



LATINO CONSTRUCTION WORKER RESOURCES COLLECTION

2014



INTRODUCTION

This collection is part of an ongoing CPWR effort to look at projects and research efforts that aim to identify the disparate safety and health risks affecting Latino construction workers, as well as promising strategies to address these disparities. The collection includes:

- Background
- Case Examples
- Project, Research, and Resource Highlights
- Thematic Challenges
- Potential Areas for Future Research
- Additional Latino Construction Worker Articles and Reports

BACKGROUND

In 2008 more than 2 million Latino construction workers were estimated to be foreign-born (CPWR Data Center 2009). The construction industry is one of the most dangerous industries for all workers in the United States (Brunette 2004; Abudayyeh 2006; Bureau of Labor Statistics Census of Fatal Occupational Injuries 2012), but Latino workers in particular have higher work-related fatality rates (Dong 2009, 2013) and are more likely than non-Latino construction workers to suffer work-related injuries, including those severe enough to cause lost workdays (Dong 2010b). Latino construction workers are 30% more likely than white non-Latino construction workers to have medical conditions due to work-related injuries, and those injuries are likely to be more severe (Dong 2010a). Latino construction workers lack access to health care coverage and have significantly lower rates of workers compensation coverage compared to white, non-Latino construction workers (Dong 2007).

Latino construction workers typically have little formal education (Brunette 2005) and often face language barriers (Acosta-Leon 2006), which can make safety communication challenging. An estimated one million Latino construction workers speak only Spanish (Brunette 2004). Many more have a basic understanding of the English language, but not of the technical terms used in construction (Nash 2004; Thompson 2007). Translating materials into Spanish helps but is not necessarily a viable safety communication strategy for all Latino workers, as many are not literate in Spanish or English (Evia 2012).

One potential contributor to the disparate injury and illness rates between Latino and non-Latino construction workers is the fact that Latino workers are more likely to perform more hazardous construction jobs with less on-the-job training (Dong 2004). Of those that do receive training, many are not receiving appropriate and complete training due to language and literacy barriers (McGlothin 2009). These workers often face enormous pressure to work quickly on the jobsite. They may not have a cultural precedent for jobsite safety and fear employer retaliation if they speak up about unsafe conditions (Roelofs 2011). Additionally, their work safety culture and climate is influenced by pressures to remain employed, being undocumented, cultural values, and masculinity narratives that encourage men to accept danger (Brunette 2004; Menzel 2010; Grzywacz 2007; Arcury 2012, Saucedo 2010). Too often Latino construction workers are willing to tolerate unsafe conditions due to these pressures (Menzel 2010; Roelofs 2011). For example, research has found a “safety status quo” among Latino roofers that may be further perpetuated by workers’ traditional values about safety (Hung 2013).

Authors

Kelsie Scruggs, MPH
University of California, Berkeley Labor Occupational Health Program

Michele González Arroyo, MPH
Consultant

CASE EXAMPLES

Day Laborer Construction Safety Liaison Project

New Labor, a membership-based worker center in Newark, NJ, implemented an innovative program to train immigrant day laborers and to involve leaders as construction safety liaisons.

The RESEARCH: Day laborers are commonly defined as individuals who work for different employers and get paid on a daily basis. [1] Although day laborers can be quite diverse, they are frequently male undocumented workers from Latin America, with limited educational skills. [2] Approximately 43% of day laborers are given employment by construction contractors, but many have limited construction experience. [2, 3] Construction contractors often classify day laborers as independent contractors, meaning they may not have the same protections under OSHA as regular workers do. There is persistent evidence that few immigrant day laborers receive safety and health training, nor information about conditions at construction sites being generally unsafe. [4] Sadly, most day laborers refuse to speak up or ask for information because they fear losing their job and/or deportation. [2, 3]

Taking ACTION: In June 2010 New Labor, in conjunction with university researchers from Rutgers University Occupational Training and Education Consortium (OTEC) and labor educators from Laborers International Union of North America (LIUNA), implemented a construction safety-training program targeting immigrant day laborers. The project focused on developing peer safety leaders, or “safety liaisons,” to recognize safety and health hazards at the workplace, communicate concerns with co-workers and supervisors, file OSHA complaints for serious hazards, and facilitate OSHA 10-hour construction health and safety trainings. The specially adapted 10-hour course is a Spanish-language training to help workers protect themselves and others on the job. The training was developed through a previous New Labor project and resulted in a broader nationwide effort as the training model gained traction and similar approaches were used across the nation.

The safety liaison project trained enough workers to maintain an ongoing group of 10-15 selected construction workers as liaisons. The New Labor and Rutgers University project staff as well as OSHA-authorized trainers supported the liaisons. Project staff also organized regularly scheduled meetings with the safety liaisons to discuss any concerns and to

RESOURCES

- ➔ **Day Laborers’ Health and Safety Workbook**
<http://www.cpwr.com/sites/default/files/publications/DayLaborersTrainingGuide-UIC-edition-English.pdf>
- ➔ **Spanish Day Laborers’ Health and Safety Workbook**
<http://www.cpwr.com/sites/default/files/publications/DayLaborersTrainingGuide-UIC-edition-Spanish.pdf>
- ➔ **Latino Construction Laborer Research Handout**
<https://www.ahca.org/aihce07/handouts/rt223ochsner.pdf>
- ➔ **CPWR IMPACT Card , “Empowering Day Laborers to Work Safely in Construction,” 2011**
<http://www.cpwr.com/sites/default/files/publications/EmpoweringDayLaborersIMPACTCardPDF.pdf>
- ➔ Ahonen EQ, Zanoni J, Forst L, Ochsner M, Kimmel L, Martino C, Ringholm E, Rodriguez E, Kader A, Sokas R. 2013. More than training: Evaluating goals large and small in worker health protection using a participatory design and an evaluation checklist. *New Solutions Journal of Environmental and Occupational Health Policy*: 23(4)537-60.
- ➔ Forst L, Ahonen EQ, Zanoni J, Holloway, Ochsner M, A. Kimmel L., Martino C, Rodriguez,E. Kader A., Ringholm, E, and Sokas R. Adam Kader, Elisa Ringholm and Rosemary Sokas. 2013. More than Training: Community Based Participatory Research to Prevent Injuries in Hispanic Construction Workers. *American Journal of Industrial Medicine*. Article first published online : 26 MAR 2013, DOI: 10.1002/ajim.22187
- ➔ Ochsner, M, Marshall E., Kimmel L., Martino C., Cunningham R., and Hoffner K. 2008. Immigrant Day Laborers in New Jersey: Baseline Data from a Participatory Research Project. *New Solutions: Journal of Environmental and Occupational Health Policy* 18 (1): 57-76.
- ➔ Ochsner, M., Marshal E., Kimmel, L, Martino, C., Pabelon, M., and Rostran. 2012. Beyond the Classroom—A Case Study of Immigrant Safety Liaisons in Residential Construction. *New Solutions: Journal of Environmental and Occupational Health Policy*.
- ➔ Williams, Q., Ochsner, M. Marshall, E., Kimmel, L., and Martino M. 2010. The Impact of a Peer-led Participatory Health and Safety Training Program for Latino Day Laborers in Construction. *Journal of Safety Research*. 41: 253–261.

further develop their skills. Each safety liaison decided whether or not to tell employers about their project role, share information with co-workers, or engage with supervisors about unsafe conditions. [4]

The RESULTS: The project included a three-year study to evaluate the effectiveness of the safety liaison approach. The ongoing collection of both quantitative and qualitative data allowed project staff to assess the development of the safety liaisons and make necessary adjustments to strengthen the outcomes. Based on the results of the first year, a more concerted effort was made to build liaisons' knowledge base, as well as their communication, networking and leadership skills. Project staff also developed written protocols for liaisons, such as actions to take in response to a serious, imminent hazard. Finally, in an effort to expand the liaisons' interactions with peers and employers, the project established a worker council made up of co-workers, contractors, and acquaintances, which served as a forum to discuss construction health and safety issues.

Despite these adjustments, some safety liaisons continued to express hesitancy in asserting their leadership and their health and safety knowledge. They also expressed concern that the project had not made advances in establishing a day laborer hiring center, which could result in more contracts and higher wages. At the same time, others expressed confidence and satisfaction in knowing that they were actively participating in efforts to improve workplace conditions for both themselves and their co-workers. Ultimately, all of the safety liaisons developed their skills and the confidence to identify construction hazards, facilitate peer discussions, and speak to employers. [4]

Project staff assessed the effectiveness of the trainings facilitated by the safety liaisons. A post-training survey administered after several months showed improvements in worker knowledge, attitudes, and work practices. Workers reported that the training gave them the confidence to ask employers for safety equipment and improvements in workplace safety, and to share their knowledge with their co-workers. [3]

By 2014, more than 500 workers in New Jersey and New York received OSHA10-hour cards through facilitated trainings with safety liaisons.

LESSONS Learned: Safety liaisons can play an important part in disseminating construction safety information and improving worksite conditions for day laborers. The following lessons learned could help future programs that choose to utilize a similar peer safety leadership approach:

- It is important to set realistic expectations regarding the role and reach of safety liaisons to help avoid disappointment or loss of interest
- Providing close support and follow-up to safety liaisons is essential as they develop and apply their newly acquired skills and knowledge in the workplace
- Existing construction safety training curriculum should be adapted to meet the specific needs of day laborers working in construction
- Leadership and communication skills should form an integral part of safety liaison capacity-building strategies
- Safety liaisons should have ongoing opportunities to discuss issues or concerns with project staff and/or other safety liaisons, as well as opportunities to acquire additional health and safety knowledge.
- Employer sponsored trainings for both worker and supervisors promote a culture of having safety liaisons in the workplace at multiple levels

REFERENCES

- [1] United States General Accounting Office, "Worker Protection, Labor's Efforts to Enforce Protection for Day Laborers Could Benefit from Better Data and Guidance," September 2002. <http://www.gao.gov/assets/240/235612.pdf>
- [2] Valenzuela, et al., "On the Corner: Day Labor in the United States," UCLA Center for the Study of Urban Poverty, 2006. http://www.sscnet.ucla.edu/issr/csup/uploaded_files/Natl_DayLabor-On_the_Corner1.pdf
- [3] CPWR, "Empowering Day Laborers to Work Safely in Construction," 2011. <http://www.cpwr.com/sites/default/files/publications/EmpoweringDayLaborersIMPACTCardPDF.pdf>
- [4] Ochsner, et al., "Beyond the Classroom—A Case Study of Immigrant Safety Liaisons in Residential Construction," New Solutions, Vol. 22(3) 365-386, 2012. http://www.michaeldbaker.com/MDB_WP_live_site/wp-content/uploads/2014/04/Article-H.pdf

Promoting Adoption of Fall Prevention Measures

Researchers in both California and Philadelphia conducted focus groups and key informant interviews with Latino construction workers and small residential contractors to assess attitudes and perceived barriers toward fall prevention.

RESOURCES

- **Latino Fall Prevention Partnerships**
<http://www.cpwr.com/research/latino-fall-prevention-partnerships>
- **On the Road with PhilaPOSH's Residential Construction Fall Protection Training**
<http://www.philaposh.org/pdf/Summer2010S aferTimesIssue139.pdf>
- **Promoting Adoption of Fall Prevention Measures Among Latino workers and Residential Contractors: Formative Research Findings**
<http://www.cpwr.com/sites/default/files/publications/TeranPromotingFallProtectionAdopti onKF.pdf>
- **Using Social Media to Inform Latino Construction Workers about Fall Protection**
<http://www.cpwr.com/sites/default/files/publications/PhilaposhFinalReport123014FINAL. pdf>

The RESEARCH: Researchers from the Labor Occupational Health Program (LOHP) at the University of California, Berkeley, and from the Philadelphia Area Project on Occupational Safety and Health (PhilaPOSH) conducted focus groups with Latino construction workers and small contractors in both the San Francisco and Philadelphia metropolitan areas to assess attitudes toward the provision and use of fall protection equipment, corresponding safety training, and the risks associated with falls in the residential construction industry. LOHP also conducted key informant interviews with workers and labor organizations, employers, employer representatives, and occupational safety and health professionals. These focus groups and interviews served to document risk factors contributing to construction-related falls, to provide feedback on possible intervention strategies, and to identify potential partnerships among key stakeholders. Researchers also sought to identify potential partners among unions, contractor associations, worker centers and other partners that could leverage influence on contractors and workers to promote safer and healthier fall prevention practices.

The RESULTS: Workers pointed to several risk factors associated with falls, including a lack of enforcement of existing safety regulations, a perceived pressure to work quickly and in such a way that proper protective equipment would be cumbersome, and the need to work in spite of risks. Workers

also described a feeling of disempowerment regarding their rights due to their immigration status; and feared possible retaliation. Residential contractors described economic disincentives for providing fall protection equipment and safety training.

In both Philadelphia and the San Francisco Bay Area potential partners among union and contractor associations stated that falls pose more of a concern in the nonunion sector due to the lack of training and safety programs. PhilaPOSH studied the possibility of building partnerships in the form of joint councils between workers and residential contractors. This proved challenging, however, as partners in the nonunion sector did not have a history of joint labor-management efforts. LOHP explored existing attitudes and perceived barriers to fall protection as formative research for future work in developing social marketing messages reach and influence safety and health practice for Latino roofers and the contractors who employ them.

The study highlighted the need to target contractors and explore incentives for small contractors to provide proper fall protection. The research also identified the need for health and safety interventions that not only provide training for residential contractors and immigrant workers, but also specifically address worker and immigrant rights as well as barriers to providing adequate protection against falls.

Taking ACTION: Based on their formative research PhilaPOSH worked to develop partnerships among various stakeholders including residential contractors, employer associations, and organizations supporting Latino immigrant workers. They offered trainings to workers and contractors on fall protection and other health and safety topics, including OSHA 10-hour construction safety classes. The collaboration with employers and employer association groups provided an incentive for workers to participate in the trainings, as they could pursue possible employment opportunities. The involvement of small contractor associations added credibility to the trainings and increased the likelihood of members participating. PhilaPOSH's outreach to organizations that support immigrant workers, including faith-based organizations and immigrant justice groups, was key in involving workers not associated with contractors or contractor associations.

LOHP worked with the State Compensation Insurance Fund (SCIF), the workers' compensation insurer for many residential roofing contractors, to develop a frame for a partnership around fall protection. SCIF recruited the Bay Area Roofers' Association and the Roofers' and Waterproofers' Union to participate in meetings, along with agencies that form part of the Labor Enforcement Task Force (LETF). Meetings were held to explore areas of collaboration.

LESSONS Learned: A number of lessons learned can be gleaned from these efforts in both the San Francisco Bay Area and Philadelphia. It is important that similar fall prevention training worker-focused interventions take an integrated approach and address the cultural, language, and social factors that influence Latino workers' attitudes and experiences while on the job. Such training should include information on worker and immigrant rights, as well as guidance on how to assert these rights. In addition to training it is important to identify promising partners and link with other groups that could further fall prevention efforts.

Interventions targeting residential contractors should include a variety of incentives for contractors to address fall prevention issues. For example, stronger enforcement of safety regulations by state or federal OSHA could serve as an effective motivator for improving employer compliance. This, however, could be challenging where shortages of inspection staff and/or changing interpretations of regulations in the residential sector occur. Another incentive could involve the disclosure of contractor safety records, including the linkage of a strong safety record to increased business. Workers' compensation carriers could also provide third party incentives by requiring contractors to take specific safety measures before establishing or renewing policies, or offering rebates to contractors who comply with best practices. Finally, there may be potential for homeowners and contractor associations to support and reinforce safer work practices among residential contractors.

In summary, the following lessons can serve as a foundation for future projects aimed at promoting the adoption of fall prevention measures among Latino immigrant construction workers and residential contractors.

- Contractors are the most critical target group in the effort to reduce falls among Latino workers, because they control the workplace
- In addition to standardized training efforts, strong incentives are needed to offset forces and attitudes causing contractors to opt out of fall protection measures
- It takes time, resources, and trust among workers and contractors to build sustainable partnerships
- Fall protection training targeting Latino workers is most effective when integrated into a larger training program that includes information on worker and immigrant rights

The Telenovela Project

A government agency, research and training center, health storyline program, and Spanish language television network collaborated to develop and evaluate a television show with imbedded ladder safety messaging.

RESOURCES

- **Castaneda 2013 Evaluating an Entertainment-Education Telenovela to Promote Workplace**
<http://www.cpwr.com/sites/default/files/publications/CastanedaTelenovelaKF.pdf>
- **Popular Telenovela Delivers Fall Prevention Message**
<http://ohsonline.com/articles/2008/04/popular-telenovela-delivers-fall-prevention-message.aspx>

The RESEARCH: Falls from ladders, scaffolds or rooftops are the most common cause of construction worker fatalities. Using ladders more safely is one way to prevent falls at construction worksites.

Although OSHA requires ladder safety training for all construction workers, research studies show that up to half of Latino construction workers receive little or no training. [2] Furthermore, the training that is given is largely ineffective due to language barriers, limited literacy, and cultural differences.[3] Experts tested a mass media approach known as “entertainment-education” in an effort to effectively raise the awareness of a large number of Latino construction workers regarding ladder safety, education, and communication.

Taking ACTION: Entertainment-education involves embedding an educational message in an entertainment channel such as television. Among the Latino population, the medium used to convey the educational message was the Spanish-language *telenovela*, which is similar to a soap opera. In April 2008, the popular telenovela *Pecados Ajenos* featured a series of episodes that highlighted the causes, consequences, and ways to prevent falls from ladders. The series specifically targeted Latino construction workers in the United States.

The development of the telenovela series, and the follow-up evaluation, were a joint effort between the National Institute of Occupational Safety and Health (NIOSH), the Center for Construction Research and Training (CPWR), Hollywood Health and Society (HHS), and the Spanish-language television network Telemundo. The dramatic storyline contained three key safety messages regarding the proper use of ladders at the worksite: 1) choose the right ladder for the job; 2) always secure an extension ladder at the top and bottom before climbing the ladder; and 3) never carry tools or anything else in your hands as you climb a ladder.

The storyline was accompanied by a PSA message and a Spanish-language website where construction workers or their families could get additional construction safety information. The PSA aired over a two-week period during the same time slot as the telenovela. It reiterated the ladder safety messages and encouraged viewers to obtain more information from the Spanish-language website.

The RESULTS: Online pre- and post- series surveys were completed by members of the telenovela’s fan group who received emails inviting them to share their opinions through a website hosted by SurveyMonkey. The recruitment emails for pre- and post- surveys did not mention the words test or survey; rather, it read, “Greetings *Pecados Ajenos* fans, tell us what you think.” A total of 743 of the telenovela’s fan user group participated in the pre-survey to assess their knowledge of workplace safety messages, perceptions toward construction workplace safety and risks, and behavioral intentions. At the conclusion of the telenovela series 669 fans, different from those who took the pre-survey, participated in a post-survey. The surveys used simple language and easy-to-

follow instructions in Spanish and took approximately 20 to 30 minutes to complete. A potential bias existed; participants were able to access and felt comfortable taking the online survey may not be representative of the target population: Latino construction workers and their families.

The results showed no significant differences in pre- and post-survey responses with regard to perceptions and behavioral intentions. However the telenovela was effective in increasing audience knowledge of the three specific construction workplace safety messages. Further analysis revealed that the telenovela was particularly effective among viewers with a personal connection to construction work, for example friends of construction workers or workers themselves, versus those who had no such connection. Researchers concluded that the use of culturally relevant communication interventions such as the telenovela could be an effective way of reaching and educating audiences about specific worksite safety information.

The PSA message and Spanish-language informational website added another dimension to the entertainment-education intervention. Data showing spikes in website traffic suggests that a multipronged approach combining entertainment-education with other outreach strategies and informational resources can be an effective means of encouraging the target population to seek further information.[3]

LESSONS Learned: Telenovelas can be an effective entertainment-education medium with the potential of reaching millions of Spanish-speaking Latinos living in the United States. The following are some lessons learned to help future education and communication experts carry out a successful entertainment-education intervention targeting Latino workers.

- It takes considerable human and financial resources to implement and produce an effective entertainment-education strategy
- Presenting ideas to a network of entertainment media contacts can help sharpen both the storyline and educational messages before formally presenting them to an entertainment media network
- It may be necessary to make some compromises with entertainment writers with regard to the ideal balance between entertainment and education
- A multipronged approach that combines an entertainment-education intervention with other complementary educational activities can help increase the effectiveness of the entertainment-education strategy

REFERENCES

[1] CPWR, *Data Brief*, Vol. 1, No. 1, November 2009.

[2] Roelofs, Cora, et al., "A qualitative investigation of Hispanic construction worker perspectives on factors impacting worksite safety and risk," *Environmental Health Journal*, 10:84, September 2011.

[3] Castaneda, Diego, et al., "Evaluating an Entertainment-Education Telenovela to Promote Workplace Safety," *SAGE Open*, July-September 2013.

[4] Evia, C., & Patriarca, A. (2012). Beyond compliance: Participatory translation of safety communication for Latino construction workers. *Journal of Business and Technical Communication*, 26(3), 340-367.

Workers Defense Project

Workers Defense Project (WDP) is a grassroots organization based in Austin, Texas, dedicated to promoting fair and safe working conditions for the estimated 950,000 construction workers in Texas -- the majority (60%) of whom are Latino [1]. Their tactics include research, policy, education, and training.

RESOURCES

- **Austin Rest Breaks Ordinance**
<http://www.austintexas.gov/edims/document.cfm?id=140407>
- **Building A Better Austin Website**
<http://betterbuilder.org/>
- **Building Austin Building Injustice Report**
http://www.workersdefense.org/wp-content/uploads/2013/04/Building-Austn_Report-2.pdf
- **OSHA's Campaign to Prevent Heat Stress in Outdoor Workers**
<http://www.osha.gov/SLTC/heatillness/index.html>
- **Construction Working Conditions in Texas: Survey Instrument Development and Pilot Project**
<http://www.cpwr.com/sites/default/files/publications/WorkersDefenseProjectReport.pdf>
- Torres, R., R. Heyman, S. Muñoz, L. Apgar, E. Timm, C. Tzintzún, C. Hale, J. McKiernan Gonzalez, S. Speed and E. Tang (2012) "Building Austin, Building Justice: Immigrant Construction Workers, Precarious Labor Regimes and Social Citizenship," *Geoforum*, published online December 4, 2012 (1-11), print version: March 2013, vol. 45, 145-155

The RESEARCH: A construction worker dies in Texas every 2½ days. Texas is a state with one of the highest rates of construction-related deaths, 142 fatalities reported in 2007 and 138 fatalities reported in 2009.

In June 2009 WDP partnered with faculty from the University of Texas at Austin and the University of Illinois at Chicago to study working conditions in Austin's construction industry. The Build a Better Austin initiative included a study—Building Austin, Building Injustice—that surveyed 312 construction workers, 83% of whom were Latino. In the study 41% of workers reported that their employer did not give them rest breaks and 27% said they were not provided with drinking water.

According to the report, construction workers in Austin and the wider Travis County are increasingly Latino and more likely to be foreign-born. The report also cites U.S. Census Bureau data showing a 45% increase in Austin's Latino population between the years 2000 and 2007, and a 13% increase in the number of Latino construction workers, which now total 78% of all construction workers in Travis County.

Taking ACTION: Completion of the research was an important step for WDP's policy work aimed at improving work conditions in the Texas construction industry. Shortly after the June 2009 publication, WDP held a news conference in front of 142 pairs of empty work boots, representing the number of construction workers who died in Texas in 2007. The report and media event served to raise public awareness regarding the working conditions faced by Austin's largely Latino construction workforce. More importantly, it served as a call to action to develop policies aimed at protecting construction workers on the job.

One year later, in July 2010, the Workers Defense Project achieved its first major policy victory, when the Austin City Council unanimously passed an ordinance requiring employers to give rest breaks for construction workers. The ordinance was inspired in part by the report, which also highlighted the fact that Texas state laws did not require employers to give rest breaks to workers. Leading up to the City Council vote, WDP members organized a "thirst strike" in front of City Hall to dramatize the unsafe conditions that construction workers face during Austin's hot summer months. The thirst strike drew the attention of local media and health experts, adding to the pressure on members of the City Council to unanimously pass the city ordinance on July 29, 2010.

The RESULTS: The new city ordinance—the first of its kind in Texas—guaranteed all construction workers in Austin the right to paid rest breaks of at least 10 minutes for every four hours worked. The ordinance also required that all construction worksites prominently feature a bilingual sign explaining the rest break requirement. Employers not complying could face criminal penalties and fines of up to \$500 per day.

The Workers Defense Project continues to raise public awareness and draw media attention in its efforts to achieve other health and safety policy victories for Austin’s construction workers. Twice a year, WDP organizes a “Day of the Fallen” march and rally to call for safe jobs and living wages for Texas construction workers. These regular rallies serve to remind the public and elected officials that the construction industry in Texas has one of the highest fatality rates in the country.

LESSONS Learned: Policy development is increasingly being used as a tool for community change. Grassroots groups, like WDP, are taking their own agendas to city hall and the state house, and proactively transforming them into progressive, meaningful policies that can help protect Latino workers and other vulnerable populations. The following tips can help serve as a guide in the development of a successful policy initiative:

- Workers, politicians, and community-based organizations can all take an active role in the development and advocacy of construction safety policies that directly affect Latino immigrant workers
- Local media coverage of awareness events could play an important role in building broad support for policy initiatives aimed at improving working conditions for Latino construction workers
- Developing a clear, succinct policy message is necessary when presenting to public officials or at city council meetings
- Elected officials should be held accountable for their commitments of support

REFERENCE

[1] Build a Better Texas: Construction Working Conditions in the Lone Star State, University of Texas Division of Diversity and Community Engagement, January 2013.

Additional Projects, Research, & Resources

Below are brief synopses of additional efforts to reach and influence Latino construction workers' safety and health knowledge, conditions, and practices. Select resources are provided.

Associated Builders and Contractors, Mid-Gulf Chapter Susan Harwood Training Grant to Provide Safety Training to Hispanic Workers

The Associated Builders and Contractor's Mid-Gulf Chapter developed a construction safety and English language training for Latino workers in Mobile, Alabama. Trainings were conducted on worksites, instead of transporting workers to a classroom, and taught workers commonly used English words and phrases in the construction industry. Educational tools and materials such as crossword puzzles, Wheel of Fortune, and Concentration were developed.

- **OSHA Region IV Success Story Showcase**
https://www.osha.gov/dcsp/success_stories/compliance_assistance/reg4_hispanic_training.html

Construction High Risk Worker Summit - OSHA

OSHA Region V reached out to day laborers in the construction industry through a national summit held in 2010. The summit was co-hosted by the Construction Safety Council and came out of OSHA's National Action Summit for Latino Worker Health & Safety. During the summit two panels of high-risk construction workers were developed to discuss their personal safety and health experiences and common hazards with OSHA, government, labor, university and community group representatives. OSHA was able to simultaneously learn from workers' experiences as well as educate them on safety and health and their rights as a worker.

- **OSHA Region V Success Story Showcase**
https://www.osha.gov/dcsp/success_stories/compliance_assistance/reg_5_high_risk.html

Dallas/Fort Worth International Airport Latino Worker Training

Dallas/Fort Worth International Airport Capitol Development Program collaborated with Hensel Phelps Construction Company and Austin Commercial L.P, two of the largest contractors on the project, and contracted with the BEST Institute Inc. of Garland, Texas to implement mandatory 40-hour safety training for all workers on a five-year expansion project with the Dallas/Fort Worth International Airport. The training was designed with reaching Latino workers in mind and combined hands-on classroom training models; some classes were conducted in English and others in Spanish with Latino trainers. All workers were trained on basic construction terminology and encouraged to bring up and address safety issues. Ultimately, over 14,000 workers were trained and over 6,000 completed the training in Spanish. The project set a safety record - over 21 million work hours without a fatality or serious incident.

- **Best Practices in Training Hispanic Workers**
<http://www.elcosh.org/record/document/1812/d000652.pdf>
- **The Language of Safety**
<http://www.roughnotes.com/rnmagazine/2003/april03/04p25.htm>

Heat Illness Campaign – California & National

UC Berkeley’s Labor Occupational Health Program developed a social marketing campaign to raise awareness of the hazards of working outdoors and to promote safe practices (e.g. water, rest, shade) for the state of California. A network of community organizations helped to carry out the effort and make it a success. The campaign was later adapted and implemented nationwide by federal OSHA. Both the California and national campaigns involved a multi-lingual approach, targeting Latino Workers in agriculture and construction, and reached over 10.7 million people nationally through factsheets, posters, quick cards, training guides, and wallet cards.

- **California Heat Illness Campaign Website**
<http://www.99calor.org/english.html>
- **OSHA’s Heat Illness Campaign Website**
<https://www.osha.gov/SLTC/heatillness/index.html>
- **Educational Resources**
<https://www.osha.gov/SLTC/heatillness/edresources.html>
- **Spanish Website and Resources**
https://www.osha.gov/SLTC/heatillness/spanish/index_sp.html

Jornaleros Unidos con el Pueblo

The San Francisco Department of Public Health and La Raza Centro Legal’s Day Labor Program and Women’s Collective conducted a project aimed to improve the hazardous working conditions of day laborers through the development of a “community council” in the San Francisco Bay Area. This project included a day laborer led legal clinic and a 10-week course designed to build knowledge of rights and responsibilities as well as leadership in workers. The course included over 80 peer led vocational trainings on construction skills, safety and health, digital stories profiling the hazards and contributions day laborers. An Occupational Safety and Health Consultant position was also piloted to conduct outreach and awareness raising in local clinics and service agencies related to immigrant workers’ health & safety.

- **Jornaleros Unidos con el Pueblo Website**
<http://www.sfhealthequity.org/elements/work/78-jornaleros-unidos-con-el-pueblo-vocational-training-and-safe-cleaning-programs>

Lay Health Advisor (LHA)-based Safety Education Program for Latino Roofers

Researchers at Center for Worker Health, Wake Forest School of Medicine and Virginia Polytechnic Institute and State University developed a program through collaboration with the community organization HOLA of Wilkes County. This LHA-based Falls Prevention safety education program “Get Smart Working in Roofing! / ¡Ponte Listo Trabajando en Roofing!” had three aims: 1) develop and implement a linguistically and culturally appropriate LHA based safety education curriculum targeting fall prevention for immigrant Latino construction workers employed in roofing; 2) document preliminary evidence of effectiveness of the program; and 3) identify refinements for the program to enable a more in-depth evaluation of effectiveness.

An educational flipchart was developed for this program. It was based on the results of a study the partnership conducted, a literature review of existing research, and in-depth and semi-structured interviews with 10 Latino roofers.

- **Virginia Tech Project Website**
<http://www.oshrc.centers.vt.edu/projects/descriptions/LHA-LatinoRoofers.html>
- **NIOSH Project Portfolio**
<http://www.cdc.gov/niosh/programs/const/noragoals/projects/0000023.html>

Micro-Processes of Latino Construction Worker Health: Feasibility of CATS

Researchers at Center for Worker Health, Wake Forest School of Medicine and Virginia Polytechnic Institute and State University conducted a research study to examine the feasibility of using completely automated telephone surveys (CATS) as a tool to collect daily data from Latino construction workers over a 21-day period. Research looked at: 1) participation rates 2) determining the quality of data collected 3) identifying design modifications that might improve the effectiveness of the technology among foreign-born Latino construction workers. Findings indicated the technology could be used to better understand health behaviors among Latino residential construction workers.

- **CATS Project Overview**
<http://www.oshrc.centers.vt.edu/projects/descriptions/LatinoWorkersHealthCATS.html>

Protección en Construcción: "Leaders in Safe Construction" (LISC)

A community-university-labor partnership, called "Protección en Construcción" (PenC), conducted a participatory research project. Input from over 100 construction workers and contractors went into the development of the LISC program. The 12-month program aimed to address fall prevention and silica dust exposure among Latino construction workers. The program targeted small contractors and conducted trainings at their worksites. Community groups led recruitment efforts, designed questions, and ran a media campaign.

- **NIOSH Project Portfolio**
<http://www.cdc.gov/niosh/programs/const/noragoals/projects/0000028.html>

Silicosis Prevention Education

NIOSH developed silicosis prevention educational materials in Spanish. These materials were originally in English and later translated into Spanish. A Spanish survey was developed to evaluate the effectiveness of targeting the silicosis prevention message to Latino construction workers. These materials are housed on The Electronic Library for Construction Occupational Safety and Health (eLCOSH) to be made available to trainers and health educators.

- **Spanish Silicosis Alert**
<http://elcosh.org/document/2279/d000487/Advertencia%2Bde%2Bsilicosis.html>
- **Work Safely with Silica - Comprehensive Source & Planning Tool**
www.silica-safe.org

Bi-lingual Communication and Safety Training Program

Torcon Inc, a general building contractor, developed a bi-lingual component to their existing comprehensive safety program. Torcon Inc. instituted a policy that supervisors at sites with Latino workers must be bi-lingual and required safety trainings on the site to be conducted in English and Spanish. English and Spanish versions of educational materials, safety posters, emergency evacuation procedures, and videos were all developed. The Company policy also requires contractors to host, and workers to attend, weekly "Tool Box Safety Talks," providing documentation that they have been held and attended.

- **OSHA Success Stories: Hispanic Outreach**
https://www.osha.gov/dcsp/success_stories/hispanic/torcon.html

Using 3D Visualization to Enhance Safety Training for Hispanic Construction Workers

Researchers at Colorado State University developed a 3D Visualization Training Program to reduce the amount of verbal description needed in training. A training module was developed to test the effectiveness of using this method to train Latino construction workers. This was done using Google® Sketch-up® viewed as a 3D animation with scenes depicting different safety procedures and practices. The animation was then shown in an interactive training using Adobe® Captivate® 5 software. The animations were narrated in standard Spanish, at a low literacy level, and included information on basic OSHA laws. The initial development and implementation of this training produced findings suggesting 3D visualizations can be an effective tool.

- **3D Visualization and Training Project Review**
http://www.ucdenver.edu/academics/colleges/PublicHealth/research/centers/maperc/research/Documents/ConWorkerSafety_Abstract_2013_Clevenger.pdf
- **Using 3D Visualization to Enhance Safety Training for Hispanic Construction Workers**
http://www.ucdenver.edu/academics/colleges/PublicHealth/research/centers/maperc/research/Documents/ConWorkerSafety_Abstract_2013_Clevenger.pdf

“Using Social Media to Inform Latino Construction Workers about Fall Protection”

The Philadelphia Area Project on Occupational Safety and Health (PhilaPOSH) tested social media as a new medium for effectively reaching large numbers of Latino construction workers about fall protection and safe work practices. The effort looked at three distinct channels – email, text messaging (SMS), and Facebook – to understand which mediums could best be used to engage and impact Latino construction workers with these messages. Objectives included developing messaging, developing a database of hard to reach workers, transmitting messages, and analyzing responses. Findings indicated text messaging, and to a lesser degree Facebook, were useful tools for reaching Latino construction workers, while email was not as effective.

- **PhilaPOSH Final Report**
<http://www.cpwr.com/sites/default/files/publications/PhilaposhFinalReport123014FINAL.pdf>

Work Safety Climate, Personal Protection Use, and Injuries among Latino Residential Roofers

Researchers at Wake Forest School of Medicine conducted baseline interviews with Latino residential roofers in North Carolina, most foreign-born, about their perceptions of personal protective equipment (PPE), occurrences of injuries in the previous year, and work safety climate. Findings indicated work safety climate was significantly correlated with the provision and use of most types of PPE, and was inversely associated with injury.

- **Arcury 2014 Work Safety Climate, Personal Protection Use, and Injuries among Latino Residential Roofers**

Thematic Issues Affecting Latino Construction Workers

1. Fatality, injury, and Illness Rates

- Higher rates of fatal and serious non-fatal injuries than non-Latino construction workers
- Injury underreporting

2. Training Challenges

- Need for more effective, culturally appropriate, and accessible training
- Language barriers
- Literacy barriers
- Need for participatory training

3. Lack of Work Safety Culture

- Different safety norms from home countries for foreign-born Latino workers
- Need for work
- Pressure to work quickly
- Disincentives for the use of PPE
- More likely to work in less skilled trades

4. Cultural Issues

- Immigrant/legal status challenges
- Masculinity narratives – pride in accepting danger
- Pride in ability to perform work they perceive American workers unwilling to do
- Lack of community resources/ assets to tap into

5. Outreach Challenges

- Many non-organized workers
- Concentrated in small businesses
- Often considered “self-employed”
- Building sustainable relationships with intermediary organizations that can reach workers is difficult
- Lack of access to and experience with smart phones and other internet technologies

6. Employer Challenges

- Employer retaliation
- Wage and hour issues
- Underground economy issues (non-payment of taxes, workers comp, etc.)
- Lack of health and safety enforcement that might incentivize safer practices
- Small employers less likely to provide health insurance

Potential Areas for Future Research

1. **Consolidate and identify gaps in knowledge regarding effective communication tools for Spanish-speaking construction workers.** Develop a tool/checklist for systematic evaluation and a process for active dissemination.
2. **Consolidate and identify gaps in knowledge regarding effective training programs for Spanish-speaking construction workers.** Explore models for evaluating, spreading, and sustaining effective training.
3. **Assess, refine, and broadly disseminate peer-to-peer models for reaching day laborers and other Latino construction workers.**
4. **Characterize employers of Latino construction workers and the incentives/disincentives that influence safety and health practices. Test creative new incentives for contractors to adopt best practices.**
5. **Look at the intersection between risks for Latino workers and risks associated with working for small contractors.**
6. **Explore the potential for community-based organizations (CBOs) to develop sustainable platforms for workers to become educated about protecting their safety and their workplace rights.**
 - What types of organizations are most promising in terms of building a broad network – worker centers, faith based orgs, immigrant service centers, community health clinics, etc.
 - What skills do these organizations need in order to be able to perform that service? How could capacity be built?
 - What sustainable funding models would allow CBOs to play this role?
 - How can researchers and/or agencies develop meaningful and sustainable partnerships with CBOs?
7. **Explore the potential role of intermediary groups to reach contractors who employ Latino workers, including:**
 - Development Corporations
 - Hispanic Chambers of Commerce, Hispanic Builders Associations
 - Workers compensation insurers
 - Construction equipment and supply houses

- 8. Look at the potential for project owners as intermediaries to influence health and safety:**
 - Homeowners, homeowner associations
 - Municipalities, other public project owners

- 9. Develop and evaluate outreach strategies for specific construction sectors (e.g. new home building, roofing, home remodeling/repair, etc.)**

- 10. Consider the implications of multiple levels of subcontracting on occupational safety and health conditions for Latino workers.**

- 11. Study “worker voice” or worker empowerment – what are the conditions under which Latino workers are better able to use information and act on it in the workplace?**

- 12. Consider differences in outcomes between disparate groups of Latino workers:**
 - US born and foreign-born
 - Organized (union) and non-organized (nonunion)
 - New settlement communities and older settlement communities
 - Right to work” states and states with strong labor laws

Additional Latino Construction Worker Articles and Reports

<p>Acosta-Leon AL, Grote BP, Salem S, Daraiseh N. 2006. Risk factors associated with adverse health and safety outcomes in the US Hispanic workforce. <i>Theoretical Issues in Ergonomics Science</i> 7(3): 299-310.</p>	<p>Anderson JT, Hunting KL, Welch LS.2000. Injury and Employment Patterns Among Hispanic Construction Workers. <i>J Occup Environ Med</i> 42(2):176-86.</p>
<p>Arcury TA, Mills T, Marín AJ, Summers P, Quandt SA, Rushing J, Lang W, Grzywacz JG. 2012. Work safety climate and safety practices among immigrant Latino residential construction workers. <i>Am J Ind Med</i> 55:736–745.</p>	<p>Arcury TA, Summers P, Carillo L, Grzywacz JG, Quandt SA, Mills TH. 2014. Occupational Safety Beliefs among Latino Residential Roofing Workers. <i>Am J Ind Med</i> 57: 718-725.</p>
<p>Brunette MJ. 2004. Construction safety research in the United States: Targeting the Hispanic Workforce. <i>Injury Prevention</i>10: 244-248.</p>	<p>Brunette MJ. 2005. Development of educational and training materials on safety and health. <i>Family & Community Health</i> 28: 253-266.</p>
<p>Buchanan SN, Nickels L, Morello L. 2005. Occupational Health among Chicago Day Laborers: An Exploratory Study. <i>Archives of Environmental and Occupational Health</i> 60(5) (2005): 276-280.</p>	<p>Camou M.2012. Capacity and Solidarity: Foundational Elements in the Unionization Strategy for Immigrant Day Laborers. <i>International Migration</i> 50 (2) 41-64.</p>
<p>Cigularov KP, Lancaster PG, Chen PY, Gittleman J, Haile E. 2013. Measurement equivalence of a safety climate measure among Hispanic and White Non-Hispanic construction workers. <i>Safety Science</i> 54: 58–68.</p>	<p>Construction Chart Book 5th Ed. 2013. CPWR Data Center. http://www.cpwr.com/publications/construction-chart-book (Accessed 30 November 2014.)</p>
<p>Contreras E, Buchanan S.2012. Piloting a Personal Protection Equipment Distribution Program Among Chicago Day Laborers. <i>Am J Ind Med</i> 55:159–166.</p>	<p>CPWR: The Center for Construction Research and Training. 2009. Hispanic Employment in Construction. http://www.cpwr.com/sites/default/files/publications/Hispanic_Data_Brief-Nov-09.pdf (Accessed 30 November 2014.)</p>
<p>DeSouza RA, Hecker S, deCastro AB, Stern H, Hernandez A, Seixas N. 2012. Novel approaches to development, delivery and evaluation of a peer-led occupational safety training for Latino day laborers. <i>New Solut</i> 22(3): 387–405.</p>	<p>Dong XS, Platner JW.2004.Occupational Fatalities of Hispanic Construction Workers From 1992 to 2000. <i>Am J Ind Med</i> 45:45–54.</p>
<p>Dong XS, Ringen K, Men Y, Fujimoto A.2007.Medical costs and sources of payment for work-related injuries among Hispanic construction workers. <i>J Occup Environ Med.</i> 49(12): 1367-1375.</p>	<p>Dong XS, Fujimoto A, Ringen K, Men Y. 2009. Fatal falls among Hispanic construction workers. <i>Accid Anal Prev</i> 31:1047–1052.</p>
<p>Dong X, Ringen K, Fujimoto A. (2009). Part V. Empirical Studies, Chapter 16: Expanding Access to Health Care for Hispanic Construction Workers and Their Children, <i>Expanding Access to Health Care: A Management Approach</i> Edited by: Terry F. Buss; Paul N. Van de Water. Armonk NY: M.E. Sharpe, Inc. pages 321-343.</p>	<p>Dong XS, Wang X, Daw C, CPWR Data Center. 2010a. Fatal and nonfatal injuries among Hispanic construction workers. CPWR Data Brief 2(2): 1–19. http://www.cpwr.com/publications/vol2-no2-fatal-and-nonfatal-injuries-among-hispanic-construction-workers (Accessed 30 November 2014.)</p>

<p>Dong XS, Men Y, Ringen K. 2010b. Work-related injuries among Hispanic construction workers—Evidence from the medical expenditure panel survey. <i>Am J Ind Med</i> 53:561–569.</p>	<p>Dong XS, Fujimoto A, CPWR Data Center. 2010c. Health Insurance among Hispanic Construction Workers. <i>CPWR Data Brief</i> 2(1): 1–15. http://www.cpwr.com/sites/default/files/publications/CPWR%20Data%20Brief_Hispanics%20and%20Healthcare.pdf (Accessed 30 November 2014.)</p>
<p>Dong XS, Choi SD, Borchardt JG, Wang X, Largay JA. 2013. Fatal falls from roofs among U.S. construction workers. <i>J Safety Res</i> 44:17–24.</p>	<p>Dong X, Wang X, Largay J, Waddoups CJ, Fujimoto A. (2013). The impact of language barriers on healthcare utilization among Hispanic construction workers. In Owen T Jackson; Kathleen A Evans (Eds.), <i>Health Disparities: Epidemiology, Racial/Ethnic and Socioeconomic Risk Factors and Strategies for Elimination</i>. Hauppauge, NY: Nova Science Publishers, Inc. pages 161-176.</p>
<p>Dong X, Wang X, Largay JA. [2014]. Data Brief, New Trends in Fatalities among Construction Workers. June, Vol. 3 No. 2 http://www.cpwr.com/sites/default/files/publications/New%20Trends%20in%20Fatalities%20among%20Construction%20Workers.pdf</p>	<p>Dong X, Wang X, Largay JA, Platner JW, Stafford E, Cain CT, Choi SD. [2014]. Fatal falls in the U.S. residential construction industry. <i>American Journal of Industrial Medicine</i>. 2014 Sep;57(9):992-1000. doi: 10.1002/ajim.22341.</p>
<p>Dong X, Ringen K, Welch L, Dement J. (2014). Risks of a lifetime in construction, Part I: traumatic injuries. <i>American Journal of Industrial Medicine</i>, 2014 Sep;57(9):973-83. doi: 10.1002/ajim.22363. Epub 2014 Jul 24.</p>	<p>Evia C, Patriarca A. 2012. Beyond Compliance: Participatory Translation of Safety Communication for Latino Construction Workers. <i>Journal of Business and Technical Communication</i> 26(3) 340-367.</p>
<p>Fabrega V, Starkey.2001.Fatal Occupational Injuries among Hispanic Construction Workers of Texas, 1997 to 1999. <i>Human and Ecological Risk Assessment: An International Journal</i> 7(7): 1869-1883.</p>	<p>Forst L, Ahonen E, Zanoni J, Holloway-Beth A, Oschner M, Kimmel L, Martino C, Rodriguez E, Kader A, Ringholm E, Sokas R.2013.More Than Training: Community-Based Participatory Research to Reduce Injuries Among Hispanic Construction Workers. <i>Am J Ind Med</i> 56(8):827-37.</p>
<p>Grzywacz JG, Quandt SA, Mills T, Marín A, Summers P, Lang W, Evia C, Arcury TA. 2012. Employer provision of personal protective equipment to Latino workers in North Carolina residential construction. <i>New Solut</i> 22:175–190.</p>	<p>Grzywacz JG, Quandt SA, Mills T, Marín A, Summers P, Lang W, Evia C, Rushing J, Donaldo K, Arcury TA. 2012. Occupational Injury and Work Organization Among Immigrant Latino Residential Construction Workers. <i>Am J Ind Med</i> 55:698–706.</p>
<p>Grzywacz JG, Quandt SA, Marín A, Summers P, Lang W, Mills T, Evia C, Rushing J, Arcury TA. 2013. Feasibility of Interactive Voice Response Methods in Health Behavior Research With Immigrant Latinos. <i>Am J Health Behav</i>. 37(2):238-247.</p>	<p>Hung YH, Winchester WW III, Smith-Jackson TL, Kleiner BM, Babski-Reeves KL, Mills TH III. 2013. Identifying fall-protection training needs for residential roofing subcontractors. <i>Appl Ergon</i> 44(3):372–380.</p>
<p>McGlothin J, Hubbard B, Aghazadeh F, Hubbard S. 2009 Case study: safety training issues for Hispanic construction workers. <i>Journal of Occupational and Environmental Hygiene</i>, 6: D45–D50.</p>	<p>Menzel NN, Gutierrez AP. 2010. Latino worker perceptions of construction risks. <i>Am J Ind Med</i> 53:179–187.</p>
<p>Menzel NN, Shrestha PP. 2012. Social marketing to plan a fall prevention program for Latino construction workers. <i>Am J Ind Med</i> 55 (8):729–735.</p>	<p>Niessen B. 2004. Construction safety practices and immigrant workers: A pilot study. A Report for the Center to Protect Workers' Rights.</p>

<p>O'Connor T, Loomis D, Runyan C, Abboud dal Santo J, Schulman M. 2005. Adequacy of health and safety training among young Latino construction workers. <i>J Occup Environ Med.</i> 47(3) 272-277.</p>	<p>Ringen K, Dong XS, Stafford P. 2008. Migration and Safety and Health At Work: Migrant Construction Workers in the US. CPWR — The Center for Construction Research and Training, Paper presented at the ILO XVIII World Congress on Safety and Health at Work.</p>
<p>Roelofs C, Sprague-Martinez L, Brunette M, Azaroff L. 2011. A qualitative investigation of Hispanic construction worker perspectives on factors impacting worksite safety and risk. <i>Environ Health</i> 10:84.</p>	<p>Ruttenberg R, Lazo M. 2004. Spanish-speaking construction workers discuss their safety needs and experiences. Residential construction training program evaluation report. Silver Spring, MD: The Center to Protect Workers' Rights.</p>
<p>Saucedo L, Morales MC. 2010. Masculinities narratives and Latino immigrant workers: A case study of the Las Vegas residential construction trades. <i>Harv. J.L. & Gender</i> 33:625-659.</p>	<p>Thompson P, Siddiqi K. 2007. Best Practices for Improving Safety among Hispanic Construction Workers. Proceedings of 43rd ASC Annual International Conference. http://www.agcga.org/galleries/new-gallery/SPSU%20Hispanic%20Workforce%20Safety%20Practices.pdf (Accessed 30 November 2014.)</p>

REFERENCES FOR BACKGROUND

- Abudayyeh, O., Fredericks, T. K., Butt, S. E., & Shaar, A. (2006). "An investigation of management's commitment to construction safety." *International Journal of Project Management*, 24(2), 167-174.
- Acosta-Leon, A. L., Grote, B. P., Salem, S., & Daraiseh, N. (2006). Risk factors associated with adverse health and safety outcomes in the US Hispanic workforce. *Theoretical Issues in Ergonomics Science*, 7(3), 299–310.
- Arcury TA, Mills T, Marín AJ, Summers P, Quandt SA, Rushing J, Lang W, Grzywacz JG. 2012. Work safety climate and safety practices among immigrant Latino residential construction workers. *Am J Ind Med* 55:736–745.
- Brunette, M.J., 2004. Construction safety research in the United States: targeting the Hispanic workforce. *Injury Prevention* 10 (4), 244e248.
- Brunette, M.J., 2005. Development of educational and training materials on safety and health: targeting Hispanic workers in the construction industry. *Family & Community Health* 28 (3), 253e266.
- Bureau of Labor Statistics Census of Fatal Occupational Injuries (CFOI) 2012 <http://www.bls.gov/iif/oshcfoi1.htm>
- Dong X, Platner JW: Occupational fatalities of Hispanic construction workers from 1992 to 2000. 2004. *Am J Ind Med* 45:45-54.
- Dong XS, Fujimoto A, Ringen K, Men Y. 2009. Fatal falls among Hispanic construction workers. *Accid Anal Prev* 31:1047–1052.
- Dong XS, Wang X, Daw C, CPWR Data Center. 2010a. Fatal and nonfatal injuries among Hispanic construction workers. *CPWR Data Brief* 2(2):1–19. http://www.cpwr.com/pdfs/Hispanic_Data_Brief3.pdf
- Dong XS, Men Y, Ringen K. 2010b. Work-related injuries among Hispanic construction workers—Evidence from the medical expenditure panel survey. *Am J Ind Med* 53:561–569.
- Dong XS, Choi SD, Borchardt JG, Wang X, Largay JA. 2013. Fatal falls from roofs among U.S. construction workers. *J Safety Res* 44:17–24.
- Evia, C., & Patriarca, A. (2012). Beyond compliance: Participatory translation of safety communication for Latino construction workers. *Journal of Business and Technical Communication*, 26(3), 340-367.
- Grzywacz JG, Arcury TA, Marín A, Carrillo L, Coates ML, Burke B, Quandt SA. 2007. The organization of work: Implications for injury and illness among immigrant Latinos in poultry processing. *Arch Environ Occup Health* 62:19–26. McGlothlin 2009.
- Hung YH, Winchester WW III, Smith-Jackson TL, Kleiner BM, Babski-Reeves KL, Mills TH III. 2013. Identifying fall-protection training needs(3):372–380.
- McGlothlin J, Hubbard B, Aghazadeh F, Hubbard S. 2009. Ergonomics. Case study: safety-training issues for Hispanic construction workers. *J Occup Environ Hyg* 2009, 6:D45-50.
- Menzel NN, Gutierrez AP. 2010. Latino worker perceptions of construction risks. *Am J Ind Med* 53:179–187.
- Nash, J. "Construction Safety: Best Practices in Training Hispanic Workers." *Occupational Hazards* Cleveland, Feb 2004, Vol. 66, Iss 2, p. 35-38.

OSHA Common Stats <https://www.osha.gov/oshstats/commonstats.html>

Richardson DB, Loomis D, Bena J, Bailer AJ: Fatal occupational injury rates in southern and non-southern States, by race and Hispanic ethnicity. *Am J Public Health* 2004, 94:1756-1761.

Roelofs C, Sprague-Martinez L, Brunette M, Azaroff L. 2011. A qualitative investigation of Hispanic construction worker perspectives on factors impacting worksite safety and risk. *Environ Health* 10:84.

Saucedo 2010. Masculinities Narratives and Latino Immigrant Workers: a Case Study of the Las Vegas Residential Construction Trades (co-authored with Cristina Morales), 33 *Harvard Journal of Law and Gender* 625.

Thompson P, Siddiqi K. 2007. Best Practices for Improving Safety among Hispanic Construction Workers, published in *Proceedings of 43rd ASC Annual International Conference*, Northern Arizona University in Flagstaff, Arizona, April 12-14.

U.S. Census Bureau. 2010 American Community Survey. Calculations by CPWR Data Center
<http://www.cpwr.com/sites/default/files/publications/CB%20page%2016.pdf>