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A national safety stand-down to reduce construction worker falls

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ABSTRACT

Introduction: Falls are the leading cause of death and third leading cause of non-fatal injuries in construction. In an effort to combat these numbers, The National Campaign to Prevent Falls in Construction began in April 2012. As the campaign gained momentum, a week called the National Safety Stand-Down to Prevent Falls was launched to draw attention to the campaign and its goals. The purpose of this paper is to examine the reach of the Stand-Down and lessons learned from its implementation. *Methods:* The Occupational Safety & Health Administration offered a certificate of participation during the Stand-Down. To print the certificate, respondents provided information about their company and stand-down event. CPWR - The Center for Construction Research and Training conducted analyses on the data collected to assess reach and extent of participation. *Results:* In 2014, 4,882 stand-downs were reported. The total number reported in 2015 was 3,759. The number of participants, however, increased from 770,193 in 2014 to 1,041,307 in 2015. *Discussion:* The Stand-Down successfully reached the construction industry and beyond. Respondents were enthusiastic and participated nationally and internationally in variety of activities. They also provided significant feedback that will be influential in future campaign planning. *Conclusion:* Numbers of Stand-Downs and participants for both years are estimated to be substantially higher than the data recorded from the certificate database. While we cannot determine impact, the reach of the Stand-Down has surpassed expectations. *Practical applications:* The data gathered provide support for the continuation of the Stand-Down. Campaign planners incorporated findings into future Stand-Down planning, materials creation, and promotion. This analysis also provides insight on how organizations can partner to create targeted national campaigns that include activities stakeholders in the construction industry respond to, and can be used to replicate our efforts for other safety and health initiatives in construction and other industries.

1. Problem

According to CPWR – The Center for Construction Research and Training's *Construction Chart Book* (2013), falls are the leading cause of death and the third leading cause of non-fatal injuries in the construction industry. Numbers fluctuate from year to year, but averaged 360 deaths annually during 1992 and 2010, a total of 6,858 construction workers. The 2014 Census of Fatal Occupational Injuries showed that fall injuries were responsible for 359 construction worker deaths, accounting for about 40% of all fatal work injuries in construction. Of those deaths, 111, or approximately one-third, occurred in residential construction (Bureau of Labor Statistics, 2016a). Falls also led to 17% of worker fatalities in all industries combined (not just construction) in 2014 (Bureau of Labor Statistics, 2016b).

In 1996, the National Institute for Occupational Safety and Health (NIOSH) engaged the construction sector through a government-labor-management partnership, representing state and federal government agencies (including the Occupational Safety and Health Administration (OSHA)), professional organizations, trade associations, labor organizations, and private industry (including CPWR—The Center for Construction Research and Training) through the National Occupational Research Agenda (NORA). In 2008, this partnership identified construction falls as a key area requiring national attention. In setting a goal to address the sustained burden of construction-related fall injuries and fatalities, developing a national campaign, aimed at construction contractors, onsite supervisors, was a key component (Branche, 2013).

The National Campaign to Prevent Falls in Construction began in April 2012, originally targeting those most vulnerable to falls—residential contractors and workers (CPWR, 2013). The goal of the campaign is mainly to promote fall prevention and provide education on fall hazards and solutions. Despite the fact that many viable solutions exist to prevent falls from various heights, falls are still a large issue in the industry due to a lack of education and awareness of how to properly implement the solutions. Participants of the campaign are encouraged to conduct education in a way that suits their company, jobsite, and workers, and are provided access to a variety of materials and plans from the campaign to assist them in whatever method they choose. As the campaign gained momentum during 2012–2013, OSHA, NIOSH and CPWR, who are key partners in developing the campaign, decided

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to dedicate a week to draw attention to the campaign and fall prevention in general. This week, called the National Safety Stand-Down to Prevent Falls, launched in June 2014. The term 'stand-down' is used to describe a period of time during which an entire jobsite or company stops all work to focus on a specific issue or hazard, in this case falls. Companies were encouraged to use the Stand-Down to educate workers, inspect ladders and fall protection equipment, conduct drills and demonstrations, and more.

The first Stand-Down was held for one week, June 2–6, 2014. The second Stand-Down was held for two weeks, May 4–15, 2015. During both Stand-Downs, OSHA offered a certificate of participation through their website. OSHA used the certificates as an informal method of collecting data on participation. To print the certificate, respondents were asked to provide some information about their company, or the company they work for, and the stand-down event they participated in. OSHA invited CPWR to analyze the data to learn more about the reach of the Stand-Down and to help determine if future events would be worthwhile. This article presents what was learned from the 2014 and 2015 Stand-Downs. It highlights the unique public-private partnership of the campaign in general, and communicates the results of an evaluation that is the first of its kind on a large-scale social marketing campaign in the construction industry. Such a large amount of data and feedback as this is not typically available in construction, and with the industry being so decentralized learning how to better diffuse consumable safety and health messages to a large number of contractors and workers in real time is critical.

2. Methods

2.1. Data collection

All data were generated from OSHA's certificate of participation database. All information was provided by respondents voluntarily. Every time an individual or company logged in to receive a certificate, they were asked to provide information about their Stand-Down event. All results reported here are based only on self-reported data within six fields requested through the database. Required fields included Name of Business, State, Type of Industry, and Number of Workers who Participated. Optional fields included two open-ended questions: (1) Please tell us about your stand-down. What did you do? What materials did you use? How did it go? What do you expect to happen as a result of the Stand-Down?; and (2) How can we improve future initiatives like this? What could have been better? Each entry is equivalent to one stand-down and will be referred to as such in this report.

To address privacy concerns, CPWR signed a confidentiality agreement with OSHA prohibiting the release of identifying information and restricting us from contacting a company or employee to request additional information. Company names and related details, as well as any employee names were kept confidential; only aggregated data are reported here. Specifically, only demographic and general descriptive data are used in the results.

2.2. Data analysis

The quantitative analysis was based on the following variables, as distilled from the questions listed above: (1) Company or individual name. In this article, both individuals and companies who provided information and received a certificate are referred to as respondents. No restrictions were placed on who could obtain a certificate of participation. Many respondents were owners or safety managers representing a company. Others were individual participants who had attended an event. Relationships between individuals and companies were not always clear. The number of stand-downs and the number of respondents are equal; both terms will be used depending on context. (2) Location/State; the Stand-Down was a domestic United States effort, but companies outside of the U.S. participated in both years, and data from these international respondents are included in the analysis. Respondents were able to select "INTL" instead of a state when applicable. (3) Type of construction, including commercial construction, residential construction, non-construction,[1] other construction, highway, and government. (4) Number of participants, or individuals that attended a stand-down event as reported by participating companies.

The qualitative analysis was based on three variables: (1) Company or Individual Name (respondents); (2) Results or Activities Conducted; and (3) Recommended Improvements.

The majority of the 2014 data were analyzed following the 2014 Stand-Down; however some additional comparative analyses were conducted after receiving the 2015 data. In both years, the database was reviewed line-by-line prior to analysis in order to remove obvious duplicates and nonsensical responses. All analysis was done within an Excel database, using counting, sorting, and filtering.

For a portion of the 2015 Stand-Down, there was a technical problem in the OSHA certificate of participation database; 891 respondents were issued certificates, but the system did not save their responses to the six questions. At the request of OSHA these data were nonetheless included in our analyses. To do that, we calculated means for the quantitative variables (total number of respondents, number of respondents by location, number of respondents by construction sector, and number of participants) and interpolated these data using those means. The mean of each variable was converted to a percentage of the total number for that variable. Those percentages were then applied for the corresponding variables in the additional 891 responses, generating a total for each possible response that was then added to the original total.

3. Results

3.1. Quantitative analysis

The total number of respondents in 2014 (also the total number of stand-downs reported), was 4,882. The total number of respondents in 2015 (and the total number of stand-downs reported) was 3,759. The number of participants, however, increased from 770,193 in 2014 to 1,041,307 in 2015. This means that, on average, each stand-down event in 2015 included a larger number of participants.

3.1.1. Participation by type of construction

As shown in Table 1, the commercial construction sector made up over half the stand-downs in both 2014 and 2015, followed by other construction and non-construction. Government, residential, and highway construction comprised the lowest number of stand-downs in both years. In 2015, however, the percentage of participants reached in commercial construction dropped fairly drastically, and the percentage of participants in the government sector rose to 39%, despite making up only 7.5% of the total stand-downs.

3.1.2. Participation by region and state

Geographically, we focused on Stand-Down participation by OSHA region and by state. Tables 2 and 3 include regional numbers for both years, examined by total participation as well as by type of construction. In 2014, Region 4 (KY, TN, NC, SC, GA, AL, MS, FL) had the highest number of respondents (and the largest number of stand-downs), but Region 9 (CA, NV, AZ, HI, Guam, American Samoa) had the largest number of participants, primarily due to a very large turn-out in California. In 2015, Region 6 (NM, OK, AR, LA, TX) had the largest number of stand-downs based on a large number of respondents from Texas, but Regions 4 and 5 (MN, WI, MI, IL, IN, OH) had the largest number of

[1] The non-construction option differs from the other five sectors in that it implies no involvement in construction whatsoever.