

Preventing Falls in Residential Construction: Effectiveness of Engaging Partners for a National Social Marketing Campaign

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Background Falls are the leading cause of fatalities in construction. The *Safety Pays, Falls Cost* campaign aims to prevent falls in residential construction. A critical component of our social marketing approach was to involve 70 partners in reaching target audiences.

Methods We assessed partner engagement April 2012–August 2013 through: (1) baseline partnership quality interviews (eight partners); (2) pre-/post-partner “market” readiness in-depth interviews (three partners); (3) a pre-/post- (29/31 partners) online partner engagement survey; and (4) standardized metrics to measure partner activity.

Results We found a high level of interest and engagement that increased with the addition of prompting to action through regular communication and new resources from organizers and formation of local partnerships that were able to tailor their activities to their own communities or regions.

Conclusion It is feasible to leverage government-labor-management partnerships that enjoy trust among target audiences to widely disseminate campaign materials and messages. *Am. J. Ind. Med.* 58:809–823, 2015. © 2015 Wiley Periodicals, Inc.

KEY WORDS: construction falls; small residential; campaign partners; partnership assessment; partnership engagement; social marketing; implementation evaluation

BACKGROUND

An average of two or more construction workers dies each day in the United States [Bureau of Labor Statistics, Census of Fatal Occupational Injuries, 2012]. The nine million United States construction workers (including self-employed workers) in 2012 accounted for 6% of the national

workforce [Bureau of Labor Statistics, Current Population Survey, 2012], yet experienced 18.3% (n = 849 for all construction workers) of fatal work-related injuries [Bureau of Labor Statistics, Census of Fatal Occupational Injuries, 2012]. In 2012, the rate of fatal injuries in construction was the fourth highest of any United States industry [Bureau of Labor Statistics, Census of Fatal Occupational Injuries, 2012].

From 2008 to 2010, about 97% of fatal falls in construction resulted from falls to a lower level [CPWR, *The Construction Chart Book*, 2013]. During this period (2008–2010), falls from roofs represented the primary cause of fall fatalities, followed by falls from ladders and falls from scaffolds [U.S. Department of Labor, Bureau of Labor Statistics, 2010; Bureau of Labor Statistics, 2012 Current Population Survey].

To achieve the highest degree of on-the-job safety, a multi-faceted collaboration among employer, worker, worksite, and co-workers is considered a desirable approach. This

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multi-stakeholder team framework has been used effectively for several issues in occupational safety and health, such as occupational heat exposure [U.S. Department of Labor, Occupational Safety & Health Administration, Occupational Heat Exposure website], where regulation or education alone is not sufficient [Hingson, Swahn, & Sleet, 2007]. In roofing jobs, for example, employers can provide and ensure the proper use of fall prevention equipment while workers can make sure to wear a harness, stay connected to a lifeline, and guard or cover openings [Branche, 2013].

Construction workers in small residential construction projects are at greatest risk from falls from height [Lipscomb et al., 2003; Lipscomb et al., 2008; Kaskutas et al., 2009; CPWR, The Construction Chart Book, 2013; Dong et al., 2013]. Between 2008 and 2010, 55% of all fatal falls in construction occurred in companies with one to 10 employees even though fewer than 30% of construction workers were employed in establishments of this size during that period [CPWR, The Construction Chart Book, 2013]. Hispanic construction workers additionally experience a higher risk of fatal falls, particularly among those who are foreign-born [Dong et al., 2009; Dong et al., 2010; Menzel and Shrestha, 2012; Dong et al., 2013]. Many residential construction workers do not receive adequate training or the appropriate equipment and may lack English-language skills. Onsite safety professionals are a rarity in residential construction, and safety innovation in residential construction has lagged behind commercial construction [Kaskutas et al., 2009].

Why a National Social Marketing Campaign?

In 2008, the National Occupational Research Agenda (NORA) Construction Sector Council—composed of key stakeholders in research, labor, and industry—identified a need to engage in a national-level effort to reduce work-related falls, injuries, and fatalities in the construction industry. NORA Construction Sector Council members turned to lessons learned from several national public health outreach models, such as the Click It or Ticket seat belt campaign [National Highway Traffic Safety Administration] and the occupational heat exposure campaign [U.S. Department of Labor, Occupational Safety & Health Administration], to inform ways to tackle the problem of construction falls in the United States. While public health practitioners have increasingly been using a social marketing approach to frame and implement awareness raising campaigns, the occupational safety and health field has rarely adopted the social marketing approach [Sublet and Lum, 2008; Menzel & Shrestha, 2012]. The NORA Construction Sector Council determined that a social marketing campaign could be an effective approach for increasing safety awareness and influencing work safety

behaviors to reduce falls from heights and sought to use lessons learned from established social marketing strategies to guide its own social marketing campaign.

Steps in the Social Marketing Approach

Beginning from the decision that a social marketing campaign was needed to help address the problem of preventable falls among small residential construction workers, the campaign team went through the recommended steps for an optimal social marketing communications process, as described in the evidence-based NIH planner's guide, *Making Health Communications Programs Work* [National Cancer Institute, 2001]. These steps included:

1. *Planning and strategy development:* We conducted an environmental scan, segmented audiences, performed formative research, identified potential partners, and drafted a strategic plan.
2. *Developing and pretesting concepts, messages, and materials:* We crafted, tested, and revised creative concepts and messages and developed audience-tested products.
3. *Implementing the program:* We launched the campaign, further tested and refined concepts and messages, and actively engaged campaign partners.
4. *Assessing effectiveness and making refinements:* We evaluated ongoing campaign activities and made adjustments to enhance the reach and impact of the campaign.

The Safety Pays, Falls Cost Campaign

Two Federal agencies, the National Institute for Occupational Safety and Health (NIOSH) and the Occupational Safety and Health Administration (OSHA), plus a private non-profit organization, CPWR—The Center for Construction Research and Training (CPWR), worked closely with the NORA Construction Sector Council to develop the national *Safety Pays, Falls Cost* social marketing campaign. The *Safety Pays, Falls Cost* campaign is a joint effort by government-labor-management to address the top cause of construction industry fatalities by encouraging residential construction contractors to: (a) plan ahead to get the job done safely, (b) provide the right equipment, and (c) train everyone to use the equipment safely. The campaign includes a website (stopconstructionfalls.com), spokespersons, events, participation in conferences and meetings, social media outreach, and resources available in multiple languages.

This paper focuses on one piece of the social marketing approach—how the *Safety Pays, Falls Cost* campaign engaged its partners.

Campaign Partners

Partner organizations often play pivotal roles in a social marketing campaign, ranging from planning and prioritizing to sponsoring activities [Lefebvre, 2006]. One critical function of partners is to draw on and extend their existing networks to assist a campaign in disseminating its messages and materials. Since the *Safety Pays, Falls Cost* campaign officially was launched on Workers Memorial Day, April 26, 2012, by Secretary of Labor Hilda Solis during remarks at a Los Angeles event, 70 partner groups, representing industry (29 partners or 41.3% of all of the partners), labor (n = 12; 17.5%), government (n = 11; 15.9%), academia (n = 11; 15.9%), and others including community groups (n = 7; 9.4%) have signed up to participate in the campaign.

Partners sign up through stopconstructionfalls.com and pledge to engage in campaign activities to reach construction employers and workers at risk. We assessed partner engagement from April 2012 to August 2013 through: (1) a baseline partnership quality telephone interview (8 partners); (2) pre- and post-partner “market” readiness in-depth telephone interviews (highlighting 3 partners); (3) a pre- (29 partners) and post- (31 partners) online partner engagement survey; and (4) campaign activity metrics.

Partner Engagement

We defined “engagement” as the campaign partners’ meaningful contribution to the campaign, including being involved in topic prioritization and product development and/or product dissemination to target audiences. We designed the evaluation of partner engagement on well-established approaches. The published literature [Nowell, 2009; Mallery et al., 2012] indicates that the most common methods to evaluate stakeholder partner engagement are:

1) Semi-structured interviews with key informants or opinion leaders. Such interviews can provide insights into key informants’ experiences and their own evaluation of outcomes;

2) Surveys to assess the impact of partner participation. Research indicates that cooperative stakeholder partners are a predictor of important outcomes such as systems changes [Nowell, 2009]; and

3) Descriptive statistics to measure engagement. Statistics can provide indicators of partner activities and outreach efforts to constituents and target audiences.

METHODS

Table I displays our partner-focused implementation evaluation flowchart for the *Safety Pays, Falls Cost* Campaign, 2012–2013. The partnership assessment was an iterative process involving successive layers of activities to

engage partners in the campaign, obtaining feedback, taking steps to broaden and enhance participation, and then reevaluating partner engagement. The steps below describe each of the campaign’s methods to evaluate partner engagement.

Baseline Partnership Quality Telephone Interviews (April 2013)

In April 2013, approximately one year after the *Safety Pays, Falls Cost* campaign launched, we administered a “baseline” partnership quality telephone interview with eight key campaign partners. The goal of this data collection activity was to explore insights from partners on their experiences with and perceptions of the *Safety Pays, Falls Cost* campaign during its first year. The NORA Construction Sector Council identified eight partners that would reflect a cross-representation of sectors including academia, business, government, and unions. We also selected these early campaign partners to serve as “key informants” because they had the motivation and resources to engage in important campaign outreach to target audiences.

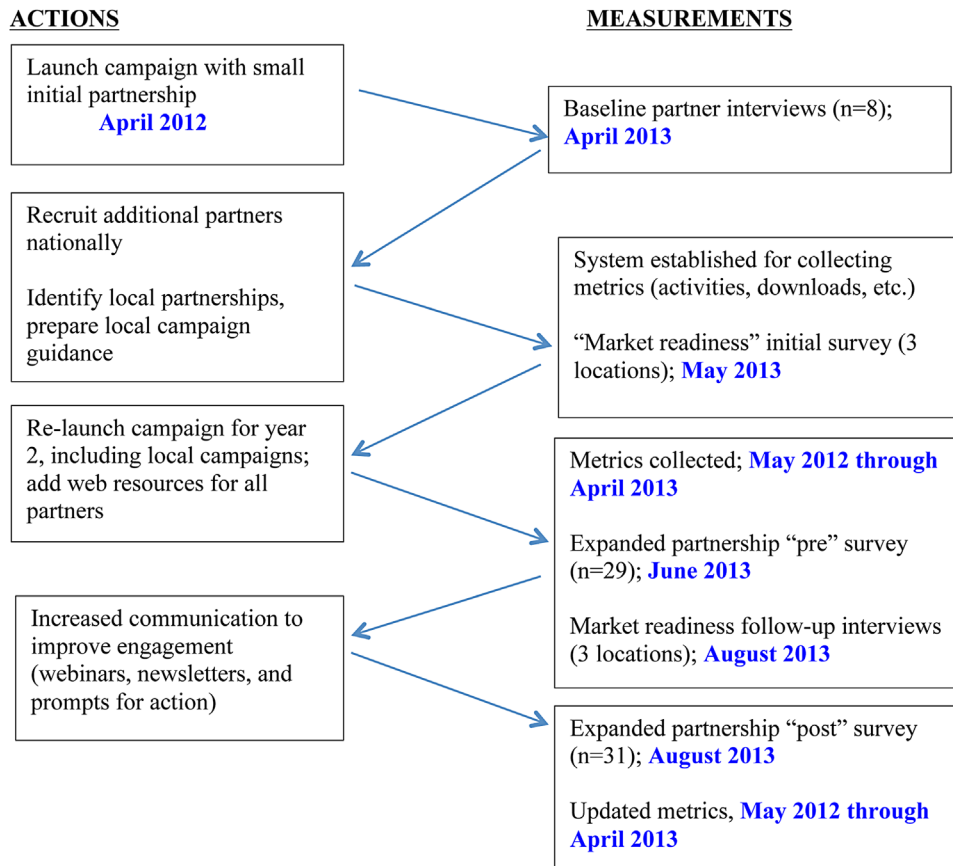
The 20-minute baseline partnership quality telephone interview asked nine open-ended questions on the following topics: the extent and quality of the partner’s engagement in the campaign; how the partner planned to continue its engagement over time; the most rewarding and the most challenging aspects of being a partner; how the partner felt about the technical assistance it received; how the partner felt about its role in the campaign; and how the partner might prefer to be recognized for its efforts.

Partner “Market” Readiness In-depth Telephone Interviews (May 2013 and August 2013)

Early evaluation data suggested that the *Safety Pays, Falls Cost* campaign needed to reach more deeply to get to the grassroots level. The campaign team decided to explore whether in-depth local campaigns might be a promising approach. The goal of this phase of data collection was to assess “market” readiness for a local *Safety Pays, Falls Cost* campaign. To achieve this goal, we developed a matrix of factors that would be optimal for a local community to carry out a tailored campaign.

We derived the matrix of factors from an environmental scan that we conducted in 2011 as an initial step in our social marketing approach. Environmental scanning is a method for identifying, collecting, and translating information (events, trends, relationships), emerging issues, situations, and potential pitfalls that may influence and guide a health communications campaign’s plans and decisions. Results of an environmental scan help assess and define a program’s

TABLE I. Conceptual Model for Measuring and Improving Engagement of Campaign Partners



strengths and weaknesses in the landscape of external threats and opportunities [Mallery et al., 2012].

Our environmental scan examined what others had designed and implemented in the construction industry or similar work safety campaigns. We identified factors held in common across several successfully implemented campaigns: a senior-level champion; buy-in of local committed partners; access to and trust by target audiences; human, financial, and materials resources; evaluation infrastructure; previous experience with safety or health communications campaigns reaching our target audiences; ability to tailor the campaign to local needs and characteristics (e.g., population size, demographic breakdown, main employers, climate, political voting patterns); and community support surrounding continuous construction safety improvement [the environmental scan is available from The Hannon Group, 2011]. We used these aforementioned qualities to build the matrix of ideal factors for implementing a local campaign (see Table II for an abbreviated matrix).

We then considered seven locations where more than one partner organization had signed on to the campaign. Using the matrix as a guide, we conducted in-depth interviews in May 2013 with partner groups in four of the seven locations, based on level of commitment and to

reflect geographic diversity. We then chose to follow the three most promising sites to evaluate their ability to implement local campaign activities and interviewed them again in August 2013. Each interview lasted between 30 and 60 minutes.

The three sites that we identified and interviewed first in May 2013 and again in August 2013 included Kentucky (lead, Kentucky Labor Cabinet), the St. Louis, Missouri area (lead, Washington University’s Occupational Therapy and Medicine Department), and Massachusetts (lead, the Massachusetts Occupational Health Surveillance Program).

Pre- and Post-Online Partner Engagement Survey (June 2013 and August 2013)

In June 2013 and August 2013, we administered a pre- and post-online partner survey. The goal of this data collection activity was to assess the level of partner campaign engagement nationwide, identify and address partner needs, and learn effective ways to communicate with partners. We selected this timeframe for the pre- and post-online survey because it was approximately 15 months

TABLE II. Abbreviated Matrix for Grading Markets Ready for a Local *Safety Pays, Falls Cost* Campaign

10 factors needed for a successful local campaign	
1) <u>A vocal senior-level champion</u>	The community has, to date, demonstrated proactive enthusiasm in preventing residential construction falls and fatalities and in getting involved with the <i>Safety Pays, Falls Cost</i> campaign specifically.
2) <u>Established and committed partners/partnerships</u>	The community currently has, and/or has the capabilities for establishing, a network of diverse partners who work collaboratively in the community/campaign.
3) <u>Access to and trust by target audiences</u>	The community currently has established relationships with, and/or has the capabilities for establishing relationships with, communication/media channels including television, radio, magazines, newspapers, Internet (social media), billboards, bus/train dioramas that reach target audiences as well as has implemented or has ideas for implementing innovative methods.
4) <u>Resources—Manpower</u>	The community has identified it can commit at least 1 full-time equivalent to the local campaign effort (one or various individuals could take on these efforts).
5) <u>Resources—Funding</u>	The community has demonstrated an earmarked budget for this campaign and/or has secured and/or will secure financing for this effort.
6) <u>Resources—Materials</u>	The community has the capability of disseminating <i>Safety Pays, Falls Cost</i> campaign products through its own vehicles such as a website/online resources, special events, and print products.
7) <u>Evaluation infrastructure</u>	The community currently has in place, and/or has the capabilities to put in place, metrics and tools of measurement to make it possible to evaluate a local campaign (e.g., measuring changes pre- and post-intervention).
8) <u>Experience with safety and/or health communications campaigns with target audiences</u>	The community has previous experience reaching target audiences through other health and safety related campaigns.
9) <u>Ability to tailor campaign to local needs and characteristics</u>	The community has shown, and/or has the capabilities of showing, that it can custom tailor/adapt the <i>Safety Pays, Falls Cost</i> campaign to fit with its local community needs and characteristics.
10) <u>Community advocacy surrounding continuous construction safety improvement</u>	There is demonstrated community support surrounding continuous construction safety improvement.

post-campaign launch, allowing sufficient time for partners to implement meaningful engagement activities. This time-frame also provided us with the time needed to develop and implement interventions between the pre- and post-surveys.

Through a link provided to us by SurveyMonkey[®] we emailed partners an invitation to complete the survey. Partners volunteered to participate in the survey by clicking on the link, taking them to the survey. We emailed a first 22-item survey in June 2013 inviting all partners to date (60 partners at that time) to complete it. Based on the responses to this survey, the campaign team developed and implemented an intervention to boost partner engagement (this included a how-to guide on practical tips for developing a local campaign that we distributed to communities and regions [CPWR, How-To Guide, 2013]). In August 2013, we emailed a 22-item follow-up survey to all partners to date (70 partners at that time), inquiring about the length of time a group had been a campaign partner, the frequency with which the partner distributed campaign messages and materials, the partner’s target audiences, ways the partner distributed messages and materials, whether the partner held special safety events (toolbox talks, community events), and whether the partner appointed a specific individual to work on promoting the campaign and if so, at what level of effort. In addition, the survey asked partners about the following: their level of satisfaction with the frequency they received campaign messages and materials; their preferred method for

receiving campaign updates and new products; their preferred types of campaign products; their interest in participating in regular teleconferences with other partners; and their preferred teleconference length.

Quantitative Metrics (May 2012 through April 2013)

In the first year of the campaign (May 2012 through April 2013), we established a system to document the number of: new partners; partner activities; products distributed (numbers and recipients); most viewed pages on the campaign website; downloaded items; referring sites; search engines; search terms; external links clicked; items posted; social media posts; media outlets reporting on the campaign and campaign topics; spokespersons interviewed; inquiries about the campaign; campaign events; and participation in related conferences and annual meetings. The goal of this data collection activity was to capture a preliminary quantitative assessment of campaign partner and resource outreach and reach.

Informed Consent

Telephone survey interviewees and online survey respondents all opted in voluntarily to participate. Their

proactive participation indicated their informed consent. CPWR's institutional review board (IRB) reviewed and approved all data collection instruments and procedures described in this paper.

DATA ANALYSIS

Two senior-level researchers, trained in both quantitative and qualitative methods, oversaw all aspects of the data collection and data analysis. This research duo had previously worked together on numerous studies to support a range of public health campaigns on topics ranging from immunizations to traumatic brain injuries.

For the *Safety Pays, Falls Cost* campaign qualitative data analysis, interviewers and note-takers worked separately to independently hand-code categories of inquiry in the notes collected during the interviews. The campaign research team then engaged in discussions to arrive at consensus on general trends and to note divergent opinions.

For the *Safety Pays, Falls Cost* campaign quantitative data analysis, we summarized the descriptive statistics generated by SurveyMonkey®. SurveyMonkey® is an online survey site that offers many formats for asking questions and generating frequencies for each question. SurveyMonkey® provides percentages for each survey question response category based on the number of respondents who answered each separate survey question. In addition to SurveyMonkey® being in business since 1999 and known for its rigorous methods for reporting data, we also reviewed all the data generated by SurveyMonkey® ourselves as a quality control measure. We reviewed the charts and graphs created by the SurveyMonkey® software program to analyze differences and commonalities in the pre- and post-survey data results. We used an electronic spreadsheet (Excel) to calculate percentage changes from pre- and post-surveys to measure changes over time on each survey item.

Below we describe the specific approaches to data analysis per methodology employed.

Baseline Partnership Quality Telephone Interviews (April 2013)

“Data condensation” is the process of reviewing audio-recordings, notes, participant ranking sheets, and other materials for selecting, focusing, and simplifying data [Miles, Huberman, & Saldana, 2014; Anderson, 1990]. The campaign research team used a systematic “data condensation” process that involved looking for “big ideas” first, then, selecting baseline partnership quality telephone interview information to pull and code; creating category labels for best summarizing the selected information; identifying data points that illustrated the identified patterns

for data condensation; and agreeing on and presenting recurring themes. The aforementioned was needed to achieve “data condensation.”

Partner “Market” Readiness In-depth Telephone Interviews (May 2013 and August 2013)

Immediately following each partner market readiness in-depth interview, the interviewer summarized the notes taken during the interviews. After the second wave of interviews, the interviewer compared findings between the two waves of interviews. The interviewer and another data analyst developed three case studies using the information collected during both interview waves.

Pre- and Post-Online Partner Engagement Survey (June 2013 and August 2013)

The preprogrammed electronic survey on SurveyMonkey® automatically calculated the frequencies and percentages of responses to each survey item.

Quantitative Metrics (May 2012 Through April 2013)

CPWR, NIOSH, and OSHA each submitted quarterly updates using a standardized format developed immediately after the campaign launch. The data analysts posted cumulative results on a dashboard, a document that recorded campaign metrics (i.e., the number of organizations that joined, products downloaded, media outlets covering the campaign, people receiving campaign information, bilingual fact sheets distributed, and page views), and distributed the dashboard regularly to the campaign team so that we could monitor the campaign's progress and reach. While we continued to collect these metrics on an ongoing basis, we analyzed and report only the results of the first year of the campaign in this paper.

RESULTS

Baseline Partnership Quality Telephone Interviews (April 2013)

We found universal agreement among eight key partners that promoting fall prevention in construction is an important endeavor. These campaign partners knew that, each year, thousands of injuries and many fatalities result from falls at construction sites. Partners were aware that the small residential contractor has economic pressures that often

lead to safety short cuts, thus making the workers employed by small residential contractors more vulnerable to fall-related injuries and fatalities. Partners indicated that reaching and influencing the small residential contractor is an ongoing challenge. Conversely, they said that the most rewarding aspect of the campaign's implementation was knowing that their outreach was important, as their efforts could prevent serious injuries and save lives.

Quality and extent of partner engagement

Campaign partners reported utilizing their existing media channels to promote *Safety Pays, Falls Cost* campaign messages and distribute campaign products. Partners' quality and extent of engagement coincided with the timing of campaign communications or materials delivery from the national campaign team. For example, when partners received posters from the national campaign team, then they reported distributing those posters. Partners rarely proactively reached out to the national campaign team, on their own, to request more campaign information, materials, or products.

Technical assistance partners received

Campaign partners reported they had not received technical assistance, such as ideas on ways they could reach small residential contractors and their employees in their local areas. They indicated receptiveness to this type of support. Partner plans for future participation in the *Safety Pays, Falls Cost* campaign were consistent with the types of activities that were implemented during the first campaign year (such as distribution of campaign materials and organizing special safety events), with the exception of one partner who planned to increase outreach efforts through their own toolbox talks and distribution of campaign products at construction sites.

Technical assistance requested

Partners were eager to receive ideas for how they could promote campaign messages and products beyond utilizing their own media outlets. This kind of technical assistance could take the form of tips or partner case studies on ways to use external media, social media, special events, and strategies to reach out to community-based organizations and businesses. Partners were also interested in receiving technical assistance on ways to document their campaign efforts. They explained that any kind of evaluation assistance upfront would allow partners to understand which outreach efforts are more effective that could, in turn, result in a stronger case for additional campaign funding.

Partner suggestions

The sample of partners we interviewed recommended that the national campaign team ask all campaign partners about the most effective ways to communicate with them and the frequency with which they would like to receive communications so as to maximize engagement. They requested that the national campaign team develop a mechanism for providing all campaign partners regular communications about the campaign such as on media events and new product announcements, ideally on a monthly basis. Although partners said that helping to improve the safety of construction workers was a primary motivator to engage in the campaign, partners reported that they would appreciate recognition of partner contributions through some sort of award.

See Table III for a summary of the results from the April 2013 baseline partnership quality telephone interviews.

Partner "Market" Readiness In-Depth Telephone Interviews (April 2013 and August 2013)

The campaign team wrote case studies describing what three local areas did to implement a locally "home-grown" *Safety Pays, Falls Cost* campaign. These three sites received high scores in our matrix of optimal factors for assessing readiness for an intensive local campaign (see Methods and Table II). The following brief profiles offer summaries integrating findings from both sets of interviews conducted in April 2013 and August 2013 with the three sites. Table IV compares the major activities carried out across the three locations including the communication channels partners used to disseminate campaign messages.

Kentucky. The Director of the Kentucky Labor Cabinet deployed Occupational Safety and Health (OSH) safety and industrial hygienist consultants across Kentucky to spread the Kentucky Falls Campaign's messages—as of July 2013 and the writing of this paper, consultants reached 89 establishments in nine cities across Kentucky.

With the help of partners including the Associated General Contractors of America (AGC), Builders Exchange of Kentucky, Kentucky League of Cities, Kentucky Safety and Health Network, Kentucky Roofing Contractors Association, and Kentucky Association of Housing Plumbers and Electricians, the Kentucky Labor Cabinet had many communication channels through which to disseminate campaign messages. The Kentucky Labor Cabinet placed promotional pages about the *Safety Pays, Falls Cost* campaign in the program for the 29th Annual Governor's Safety and Health Conference (May 7-10, 2013, Louisville). They posted messages on the Labor Cabinet's Facebook Page and Twitter account. Kentucky created a free online

TABLE III. Results of Baseline Partnership Quality Telephone Interviews (April 2013)

Topic area	Partners reported
Overall involvement examples	<ul style="list-style-type: none"> ● Publishing an article on the campaign in electronic newsletters ● Publishing campaign information in magazines ● Disseminating the campaign poster ● Inquiring about ad space on local transit for the campaign poster ● Promoting the campaign at meetings or facilities frequented by safety engineers and safety experts ● Placing campaign materials on an intranet site for employees and customers ● Using Twitter to promote the campaign
Receipt of campaign products	<ul style="list-style-type: none"> ● Campaign fact sheet ● The link to stopconstructionfalls.com ● The link to the campaign page on the OSHA website ● The campaign poster ● The campaign poster in the format that met local transit production specifications
Suggestions for improvement	<ul style="list-style-type: none"> ● Distribute sufficient quantities of products to partners ● Improve the fact sheet with better illustrations ● Provide a link that partners can tack onto the end of an email (e.g., a campaign logo that will link to the campaign website) ● Distribute a steady stream of campaign products or stories—preferably on a weekly basis, but at least on a monthly basis ● Provide a centralized number that contractors can call to get assistance (on using proper height safety procedures) ● Provide statistics on the injuries and fatalities due to falls on construction projects and sites ● Provide cost points associated with injuries resulting from construction work-related falls ● Use email to deliver materials to the partners for easy distribution to partner members, customers, and constituents
Planned continued involvement	<ul style="list-style-type: none"> ● Securing digital billboards and transit exposure ● Securing local transit poster ad buys ● Mailing tool box talks to contractors ● Conducting tool box talks at construction sites ● Distributing campaign products such as posters, stickers, and fact sheets ● Engaging in community outreach events ● Engaging in OSHA consultation outreach ● Promoting the campaign via media outreach ● Engaging in outreach to local apprenticeship directors and community health centers
Additional partner comments	<ul style="list-style-type: none"> ● Rewards included gratification and influencing others to participate ● Challenges included reaching small residential contractors and uncertainty regarding downstream use of materials distributed within an organization ● Partners noted a lack of technical assistance in methods to promote the campaign ● Some partners were interested in seeking public recognition for participating and had suggestions as how they could be recognized ● Partners were able to recommend others to become campaign partners

course on fall protection and used a large training bus (“The IMPACT” or “The Incident Mobile Post and Consultation Training” vehicle) equipped with training modules to serve as a central campaign promotional venue during two events

in the fall of 2013: AGC Safety Day and Safety Day in Frankfurt.

Massachusetts. The Massachusetts Occupational Health Surveillance Program at the Massachusetts Department of

TABLE IV. Key State Activities in the Readiness Study

Activities	Kentucky	Massachusetts	Missouri
Partners are engaged to use their communication channels to disseminate campaign messages	<ul style="list-style-type: none"> ● Websites ● Local partners 	<ul style="list-style-type: none"> ● Websites ● Multiple State and Federal agency partners 	<ul style="list-style-type: none"> ● Carpenters ● Unions ● Contractors ● Homebuilders association
Safety and industrial hygienists consultants present campaign safety messages across the state	<ul style="list-style-type: none"> ● 89 establishments ● 9 cities 		
Promotion at an annual safety and health conference	<ul style="list-style-type: none"> ● Ads in conference program 		
Posting on government social media accounts	<ul style="list-style-type: none"> ● Facebook ● Twitter 		
Training mobile van	<ul style="list-style-type: none"> ● Promotes campaign at special events 		
Ads on transportation system		<ul style="list-style-type: none"> ● Local highways ● Buses ● Trains 	
Free training		<ul style="list-style-type: none"> ● Provided to contractors by sister agency 	
Email blast		<ul style="list-style-type: none"> ● To thousands of licensed contractors by sister agency 	
Campaign materials		<ul style="list-style-type: none"> ● Distributed at building permit offices by sister agency 	<ul style="list-style-type: none"> ● All construction apprentices required to distribute
Presentations at apprenticeship schools			<ul style="list-style-type: none"> ● All construction apprentices required to attend

Public Health as well as the Massachusetts Fatality Assessment and Control Evaluation Project (MA FACE) were the main contacts for the Massachusetts Campaign to Prevent Falls in Residential Construction, which ran from April 2013 through June 2013. The campaign engaged diverse partners, disseminated fall prevention brochures tailored to residential construction contractors statewide, and raised public awareness through ads on local highway, bus, and train transit systems across the state of Massachusetts. The Massachusetts Office of Safety and Health Administration (MA OSHA) tailored one of the national *Safety Pays, Falls Cost's* posters for this state's mass transit transportation systems.

A key partner, the Massachusetts Department of Labor Standards, implemented the OSHA onsite consultation program and provided free fall prevention trainings for Massachusetts roofing contractors. The training was so well received that the Department extended the training to central and western parts of the state. The Massachusetts Department of Public Health featured the campaign on its homepage April 2013 through June 2013. The Department of Labor Standards issued a press release May 17, 2013 that described the campaign. MA FACE posted a Mass Public Health Blog on the campaign April 23, 2013 in commemoration of Workers Memorial Day. The Massachusetts Department of Safety (which oversees home improvement contractor licenses and construction supervisor licenses) sent about 30,000 emails with links to *Safety Pays, Falls Cost* campaign resources to licensed contractors in state. Building Permits Offices throughout Massachusetts distributed campaign materials to contractors. MA FACE offered Building Permits Offices display stands for placing campaign materials.

St. Louis, Missouri. In the St. Louis metropolitan region, most of the *Safety Pays, Falls Cost* campaign activities built on relationships that Washington University School of Medicine researchers had established through their fall prevention research projects in the St. Louis vicinity over the past decade. Key players in the St. Louis area construction industry included the St. Louis Carpenters Joint Apprenticeship Program, Carpenters' District Council of Greater St. Louis and Vicinity, Home Builders Association of Greater St. Louis, and local residential contractors and professionals.

In the first year of the St. Louis *Safety Pays, Falls Cost* campaign, the local research team informed construction professionals and residential contractors participating in research projects about the campaign. The research team informed foremen and superintendents of contractors who participated in a Fall Prevention and Safety Communication training as well as apprentice carpenters attending required bi-annual trainings about the *Safety Pays, Falls Cost* campaign. The research team also oriented instructors at the St. Louis Carpenters Apprenticeship Program to the campaign as well as directed them to campaign materials and provided them with posters for their classrooms. In addition,

the research team asked apprentices participating in a long-term follow-up survey on the effectiveness of the revised apprentice fall prevention training if they were familiar with the *Safety Pays, Falls Cost* campaign and whether they accessed the campaign website.

One of the Washington University research team's graduate occupational therapy students talked about the campaign at two local apprenticeship schools. This student distributed materials about the *Safety Pays, Falls Cost* campaign with residential contractors who participate in ongoing interviews about fall prevention technologies and the effect of their fall prevention technology loaning program, which allows builders to borrow equipment for a "test drive." Efforts in this geographic area have resulted in publications with information on the *Safety Pays, Falls Cost* campaign [Eisenberg 2013; Kaskutas & Hunsberger 2013; Kaskutas, Evanoff & Miller, 2013].

Pre- and Post-Online Partner Engagement Survey (May 2013 and August 2013)

Almost half (29) of 60 invited partners completed an online baseline partner survey fielded May 22, 2013 through June 4, 2013. Respondents represented academia, business, government, manufacturing associations, trade associations, training associations, and unions. Partners generally reported wanting to be involved in the *Safety Pays, Falls Cost* campaign but reported a desire for more frequent contact with the national campaign team and other partners. Partners preferred email communication, but also wanted access to a live person to answer questions and provide individual technical assistance on their campaign efforts. Highlights from the baseline survey include:

- 96% of partners were interested in hearing what other partners were doing
- 96% of partners wanted to be reached via email
- 80% of partners would participate in short monthly teleconferences
- 78% of partners thought their target audiences would like fact sheets
- 58% of partners wanted to talk to a live person who can answer questions about the campaign
- 31% of partners distributed campaign messages and products monthly

See Table V for additional findings from the online baseline partner survey findings.

Based on the analysis of the online baseline partner survey findings, the campaign team needed to develop an intervention strategy that: provided examples of what other

TABLE V. Select Pre- and Post-Partner Online Survey Items and their Respective Results

	Pre-intervention online partner survey Fielded May 22, 2013–June 4, 2013 N=29 (%)	Post-intervention online partner survey Fielded August 20, 2013–September 4, 2013 N=31 (%)
How long have you been a Safety Pays, Falls Cost campaign partner?		
More than 6 months	82.1	87.1
In general, how often do you distribute Safety Pays, Falls Cost campaign messages or products?		
Every month	16.0	40.0
Quarterly	36.0	28.0
Who are the target recipients of the Safety Pays, Falls Cost campaign messages or products that you distribute in your area?		
Mid to large contractors	66.6	57.0
Small residential contractors	54.2	50.0
Construction workers /laborers	75.0	64.0
In general, how do you distribute Safety Pays, Falls Cost campaign messages or products?		
We put messages and products on our own website	59.3	50.0
We send out messages and products via email	40.7	56.7
We distribute messages and promote availability of products (e.g., posters, fact sheets) in our own publications (e.g., newsletter, magazine)	37.0	26.7
We distribute messages and products at training events	51.9	50.0
We distribute messages and products at other events	37.0	36.7
Have you held special safety events (such as toolbox talks or community events) that promote fall prevention on construction job sites?	46.2%	41.4%
Yes		
Has your group/organization appointed someone to work on promoting the Safety Pays, Falls Cost campaign?	50.0%	67.9%
Yes		
If yes, how much of this appointed person's time is devoted to promoting the Safety Pays, Falls Cost campaign messages and products?		
Full-time (40 hours)	0.00	0.00
A few hours a week (less than 10 hours)	21.4	33.3
Less than 5 hours a week	28.6	38.9
Occasional—only when not busy with other duties	42.9	27.8
In general, how satisfied are you with how often you receive Safety Pays, Falls Cost campaign messages and products?		
Very satisfied	50.0	70.0
Somewhat satisfied	26.9	30.0
Are you interested in increasing the frequency with which you distribute campaign messages or products to small residential contractors and their construction workers?	65.4	50.0
Yes		
How often do you want to receive updates on the development of the national Safety Pays, Falls Cost campaign?		
Weekly	34.6	23.2
Monthly	38.5	36.7
What is the best way to share what other groups and businesses are doing to promote the Safety Pays, Falls Cost campaign?		
1–2 page case studies	33.3	23.0
Email	50.0	26.7
In-person meeting	4.2	30.0

TABLE VI. Quantitative Metrics of the Campaign

Campaign element	Number by end of year
Organizations joining the campaign as partners during the first year of the campaign	30
Campaign products downloaded from website in the first year of the campaign	51,676
Media outlets covered the campaign and its messages (Including general media such as NBC, ABC, FOX News, and CBS and industry-related media such as EHS Today, Equipment World, and For ConstructionPros.com)	149
People received information about the campaign through OSHA alone	300,000
Fact sheets distributed in English and Spanish	6,000
Page views over a two-month period among the websites supporting the campaign	12,000

partners were doing to successfully distribute campaign messages and products; distributed campaign products on a weekly basis; and provided regular updates on the campaign. To address the partners' feedback, the intervention had to quickly and efficiently distribute information using preferred communications methods and provide opportunities for timely campaign updates and interactive discussions on best practice outreach cases.

In response, we engaged in an approximately two-month intervention comprised of two primary communication strategies: (1) 10 issues of a newly developed e-newsletter, *SafetyPays.News*, containing visuals, useful facts, and breaking news delivered June 28, 2013 through August 30, 2013 to all campaign partners; and (2) three 30-min campaign webinars held July 2, 2013, August 7, 2013, and August 29, 2013 providing partners with an interactive venue for obtaining updates from other campaign partners, hearing brief accounts of best practice partner activities and lessons learned, and participating in a question-and-answer discussion.

After the intervention, the campaign team invited 70 campaign partners to complete a post-intervention online survey from August 20, 2013 through September 4, 2013; 31 partners completed the post-survey for a 44.3% response rate. Certain findings indicated an increase in engagement by partners after the campaign intervention including (see Table V):

- The time partners devoted to promoting the campaign
- The proportion of partners "very satisfied" with the frequency with which they received campaign messages and products
- The use of training events to distribute campaign messages and products
- The number of individuals the partners appointed to the campaign
- The frequency with which partners distributed campaign messages or products on a monthly basis

Over one-third of post-survey partner respondents had participated in the online webinars. Three-quarters of these

partners reported being "very satisfied" with the webinars. In addition, more than nine in 10 post-survey partner respondents received the e-newsletter *SafetyPays.News*, with three-quarters reporting being "very satisfied" with the e-newsletter.

Other findings revealed unexpected downward trends between the pre- and post-survey. A slightly smaller proportion of post-survey partner respondents distributed campaign messages or products to small residential contractors than pre-survey partner respondents (a 7.7% decrease between pre- and post-surveys). A smaller proportion of post-survey partner respondents (50%) compared with pre-survey partner respondents (65.4%) also reported being interested in increasing the frequency with which they distribute campaign messages or products to small residential contractors and their construction workers (a 23.5% decrease between pre- and post-surveys).

Of interest, a higher proportion of post-survey partner respondents compared with pre-survey respondents wanted to learn through an in-person meeting what other partners were doing to promote the *Safety Pays, Falls Cost* campaign. In contrast, email was the most desired channel for this purpose at the pre-survey.

Quantitative Metrics

The metrics tracking of the campaign indicated considerable progress. As of October 2012, we documented achievements in the dashboard (see Table VI for a summary of the quantitative metrics).

DISCUSSION

Safety Pays, Falls Cost is the first national social marketing campaign to address the preventable public health problem of falls from ladders, roofs, and scaffolds among small residential construction contractors and workers in the United States. The campaign was conceived and carried out not by a single coordinating agency, but through a collaborative effort of partner organizations. In fewer than two years, the campaign collaborative collected in-

person data from small residential construction contractors and workers in multiple cities, launched a branded campaign, developed key audience-informed materials, engaged in ongoing evaluation activities, galvanized “market ready” partners in three geographic areas to tailor the campaign to their local communities, and implemented two interventions to increase partner engagement nationally. We accomplished the aforementioned activities by relying on partnerships at various levels:

- The partnership of the three coordinating organizations and the many in-kind contributions they made;
- Members of the NORA Construction Sector Council who participated in the conceptualization and design of the campaign and related materials, as well as recruitment of additional partners; and
- The 70 organizations that signed on to date to help distribute campaign messages and materials.

By relying on partners, we were able to support a government-labor-management partnership among Federal and State agencies, private industry, trade associations, academia, and professional and labor organizations.

R. Craig Lefebvre, Ph.D., architect and designer of public health and social change programs, noted that, “Partnership development for national social marketing campaigns is a much copied, but poorly researched, area of practice (2006).” He listed six principles important for the effective engagement of partners. These principles, which are congruent with our findings, include the need for: both an initial commitment and a periodic reassessment of that commitment to participation and action; flexibility to adapt campaign needs and expectations to a partner organization’s capacities and resources; opportunities for partner organizations to interact with each other; devoting time and effort towards developing tools and technical assistance support; helping partners visualize how their participation makes a unique contribution to the campaign and to the success of their own organization; and demonstrating and publicizing successes to the partners and other stakeholders.

Implications of findings specific to our partner engagement evaluation methodologies include:

Baseline Partnership Quality Telephone Interviews (April 2013)

We learned from our baseline partnership quality telephone interviews that there was an initial commitment to participate in the *Safety Pays, Falls Cost* campaign by partners, meeting one of Lefebvre’s (2006) principles for effective partner engagement. At this phase of the evaluation, we learned the following: partners’ quality and extent of

engagement coincided with the timing of campaign communications or materials delivery from the national campaign team; partners were eager to receive ideas for how they could promote campaign messages and products beyond utilizing their own media outlets; and partners desired a mechanism for receiving regular communications about the campaign. These findings served as a knowledge foundation from which we strategized all subsequent campaign activities.

Partner “Market” Readiness In-depth Telephone Interviews (May 2013 and August 2013)

We learned from the partner “market” readiness in-depth telephone interviews that it was feasible for three local partners committed to carrying out the *Safety Pays, Falls Cost* campaign in their own regions (Kentucky, St. Louis, Massachusetts) to engage in intensive campaign efforts by tailoring the national campaign to their unique community-level assets, needs, interests, and aspirations, meeting another of Lefebvre’s (2006) principles for effective partner engagement (i.e., flexibility to adapt campaign needs).

Pre- and Post-online Partner Engagement Survey (May 2013 and August 2013)

We learned from the pre- and post-online partner engagement survey that the quality of partner engagement is enhanced when campaign organizers provide partners with regular “nudges.” These “nudges” took the form of updates in a regularly disseminated campaign partner newsletter and technical assistance through live webinars designed for partners, as stipulated by Lefebvre’s (2006) principles for effective partner engagement (i.e., opportunities for partner organizations to interact with each other, a periodic reassessment of the commitment to participation and action, the development of tools and technical assistance for offering partners support, and the flexibility to adapt campaign needs and expectations to a partner organization’s capacities and resources).

We offer some explanations for why certain factors may have played a role in the unexpected descending trends between the pre- and post- online partner engagement survey. The time between the pre- and post- surveys was only a couple of months, not allowing for much time to commit to or implement notable changes. Moreover, partners may have already peaked their levels of engagement during, or immediately before, the timing of the pre-intervention survey. After launching certain activities, those activities tend to wane until a next outreach effort. Another factor may have been that the post-survey was implemented

during the summer, a time of intensive construction activity that limits availability for participation.

Quantitative Metrics

We learned from our ongoing quantitative metrics data collection efforts that it is possible to coordinate established networks to disseminate construction-related fall prevention messages and materials. By the end of the first year of the *Safety Pays, Falls Cost* campaign, 30 organizations joined as partners, with 70 partners joining to date. At least 300,000 people received information about the campaign through OSHA and over 50,000 campaign website visitors downloaded products from the campaign's website in the first year of the campaign.

While the campaign has been successful in engaging 70 partner organizations with a combined reach that is very broad, participating groups have noted the sobering reality that communication channels for reaching small and micro residential contractors and workers are still difficult to identify and access. Through feedback on the campaign, we are learning that new types of partners and creative ways of disseminating campaign messages and materials may provide additional avenues for reaching our specific target audience. For example, partners have suggested reaching out to equipment rental vendors, construction supply retail outlets, and lumberyards and other retailers including "big box" stores. Initial efforts by campaign partners to engage the involvement of home improvement stores, however, have proven difficult. Thus, the challenge of finding effective means to reach the most isolated and small contractors persists.

The U.S. Department of Labor released information on August 22, 2013 showing a slight reduction in the number of fatal injuries in 2012 compared with 2011 [U.S. Department of Labor, Office of Public Affairs, 2013]. Specifically, 4,383 workers died in 2012 from work-related injuries compared with 4,693 fatal injuries in 2011. As Secretary of Labor Thomas E. Perez noted [U.S. Department of Labor, Office of Public Affairs, 2013], this trend is a testament to the collaborative education and outreach efforts of myriad stakeholders. However, as the economy continues to improve, and construction activity increases in the United States, fatal falls are all too likely to increase as well. The *Safety Pays, Falls Cost* campaign network must remain committed to promoting the continued downward trend in fatal and serious injury over time.

Limitations

While the findings from the *Safety Pays, Falls Cost* campaign partners provided us with valuable insights, our findings may not be generalizable to other populations. There

may be biases to the data collected as a result of self-selection (individuals who choose to respond to a survey may differ in some important ways compared to individuals who decline to respond to a survey) and social-desirability (when respondents report answers they think will please the project team or sponsor). Sample sizes were small, once again limiting the generalizability to a larger population.

CONCLUSION

Leveraging trusted partners' access to the *Safety Pays, Falls Cost* campaign's target audiences has been, and will continue to be, key to the campaign's outreach success. We concluded that the use of an iterative evaluation of partner engagement provides useful data for targeting the dissemination of safety materials for the reduction of falls among construction workers. Both local and national partners have committed to continuing the campaign into a third year, expanding the scope to all construction sectors.

Future research needs to evaluate the extent to which measurable behavior changes have occurred on construction worksites, as well as whether fall prevention has become more of a cultural norm, as a result of the *Safety Pays, Falls Cost* campaign. This type of evidence-based research is needed to address one of Lefebvre's principles for effective partnership engagement: demonstrating and publicizing successes to campaign partners and other stakeholders.

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