FEATURE ARTICLE
Research

# Predictors of Influenza Vaccine

## Acceptance Among Healthy Adult Workers

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**Abstract**

**A self administered questionnaire with items derived from the Health Belief Model was mailed to a random sample of workers prior to a worksite influenza vaccine program in this descriptive study of 207 service and clerical workers. The researchers investigated the utility of the Health Belief Model in predicting influenza vaccine acceptance. A second postcard questionnaire was mailed after the program to verify the vaccination status. Workers who received the vaccine had higher scores for susceptibility, seriousness, benefits, cues to action, knowledge, and health motivation and lower scores for barriers than did workers who did not receive a vaccine. Logistic regression analysis revealed the importance of benefits, barriers, and cues to action in predicting influenza vaccine acceptance. Study results suggest education and program efforts directed toward increasing benefits, dispelling myths about influenza and the vaccine, reducing barriers, and developing a campaign to increase program awareness may increase workers' vaccine acceptance.**

Influenza epidemics occur nearly every year during the winter months and continue to impact the economy and health of the U.S. population. The number of individual cases of influenza in any given year is difficult to determine because many people do not go to health care providers when confronted with flu-like symptoms. However, it has been estimated 114,000 hospitalizations and 20,000 deaths per year can be attributed to influenza (Bridges, 2000b). People most at risk for complications from the influenza virus are older adults (i.e., older than 65 years), individuals with a chronic illness, very young children, and pregnant women who are in their second or third trimester during the influenza season (Bridges, 2000b).

In a report for the Centers for Disease Control and Prevention (CDC), Bridges (2001) claims the influenza vaccine is approximately 70% to 90% effective in preventing Type A virus influenza when administered prophylactically to healthy adults. Because of the effectiveness of the influenza vaccine, the Advisory Committee on Immunization Practices (ACIP) recommends healthy people who are caregivers to persons at risk, those who wish to avoid illness, and those at risk for complications get an annual influenza vaccine (Bridges, 2001). In addition, the CDC recommends an influenza vaccine for healthy people 50 to 64 years old because of the prevalence of chronic conditions in this age group. In general, the vaccination prevents influenza illness, decreases work absences, and decreases medical costs (Bridges, 2001).

Recently, researchers have suggested there are health and economic benefits resulting from healthy adult workers receiving an influenza vaccine (Bridges, 2000a; Campbell, 1997; Dille, 1999; Leighton, 1996; Musich, 1996; Nichol, 1996; Olsen, 1998; Riddiough, 1983). One study compared rates of flu-like illness, complications from influenza, employee absenteeism, use of prescribed medications, physician visits, and rates of hospitalization among vaccinated and nonvaccinated workers. Nonvaccinated workers reported higher rates of flu-like illness, complications from influenza, lost work days, use of prescription medications, physician visits, and inpatient hospitalizations (Dille, 1999).

In another study, the loss in productivity from absenteeism because of influenza between 1971 to 1972 and 1977 to 1978 was estimated to cost $764 million per year (Riddiough, 1983). Workers 25 to 44 years old contributed to half of this work loss. Cost from absenteeism was significantly reduced for workers in all age groups who received an influenza vaccine (Riddiough, 1983). Nichol (1996) and Bridges (2000a) reported fewer physician visits and use of

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## What Does This Mean for Workplace Application?

Workers have limited knowledge about influenza or the influenza vaccine. Thus, it is important to include the benefits of the influenza vaccine during immunization campaigns to improve participation. A variety of recruitment cues such as fliers, posters, and verbal persuasion by supervisors and occupational health nurses should be used to attract workers to receive the vaccine. In addition, occupational health nurses need to consider ways to reduce resistance from workers who perceive barriers, even when the vaccine is offered at the worksite at no cost to the employee.

antibiotics, and fewer lost workdays in adults who were vaccinated for influenza. Workers 45 years and older receiving an influenza vaccine offered at the worksite had lower mean medical costs than workers who did not receive a vaccine. In addition, workers in all age groups reported fewer absence days because of illness (Musich, 1996).

Many worksites offer influenza vaccines to their employees because of the health benefits for their employees and economic benefits for the employing companies. Despite the effectiveness of the influenza vaccine and availability of worksite programs to administer the vaccine, many workers do not receive it (Doebbeling, 1997; Leighton, 1996). Even among health care workers, only 34% to 37% receive an influenza vaccination (Bridges, 2001).

Identifying the predictors of vaccine acceptance is needed to design future worksite influenza programs that are attractive to workers. Influenza vaccine acceptance has been found to be associated with perceived seriousness of influenza infection, effectiveness in avoiding illness, protecting others, convenience, vaccine cost, and misconceptions about influenza and the vaccine (CDC, 2001; Chapman, 1999; Nichol, 1997). Therefore, the purpose of this study was to assess workers' beliefs that might affect their decision to receive an influenza vaccine. To this end, the following predictors of influenza vaccine acceptance were determined:

- Perceived susceptibility to influenza.
- Seriousness of influenza.
- Benefits of receiving an influenza vaccine.
- Barriers to receiving a vaccine.
- Cues that promote action.
- Knowledge about influenza and vaccine protection.
- Motivation for protective health behaviors.

## THEORETICAL FRAMEWORK

The Health Belief Model (HBM) was used as a conceptual framework for the present study. The HBM was developed by Rosenstock (1966) to explain why people participate in programs that prevent illness or detect disease. The HBM is a value expectancy theory of behavior and posits that behavior is a function of an individual's beliefs about the subjective value of an outcome and the subjective expectation that a particular behavior will achieve the outcome. The HBM asserts that an individual's decision to undertake a health behavior to avoid a disease is influenced by:

- An individual's perception of personal susceptibility to a particular condition.
- The seriousness of consequences if that condition is contracted.
- The individual's evaluation of the potential benefits of the behavior in question.
- Perceived barriers to taking a specific course of action.

In addition, the presence of internal or external stimuli, or cues to action, is proposed to activate the protective health behavior. Knowledge about a particular illness threat and health motivation can also influence behavior indirectly through the effect on an individual's perceptions (Strecher, 1997). Thus, acceptance of an influenza vaccine depends on a worker's:

- Perception of susceptibility to influenza.
- Beliefs about the severity of influenza.
- Perceived benefits of the vaccine in preventing influenza.
- Perceived barriers to accepting a vaccine.
- Influence by cues to action.
- Knowledge about influenza and vaccine protection.
- Degree of motivation for other health behaviors.

Although the HBM has been one of the most widely used frameworks in the study of health behavior, few studies examining influenza vaccine preventive behaviors have been undertaken using the HBM as a conceptual framework. The majority of researchers have examined prevention of influenza in high risk groups (Aho, 1979; Larson, 1982; Szilagyi, 1992). The present study is an examination of the relationship of HBM concepts and influenza vaccine acceptance of healthy adult workers. It was hypothesized that beliefs related to susceptibility, seriousness, benefits, barriers, health motivation, cues to action, and knowledge about influenza and the influenza vaccine would be different between receivers and nonreceivers of the vaccine. It was also hypothesized that HBM variables would explain the variance in receiving an influenza vaccine. In general, practical information gained from the HBM variables can be used to develop a vaccine program campaign to make the influenza vaccine more appealing to healthy adult workers.

## METHOD

### *Influenza Vaccine Delivery Program*

This study was conducted at a large, Midwestern university in conjunction with an established immunization program where employees were offered the influenza vaccine at no cost and during paid work time. Printed fliers, newspaper, radio and television advertisements, and notification by department supervisors were used to announce the vaccine program, campus locations, and dates and times that influenza vaccines were given. The vaccines were administered in late October and early November. Workers who could not attend one of the mass

immunization clinics were encouraged to receive the vaccine at the university health clinic. The vaccines offered were recommended by the CDC.

### Study Design

A descriptive design using a longitudinal research methodology was used to examine the relationship between elements of the HBM and accepting an influenza vaccine. The values of the independent variables relevant to receiving an influenza vaccine (i.e., perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, knowledge, health motivation) predicted acceptance of an influenza vaccine.

### Participant Recruitment

The human subjects review committee of the university approved the study. A stratified random sample of workers was selected from a population of 3,000 clerical and service workers employed at a large, Midwestern university. The sampling frame was derived from a list of service and clerical workers obtained from the personnel department and a list of vaccine program participants from the previous year. These two lists of workers were used to develop four strata:

- Service workers who received a vaccine.
- Service workers who did not receive a vaccine.
- Clerical workers who received a vaccine.
- Clerical workers who did not receive a vaccine.

One hundred workers were selected from each of the four strata ($N = 400$).

### Instrument Development

The questionnaires were developed specifically for the present study (see Table 1). The first questionnaire consisted of 6 items requesting demographic information and 44 items to measure the HBM variables (i.e., susceptibility, seriousness, benefits, barriers, cues, knowledge, health motivation). The HBM scales were adapted from statements developed by Champion (1984; 1999), and were specifically tailored to address acceptance of influenza vaccine.

Seven items were included for susceptibility, six items for seriousness, six items for benefits, eight items for barriers, five items for cues to action, six items for knowledge, and six items for health motivation. Items in the six HBM scales were measured on a 5 point Likert type scale. Responses were strongly agree (5), agree (4), neither agree nor disagree (3), disagree (2), and strongly disagree (1). Negative items were reverse scored, so higher scores indicated higher levels of perceived susceptibility, seriousness, benefits, barriers, cues to action, knowledge, and health motivation. The scores on each of the six scales were averaged to form each of the HBM independent variables.

The second (postcard) questionnaire asked whether the respondent received an influenza vaccine (yes or no). Respondents who answered yes to the first item were requested to identify whether the vaccine was provided by the worksite influenza vaccine program or from another health care provider.

Table 1

**Examples of Items in the Health Belief Model Scales**

| Scale | Item |
|---|---|
| Susceptibility | 1. My chances of getting the flu are good.<br>2. Healthy people can get the flu. |
| Seriousness | 1. The thought of getting the flu scares me.<br>2. If I get the flu, my job would be in danger. |
| Benefits | 1. Getting a flu shot will prevent me from getting the flu.<br>2. I have a lot to gain by getting a flu shot. |
| Barriers | 1. Getting a flu shot is time consuming.<br>2. Getting a flu shot interferes with my daily activities. |
| Knowledge | 1. People get the flu from breathing the air of other people who have the flu.<br>2. One can get the flu from the flu vaccine. |
| Health motivation | 1. I frequently do things on my own to improve my health.<br>2. I have the recommended yearly physical examinations in addition to visits related to illness. |
| Cues to action | 1. I decided to get a flu vaccine when I read an announcement about the program.<br>2. I got the flu vaccine because my supervisor thought it was a good idea. |

### Procedure

Workers were mailed, via campus mail, a survey packet that included a cover letter, a questionnaire requesting demographic information, the HBM instrument, and a return envelope. The cover letter explained the purpose of the study, that there were minimal risks, that participation in the study was voluntary, and that there was no consequence for choosing not to participate. In addition, the cover letter assured confidentiality and provided instructions to return the completed questionnaire in the enclosed self addressed envelope via campus mail.

After the vaccine program ended, participants who returned the first questionnaire ($n = 288$) were mailed a second postcard questionnaire to assess acceptance of an influenza vaccine. Four months after data were collected from the first questionnaire, a random sample ($n = 50$) of respondents was mailed the same HBM questionnaire for the purpose of determining test–retest reliability. The response to this third questionnaire was 80% ($n = 40$).

Table 2

**t Tests for Mean Differences of Health Belief Model Variables According to Vaccinated or Not Vaccinated (N = 207)**

| Subscale Variable | Scale | Vaccine | No Vaccine | t | p |
|---|---|---|---|---|---|
| Susceptibility | 1 to 5 | 3.82 | 3.45 | −4.33* | 0.00 |
| Seriousness | 1 to 5 | 1.92 | 1.55 | −3.76* | 0.00 |
| Benefits | 1 to 5 | 3.97 | 3.37 | −6.53* | 0.00 |
| Barriers | 1 to 5 | 3.41 | 3.86 | 2.95* | 0.00 |
| Knowledge | 1 to 5 | 2.98 | 2.77 | −2.61* | 0.01 |
| Health motivation | 1 to 5 | 3.56 | 3.29 | −2.90* | 0.00 |
| Cues to action | 1 to 5 | 3.12 | 2.32 | −6.97* | 0.00 |

*p < .05

### Data Analysis

Analysis of the data was conducted using multiple logistic regression from the Statistical Package for the Social Sciences (SPSS Inc., Chicago, IL) PC version 9.0 for Windows (Microsoft, Redmond, WA). Measures of central tendency were used to describe the sample. The dependent variable, acceptance of the influenza vaccine, was dichotomous and scored 0 for no acceptance and 1 for acceptance. The HBM independent variables were interval level data. Factor analyses were conducted for each HBM scale (i.e., susceptibility, seriousness, benefits, barriers, cues, knowledge, health motivation). Only those scales with an eigenvalue of more than or equal to 1.0 and an internal consistency reliability (Cronbach's alpha) of .70 were retained.

Pearson correlations were used to calculate test–retest reliabilities of the scales. Differences in mean scores on the HBM variables for vaccine acceptors and nonacceptors were analyzed with *t* tests. Logistic regression analysis from SPSS was applied to determine the fit of the HBM to the data. All independent variables were entered into the logistic regression equation simultaneously to predict acceptance of the influenza vaccine. Backward elimination of nonsignificant variables was used to find the best model associated with acceptance of an influenza vaccine. Statistical significance was set at .05 for all tests.

## RESULTS

### Summary of the Sample

The response rate for the first questionnaire was 72% ($n = 288$). Of the 288 participants who were mailed a second questionnaire, 207 (71.9%) returned a usable questionnaire. Sixteen participants were no longer employed at the university and were excluded from the sample. Therefore, the response rate for eligible employees returning both the first and second questionnaires was 53.9%.

Data from the first questionnaire were analyzed with Pearson chi-square tests of association to determine any differences between those who returned the second postcard survey and those who did not return a survey. No significant difference was found between those who returned the postcard survey and those who did not for demographic (e.g., age, gender, education marital status, income) and study variables (e.g., health status, chronic illness, smoking status, influence from others, perceived effectiveness, likelihood of side effects, convenience of getting a vaccine, misconceptions, past influenza vaccine acceptance).

Although a nonsignificant chi-square test ($\chi^2$ [1, $n$ = 207] = 0.116, $p = .41$) revealed that the sample was evenly distributed among the four groups (i.e., service, vaccine; service, no vaccine; clerical, vaccine; clerical, no vaccine), there were more clerical workers (64.8%) than service workers in the sample. The majority of the respondents were women (75.5%). More than a third (38.6%) of the workers were 50 years and older, and another 39% reported they were between 40 and 49 years old. Only 23.1% of the workers reported they had an associate or baccalaureate degree. Another 74% reported they were at least high school graduates. Most (75.7%) of the study participants reported they were married.

### Health Belief Model Variables

Slightly more than half (54.8%) of the respondents reported they had received an influenza vaccine. Almost all (93%) of the workers who reported they received an influenza vaccine identified they were vaccinated at the worksite program. Another 5.5% got the vaccine from their family physician and 1.5% at a community vaccine clinic.

Four month test–retest correlation coefficients were as follows: susceptibility, .36 ($p = .05$); seriousness, .67 ($p = .01$); benefits, .54 ($p = .01$); barriers, .50 ($p = .01$); cues, .88 ($p = .01$); knowledge, .36 ($p = .05$); and health motivation scales, .62 ($p = .01$). Cronbach's alpha coefficients were as follows: susceptibility, .78; seriousness, .77; benefits, .91; barriers, .97; cues to action, .87; knowledge, .65; and health motivation scales, .78.

The results of *t* tests for the HBM variables are shown in Table 2. Mean scores for every HBM variable were significantly different for workers who received the influenza vaccine versus workers who did not receive a

Table 3

**Logistic Regression Analysis: Health Belief Model Variables Regressed on Acceptance of an Influenza Vaccine ($N = 207$)**

| Variable | Beta Coefficient | Standard Error | Wald Statistic | Degrees of Freedom | Statistical Significance | Partial Correlation | Odds Ratio |
|---|---|---|---|---|---|---|---|
| Susceptibility | 0.31 | 0.34 | 0.81 | 1.0 | 0.36 | 0.00 | 1.37 |
| Seriousness | 0.28 | 0.29 | 0.95 | 1.0 | 0.33 | 0.00 | 1.33 |
| Benefits | 1.33 | 0.36 | 13.88 | 1.0 | 0.00 | 0.21 | 3.77* |
| Barriers | –.52 | 0.22 | 5.82 | 1.0 | 0.02 | –.12 | 0.59* |
| Knowledge | 0.45 | 0.34 | 1.77 | 1.0 | 0.18 | 0.00 | 1.57 |
| Health motivation | 0.37 | 0.31 | 1.40 | 1.0 | 0.24 | 0.00 | 1.44 |
| Cues to action | 1.07 | 0.26 | 16.77 | 1.0 | 0.00 | 0.24 | 2.92* |

*Note.* $R^2 = 0.45$
*$p < .05$

vaccine. Workers who did not receive a vaccine perceived they were less susceptible to influenza and did not view influenza as a serious illness. Although the vaccine recipients indicated there were more benefits and fewer barriers to getting a vaccine, workers who did not get the vaccine indicated there were some benefit and more barriers to receiving the vaccine.

It was of interest that neither recipients nor nonrecipients were very knowledgeable about influenza or the vaccine. However, vaccine recipients were more attentive to external cues in deciding to get the vaccine than were nonrecipients. Finally, both groups were motivated to practice health behaviors, but the influenza vaccine recipients had higher scores on the health motivation scale than nonrecipients.

### *Health Belief Model Fit*

Influenza vaccine acceptance was regressed on all the HBM variables. Table 3 depicts the results of the full model. The model chi-square was 79.84 ($df = 7, p < .01$). Benefits, barriers, and cues to action all predicted influenza vaccine acceptance, while susceptibility, seriousness, health motivation, and knowledge were not predictive of vaccine acceptance. To balance parsimony with fit, a reduced model was generated with the significant variables. The chi-square for the reduced model was 77.97 ($df = 3, p < .01$) (see Table 4).

For benefits, the odds ratio was 4.68, indicating participants who accepted the influenza vaccine were more than four times more likely to believe the vaccine had health benefits than individuals who did not accept the vaccine. Further, participants who accepted the influenza vaccine were more than three times more likely to have done so because of cues than those who did not accept the vaccine.

Belief in barriers to accepting influenza vaccine was a weaker predictor of vaccine acceptance. Workers who received influenza vaccines indicated there were fewer barriers than those individuals who did not receive vaccines. This three variable model resulted in the classification of 77.0% of cases into the correct category (specificity).

Of those who did not receive an influenza vaccine, 60.5% were classified correctly. Of those who received an influenza vaccine, 86.5% were classified into the correct category (sensitivity). Therefore, the model was better at predicting individuals who would receive the influenza vaccine than predicting individuals who would not.

## DISCUSSION

Theoretical models of preventive health behaviors, such as the HBM tested in this study, emphasize the relationship between beliefs and behavior (Rosenstock, 1988). This study was conducted to identify the beliefs that predict influenza vaccine acceptance. Variables from the HBM were tested as predictors. It was hypothesized that beliefs of susceptibility, seriousness, benefits, barriers, health motivation, cues to action, and knowledge about influenza and the influenza vaccine would be different between acceptors and nonacceptors of the vaccine. It was also hypothesized that HBM variables would explain accepting an influenza vaccine. Results fully supported the first hypothesis and partially supported the second hypothesis.

Study limitations must be recognized when interpreting the results. The overall response rate (including workers who were no longer employed) for the final analysis was 51.8%, allowing selection bias to enter the study findings. In addition, the study sample was limited to service and clerical workers at a large, Midwestern university. Because of the location and type of work those individuals engage in, it is not certain that the findings can be generalized to other workers.

Finally, the study used self report of influenza vaccine acceptance. Self reports may be subject to error because of faulty memory. However, error in reporting was likely to be minimal because the workers were not asked to provide complex details of the influenza vaccine program, but rather to answer yes or no with respect to influenza vaccination.

Table 4

**Logistic Regression Analysis: Reduced Health Belief Model Variables Regressed on Acceptance of an Influenza Vaccine ($N = 207$)**

| Variable | Beta Coefficient | Standard Error | Wald Statistic | Degrees of Freedom | Statistical Significance | Partial Correlation | Odds Ratio |
|---|---|---|---|---|---|---|---|
| Benefits | 1.54 | 0.34 | 21.24 | 1.0 | 0.00 | 0.27 | 4.68* |
| Barriers | –.51 | 0.21 | 6.31 | 1.0 | 0.01 | –.13 | .60* |
| Cues to Action | 1.23 | 0.25 | 23.64 | 1.0 | 0.00 | 0.28 | 3.43* |

*Note.* $R^2 = .43$
*$p < .05$

A little more than half of the workers in this study reported they received an influenza vaccine. This finding is similar to Chapman's (1999) study of university employees who reported a recipient rate of 49%. The number of vaccine recipients in this study was greater than the corporate secretarial staff of 39% in Chapman's (1999) second study, and the 23.5% of manufacturing workers who chose to be vaccinated (Leighton, 1996). There also are documented lower vaccine acceptance rates by health care workers than the vaccine acceptors in this study, despite the recommendations by the ACIP that health care workers be vaccinated for influenza (Bridges, 2001).

Doebbeling (1997) reported vaccination rates of 31% for health care workers. This finding reflects the 1997 National Health Interview Survey findings of 34% of health care workers reporting that they received an influenza vaccine (Walker, 2000). Participants in this study were mostly women, and, in general, women have been found to practice preventive health behaviors, including influenza vaccination, at a higher rate than men (Doebbeling, 1997; Piani, 1993).

Of workers participating in this study, most received an influenza vaccine from the worksite program. The influenza vaccine program at the worksite examined in this study was convenient in terms of place and time, and the vaccine was given without cost during paid worker time. The number of workers in this study who received the influenza vaccine at the worksite (rather than from other health care providers) affirms the ACIP's recommendation to improve participation in worksite vaccine programs (Bridges, 2001).

In support of the HBM, participants in this study who received the influenza vaccine, as opposed to those who did not receive a vaccine, had stronger beliefs that:

- They were susceptible to influenza.
- Influenza is a serious illness.
- Receiving the influenza vaccine would provide workers with health benefits.
- Fewer barriers existed to receiving the vaccine.

In addition, differences existed between vaccinated and nonvaccinated workers with respect to knowledge about influenza and the vaccine, motivation for other preventive behaviors, and attentiveness to cues relevant to receiving the vaccine.

Findings from the logistic regression analysis provide support for a portion of the HBM as it applies to accepting an influenza vaccine. For this group of workers, only benefits, barriers, and cues to action were supported as predictors of accepting the vaccine. The workers who perceived there was a positive benefit from the vaccine did not perceive barriers and were more likely to receive the vaccine. However, susceptibility, seriousness, health motivation, and knowledge were not supported. Other researchers have found influenza vaccine acceptance to be influenced by perceptions of effectiveness of the vaccine in preventing illness (benefit), likelihood of vaccine side effects, inconvenience (barriers), lack of awareness, and because someone had recommended it (cues to action) (Chapman, 1999; Fiebach, 1991; Ganguly, 1989; Heimberger, 1995; Nichol, 1997; Ohrt, 1992).

The findings from this study offer information that may be used to encourage employees to be vaccinated against influenza. Although the influenza vaccine program in this study was offered at no direct cost to the employee, was widely publicized, and was offered at many sites and times for convenience, additional interventions may be needed to reduce perceived barriers to influenza vaccination. Both program publicity and education may be essential for boosting program participation. Publicizing that getting a vaccine takes only a few minutes of the worker's time and is free, or encouraging workers' supervisors to allow workers to leave to get the vaccine may increase workers' perceptions that there are fewer barriers to vaccination. Additional vaccine sites and reminders (e.g., fliers, posters, newsletter announcements, verbal announcements) may also be needed.

The workers had limited knowledge related to influenza and the protection they could achieve from getting the influenza vaccine. People sometimes have become ill with upper respiratory symptoms even when they have received an influenza vaccine in the past, supporting a belief that the vaccine is not very effective. In addition, people may have misconceptions about influenza (e.g., believing gastrointestinal symptoms are influenza). Although vaccine effectiveness varies from one year to another, workers' perceptions of their susceptibility and seriousness of the illness could be increased with health education focusing on:

- Symptoms and complications of influenza.
- Dispelling misconceptions.

- The effectiveness of vaccinations in protecting workers and others.

Successful strategies related to the findings in this study have recently been reported. Streed (2000) followed CDC strategies for increasing worker participation in an influenza vaccination program. Strategies to foster positive beliefs related to the HBM variables significant in this study were (Streed, 2000):

- Identifying departmental "champions" who believe there are benefits to vaccination and using these champions to reinforce vaccine education and program promotion.
- Offering an educational program to increase knowledge about influenza, one's susceptibility, seriousness of the illness and the vaccine, and to dispel myths about influenza and the vaccine.
- Creating a positive atmosphere by developing a campaign "theme" with a slogan and logo, thus creating a positive identity and program awareness.
- Making the vaccine readily available to workers at multiple worksites and times to diminish barriers.
- Offering incentives such as a random drawing for a cash prize.

## CONCLUSION

The worksite can be an important avenue for increasing influenza vaccine rates. The HBM is useful as a conceptual framework to identify perceptions about influenza and the influenza vaccine. Because decisions about performing a behavior are influenced to a large degree by a person's perceptions, it is important to assess these factors to identify content for future strategies that would make influenza vaccination both appealing to and needed by the employee.

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