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Factors in Adoption of a Fire Department Wellness Program: Champ and Chief Model

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Abstract

Objective—This study’s purpose was to identify and evaluate determinants of fire departments’ wellness program adoption.

Methods—The PHLAME fire service wellness program was offered for free to all medium-sized fire departments in Oregon and Washington. An invitation to participate was mailed to key fire department decision-makers (chief, union president, and wellness officer). These key decision-makers from 12 sites that adopted the program and 24 matched non-adopting sites were interviewed, and results analyzed to define adoption determinants.

Results—Three adoption requirements were identified:(1) mailer connection, (2) local firefighter wellness champion, and (3) willing fire chief, while a fourth set of organizational factors had little or no impact on adoption including prior and ongoing wellness activities, financial pressures, and resistance to change.

Conclusions—Findings identified determinants of medium-sized fire service wellness program adoption.

Understanding all phases of worksite health promotion is important. Job settings are natural formats for reaching the majority of adults, and sites where interventions can be delivered, environments restructured, and social norms altered, leading to outcomes that benefit both workers and their employers.^{1,2} Despite studies documenting reduced health care costs and improved employee productivity, evidenced-based worksite interventions infrequently are used, and those that are used have rarely been assessed for effectiveness.³

Recognizing the potential of occupational wellness, a national initiative is underway to implement and expand evidenced-based worksite health promotion programs.⁴ Two basic components are needed to facilitate that process. First is an easily accessible listing of evidence-based programs and their characteristics, comparable to SAMSHA’s National Registry of Evidenced Prevention Programs (NREPP) (www.nrepp.samhsa.gov/). Currently,

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Conflicts of Interest

OHSU and Drs. Elliot and Kuehl have a financial interest from the commercial sale of technologies used in this research. This potential conflict of interest has been reviewed and managed by the OHSU Conflict of Interest in Research Committee.

no independent registry of evidence-based worksite programs exists, although many vendors and locally developed programs are available. The second necessary aspect to facilitate worksite wellness relates to understanding program adoption and effective implementation. The IGNITE study was funded through the American Reinvestment and Recovery Act to define determinants that enable and hinder the adoption and use of an evidenced-based worksite health promotion and injury reduction program.⁵

The IGNITE study evaluated adoption and implementation of the PHLAME firefighter wellness program. Despite perceptions to the contrary, firefighters' behavioral profile is comparable to other workers. Their diets are often unhealthy and regular exercise is frequently lacking. Those risks contribute to myocardial infarctions being the leading cause of on-duty death,^{6,7} and firefighters' risk of cancer also is increased.⁸ The PHLAME (Promoting Healthy Lifestyles) wellness/injury reduction program was developed, shown efficacious, and beta-tested with funding from the National Institutes of Health.^{9–11} The PHLAME curriculum offers twelve, 45-minute interactive weekly sessions, and its team-centered, peer-led, scripted format is easily implemented and a natural fit for firefighters' work structure. PHLAME is listed on the Cancer Control P.L.A.N.E.T. website of evidence-based programs (<http://cancercontrolplanet.cancer.gov/>).

Translation is broadly defined as the sequences of events by which a proven scientific discovery (such as an evidence-based intervention) is integrated into established practice. It can be divided into phases of (1) pre-adoption and adoption and (2) installation and use. Adoption is defined as the decision to make full use of an innovation.^{12–14} Researchers have noted that understanding translation has been hampered by lack of attention to adoption,^{15–17} implying that insight into the factors leading to adoption is critical. The objective of this study was to identify determinants of PHLAME fire service wellness program adoption using qualitative research methodology by comparing adopting departments with matched fire departments that did not adopt the PHLAME program.

METHODS

Study Design and Phases

The overall IGNITE study design was a prospective observational study, conducted in two phases: (1) adoption and (2) installation, use, and outcomes. The project adhered to components of the STROBE Statement for observational studies.¹⁸ The Institutional Review Board of the Oregon Health & Science University approved the study in August of 2009. Details of the second phase, which used quantitative methods and mediation analysis, have been published.¹⁹

Dissemination for Awareness and Study Sample

Information about the PHLAME wellness and injury reduction program was sent to all 70 medium-sized fire departments (40 to 140 career firefighters) in Oregon and Washington. At each targeted site, an informational packet was mailed to three individuals: the fire chief, the union president, and the wellness/safety coordinator. Each received a personalized letter, glossy promotional brochure, and an informational DVD (see Figure 1). The materials included links to a website (www.phlameprogram.com), which contained information about the program, its original efficacy trial outcomes, testimonials of participants and the current study.

As shown in Figure 2, 25 sites responded with a phone call or email requesting more information. There was an average of five contacts per responding department, with a range of from 1 to 13 communications. Six responding sites decided not to participate, and of the remaining 19, 12 were enrolled. That enrollment number was predicted to be sufficient to

detect mediation effects for the second installation, use and outcomes phase of the project,¹⁹ and sites were selected to provide a spectrum of geographic and demographic variation. They were matched based on number of career firefighter employees with 24 non-adopting departments for comparison purposes.

Interview Data Collection

For the twelve adopter departments, all three individuals sent the mailers were interviewed individually and in person when the program was delivered to the sites. For the 24 matched non-adopter sites, the same three people were contacted by phone. In both circumstances, trained interviewers used a uniform semi-structured protocol, which began with whether the original mailing had been received and then explored potential components of adoption. The strategy maximized the opportunity to compare responses to the same question while allowing probative follow-up questions.

Data Analysis

The adopter interviews were transcribed verbatim, reviewed for accuracy, and augmented with relevant interview notes. When possible, the non-adopter calls also were recorded and transcribed, and when audio recording was not possible, detailed interview notes were prepared. The first and second authors took primary responsibility for thematic content analysis. In accord with qualitative tradition, data were reviewed and annotated in a systematic search for emergent patterns.^{20–23} Using an inductive approach from grounded theory,²⁴ each micro-reading focused on identification of patterns of influences on the adoption decision. As patterns coalesced into themes, data were iteratively hand-coded according into those themes. Those themes were compared to the anticipated or hypothesized factors influencing adoption decisions,²⁵ and those factors that actually influenced adoption decisions were identified. Using formal logic,²⁶ factors were classified as necessary or sufficient and ranked for their effect on departments' decision to adopt the program. Proposed findings, along with the supporting interview documentation, were discussed, reviewed and agreed upon by all members of the research team. Quotations, with wording altered only as needed to preserve clarity outside of the original context, are presented to ground the findings.²⁴

RESULTS

A comparison of characteristics of the 12 adopting and 24 matched non-adopting fire departments is shown in Table 1. There were no differences between the adopter and non-adopters based on size (number of firefighters) or geographic distribution. Table 1 also lists the non-adopter departments' primary reason for not participating. For the adopter departments, interview participation was 100 percent, and all three individuals sent the mailer (chief, union president, and wellness/safety coordinator) were interviewed at each site. For non-adopter departments, fifty-six people were interviewed. Six departments did not have a wellness coordinator or the union president also filled that position. Ten could not be contacted: 4 had left the department, and 6 declined participation (5 chiefs and 1 union president) for a non-adopter interview participation rate of 85 percent.

Four themes emerged from the interviews of key informants from the adopter and non-adopter sites, and they are shown in Table 2.

Mailer Connection

Despite the care taken to optimize connecting with each department, the main reason for not participating was that the materials were reported as never received or read. Respondents for 9 of 24 non-adopter sites reported that they had never seen the mailers. For some of the non-

adopters, turnover in staff prevented the mailer from reaching the targeted individuals, and as one of the individuals explained, “I never saw it. Our fire chief retired the first of the year, so it could have slipped through,” while another noted, “I don’t remember seeing it. In March, I may have seen it. Our battalion chief for wellness retired in April and may have passed it off, but no one got to it.”

Even without turnover, an element of chance was involved in reaching the intended individuals. Non-adopter recipients, noted:

We are plate spinners. We’re spinning all these plates and, if we go to this plate, then that plate is falling. It had to get to the right person whose attention wasn’t on another plate. (Fire Chief)

Officers tend to get inundated with stuff. And it’s a matter of prioritizing things. I think it’s not a matter of it not being a good program or a good idea; it’s a matter of a lot of training officers feeling pretty overwhelmed. And so it depends on, one, if they have the mechanism to delegate it to somebody that might be willing to take it or, two, have the time to be able to look at it and determine for themselves if it is something they want to do. (Wellness Coordinator)

For some non-adopter sites, the slick promotional materials appeared to have had a negative effect:

Unions get solicited a lot...for things, not all of which are on the up and up. And it’s pretty easy to get jaded. And I would say that one of the first things that came through my head is I thought this was some sort of gimmick or a scam. So rather than take the time to research and try to figure out if that’s true or not, I just dismiss it and move on the next thing. (Union President)

At other sites, the promotional materials appeared to facilitate interest. One of the adopting site individuals noted:

There was enough stuff in [the mailer], and it was attractive enough for me to pass it on. There’s a lot of stuff I’ll look at and say, ‘Nah’. But there was something about it, and to be honest, I can’t remember what it was... enough effort was put into the packaging of what you sent out that it did make me pursue it. It was intriguing enough for me to want to at least hand it off to the fitness guy and let them determine if it was worthwhile. (Fire Chief)

If the mailer was opened and read, it promoted program adoption. The mailer and DVD included testimonials from NW firefighters who had previously participated in PHLAME. Eighteen of the thirty-six adopting departments’ key decision makers had heard of PHLAME or its home institution.

Seven firefighters who became PHLAME enthusiasts knew or contacted a firefighter who had participated in PHLAME to discuss the program.

I was at the Peer Fitness Trainer class in Seattle and [firefighter] from Portland Fire was an assistant instructor. He was telling me about the PHLAME program. I started doing some research on it, and it seemed like a pretty good deal and a lot of good information... that’s one of the biggest things that drew me to it. (Wellness Coordinator)

It was key... one of our fire captains called down to Portland Fire and talked to one of the fellows there who gave a big thumbs-up to the program. He said that it’s done wonders for injury prevention, and he thought it was a very good program. (Wellness Coordinator)

The Champ

The emergence of someone to champion the program, a person who might or might not have been targeted with the PHLAME mailer, proved necessary for adoption. Of the 15 non-adopting sites where the mailer was read, 9 lacked a champion, while such an individual was a uniform component of all the adopting sites. The champion was a catalyst who became the site contact and advocated for adoption. When asked about what it took for adoption, one chief said, “A person is needed to say, ‘Yeah, we’re going to do this!’ If you don’t find that person, it’s not going to happen.” The champ proved to be a wellness enthusiast at any level within the department who worked relentlessly toward adoption, whether or not s/he was recognized or compensated for those efforts.

In fire departments having wellness officers, those individuals were likely to become the champions. At other adopter sites, champions emerged based on personal interest. Because these firefighters had not been targeted to receive a mailer, its reaching them was a matter of chance. “It got to the right place though - that’s the important thing. [The champ] would be the guy that would need to get that. And he did.” One champ commented, “[The mailer] didn’t come directly to me. It may have come to someone else and then come to me.”

Once the materials reached the champ, these individuals faced obstacles. As one said, “Any kind of program has to jump through a whole lot of hoops before it gets implemented...to get bought up by the union or the administration. It can be a long, drawn-out process.” Another champ recalled, “I wasn’t told yes or no. Since it was really a no-cost thing, it’s kind of the time and-- the biggest piece-- getting the union on board. So I took it to the management team. I shared it with battalion chiefs, the deputy chiefs and fire chief.” Sometimes the champ brought in allies to assist in moving adoption forward, one such confederate noting, “[The Champ] was aware of your program. He brought it to my attention, and it seemed like a good thing. Then, I brought it to the chief and kind of convinced him that it was a good thing.”

The Chief

The chief’s willingness to adopt PHLAME also was a necessary condition for a department’s participation. Lack of a chief to provide approval was a factor in 2 of 24 non-adopters. However, a sufficiently forceful champ could sometimes trump chief turnover. A successful champ noted, “Right now we’re in a management transition with a chief that kind of ran out of energy and is retiring in June, and a new one coming on board.”

While the chief did not have to be enthusiastic, permission or passive endorsement was needed to proceed. As one champ stated, “I showed [the mailer] to the chief and I said, ‘Chief, we need to act on this now.’ And that’s why I called that day and said, ‘Hi, we’d really like to do this!’” Even a passive yes was enough to proceed. “[The liaison sent the mailer] out to all the chiefs. He took their lack of communication as a passive yes.”

Non-factors

Organizational issues were hypothesized as potential determinants in the adopt decision. Two departments did list participation in an existing wellness program as the primary reason for not adopting the program, and one reported financial issues as the cause for non-adoption. However, adopting departments indicated that these and other organizational issues could be overcome by enthusiastic program advocates.

Some adopting departments had no wellness program. For these departments, PHLAME presented an opportunity to fill that gap. Most interviewees readily conceded that their health and fitness, individually and as a group, needed improvement.

Over 55 or 60% of department scored in the overweight to obese category. A lot of them haven't had a medical evaluation in well over two years, they've got family history, and their age is getting closer to that 45 mark. I'm thinking, "Man, we're a ticking time bomb." (Battalion Chief)

Conversely, one interviewee from an adopting site reported, "We haven't been into an organized program for probably thirty years." Ultimately, pre-existing programs failed to distinguish the adopting from the non-adopting departments. Nine out of twelve adopting fire departments had some sort of wellness programs already in place. For some who were satisfied with their pre-existing programs, PHLAME was perceived as a positive addition, "We just started a Peer Fitness Trainer Program, so we thought we could tie the PHLAME into the whole PFT thing...it was really good timing," Another champ said, "We have a fitness program, but we've always wanted to have more of a wellness component associated with it." One department's champ remarked, "Anything that we do [such as PHLAME] is going to supplement our program."

The project coincided with an economic downturn that affected fire departments, as their funding is typically tied to property taxes. As a result, several departments were experiencing their first need to reduce employee numbers. Although the program was free, PHLAME sessions were completed during duty hours and required management of tasks. However only 1 of the 24 non-adopter sites identified budget as a determining factor for their decision, and fiscal difficulties may have had a positive effect on adoption. As one adopting chief said, "The price was right."

When the progressiveness of departments was explored as a possible adoption influence, holding on to tradition emerged as a general characteristic of departments. One interviewee noted, "The fire service is always afraid of change." Older firefighters confirmed that characteristic, one wellness officer noting, "Especially our older firefighters, maybe the ones that are more out of shape, kind of fight [fitness initiatives] because they think, 'Well, I've been a firefighter this long, and I haven't died. So, I can make it the rest of my career.'" However, comments about this potential factor were comparable across adopters and non-adopter sites.

DISCUSSION

Our objective was to define the determinants of fire department wellness program adoption. Rather than organizational features, such as finances, prior or existing wellness programs, and resistance to change, two individuals within each organization proved instrumental: a willing fire chief and a firefighter to champion the program. Although both were necessary, alone neither were sufficient to ensure adoption. The tipping point^{27,28} was a combination of the two, which together distinguished adopters from non-adopters in every case.

Establishing a positive connection with those individuals was a major initial hurdle, with almost half of non-adopter sites never reading the mailer about the free wellness program. Surprisingly, despite efforts to prepare an effective promotional packet and to send it to three key decision-makers at each site, making contact with both a champ and the chief was a barrier. Our findings confirm research suggesting that translation of evidence-based programs could be enhanced by building sustainable distribution channels using marketing approaches.²⁹ For our program, connecting through the firefighter union or co-marketing with another product having an existing sales force specializing in personal contact might have penetrated that barrier more effectively.

The critical role of a champion in effecting adoption was an important finding. The unique place of opinion leaders or change agents for organizational change is well recognized.^{30–32}

These findings extend the documented influence of such individuals to wellness program adoption.

Because the champions were not always highly placed individuals, for some adopting departments, they might better be described as organizational rascals, individuals who work behind the scenes and maintain enthusiasm among those personnel ultimately implementing the program.³³ As has been described for other change agents, champs recognized and communicated potential program benefits^{34,35} and mobilized collective program support.³⁶

Although higher ranking individuals have been found important in marketing to large businesses,^{37,38} for these moderately sized departments, the chief's role was more permissive than proactive, providing consent and allowing the champion to proceed. The fire departments in this sample were comparable to smaller worksites where those issues may not apply.^{39,40} In addition, management support may be more important in marshaling resources once a program is adopted.

Organizational factors encompass a broad spectrum of worksite characteristics, and they have been considered relevant for both adoption and effective implementation.⁴¹ In general, the factors and constructs studied have included organizational culture, work demands, staff cohesion, and economic issues.^{42,43} Unlike studies indicating an effect of those factors on implementation,^{44,45} our findings suggested that these dimensions had limited impact on the adoption of a wellness program by fire departments.

Our sites were comparable to small to moderately sized businesses, which has both advantages and disadvantages. Employee number is an acknowledged influence on occupational wellness program availability. The majority of previous worksite wellness studies have been conducted at larger worksites,¹ despite businesses comparable in size to our sites accounting for the majority of worksites. Importantly, these smaller businesses are less likely to offer health promotion programs.⁴⁶ Thus understanding the unique determinants relating to small business may be especially important.⁴⁷

LIMITATIONS

We acknowledge that our findings have limitations. First, firefighting is a unique job, and fire departments' business model differs from that of other worksites. Also, our study involved limited geographic representation and the program was offered at no charge. For these reasons, our findings must be generalized cautiously to other occupations.

CONCLUSIONS

Firefighters are at higher risk for heart disease, cancer, and injury and like other occupations, would benefit from health promotion. The decision to adopt is the initial step in a fire department's acquisition and implementation of a wellness program. Adoption requires connecting with a department member who can and will champion the program's use, along with a willing fire chief. Our findings will facilitate wellness/injury reduction program translation in the 30,000 US fire departments. Broad translation of evidence-based wellness programs among fire departments could reduce costs and facilitate more effective use of public funds. Extending findings to other comparable businesses could assist in expanding the growth of occupational wellness to medium sized worksites.

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Figure 1.
Mailed information sent to fire chief, union president, and wellness officer included a glossy brochure and DVD, along with a personalized letter (not shown).

Figure 2.
Sequence for adopting and matched non-adopting sites.

Table 1

Description of Adopter and Non-adopter Fire Departments*

Adopting Fire Departments			
ID	Number Firefighters	Number Stations	Location [†]
1	38	2	rural
2	68	4	rural
3	54	3	urban
4	89	7	urban
5	50	4	urban
6	44	3	urban
7	40	3	suburban
8	55	3	suburban
9	100	6	urban
10	140	8	urban
11	62	4	urban
12	34	2	suburban
Mean (SD)	64.5 (31.1)	4.1 (1.9)	

Non-Adopting Fire Departments				
ID	Number Firefighters	Number Stations	Location	Reason Non-adoption
1	31	2	suburban	Chief turnover
2	187	9	urban	Budget issues
3	80	5	suburban	Never read mailer
4	44	6	rural	No champ surfaced
5	65	5	urban	No champ surfaced
6	76	4	suburban	No champ surfaced
7	154	7	urban	Never read mailer
8	63	7	rural	Never read mailer
9	54	5	urban	Never read mailer
10	115	5	urban	Never read mailer
11	50	6	urban	No champ surfaced
12	67	5	suburban	Preexisting program
13	87	5	suburban	Never read mailer
14	42	2	suburban	No champ surfaced
15	35	3	urban	Preexisting program
16	77	3	suburban	No champ surfaced
17	50	3	suburban	Never read mailer
18	45	4	suburban	No champ surfaced
19	136	6	urban	No champ surfaced
20	34	3	rural	No champ surfaced

Non-Adopting Fire Departments				
ID	Number Firefighters	Number Stations	Location	Reason Non-adoption
21	74	16	suburban	Never read mailer
22	48	2	rural	Chief turnover
23	70	4	urban	Preexisting program
24	72	4	suburban	Never read mailer
Mean (SD)	73.2 (39.1)	5.1 (2.9)		

* Adopters and non-adopter departments were not different in number firefighters, number stations and locations, by t-tests and chi square, respectively.

[†] Based on Rural-Urban Codes (seer.cancer.gov/seerstat/variables/countyattribs/ruralurban.html).

Table 2

Adoption Themes and Key Components

Theme	Key Components
Mailer Connection	<p>9 or 24 non-adopters never read or disregarded mailer</p> <ul style="list-style-type: none"> • Staff turnover could impede connecting • Materials were perceived as too slick and commercial <p>Promotion materials could be effective</p> <ul style="list-style-type: none"> • Prior knowledge of program on contacting previous participants facilitated interest
Champ	<p>5 of 6 sites declining adoption after contacting and 4 of 9 non-adopters reading the mailer lacked a champ</p> <ul style="list-style-type: none"> • Champ recruited support and overcame barriers
Chief	Needed to provide permission or passive consent
Non-factors	<p>Existing program or perceived needs were similar adopters and non-adopters</p> <p>Finances rarely were influence</p> <p>Progressive departments and resistance to change did not distinguish adopters and non-adopters</p>