessment; centrally designed health promotion interventions; targeted disease management; health coaching services available 24/7; high-risk case management; and worksite wellness programs.[b,2]

NC Health*Smart* delivers integrated services directly to the member via the Web, mail, telephone, worksite, and the healthcare community. These wrap-around services are designed to empower the members to play an active role in the management of their health.

Wellness programs in the workplace have great potential to impact employees' long-term lifestyle choices because the average employee spends 50 hours-a-week at work and eats one third of his/her meals at work.[3] Long-term results of wellness programs include improved health outcomes, reduced absenteeism, improved employee morale and retention, and reduced healthcare costs.[4,5,6]

Successful worksite wellness programs are characterized by:[6]

- Individualized behavior change information (self-care information, health risk assessments, behavioral counseling);
- Social supports (wellness challenges, classes, support groups);
- Senior-level management buy-in (financial incentives, department-wide policy changes, communication, long-term commitment); and
- Environmental supports (workplace fitness centers, on-site health services, smoke-free worksites, healthy meal and snack options).

"Wellness programs in the workplace have great potential to impact employees' long-term lifestyle choices because the average employee spends 50 hours-a-week at work and eats one third of his/her meals at work."

a Members eligible for North Carolina Health*Smart* services are members whose primary health insurance is through the North Carolina State Health Plan and who are not on COBRA.

b North Carolina Health*Smart* was developed in collaboration with the State Teacher and Employee Wellness Advisory Committee (STEWAC), North Carolina Institute of Medicine, the University of North Carolina School of Public Health, North Carolina Department of Health and Human Services, and the North Carolina State Health Plan Board of Directors.

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Based on this evidence, the SHP, in partnership with the Division of Public Health (DPH) in the North Carolina Department of Health and Human Services (NC DHHS), has developed the NC Health*Smart* Worksite Wellness Toolkit for use by worksite wellness committees in all North Carolina state government entities. Employers can use the Toolkit to build customized wellness programs. Currently, more than 160 committees from 93 eligible state organizations[c] have been trained to use the Toolkit. The State Health Plan is also funding a worksite wellness team at the DPH to offer new resources and technical assistance to support committee sustainability at these worksites. New services will include a Web site, seminars, a newsletter, and a consultation program. In 2007, the Toolkit and training initiative will be modified for public schools (approximately 175,000 SHP members). This work will integrate with the North Carolina Healthy Schools initiative and occur in partnership with the North Carolina Department of Public Instruction, Local Educational Agencies, and the Division of Public Health.

Pilot Worksite Wellness Program

In 2004, the SHP commissioned and jointly funded a wellness initiative with a single state agency, NC DHHS, as a prototype for leadership development, policy change, and building wellness infrastructure for all North Carolina state government employers. NC DHHS was chosen as the pilot because of leadership support for worksite wellness and its large size (18,700 employees in 22 agencies and 16 hospital and residential school facilities across North Carolina) The initiative aims to:

- Reduce the major chronic disease risk factors among NC DHHS employees, thereby reducing chronic diseases and containing rising healthcare costs.
- Demonstrate the effectiveness of a wellness program model that includes a full-time, department-level director.
- Establish wellness committees to create and sustain work environments that promote and support employee health and wellness.
- Change policies and work environments to help employees become more active, make healthier food choices, avoid tobacco, and manage stress.

Implementation of the Pilot

NC DHHS launched the Wellness Initiative in September 2005. In the first 12 months, the groundwork for a sustainable, department-wide wellness program has been created. It involves leadership at all levels of the organization and formally incorporates feedback from employees and agency wellness committees. NC DHHS developed a three-year strategic implementation and evaluation plan with measurable objectives to guide the initiative. Baseline and follow-up surveys were conducted to assess agency policy and environmental support for wellness, employee interest and participation levels, and management support. An online reporting system was created for committees to submit brief monthly reports of their wellness activities and program outcomes.

Prior to the launch of the Wellness Initiative, each division, office, and facility designated a Wellness Representative. The NC DHHS Wellness Director helped the 38 representatives establish wellness committees and develop tailored agency wellness plans. The Wellness Representatives also serve as members of a new Department-level Wellness Council to advise the Secretary on worksite wellness policy issues. All representatives received training on the Worksite Wellness Toolkit in the fall of 2005. The Wellness Director provides continued technical assistance, which includes on-site visits to help wellness committees implement programs geared to the needs and interests of their employees. Raffle incentives and exercise equipment grants were offered to committees to promote wellness activities and to increase employee participation. Wellness committees are also encouraged to integrate other NC Health*Smart* services, such as health coaching and the health risk assessment, into their program strategies.

NC DHHS determined that approving *department-wide policies* that support employee wellness and creating a *supportive work environment* were the most efficient and cost-effective ways to engage employees in health risk reduction activities. NC DHHS Secretary Carmen Hooker Odom addressed the first policy issue by raising awareness of an existing Department Wellness Policy that allowed employees, with manager approval, to use flex-time schedules to participate in wellness activities. The Secretary continues to consider policy and environmental changes as needs are identified.

> *"I firmly believe that we, the leading public health organization in the state, must fully support our own employees' efforts to live a healthy life," says Secretary Hooker Odom. "I am committed to working with managers and employees to create a 'culture of wellness' within the Department. I encourage other state agency leaders to embrace worksite wellness and to take advantage of what we have learned."*

Policy Recommendations

The NC DHHS Wellness Council made policy recommendations for the Department using employee and agency survey results, evidence-based wellness interventions, and council members' perceptions of department-level barriers. The recommendations are to:

- Increase employee access to on-site exercise opportunities.
- Provide incentives and increase management support for employee participation in wellness activities.

c State agencies, universities, and community colleges are eligible for trainings in 2006-2007. A modified curriculum will be rolled out to public schools in the next two years.

- Ensure that all employees have access to designated break areas away from their workstations.
- Require training for supervisors on conflict resolution and stress reduction.
- Improve access to healthier meals and snacks in the workplace.
- Support policies that make workplaces tobacco free and provide on-site cessation programs.
- Establish procedures for addressing employees' concerns about air quality and ergonomic work areas.

Secretary Hooker Odom responded to the recommendations by providing key support for the implementation of department-wide formal and informal policy changes. Opportunities to increase physical activity helped drive several changes. State hospitals and resident school facilities with existing fitness areas were asked to allow employees use of the areas. For example, the Dorothea Dix Hospital Campus in Raleigh will reopen a gym facility (infrequently used by hospital patients) to employees, giving them access seven days-a-week. Improved exercise, shower, and locker facilities and scheduled wellness activities are planned for the site. Agencies were also encouraged to designate space for fitness areas. Fourteen sites received a commercial grade treadmill or exercise bike from a grant program offered by NC DHHS. To increase healthy foods at work, the State Services for the Blind vending contracts were modified to require vendors to include 15%, or at least five, healthier vending choices. Work is also underway to provide designated break areas and to offer incentives to support employee participation in health promotion programs.

Year One Outcomes and Participation

During the first 12 months of the Wellness Initiative, NC DHHS wellness committees reported implementing a total of 243 wellness activities and reported 49 changes to policies and environments that increased support for employees to become more physically active, eat healthier foods, avoid tobacco, or manage stress. Worksites with healthier vending options doubled (10 to 20), and the number of worksites providing information on healthy food choices increased from 10 to 41. More worksites have written policies supporting physical activity during the workday, and the number of indoor fitness areas increased from 14 to 22 worksites. More sites disseminated tobacco health risk information (from five to 33) and offered cessation programs (from three to 14). Stress management programs and materials offered in 14 worksites a year ago are now available in 36 worksites. Even without formal incentives, NC DHHS has achieved the highest rate of health risk assessment completion of any state department.

Preliminary data from a November 2006 employee survey (4,788 respondents) found that 62% of employees had participated in at least one workplace wellness activity in the past year. Employees reported exercising more often (51%), citing work-based walking programs (50%) as the most popular activity. They indicated that they were eating more fruits and vegetables (49%), and were closer to a healthy weight (27%). With regard to tobacco use, 106 employees stopped tobacco use completely, and 149 reduced their amount of tobacco use. Employees indicated that they had received health information from their worksite wellness committees (45%), attended health fairs (35%), and received a flu shot at work (46%). The main reason employees reported that they did not participate in wellness activities was a lack of time (36%).

Wellness committees receive survey results to guide their wellness program plans for the coming year. Use of the survey information appears to have played a critical role in achieving high levels of participation. For example, both the baseline survey in 2005 and the second employee survey in 2006 indicate that an indoor place to exercise at work was the primary wellness priority for the greatest number of employees. The Wellness Initiative responded to employee needs by addressing policies that prevent or limit access to existing fitness areas and providing fitness equipment to agencies.

Further evaluation of the NC DHHS Wellness Initiative will include analysis of aggregate employee health risk assessment data. It is anticipated that this information will further confirm changes in a majority of employees' health behaviors. Finally, a comparison of health claims data before and after implementation of the Wellness Initiative will assess the impact of this model of worksite wellness on improving employee health and containing healthcare costs.

The NC DHHS Wellness Initiative will not be completed for at least another year, yet mid-study data suggest that it is already positively impacting individual and environmental behaviors. Modifying lifestyle habits is difficult, and it is critical to use every point of entry to support individuals in taking a more active role in their health. A comprehensive worksite wellness program can increase employee satisfaction and productivity and improve employee health by reinforcing health messages from providers, care management services, and health education campaigns. The State Health Plan will build on the impressive NC DHHS preliminary results by using this experience and other resources to benefit all state government, university, community college, and public school employers and their employee populations. **NCMedJ**

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REFERENCES

1 NC State Health Plan's The State of Member Health 2004: Health trends and implications for Plan members and North Carolina, June 16, 2004.

2 NC Institute of Medicine and Center for Health Improvement. Evidence-Based Approaches to Worksite Wellness and Employee Health Promotion and Disease Prevention, April

2005. Available at: http://www.nciom.org/projects/STEWAC/STEWACreport.html. Accessed December 12, 2006.
3 Schor JB. The Overworked American: The Unexpected Decline of Leisure. BasicBooks: New York, NY. 1992.
4 Aldana SG. Financial impact of health promotion programs: a comprehensive review of the literature. Am J Health Promot. 2001 May/Jun;5(15):296-320.
5 Lowe GS, Schellenberg G, Shannon HS. Correlates of employees' perceptions of a healthy work environment. Am J Health Promot. 2003 Jul/Aug;17(6):390-399.
6 Pelletier K. A Review and Analysis of the Health & Financial Outcome Studies of Comprehensive Health Promotion & Disease Prevention Programs at the Worksite. Am J Health Promot. 1996 May/June;10(5):380-388.

National Indications of Increasing Investment in Workplace Health Promotion Programs by Large- and Medium-Size Companies

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Worksite health promotion programming has received growing interest over the past 20 years. In 1985, the Office of Disease Prevention and Health Promotion (of the United States Department of Health and Human Services) launched its first survey of national worksite health promotion practices. Subsequent to that, there have been three follow-up surveys, the most recent findings published in 1999. The 1999 survey reported that 90% of worksites were offering at least one type of health promotion activity to their employees. The results from the 2004 National Worksite Health Promotion Survey,[1] currently in the publication process, compares health promotion programming among worksites between 1999 and 2004, and more fully assesses the degree to which worksites are meeting the *Healthy People 2010* goal of having 75% of all worksites, regardless of size, offering comprehensive programming to employees. The 2004 National Worksite Health Promotion Survey, sponsored by Partnership for Prevention, Watson Wyatt Worldwide, and the Office of Disease Prevention and Health Promotion surveyed a nationally representative sample of over 1,500 worksites and found that employers offered a wide range of health promotion activities to their workers. However, only 6.9% of the responding worksites offered all five key elements that define a "comprehensive" worksite health promotion program: (1) health education, (2) links to related employee services, (3) supportive physical and social environments for health improvement, (4) integration of health promotion into the organization's culture, and (5) employee screenings with adequate treatment and follow up. Controlling for worksite size, indutstry type, staffing, and experience, worksites from agricultural or financial sectors and those with a dedicated staff person were significantly more likely to offer a comprehensive program.[2]

Along the continuum of worksite health promotion program elements, the level of sophistication usually correlates with the amount of resources invested. Despite the fact that the growth, and in some cases the very sustainability of business, is linked to employee health, many employers do not view worksite health promotion as being a core component of their business strategy. Yet, the issue surrounding the cost of health is at the forefront of business leaders' minds. Over the past four consecutive years, CEOs responding to the Business Roundtable's *CEO Economic Outlook Survey* have cited healthcare costs as their greatest cost pressure.[3]

"...research has documented that high-risk employees are also high-cost employees with higher medical and pharmacy expenses."

Leveraging the workplace to improve health is good for employees and good for business. It's not just the direct costs of healthcare that companies have to take into consideration. The indirect costs of poor health (e.g., absenteeism, disability, presenteeism) can be two to three times higher than direct medical costs (see Figure 1).[4,5,6,7] Productivity losses related to personal and family health problems cost United States employers $1,685 per employee per year, or $225.8 billion annually.[8]

A study conducted at The Dow Chemical Company helped illustrate the total economic impact of employee health, including indirect costs. The analysis illustrated a staggering $750 million economic impact from employee health status by determining

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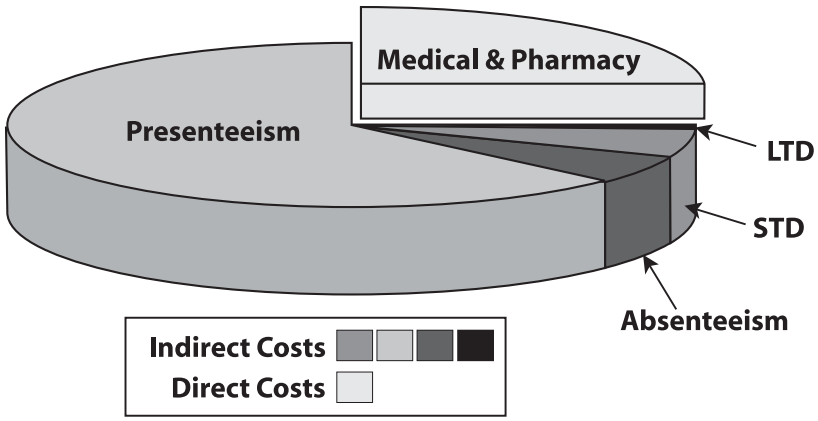
that the indirect cost associated with "presenteeism" far exceeded the costs of absenteeism and medical treatment combined. Spurred into action by these findings, Dow established a comprehensive health strategy with the goals of improving health, reducing health risks, managing costs, and improving health-related productivity (presenteeism).[9]

The Dow Chemical Company's "comprehensive health strategy" includes worksite health promotion integrated with other health-related initiatives. In recent years, many large companies have taken a similar approach by aligning previously separate functions, such as benefit design, occupational and environmental health, occupational and non-occupational disability management, Employee Assistance Programs (EAPs), work-family programs, together with worksite health promotion initiatives and incentives, to address overall employee health and productivity. Large employers are targeting the needs of employees and designing services that will drive the actions of both employees and the health plan/provider. Collectively these combined efforts are often referred to as employee health management, Pioneer Hi-Bred International, Inc. provides another example of an integrated preventive health and wellness program as part of a business strategy supporting the health and well-being of employees, their families, and retirees through maximum engagement and capability. The program aim is to attract and retain a world-class workforce, assure quality, efficient, sustainable, and affordable healthcare, with a safety goal of zero occupational injuries and illnesses. Health plans and programs are designed to encourage prevention, disease management, and the efficient use of the healthcare system and planning for future healthcare needs. Pioneer's program is integrated with the EAP, and life management with search, referral, and counseling services including childcare, eldercare, financial and legal assistance.[10]

Employee health management includes: linking employee health efforts with the company mission, data management, benefit design, supportive environment, programming, and evaluation integrated within a cost-effective business strategy. For more information on these components, and how they apply to organizations, please refer to the Health Management Initiative Assessment in *Leading by Example: Improving the Bottom Line Through a High Performance, Less Costly Worksforce—CEOs on the Business Case for Worksite Health Promotion*.[11] There is strong evidence supporting the cost-effectiveness of investing in employee health management including worksite health promotion. Healthy employees are more productive and consume fewer corporate resources in the form of benefit

Figure 1.
Relative Contribution of Direct and Indirect Costs Within a Large Financial Services Corporation



Source: Edington DW, Burton WN. Health and productivity. McCunney, RJ: *A Practical Approach to Occupational and Environmental Medicine*. Philadelphia: Lippincott Williams & Wilkings. 3rd ed. 2003:140-152.

Table 1.
Worksite Wellness Program Awards

2006 C. Everett Koop National Health Awards Winners
■ USAA – Take Care of Your Health Program
■ Honorable mention: Roche, Inc., and Washoe County School District
(http://healthproject.stanford.edu/koop/2006winnerindex.htm)
2006 Innovation in Prevention Award Winners
Large employer (greater than 500 employees)
■ Perdue Farms – Perdue Health Improvement Program – Large Employer
■ Washoe County School District – Washoe County School Distric Wellness Program
Small employer (500 or less employees)
■ Hudson River Healthcare – Step Up for Wellness
(http://www.hhs.gov/news/press/2006pres/20061026.html)
2006 Wellness Councils of America (WELCOA) Well Workplace Winners (Platinum)
■ The Beacon Mutual Insurance Company
■ Syngenta
■ Motorola, Inc.
■ Nebraska Methodist College
■ The Principal Financial Group
■ International Business Machines
■ Lincoln Plating
■ The Nebraska Medical Center
■ Merril Lynch
■ Monongalia Health System
(http://www.welcoa.org)

payments for medical care, short- and long-term disability, and workers' compensation.

- A review of 73 published studies of worksite health promotion programs shows an average $3.50-to-$1 savings-to-cost ratios in reduced absenteeism and healthcare cost.[12]
- A meta-review of 56 published studies of worksite health promotion programs shows:[13]
  - Average 27% reduction in sick leave absenteeism,
  - Average 26% reduction in healthcare costs,
  - Average 32% reduction in workers' compensation and disability management claims costs, and
  - Average $5.81-to-$1 savings-to-cost ratio.

Potential savings from average risk reduction is $153 per person per year, compared to a savings of $350 from risk avoidance (e.g., prevention).[14,15]

Forward-thinking organizations understand the link between the health of their organizations and their employees, and many have been recognized nationally for their efforts by receiving the C. Everett Koop National Health Awards (see Table 1) the Wellness Councils of America Well Workplace Awards (see Table 1), and/or the Innovation in Prevention Award from the Secretary of Health and Human Services (see Table 1). Two elements that are critical to program success, senior leadership support and establishing a supportive environment,[16] are among the criteria upon which candidates are evaluated. In 2004, Partnership for Prevention launched the *Leading by Example* CEO-to-CEO initiative to encourage communication at the senior-most levels regarding investment in employee health management strategies. The first publication released in 2005 featured 19 CEOs, including three state governors. Partnership has recently partnered with the US Chamber of Commerce on a new edition of the publication, which will feature 15 Chamber member companies. In addition to completing a Health Management Initiative Assessment, a tool to assess, in comprehensive terms, areas in which the programs are excelling and areas for improvement, the *Leading by Example* CEOs (see Table 2) have committed to:

- Assuring that senior management is committed to health promotion as an important investment in their human capital.
- Aligning health and productivity strategies with their business' goals.
- Educating all levels of management regarding the link between employee health and productivity, and total economic value.

The aim of the *Leading by Example* initiative is to increase senior executive awareness and involvement in employee health management strategies by transforming the paradigm in which employers view employee health as an investment to be maximized, rather than as a cost to be minimized.

So where does this leave us? Rising healthcare costs are driving changes in how traditional worksite health promotion programs are structured and positioned within large organizations. In past years, worksite health promotion primarily included activity-based programs focused on individuals to improve unhealthy lifestyle choices—lack of exercise, smoking, being overweight, and so forth. More recently, research has documented that high-risk employees are also high-cost employees with higher

Table 2.
Current Leading by Example Participating CEOs and Organizations

Leading by Example: CEOs on the Business Case for Worksite Health Promotion*	***Leading by Example: Leading Practices for Employee Health Management*****
George DeVries, American Specialty Health	Harold Jackson, Buffalo Supply, Inc.
H. Edward Hanway, CIGNA Corporation	James W. Owens, Caterpillar
Delos M. Cosgrove, Cleveland Clinic Health System	Neal Patterson, Cerner Corporation
Rick Wagoner, General Motors	Jack Donahue, DonahueFavret Contractors, Inc.
Duncan Highsmith, Highsmith Inc.	Robert W. Lane, Deere & Company
William C. Weldon, Johnson & Johnson	John C. Erickson, Erickson Retirement Communities
Dean Oestreich, Pioneer Hi-Bred International, Inc.	Marc LeBaron, Lincoln Plating
Michael Critelli, Pitney Bowes	Daniel Ustian, Navistar International Corporation
Gov. Ruth Ann Minner, State of Delaware	Jeffrey B. Kindler, Pfizer Inc.
Andrew N. Liveris, The Dow Chemical Company	Jeff Sterba, PNM Resources, Inc.
Dick Davidson, Union Pacific Corporation	Surya N. Mohapatra, Quest Diagnostics Incorporated
Mary Sue Coleman, University of Michigan	Andrew N. Liveris, The Dow Chemical Company
Thomas J. Donohue, US Chamber of Commerce	Lee Scott, Wal-Mart Stores, Inc.
John P. McConnell, Worthington Industries, Inc.	Danny Wegman, Wegmans Food Markets
Anne M. Mulcahy, Xerox Corporation	

* Parnership for Prevention ** Partnership for Prevention and the US Chamber of Commerce
For more information on the Leading by Example initiative, visit www.prevent.org/LBE.

medical and pharmacy expenses. Research has also demonstrated that low-risk maintenance (keeping healthy employees low risk) is a necessary strategy for productivity and cost containment. Rather than reducing health benefits or shifting costs to employees, forward thinking organizations are now focusing on improving the health of their overall workforce populations through integrated health management strategies, including worksite health promotion with the support of committed leadership. The amount of evidence suporting the business case for investing in employee health management, along with the identification and recognition of leading practice programs to serve as models, demonstrates growth and investment in the field of worksite health promotion and employee health management. We need to continue to analyze and promote innovative and effective programs in order to further increase the investment in workplace health promotion. **NCMedJ**

REFERENCES

1 Linnan L, Bowling M, Lindsay GM, Childress JM, Blakey C, Pronk S, Wieker S, Royall PT. Results of the 2004 National Worksite Health Promotion Survey. Am J Public Health. (In press, 2006).

2 Linnan L, Bowling M, Lindsay, GM, Childress JM, Blakey C, Pronk S Wieker, S, Royall PT. (October 26-27, 2006). Results from the 2004 National Worksite Health Promotion Survey. (Poster Presentation). 2006 National Prevention Summit, Washington, DC.

3 Business Roundtable. Business Roundtable Releases Fourth Quarter 2006 CEO Economic Outlook Survey: New CEO Survey Predicts Slow, Steady Growth for First Half of 2007; More Than Half of CEOs Say Health Care is Greatest Cost Pressure on Their Companies. Available at http://www.businessroundtable.org//newsroom/document.aspx?qs=5916BF807822B0F1ADC478122FB51711FCF50C8. Accessed December 20, 2006.

4 Edington DW, Burton WN. Health and productivity. In: McCunney, RJ: A Practical Approach to Occupational and Environmental Medicine. Philadelphia: Lippincott Williams & Wilkins. 3rd ed. 2003:140-152.

5 Burton WN, Pransky G, Conti DJ, Chen CY, Edington DW. The association of medical conditions and presenteeism. JOEM. 2004;46(6) suppl:S38-S45:

6 Pelletier B, Boles M, Lynch W. Change in health risks and work productivity over time. JOEM. 2004;46(7):746-754:

7 Goetzel RZ, Long SR, Ozminkowski RJ, Hawkins K, Wang S, Lynch W. Health, absence, disability, and presenteeism cost estimates of certain physical and mental health conditions affecting U.S. Employers. JOEM. 2004;46(4):398-412.

8 Stewart WF, Ricci JA, Chee E, Morganstein D. Lost productive work time costs from health conditions in the United States: results from the American productivity audit. JOEM. 2003;45(12):1234-1124.

9 Collins JJ, Baase CM, Sharda CE. The Assessment of Chronic Health Conditions on Work Performance, Absence, and Total Economic Impact for Employers. JOEM. 2005;47(6):547-557.

10 Norris J. A Business Strategy for Controlling Health Care Costs with a Healthy Workforce. PowerPoint presentation at Greater Des Moines Partnership and Iowans for Wellness & Prevention, Des Moines, IA, December 6, 2006.

11 Leading by Example: Improving The Bottom Line Through a High Performance, Less Costly Workforce. CEOs on the Business Case for Worksite Health Promotion. Washington, DC, Partnership for Prevention. 2005. Also available at: http://prevent.org/images/stories/Files/docs/LBE_Book.pdf

12 Aldana SG. Financial impact of health promotion programs: a comprehensive review of the literature. Am J Health Promot. 2001;15(5)296-320.

13 Chapman LS. Meta-evaluation of worksite health promotion economic return studies: 2005 update. The Art of Health Promotion. 2005;19(6):1-11.

14 Edington DW. Emerging research: a view from one research center. Am J Health Promot. 2001:15(5)341-349.

15 University of Michigan Health Management Research Center. The worksite wellness benefit analysis and report. 1979-2004;7-15.

16 O'Donnell M. Health Promotion in the Workplace. 3rd ed. Albany, NY: Delmar; 2001, page 50.

Workplace Health Promotion:
A North Carolina Assessment of Progress

David H. Chenoweth, PhD, FAWHP

Although a couple of worksite health promotion (WHP) initiatives in the United States can be traced as far back as the late 1890s, many of America's most notable programs were conceived in the 1960s, 1970s, and 1980s. North Carolina's earliest WHP programs were conceived shortly thereafter, with most taking shape in larger cities. The rationale for such programs initially focused on promoting employees' health and boosting their morale and productivity; yet, as employers' medical care costs spurred to double-digit levels in the 1980s and 1990s, a growing percentage of WHP adopters added cost containment to their list of desired outcomes. The original WHP programs consisted primarily of a health risk appraisal questionnaire, clinical health screenings, and educational seminars, with a few sporting on-site fitness and/or recreation centers. Nowadays, it's common to see worksites sporting outdoor walking trails, weekly lunch 'n learns, health newsletters, healthy food vending options, smoke-free workstations, financial incentives, e-mail-delivered daily health tips, and internet-based personal health programs.

"...health insurance doesn't really do anything for our company's productivity—healthy employees do."

It stands to reason that since most adults work for a living and that employers pick up the lion's share of the state's healthcare tab, worksites arguably provide a natural venue to promote the overall health and welfare of employees. Nonetheless, many worksites have been slow to act on this opportunity while others have enthusiastically adopted WHP. Why such a dichotomy? First and foremost, I believe the philosophy of senior management greatly influences the presence or absence of WHP. Although I've seen a handful of WHP programs evolve from a bottom-up [employee-driven] perspective, the vast majority of successful WHP efforts are driven from the top, originating from senior management's belief that employees are an organization's greatest asset. Moreover, I've discovered that successful WHP programs are usually (1) operated by competent professionals, (2) tied, to some extent, to employees' health risk profiles as well as their interests, (3) enhanced with "carrots" (e.g., financial incentives), (4) positioned as a key business strategy, and (5) subjected to regular evaluations.

Fortunately, numerous employers throughout North Carolina have taken advantage of our state's temperate climate by developing outdoor recreational facilities and walking trails for employees to use. Continued growth in our state's evolving high-tech industries, which are typically comprised of more educated and health-conscious employees, also spurs more WHP initiatives for companies to achieve greater health and productivity outcomes. Flexible work hours have also made it easier for employers to offer on-site WHP programs since employees can use this "down time" to pursue on-site wellness opportunities. Also, as more employers are becoming aware of the strong correlation between health status, on-the-job productivity, and healthcare utilization patterns, we're seeing traditional WHP efforts expand into more far-reaching and progressive health and productivity management (HPM) initiatives. I'm also impressed with the growing number and quality of organizations (commercial, educational, healthcare, and governmental) throughout our state that are assisting employers of all sizes in their quest to establish successful WHP initiatives.

Rising Healthcare Costs to Employer Are a Primary Driver

Obviously, rising costs to provide employee healthcare benefits is one of the most pervasive forces behind the growth of WHP, as risk managers grow more frustrated with managed care and other short-term bandages to this long-term problem. Yet, numerous worksites have found out that WHP, like any other

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cost-containment strategy, must be positioned within an *integrated health management initiative* to really pay off. Thus, I expect more worksites to engage return-on-investment (ROI) metrics—ranging from break-even analysis to benefit-cost analysis—in their quest to measure the financial impact of these initiatives.

Barriers to Worksite Health Promotion Programs

On the flip side, numerous factors impede the growth of WHP programs in North Carolina. The high cost of doing business in today's costly economy keeps many companies on the sidelines. Business' unrealistic demand for a quick return doesn't bode well for WHP. Sadly, some decision-makers haven't realized that WHP is a human capital investment that yields proportionately greater results over time. Add to this list of barriers, the typical worksite culture that does little, if anything, to respect or support a person's right to practice health promotion.

Certainly, downsizing prevents many business owners from adopting any long-term human resource strategy (such as WHP), especially when they have high turn-over rates and view their workforce as "temporary." Another barrier to WHP is that most worksites spend virtually all of their healthcare budgets on purchasing traditional "defensive-minded" healthcare coverage for their employees; thus, leaving nothing to invest in more progressive health plan options (e.g., "good health rebate" and healthcare expense accounts) that motivate healthy lifestyles in addition to breeding more consumer-driven decisions among employees and covered dependents. No wonder an enlightened business owner recently stated, "health insurance doesn't really do anything for our company's productivity—*healthy employees do.*"

What does the future hold for WHP in North Carolina? Will the growth of WHP in the next 30 years reflect that of the past three decades? In these challenging economic times, how can North Carolina really be competitive in today's global economy without healthy and productive workers? From Murphy to Manteo, much of that challenge can be met head-on if today's business leaders steer their worksites with WHP and other human capital investments that will indelibly foster a healthier and more prosperous 21st Century. **NCMedJ**

Worksite Health Promotion Return on Investment

Many North Carolina employers have realized a positive return on investment (ROI) from their WHP efforts. ROI dividends have been reported by companies from the mountains to the coast. For example, WHP efforts have cut risk factors in 40% of diabetic-prone employees and shaved workers' compensation costs at Replacement, Inc.; enabled GlaxoSmithKline to earn honors as one of Working Mothers Magazine's list of "100 Best Companies to Work For" for 14 consecutive years; earned Capitol Broadcasting Company the state's first Be Active Workplace designation; yielded healthcare cost reductions at Blue Ridge Paper and Asheboro Elastics; reduced emergency room visits and held healthcare costs flat for the past two years at Syngenta Crop Protection; boosted productivity and work-life quality outcomes at SAS Institute; and enhanced employee recruitment and retention at Cisco Systems. Even smaller firms like Charlotte-based Robert Mason Company and Rivers & Associates in Greenville attribute much of their healthcare cost containment and productivity gains to WHP programs.

The Rationale for Federal Policy to Stimulate Workplace Health Promotion Programs

Michael P. O'Donnell, MBA, MPH, PhD

Health and Financial Impact of Lifestyle

Repeated analyses conclude that at least 40% of premature deaths in the United States are caused by lifestyle factors including tobacco use, sedentary lifestyle, poor nutrition, and overweight.[1] Furthermore, these lifestyle factors are responsible for at least 25% of medical costs[2] and possibly as much as 50%. This is occurring at a time when medical care costs are crippling United States employers, with an estimated $7,910 per employee in 2006.[3] These costs make it difficult for many employers to remain profitable. Being competitive in a global marketplace is more difficult for United States companies because per capita medical costs in the United States are double those of all but five other nations and because employee medical costs are highly subsidized by the governments in most other nations.[4]

Evolution of Workplace Health Promotion Programs

Employers started developing workplace health promotion programs in detectable numbers in the 1970s. Most of these programs were clustered in "high-tech" growth areas like the Silicon Valley in California and the greater New York City area and many of them were built around fitness centers. The primary motivation among employers was to attract and retain the most talented workers. Employers realized that spending several hundred dollars per employee per year to building a beautiful fitness center was a more effective recruiting tool than adding four or five dollars to an employee's weekly paycheck. Although it took several decades to produce a robust literature to confirm it, employers soon began to realize that employees with good health habits had lower medical costs and were more productive.[5] A systematic review of the literature on the financial impact of workplace health promotion confirmed this.[6] In fact, Aldana found that 88% of 32 studies showed that programs reduced medical costs, and 100% of 18 studies showed programs reduced absenteeism. He also found a mean return on investment (ROI) of $3.93 for medical cost savings and $5.07 for absenteeism savings.

In the 1980s, public health professionals realized that workplaces might be excellent environments in which to address chronic health conditions, especially heart disease, which had links to smoking, nutrition, sedentary lifestyle, overweight, and stress. Workplaces showed great promise for these programs because employees typically spend more than a third of their waking hours in the workplace, most employees remain in the same company for the year or two it takes to make a successful behavior change, and many are part of cohesive social groups at work that can provide ongoing support. Furthermore, workplace environments can be altered to provide access to healthy food and safe places to be physically active, as well as protection from second-hand smoke. Equally important, employers have financial incentives to support these programs. By the mid-1990s, almost 400 studies had been published on the health impact of workplace health promotion programs. A systematic review of this literature showed that well-designed programs produced short-term health improvements, but that very few programs examined long-term changes.[7]

"By 2001, 76% of United States workplaces were smoke free. By any standard, this is a remarkable achievement."

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The prevalence of workplace health promotion programs has increased significantly during the past few decades.[8]

In summary, workplaces provide an excellent environment to address employee health; hundreds of well-designed programs have shown that programs do improve health, especially in the short term; and dozens of studies have shown that programs reduce medical costs and absenteeism at least enough to pay for covering the cost of the program, possibly producing savings in excess of program costs.

Limitations of Workplace Health Promotion Programs

Despite this positive picture, workplace health promotion is not without problems. The biggest problem is that at least half of working people in the United States do not have access to health promotion programs because they work in small companies or for those employers who have employees deployed in small numbers in multiple sites. Of the 4.9 million firms in the United States, only 936 (0.01%) have 10,000 or more employees, 8,674 (0.18%) have 1,000 or more employees, and 17,246 (0.35%) have 500 or more. Conversely, 99.65% of firms have less than 500 employees, and 97.9% have less than 100 employees. These firms employ 51% and 36% of the working population, respectively.[9] It is difficult for small employers to offer health promotion programs because they typically do not have a central human resources function to develop programs, and they often cannot afford to hire a full-time health promotion staff. Furthermore, their health insurance premiums are typically "community rated," which means their premiums are set by the medical utilization experience of their community. Large employers are "experience rated," which means premiums are based on the company's own medical utilization. The bottom line is that small employers who are successful in reducing medical care costs by improving the health of their employees will still pay the same medical premiums to their insurance company. This eliminates an important financial incentive to develop a health promotion program in these small companies.

Furthermore, most health promotion programs are not comprehensive. Most focus on enhancing awareness of health risks by offering health fairs, conducting health screenings, offering health risk appraisals, and providing information on the importance of a healthy lifestyle. Most employers do not offer programs that convey and enhance the personal skills employees need to make and maintain lasting behavior changes. Few employers make the effort required to create supportive environments, including providing nutritious foods in cafeterias and vending machines, offering access to safe and interesting places to exercise or be physically active, and fostering cultural workplace norms that value healthy lifestyle. The exception is smoking policies. By 2001, 76% of United States workplaces were smoke free.[10] By any standard, this is a remarkable achievement.

Emerging Federal Policy to Support Workplace Health Promotion Programs

In recognition of the success of past workplace health promotion programs, the medical care cost crises facing United States employers, the accelerating obesity epidemic, and the shortcomings of current workplace health promotion programs, Senator Tom Harkin of Iowa has authored legislation called the Healthy Workforce Act. It was introduced on May 18, 2005 as Title II, Subtitle A of the HeLP America (Healthy Lifestyle and Prevention) Act, (S.1074) and will be introduced as a free standing bill in early 2007. The main provisions of the bill are below. Note: This legislation was in revision at press time. Check www.Thomas.gov for final provisions.

- **Employer Tax Credits**
  - Provides employers a 50% tax credit for workplace health promotion programs, up to $200/employee/year, and 50% subsidy for tax exempt employers.
  - To qualify for the tax credit, programs must be offered to all employees who work at least 25 hours per week and be certified by the United States Department of Health and Human Services.
  - Programs for employers with 200 or more employees must have four basic components: programs to enhance awareness, programs to engage employees, programs to facilitate behavior change, and efforts to create supportive workplace environments. Employers with fewer than 200 employees must have three of these four major components.
  - *This tax credit is projected to provide a $734 million annual tax credit to employers, stimulate investments of $3 billion per year in workplace health promotion programs, and increase corporate and individual tax receipts in excess of its cost, making it revenue-neutral to the federal government.*

- **Directs CDC to Do the Following**
  - Contract with experts to provide employers with technical assistance on program evaluation.
  - Conduct a national study on employer health policies and programs.
  - Include questions on workplace health promotion in the Behavioral Risk Factor Surveillance System.
  - Award demonstration grants to test the effect of new workplace interventions and models.

- **Campaign to Educate Employers**
  - Directs CDC to develop a campaign to educate employers on the financial benefits of workplace health promotion programs, in conjunction with workplace health promotion organizations.
  - *This campaign is projected to cost $40,000,000 per year and is critical to stimulating employer investments in health promotion and thus, the increased tax revenues projected to result from the tax credit.*

An unpublished economic analysis of this legislation[11] concluded it is likely to be revenue-neutral or revenue-positive to the federal government. This means it will stimulate more tax receipts to the federal government than it costs in tax credits and subsidies. The bill is projected to stimulate investments of $3 billion in workplace health promotion programs through a combination of promotional campaigns, technical assistance, and employer tax credits or subsidies. The promotional campaigns and technical assistance are projected to have an annual cost of $59 million. The tax credit is projected to have a value of $734 million to employers, but it will be earned only when employers invest in programs, and received the year after the investment is made. Assuming an ROI of 1:1 in medical care cost containment, the economic stimulus from this program is projected to stimulate $985 million in increased federal income taxes, $409 million in FICA taxes, and $183 million in state income tax receipts, and these will be paid in the year prior to the tax credit. The bill will produce net gains to the federal government. With the exception of the $59 million stimulus, receipts to the federal government will be in the same line item as the tax credit and received prior to the tax credit. The savings to the federal government are caused by the increased economic stimulus of investments by employers and not dependent upon significant medical care cost reductions produced by the new health promotion programs. To break even, the health promotion programs must produce an ROI of 0.2 (20 cents on the dollar).

Conclusion

Workplace health promotion programs show great promise in reducing chronic disease prevalence and containing medical costs. Emerging federal legislation has the potential to improve the effectiveness of existing programs and make new programs available to employees in small companies. **NCMedJ**

REFERENCES

1 McGinnis JM, Williams-Russo P, Knickman JR. The case for more active policy attention to health promotion. Health Aff. 2002 Mar-Apr;21 (2):78-93.
2 Anderson DR, Whitmer RW, Goetzel, RZ, Ozminkowski, RJ, Wasserman J, Serxner S. The Am J Health Promot. 2000 Sep-Oct;15(1):45-52.
3 Mercer's 2005 National Survey of Employer-Sponsored Health Plans, William M. Mercer, New York, New York.
4 Frogner BK, Anderso, GF. Multinational Comparisons of Health Systems Data, 2005 Commonwealth Fund pub. no. 825. 2006.
5 O'Donnell MP, Ainsworth T. Health Promotion in the Workplace. John Wiley & Sons, New York, New York.
6 Aldana SG. Financial Impact of Health Promotion Programs: A comprehensive review of the literature. Am J Health Promot. 2001;15(5):296-320.
7 Wilson MG, Holman PB, Hammock A. A comprehensive review of the effects of worksite health promotion on health-related outcomes. Am J Health Promot. 1996;10(6):429-435.
8 Association for Worksite Health Promotion, United States Department of Health and Human Services, William M. Mercer, Inc (2000), 1999 National Worksite Health Promotion Survey. Northbrook, Ill; Association for Worksite Health Promotion and William M. Mercer.
9 Statistics about Business Size (including Small Business) from the United States Census Bureau. Available at: http://www.census.gov/epcd/www/smallbus.html. Accessed November 13, 2006.
10 Bauer JE, Hyland A, Li Q, Steger C, Cummings KM. A longitudinal assessment of the impact of smoke-free worksite policies on tobacco use. Am J Public Health. 2005;95:1024-1029.
11 O'Donnell MP. Economic analysis of the proposed Healthy Workforce Act. Unpublished analysis performed for staff of Senator Tom Harkin of Iowa. 2005:6 pp.

Workplace-Focused Health Promotion Programs in the United Kingdom and Ireland

Alexandra Farrow, PhD

Workplace health promotion is a fusion of two distinct themes, and in the United Kingdom, one theme has origins in United Kingdom legislation [Health and Safety at Work Act (HSWA), 1974] that promoted safe and healthy working environments. This theme puts the onus on the employer for the organization of the physical and psychosocial work domain. The other theme is related to the behavior, attitude, and lifestyle of the worker and is entrenched in personal responsibility for individual health. In an ideal world, promotion should unify these two concepts. Workplace health promotion is integral to ordinary work practice, the working environment, and the organization[1] and is envisaged as shared between communities, employees, managers, and their environments.[2] The European Union and the Luxembourg Declaration on Workplace Health Promotion[3] further defined workplace health promotion as the combined efforts to improve the health and well being of people at work. Both the healthy workplace environment and individual lifestyle changes are necessary to achieve health promotion goals, and these should go hand-in-hand. In reality, however, individual behavioral change is too often the focus, rather than the organizational aspects of the worker's environment.[4,5]

In the United Kingdom, health promotion activities in the 1980-1990s included smoking, alcohol, and drug education; weight control; exercise; stress management; and screening. New initiatives have been focused on obesity and fitness, exemplified by the recent statement that many young men are not fit enough for recruitment into the British Armed Forces. The former Health Education Authority (HEA)[6] prioritized development and support for health promotion in the workplace. The 1990s saw the emergence of the cost-benefit culture with the development of evaluation and assessment of effectiveness. The HEA report of 1993[7] found the aims of health promotion were not necessarily incorporated within workplace culture. A subsequent publication established that workplace health initiatives were largely motivated by compliance with legislative requirements, rather than the need to promote positive health.[8]

"Health promotion initiatives are driven by the belief that economic advantages will be gained from a reduction in absenteeism and accidents and improvement in employee morale. Workers who are motivated and healthy are essential for competitiveness and capacity to innovate."

Influencing Factors for Health Promotion Initiatives

Health promotion initiatives are driven by the belief that economic advantages will be gained from a reduction in absenteeism[9] and accidents and improvement in employee morale. Workers who are motivated and healthy are essential for competitiveness and capacity to innovate. Another driver is the

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increased compensation culture that has had a positive impact on health promotion in that the employer has responded to the risk of litigation by encouraging healthy work environments, specifically seen with respect to passive smoking. However, it is estimated that in the United Kingdom, two million people suffer from ill health caused by work-related conditions, and 35 million days are lost annually.[10,11]

The changing patterns of work include increased part-time work, contracting out, privatization, loss of manufacturing, an increase in the service industry and the number of smaller companies, working from home, and self-employment. All of these have a negative impact on workplace health promotion, making any such initiative difficult to sustain. While there are only a few thousand occupational health doctors and nurses in the United Kingdom, these health professionals seem to overemphasize health problems with reference to worker lifestyle habits and behaviors and to focus on management and personnel requirements, rather than exposures in the workplace, prevention, and rehabilitation.[12]

Even when open to all, engagement in health promotion is limited, with those most likely to participate being healthy, white-collar, salaried staff with relatively high levels of education.[13-15] Barriers to uptake also include the fear that involvement is not confidential. Low participation rates are the limiting factor for any potential public health impact of worksite-based interventions. Therefore evaluation of programs on employee health outcomes, employee families/dependents, and on communities may be difficult.[16]

Provision of workplace fitness programs within health promotion schemes may fail to reduce absenteeism or to improve the health of the workforce. This may be due to the same user characteristics that also fail in public sector leisure activities.[17] United Kingdom employers, unlike those in the United States, rarely contribute to private insurance schemes and, therefore, have less incentive to become involved in health promotion. Nevertheless, large organizations with good workforce retention have much to gain by a holistic approach to health promotion programs. Targets for healthier work environments and lifestyle changes could influence better health over an employees' working life. The infrastructure of large organizations should also facilitate monitoring of take-up and measurement of improvement in health outcomes over time. The National Health Service, the largest employer in Europe, has historically provided long-term employment for a multi-professional workforce, but it has no well-developed strategy for health promotion.

Characteristics

The size of an organization probably has the biggest influence on health promotion activities. Due to economic changes, more people are employed in small- and medium-sized enterprises where there is often no workplace access to occupational health support.[18] Despite campaigns, such as "Good Health is Good Business,"[19] many employers remain unaware of long-term risks for workplace health and the need to take a proactive approach to prevention. The European Network for Workplace Health Promotion (ENWHP) observed that targeting large organizations with suitable infrastructure was more likely to be successful. A 1992 Health Education Authority survey of 1,344 workplaces found that larger workplaces addressed heart health, weight control, exercise, and fitness, with 40% undertaking at least one health promotion-related activity in the previous year. Health promotion increased with workplace size and good infrastructure; the size of an organization is therefore a key determinant.

Trade union representation, occupational health services, and workplace health promotion are concentrated in the larger United Kingdom public sector organizations.[7,14,20] The role of trade unions has mainly influenced the reduction of hazards at work, better working conditions, job conditions, working hours, wages, and job contracts. In 1989 the Labor Research Department study of 500 trade union representatives found common workplace health promotion activities were first aid medical treatment, inspection of hazards, and pre-employment medical screening. Activities that union representatives wanted were stress management, breast screening, and screening for hypertension. Smoking-related health promotion activity was found in 41% where a union was present versus 28% where a union was absent. Workplaces with no health promotion activity were small or medium sized, in the private sector, British owned, and mainly in distribution and catering businesses.

An international feasibility study has demonstrated the importance of partnerships between trade unions, health promoters, and related professionals in efforts to promote employee health. This is of particular importance in view of rapid globalization and the potential for worker health and safety to be overlooked.[21] Trade unions are involved in workplace health promotion partnerships and networks that include a broad range of industry, Chambers of Commerce, National Health Service (NHS), Health and Safety Executive (HSE), local government, education, legal, and independent consultants.

While small organizations may have fewer health promotion activities, a recent survey, commissioned by the Federation of Small Businesses (FSB), reported that the average number of days small businesses lost to absence per employee was 1.8 days (compared to the average of 8.4 days for businesses of all sizes). Employees of small businesses are therefore around six times less likely to take sick days compared to public-sector workers.[22] The national health and safety chairman of the FSB suggests that government should offer incentives to small businesses to provide access to occupational healthcare and health promotion initiatives. Smaller firms should be required to pay less in employers' liability insurance in return for good workplace health and safety initiatives.

Influence of Occupational Health on Health Promotion

The Health and Safety Commission published two reports: *Revitalising Health and Safety Program*[23] and *Securing Health Together*,[24] These presented a long-term occupational health strategy for England, Scotland, and Wales that by 2010, aimed to

reduce ill health caused by work activity and accidents, the number of working days lost from work-related injury and ill health by 30% and the incidence rate of fatal and major injury accidents by 10%. The Health and Safety Executive commissioned survey,[25] found that only one-in-seven workers in the United Kingdom had comprehensive occupational health support. The *Securing Health Together* strategy required base-line information on current provision of occupational health, and this was provided by Pilkington et al[26] in a survey of 4,930 organizations. Over half of the companies reported taking steps to improve the general health of employees. The most frequently provided services were health promotion campaigns and information on healthy lifestyles. Least popular services were private healthcare schemes, access to leisure facilities, and well-person health checks. Where occupational health support was defined to include hazard identification, risk management, and provision of information, then approximately 44% of participating companies fulfilled this definition, equivalent to 15% of all United Kingdom companies after adjustment for company size and sector. A more rigorous definition of occupational health included the three parameters above, (i.e., hazard identification, risk management, and provision of information) plus modifying work activities, occupational health training, measuring workplace hazards, and monitoring trends in health. This definition resulted in an additional 3% of companies fulfilling the wider definition of occupational health support. Again more large companies met the criteria than small companies. Occupational health was found to take second place within health and safety, with no distinct identity and often no budget allocation. Formal evaluation of costs and benefits of occupational health support was limited and most likely in larger companies. Commitment to do more to acquire occupational health support was limited by available resources, particularly for smaller companies across all regions and sectors. There was a recognized lack of knowledge about how to deal with health issues, particularly in micro and small companies. Health and Safety representatives and managers were central to increasing awareness of occupational health issues within smaller companies.

Workplace Health Promotion at a European Level

The Health Promotion Unit is represented on the European Network for Workplace Health Promotion (ENWHP) as an informal network of national occupational health and safety institutes, public health, health promotion, and statutory social insurance institutions. It aims through the joint efforts of all its members and partners to contribute to improving workplace health and well-being and reducing the impact of work-related ill health on the European workforce. The Network was formally established in 1996, and since this time, it has been at the leading edge of developments in European workplace health promotion. Over the past three years, the ENWHP has been working on the development of national forums for workplace health promotion, in line with the new health strategy of the European Union, and linking these infrastructures on a European level. Encouraging this, the fourth European Conference on Promoting Workplace Health was held in Dublin in June 2006. The conference was held in the context of the Irish European Union presidency.

National Strategies within the United Kingdom

There are different approaches to health promotion in the four countries of the United Kingdom: England, Wales, Scotland, and Northern Ireland. Within all four home countries, Scotland has been well ahead with a coordinated approach to improving the health of the working population through a developed network, *Scotland Health at Work*.

Health promotion policy in **England** was shared between the Department of Health (DoH) and the Health Education Authority (HEA). The latter's terms of reference were limited, and there was constant disagreement about the extent to which HEA could operate independently. This was illustrated in relation to smoking, where the HEA took a line that was not in agreement with the more voluntary approach favored by Government. The HEA was subsequently split in two, with a research-based arm, the Health Development Agency (HDA), and a more overtly health-promoting arm, Health Promotion England. In 2001, the health-promoting arm was 'absorbed' into the DoH and in 2005, the research arm was incorporated into the National Institute of Health and Clinical Excellence. Legislation on smoking in workplaces and public places is to be introduced in 2007, months and years after other countries within the United Kingdom. The London Workplace Health Network includes members from London Boroughs, the National Health Service (NHS), the Health and Safety Executive, the Office of Deputy Prime Minister and consultancies. The London Regeneration Network focuses on 390 voluntary organizations throughout London, particularly companies with fewer than five employees and encourages them to engage in workplace health promotion.

In **Wales**, a strategy document for *Health at Work*, was published in 1996.[27] New initiatives included the appointment of a National Workplace Health Promotion Coordinator, the examination of the needs of small-to-medium enterprises, and the continued implementation of cardiovascular strategies in the workplace. This strategy built on the significant work developed by Heartbeat Wales in the mid-1980s. Each of these initiatives is expected to promote the development of workplace health promotion. At the same time a formal network of workplaces, stakeholders, and assessors involving an accreditation scheme for organizations that promote health at work has been set up. The Wales Counselling at Work Network has focussed on psychological issues at work while Heartbeat Wales made a major contribution with programs for cardiac health improvement. At the local Board level, workplace coordinators have been appointed with responsibility for the development of workplace health promotion plans and the initiation of pilot projects.

Scotland has been well ahead with a coordinated approach to improving the health of the working population through a developed network, *Scotland Health at Work*. Many organizations

in Scotland have addressed health promotion in the workplace by developing and implementing health policies, such as those for smoking, alcohol, and food, forming health circles to identify and to take action on workplace health issues, promoting physical activity through membership of sports facilities, providing bicycle racks, encouraging employees to walk during lunch time, providing access to appropriate screening initiatives, and registering with the *Scotland Health at Work* award scheme. Another aspect is the formation of networks for the different geographical areas. The focus of these groups is to create mechanisms to help small and medium-sized enterprises address worksite and employee health promotion goals.

Northern Ireland, despite having an economy dominated by small businesses, has a well-established workplace health promotion program led by the Health Promotion Agency, known as the *Work Well Program*. Anticipated benefits include reduction in illness-related absenteeism, fewer working days lost, and, therefore, a long-term decline in the sickness rate; increased motivation among staff, and improvements in the working atmosphere in the company, leading to more flexibility, better communications, and readiness to cooperate; a measurable increase in the quality of products and services, more innovation and creativity, and a rise in productivity and improvement of the public image of the company. The *Work Well: Healthy Workplace Guide* is the focal point of the Work Well initiative and the starting point for all businesses interested in adopting a healthy workplace strategy. It is aimed at employers, health and safety workers, human resources staff, occupational health staff, and anyone else working in the field of workplace health.

Workplace health policy in the **Republic of Ireland** is distinctive from that in Northern Ireland, but there are now increasing numbers of cross-border initiatives. The structure emphasizes concepts of self-regulation and monitoring, rather than policing.[28] The *Happy Heart at Work* (HHAW) program, sponsored by the Irish Heart Foundation,[29] and in existence since 1992, is a national program designed to suit the Irish context. It aimed to promote a healthy lifestyle through specific modular materials. Evaluation of this program was commissioned with a survey of 785 registered sites. An initial level of interest in the HHAW program was expressed by 40%. Active organizations were less likely to be Irish owned and more likely to operate in shifts or to have an occupational physician among the staff. The program was purported to improve employees' lifestyle habits and morale and the company's public image. The drawbacks were its relatively low profile, even in actively participating organizations, and the fact that it was not seen to be independently sustainable without intensive and ongoing support.[30] Manufacturing organizations employing more than 200 workers were most likely to take part in HHAW. The Irish Department of Health and Children reported low levels of awareness for health promotion programs among workers with the main obstacle being lack of management commitment.[31]

Recent National Guidance

The English public health strategy was published in 2004.[32] Actions that employers and government can take to promote work and health were addressed, but focused on the NHS as the employer, rather than the English workforce as a whole. Specific sums were allocated to implement the strategy in relation to smoking, exercise, nutrition, sexual health, alcohol, and mental health, but these were largely diverted to cover overspending in other areas. In November 2005, the progress of the program was addressed. The Health and Safety Commission considered whether the Health and Safety at Work Act of 1974 should be amended in response to a changing world of work, and in particular, to ensure the same protection is provided to all workers regardless of their employment status.

In 2006, the Department of Health requested the National Institute for Health and Clinical Excellence to develop public health intervention guidance on workplace health promotion with reference to smoking and what works in motivating and changing employees' health behavior. The guidance will provide recommendations for good practice based on the best available evidence of effectiveness, including cost-effectiveness.

In conclusion, the situation in the United Kingdom is mixed, but the message that appears with respect to workplace health promotion is that it is up and running in large companies, rather than in smaller ones, and in international companies, rather than home companies, and is more likely to flourish where occupational health professionals are present and where there is good management commitment. **NCMedJ**

REFERENCES

1 World Health Organization Ottawa Charter on Health Promotion. Ottawa: Canadian Public Health Association. 1986.
2 World Health Organization. Sundsvall Statement on Supportive Environments for Health. WHO. Geneva. 1991. (Also in: Nutbeam D. Health Promotion Glossary. Health Promotion International. Oxford University press 1998;13(4):349-64.)
3 European Network for Workplace Health Promotion. Luxembourg Declaration. Luxembourg: ENWHP. 1997.
4 European Network for Workplace Health Promotion. Healthy employees in healthy organizations. Good practice in workplace health promotion (WHP) in Europe. Essen: Germany BKK Bundesverband. 1999. (Federal Association of Company Health Insurance Funds). (Luxembourg Declaration, 1997).
5 Shain M, Kramer DM. Framing the concept; Reviewing the evidence. Occup. Environ. Med. 2004;61; 643-648.
6 Health Education Authority (HEA) Health promotion in the workplace: the Trades Union Movement. London: HEA. 1992.
7 Health Education Authority (HEA) Health Promotion in the workplace. London: HEA. 1993.
8 Health Education Authority (HEA). Developing and sustaining workplace Health in the NHS. London: HEA. 1999.
9 Knight KK, Goetzel RZ, Fielding J, Eisen M, Jackson GW, Kahr TY, et al. An evaluation of Duke University's Live For Life health promotion program on changes in worker absenteeism. J Occupational Medicine. 1994;36:533–536.
10 Jones JR, Hodgson JT, Clegg TA, Elliott RC. Self-reported

work-related illness in 1995: results from a household survey. Suffolk: HSE Books. 1998.
11 Budworth N. Time to put worker's health first. Safety Health Practitioner (SHP) 2006 June:26. President Institute of Occupational Safety and Health (IOSH).
12 Watterson A. Occupational health and illness: the politics of hazards education. In Rodmell S, and Watt A. eds. The politics of health education. London: RKP. Stonecipher & Hyner, 1993). 1986.
13 Alexy BB. Factors associated with participation and non-participation in a workplace wellness centre. Res Nurs Health. 1991;14:33-40.
14 Sanders D. Workplace health promotion: a review of the literature. Oxford: Oxford Regional Health Authority. 1993.
15 Stonecipher LJ, Hyner GC. Health practices before and after worksite health screening. J Occup Med. 1993;35(3):297-306.
16 Linnan LA, Sorensen G, Colditz G, Klar DN, Emmons KM. Using theory to understand the multiple determinants of low participation in worksite health promotion programs. Health Educ Behav. 2001;28(5):591-607.
17 McGillivray D. Health promotion in the workplace: a missed opportunity? Health Education. 2002;102(2):60-67.
18 Eakin J, MacEachen E. Health and the social relations of work: a study of the health-related experiences of employees in small workplaces. Sociology of Health and Illness. 1998;20(6):896-914.
19 Wright M, Lancaster RJ, Jacobsen-Maher C, Talwalkar M, Woolmington T. Evaluation of the Good health is Good Business Campaign. HSE Contract report 272/2000. 2000.
20 Daykin N, Cockshott Z. Workplace health promotion and low paid employment. Report of research in the Bristol Area. Bristol: UWE/Bristol Area Health Promotion Service. 1996.
21 Johansson M, Partanen T. Role of Trade Unions in Workplace Health Promotion. International J Health Services. 2002;2(1):179-193.
22 Federation of Small Businesses. Survey Report 2006. Health Matters: a small business perspective. London: Federation of Small Businesses (http://www.fsb.org.uk). Available at: http://www.fsb.org.uk/documentstore/FSBHealthMatters.pdf. Accessed December 2006.
23 Health and Safety Commission / Dept of the Environment Transport and the Regions. Revitalising Health and Safety: Strategy Statement. London: The Stationery Office. 2000.
24 Health and Safety Commission. Securing Health Together. Sudbury, Suffolk: HSE Books. 2000.
25 Pilkington A, Mulholland R, Cowie H, Graham MK, Hutchinson P. Institute of Occupational Medicine. Baseline measurements for the evaluation of the work-related stress campaign. Contract Research Report 322/2001.
26 Pilkington A, Graham MK, Cowie HA, Mulholland RE, Dempsey S, Melrose AS, Hutchinson PA. Survey of Use of Occupational Health Support Prepared by the Institute of Occupational Medicine for the Health and Safety Executive ISBN 0 7176 2394 7. 2002.
27 Health Promotion Wales. Health at Work. Cardiff: Health Promotion Wales. 1996.
28 Wynne R. Action for Health at Work: the Next Steps. Policy Paper. Dublin: European Foundation for the Improvement of Living and Working Conditions. 1993.
29 Irish Heart Foundation. Evaluation of the The Happy Heart at Work Program. Dublin: IHF. 1995.
30 McMahon A, Kelleher CC, Helly G, Duffy E. Evaluation of a workplace cardiovascular health promotion programme in the Republic of Ireland. Health Promot Int. 2002;17(4):297-308.
31 Department of Health and Children. Health Promotion in the Workplace: Healthy Bodies—Healthy Work. Dublin: Dublin Stationery Office. 1998.

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North Carolina MEDICAL JOURNAL

Thanks from the *North Carolina Medical Journal*

Without the voluntary assistance and carefully executed reviews of a number of anonymous reviewers, no journal can offer the kind of peer-review for submitted manuscripts that can assure its readers the highest quality of published articles. We are fortunate in having the service of a number of individuals who have given generously of their time and expertise in service to the *North Carolina Medical Journal* this past year, and we are pleased to have this annual opportunity to acknowledge their efforts.

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Hospital Quality and Patient Safety

Notable News from The North Carolina Center for Hospital Quality and Patient Safety

Hospital Quality Performance Report

The first North Carolina hospital report card has been developed by the North Carolina Center for Hospital Quality and Patient Safety and will be available on a public Web site. This transparent, hospital-specific on-line resource for hospital quality was designed to provide understandable information to patients so they can learn more about inpatient treatment for common causes of hospitalization and can participate in decisions that will impact their health. Furthermore, studies have shown that comparative hospital quality reports intensify hospital quality improvement projects, improve organizational culture toward quality and patient safety, and positively influence hospital operations by placing higher priority on quality performance.[1,2,3] Therefore, in addition to providing standardized and reliable quality information to consumers, the report's objective is to provide performance benchmarks that will assist and stimulate hospitals in continuously improving their quality of care.

The Quality Center initiated the NC Performance Reporting Workgroup to review inpatient clinical measures and to develop recommendations for measurement inclusion and report design. The Workgroup is a multi-disciplinary team consisting of physicians, nurses, and executives representing hospitals, health systems, insurance industry, the Carolinas Center for Medical Excellence (CCME), NC Medical Society, and NC Department of Health and Human Services. The principles set by the group were to include measures that were actionable, standardized, well-defined, available, and would not add burden to hospital data collection efforts. In September 2006, the Workgroup's recommendations for the NC Hospital Quality Performance Report were approved by the Quality Center's Board and endorsed by the NC Hospital Association Board of Trustees.

The NC Hospital Quality Performance Report, to be available at www.nchospitalquality.org in January 2007, will display 21 process measure scores currently collected and publicly reported by the Centers for Medicare & Medicaid Services (CMS) (see Table1). The reporting of these measures is voluntary for hospitals; however, they are linked to Medicare payment via the Reporting Hospital Quality Data for the Annual Payment Update initiative. These evidence-based, process-of-care measures are treatment recommendations proven to give the best results to most adults with a diagnosis of heart attack, heart failure, pneumonia, or those admitted for surgery. The scores for each individual measure reflect how often recommended treatment was given for an eligible patient—which only includes patients whose history and condition indicate the treatment is appropriate. The Web site will include descriptions of all the measures, and there will be clear links to other Web sites that offer detailed information about each health condition, the recommended treatments, and the measurement methodology.

The NC Hospital Quality Performance Report will display the scores of the 21 measures and graphically display an overall condition score. The overall condition score is a composite score calculated by dividing the sum of numerators by the sum of denominators from a condition's measures. Benchmarks in the report will include the state mean, state 90th percentile and the national mean per measure. For example, the North Carolina mean was equal to or greater than the national mean on 19 of 21 measures during second quarter 2005 through first quarter 2006. The report will also link consumers to the NC Quality Center Web site and other healthcare improvement organizations to inform patients and providers of the national and statewide quality improvement initiatives currently in place in many North Carolina hospitals.

The NC Quality Center has partnered with CCME to provide enhancements in Summer 2007 to the Web site, such as (1) reporting data more current than available through Hospital Compare, (2) providing hospital- and state-level trend graphs, and (3) including four "optimal care" composite scores per condition. The optimal care measures, also known as "appropriateness of care" measures, use the "all or none" methodology to determine

Hospital—continued on page 467

Table 1.
CMS Process Measures by Condition

Condition	Measure	NC Mean*
Heart Attack	ACE Inhibitor or ARB for Left Ventricular Systolic Dysfunction	78%
	Aspirin at Arrival	93%
	Aspirin at Discharge	89%
	Beta Blocker at Arrival	88%
	Beta Blocker at Discharge	89%
	PCI Within 120 Minutes Of Arrival	66%
	Smoking Cessation Advice/Counseling	85%
	Thrombolytic Medication Within 30 Minutes Of Arrival	31%
Heart Failure	ACE Inhibitor or ARB for Left Ventricular Systolic Dysfunction	81%
	Assessment of Left Ventricular Function (LVF)	86%
	Discharge Instructions	63%
	Smoking Cessation Advice/Counseling	86%
Pneumonia	Assessed and Given Pneumococcal Vaccination	70%
	Initial Antibiotic(s) within 4 Hours After Arrival	79%
	Oxygenation Assessment	100%
	Assessed and Given Influenza Vaccination	72%
	Smoking Cessation Advice/Counseling	82%
	Most Appropriate Initial Antibiotic(s)	81%
	Blood Culture Prior to First Antibiotic	90%
Surgery	Preventative Antibiotic(s) One Hour Before Incision	81%
	Antibiotic(s) are Stopped Within 24 hours After Surgery	75%

* Discharges 4/05-3/06. Data downloaded from www.hospitalcompare.dhhs.gov.

if a patient received all of the recommended treatment for which they were eligible.[4] This methodology supports the notion that achieving a desired clinical outcome requires the completion of a full set of tasks and results in more stringent scoring, thus raising the bar for performance and increasing the ability to improve outcomes.[5] Furthermore, the optimal care measures put an emphasis on system-wide improvements in areas such as communication and cooperation and they offer more sensitive scales for assessing improvement.

More measures will be added to the NC Hospital Quality Performance Report. These will include measures that will most likely be aligned with the Hospital Quality Alliance's reporting requirements and have National Quality Forum endorsement. For example, future measures may include patient perceptions (i.e., data from the Hospital Consumer Assessment of Healthcare Providers and Systems survey), 30-day mortality rates for heart attack and heart failure, and expanded information on surgical care that include steps taken to prevent venous thromboembolism and surgical site infections.

REFERENCES

1 Hibbard JH, Stockard J, Tusler M. Hospital performance reports: impact on quality, market share, and reputation. Health Aff. 2005;24:1150-1160.

2 Pham HH, Coughlan J, O'Malley AS. The impact of quality reporting programs on hospital operations. Health Aff. 2006;25:1412-1422.

3 Steinbrook R. Public report cards–cardiac surgery and beyond. NEJM. 2006;355(18):1847-1849.

4 Centers for Medicare & Medicaid Services. 8th Scope of Work (version 080105-2). Available at: http://www.cms.hhs.gov/QualityImprovementOrgs/downloads/8thSOW.pdf. Accessed November 10, 2006.

5 Nolan T, Berwick DM. All-or-none measurement raises the bar on performance. JAMA. 2006;295:1168-1170.

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Running the Numbers

A Periodic Feature to Inform North Carolina Healthcare Professionals about Current Topics in Health Statistics

From the State Center for Health Statistics, NC Department of Health and Human Services
http://www.schs.state.nc.us/SCHS

Worksite Wellness Interest Survey of NC DHHS Employees

Background: Employers increasingly recognize the benefits of investing in workplace wellness programs to control medical plan costs and reduce absenteeism among their employees. Wellness programs have also been shown to increase productivity and improve employee morale and retention. Wellness programs can bring as much as a four-fold return on each dollar invested in wellness benefits.[1] Long-term evaluation of the impact of a corporate wellness program showed a substantial reduction in medical costs for employees with most benefits occurring after three to four years.[2]

Since 2000, the North Carolina State Health Plan has seen a large decline in the number of healthy state employees and school personnel younger than age 65. Healthy members of the NC State Health Plan are defined as those without medical claims for chronic diseases, acute illness or injury, or catastrophic illness or injury in the current year. Among approximately 408,000 Plan members, healthy members decreased from 64% in 2000 to 58% in 2003. By 2008, if present trends continue, only 51% of state employees will be healthy. Every 1% decline in the number of healthy members results in an additional cost of $68 million in healthcare costs. This decline in healthy employees is largely attributable to an increase in the prevalence of chronic disease conditions. Approximately 70 cents of every healthcare dollar was spent to treat members with one or more chronic diseases. In 2003, the average cost for a member without a chronic disease or major illness or injury was $800. Members with a chronic disease averaged more than nine times that amount ($7,400) per year in healthcare costs.[3]

Two thirds of chronic diseases can be attributed to three major lifestyle risk factors.[4] Low levels of physical activity, poor diet, and exposure to tobacco increase an individual's risk of developing a chronic disease and make the management of existing chronic conditions more difficult. Support in the workplace can greatly influence and sustain employees in changing their health behaviors. The NC Department of Health and Human Services (NC DHHS), with support from the NC State Health Plan, established the DHHS Wellness Initiative in 2004 in an effort to contain rising employee healthcare costs by reducing the major chronic disease risk factors among NC DHHS employees. The initiative focused on establishing wellness committees in each agency and facility within NC DHHS. The goal was to promote and support employee health and wellness primarily through changes to workplace policies and environments that increase opportunities for physical activity, improve access to healthier foods, reduce tobacco use, and help employees manage stress. This initiative is one component of the larger multi-faceted NC Health*Smart* healthy living initiative launched in 2005 by the NC State Health Plan to provide resources and support to keep healthy members healthy and better manage the care of members with chronic diseases.

Survey Description: Baseline information was collected via two surveys to assist NC DHHS agency committees in developing effective wellness plans and to guide a new 38-member NC DHHS Wellness Council in developing wellness policy recommendations for the Department. In September of 2005, wellness contacts in each NC DHHS agency and facility completed a survey of existing support for wellness at NC DHHS worksites. This article reports findings of a second survey launched in October of 2005 to assess the wellness interests of the 18,768 employees in the Department. The employee survey was a 14-item, Web-based questionnaire with primarily multiple choice answer options. Several questions provided employees opportunities for open-ended responses. Respondents were required to identify their agency or facility on the survey.

RTN—continued on page 469

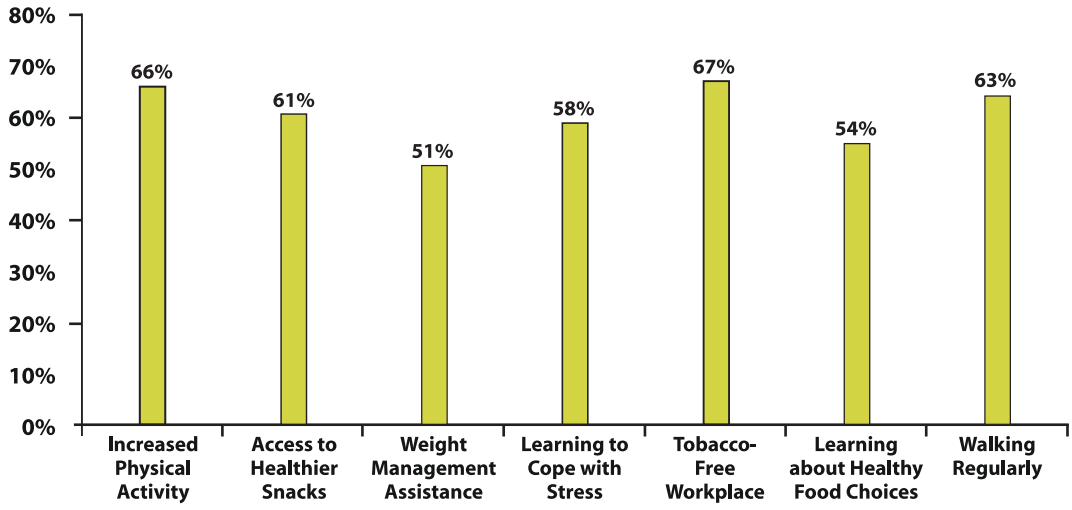
Survey Deployment: The Employee Wellness Interest survey was deployed through an online survey to approximately 10,000 employees with NC DHHS E-mail addresses. Each E-mail address could respond only once to the survey. Hard copies of the survey were provided to wellness contacts at the state facilities to reach their 8,000+ employees without a work E-mail address. The facility wellness contacts distributed the surveys, then collected and mailed them to the Wellness Director in Raleigh. The survey was deployed October 24, 2005 and closed January 9, 2006. E-mail messages were sent to remind employees to complete the on-line survey.

Response: A total of 5,821 employees (31%) responded to the survey. This included 4,256 E-mail responses (43% response rate) and 1,565 hard copy responses (20% response rate) from facility employees.

Analysis: On-line survey responses and scanned hard copy survey data were combined. Responses to open-ended questions were categorized using qualitative data analysis software. No significant differences were observed between the responses to on-line and hard copy surveys.

Results: More than 60% of respondents identified the following as major areas of wellness interest: opportunities in the workplace for increased physical activity and walking, access to healthier snacks, and working in a tobacco-free workplace (see Figure 1). Other workplace wellness interests identified by at least half of survey respondents included weight management, learning to cope with stress, and learning about healthy food choices.

Figure 1.
NC DHHS Employee Wellness Interest Survey Results: Major Areas of Wellness Interest Identified



Results of multiple choice questions shown in Figure 1 were confirmed by open-ended responses to a survey question asking for the single change in the workplace that would have the greatest impact on the employee's health and wellness. The most frequent response was a place to exercise at work. The second and third most frequent responses to that question were reduced work-related stress and improved access to healthier food options at work. Other frequent responses related to issues that were not provided as multiple choice options on the survey. These included employee health concerns regarding air quality, environmental health (mold, dust, lighting, and cleanliness), and ergonomic issues.

RTN—continued on page 470

RTN—continued from page 469

The survey attempted to assess factors affecting employee participation in wellness activities. Time to participate at work was most frequently identified by NC DHHS employees as the single most critical factor affecting their participation in wellness activities at work. Other major factors affecting participation included incentives for participation and authorization to use flex-time to participate. A majority of respondents (53%) identified the lunch break as the preferred time to participate in wellness activities and 30 minutes was the length of time most frequently preferred for wellness activities.

Each agency and facility wellness committee received a summary of their own employee survey responses. The results provided valuable information needed by the committees to develop agency wellness plans geared to the specific interests and needs of employees at their workplace. Information from a summary of all survey responses was used by the NC DHHS Wellness Council to develop broader policy and environmental change recommendations for the Department to improve support for employee wellness programs. A follow up survey to assess employee participation in wellness activities and future wellness interests was disseminated to NC DHHS employees in October of 2006.

REFERENCES

1 US Department of Health and Human Services. Prevention Makes Common "Cents." US DHHS: Washington, DC. Sept. 2003. Available at: http://aspe.hhs.gov/health/prevention/prevention.pdf. Accessed January 11, 2007.

2 Ozminkowski RJ, Ling, D, et al. Long-term impact of Johnson & Johnson's health & wellness program on health care utilization and expenditures. JOEM. 2002;44(1):21-29.

3 NC State Health Plan (NC SHP). The State of Member Health 2004 report. NC SHP:Raleigh, NC. http://www.shpnc.org/

4 Mokdad AH, Marks JS, Stroup DF, Gerberding JL. Actual causes of death in the United States, 2000. JAMA. 2004;291(10): 1238-1246 and the NC State Center for Health Statistics, 2004.

Contributed by Suzanna A. Young, RD, MPH; Marcus Plescia, MD, MPH; Bertha Gorham, PhD
Chronic Disease and Injury Section, North Carolina Division of Public Health

Readers' Forum

To The Editor:

It is incredible that we should be addressing the problems of overweight and obesity and be concerned that they are now of epidemic proportion. The July/August issue of the Journal has done a major service in bringing to the attention of all concerned just how pervasive the problem is. As noted by many of the authors, a "cure" for this epidemic will not be easy. Yet, one must be obtained. The impact of each overweight person on the healthcare system, both in terms of their own health and the cost in dollars needed to provide their care, cannot be ignored.

Thank you for providing this most timely issue. And thank you, too for honoring one of North Carolina's most effective and passionate leaders in the fight to provide better health, better resources, and better information for the care of our children. Tom Vitaglione is truly a gift to us all.

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