THE PHLAME STUDY: SHORT-TERM ECONOMIC IMPACT OF HEALTH PROMOTION

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ABSTRACT

The PHLAME Study: Short-Term Economic Impact of Health Promotion
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Purpose: *As expenditures on health in the U.S. now exceed $1 trillion for the first time, public and private health care decision makers have called for more rigorous use of economic evaluations to guide resource allocation and spending. Having previously established the benefits of a worksite health promotion intervention on nutrition and exercise behaviors (PHLAME study), the purpose of this study was to compare injury rates and health care costs of two health behavior change strategies among firefighters.*

Methods: *Six hundred eighty seven firefighters participating in the PHLAME program were randomized to a team-centered, group-based educational intervention, a one-on-one, individualized counseling intervention, or a control group. We assessed firefighter's knowledge and behaviors using a questionnaire with established indices. For self-reported injury data, we asked what was the total number of days off work due to injuries in the past year. The economic analysis included frequency distributions of injury and disability claims. We analyzed total healthcare costs associated with injuries and disability claims prior to, during, and after the intervention from 1998 – 2003.*

Results: *There was a 35% reduction in self-reported days off due to injuries among the two intervention groups (team-based approach or individualized counseling) as compared to the control group. This coincided with a 33% reduction in number of "reportable injuries" among the primary PHLAME intervention site compared to a 21% increase in reportable injuries among a Non-PHLAME comparator Oregon fire bureau during the same time period. Total health care costs for injury and disability claims were reduced by over 50% as compared to the pre-intervention costs. The cost of implementation of the health promotion intervention was substantially less in the team-based, group model versus the one-on-one counseling strategy model.*

Conclusion: *The PHLAME intervention reduced injury rates and healthcare costs among participating fire bureaus. Our findings suggest that a team-based/group intervention has lower costs of administration and implementation than an individualized counseling intervention with similar results among firefighters. Similar team-based formats and health education curriculums could be adapted for other worksite settings and may provide a feasible and cost-effective means for health promotion.*

INTRODUCTION

1. The Promoting Healthy Lifestyles: Alternative Models' Effects (PHLAME) study demonstrated the benefits of a worksite health promotion intervention on nutrition and exercise behaviors (Am J Health Behavior 2004; 28(1):13-23).

2. As expenditures on health in the U.S. now exceed $1 trillion for the first time, public and private health care decision makers have called for more rigorous use of economic evaluations to guide resource allocation and spending.

3. Therefore, the purpose of this study was to conduct an economic evaluation of the successful PHLAME study by comparing injury rates and health care costs of the health behavior change strategies (a one-on-one counseling vs a group or "team" based vs control) among firefighters.

METHODS

- Six hundred eighty seven firefighters participating in the PHLAME program were randomized by station to a team-centered, group-based educational intervention, a one-on-one, individualized counseling intervention, or a control group.

- We assessed firefighter's knowledge and behaviors using a questionnaire with established indices.

- For self-reported injury data, we asked what was the total number of days off work due to injuries in the past year.

- Injury rates and total healthcare costs associated with injuries and disability claims were compared prior to, during, and after the intervention from 1998 – 2003.

- Mean injury rates of 2 PHLAME fire bureaus were combined and compared to the mean injury rates of the 2 Non-Phlame 'control' fire bureaus. Each data point from Table 1 was used to calculate a line and then the slopes of these lines were compared to assess differences in injury rates.

RESULTS

- There was a statistically significant (p<.05) reduction (35%) in self-reported days off due to injuries among the two intervention groups as compared to the control group (Figure 1).

- Example of annual cost of injury claims at PHLAME intervention site 1. Costs were reduced by over 57% (Figure 2).

- "Reportable" injuries are firefighter injuries that require medical evaluation . These types of injuries among firefighters participating in the PHLAME intervention study were reduced by 36% (Figure 4).

- Table 1 shows the actual raw numbers of injuries and percentages of injury rates among the PHLAME and Non-PHLAME fire bureaus in Oregon.

- Figure 4 shows the actual slope of change in the mean injury rates among the PHLAME and Non-PHLAME control fire bureaus which shows a statistically significant change in injury rates.

Figure 1: Self-Reported Days Off Due To Injuries (Intervention vs Control Group)

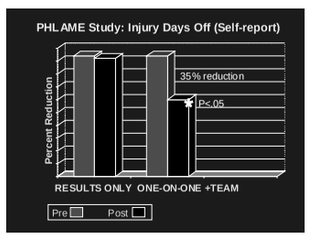


Figure 2: Example of the Annual Cost of Injury Claims From a PHLAME Fire Bureau

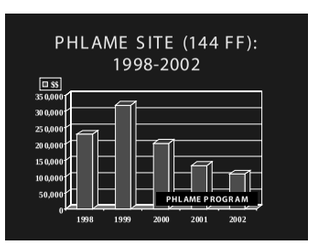


Figure 3: Number of 'Reportable Injuries' among a PHLAME Fire Bureau

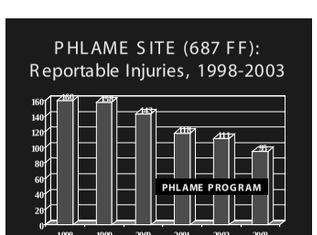
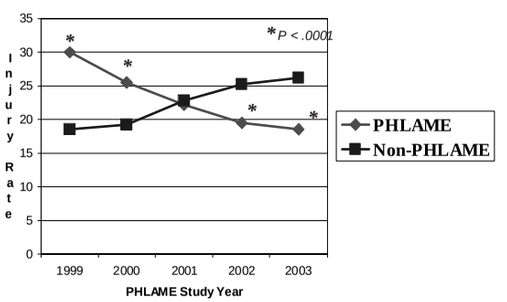


Table 1: Number of Injuries in PHLAME vs Non-PHLAME 'Control 'Fire Bureaus

Fire Bureau # of ff's	1999	2000	2001	2002	2003
PHLAME 578 ff	158 / 27 %	143 / 25%	118 / 20.4%	111 / 19%	103 /17.8%
PHLAME 144 ff	47 / 33%	38 / 26%	33 / 23%	29 / 20%	26 / 18%
Non-Phlame 290 ff	52 / 18%	54 / 18.6%	58 / 20%	61 / 21%	65 / 22.4%
Non-Phlame 203 ff	39 / 19%	41 / 20%	52 / 25.6%	60 / 29.5%	61 / 30%

Figure 4: Slope of change for injury rates reported in Table 1. Statistical significance is at the p<.0001 level.



CONCLUSION

The PHLAME intervention reduced injury rates and healthcare costs among participating fire bureaus as compared to Non-Phlame 'control' fire bureaus. Similar team-based formats and health education curriculums could be adapted for other worksite settings and may provide a feasible and cost-effective means for health promotion.

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