



Summary Report:
Research to Practice (r2p) In Construction:
Science, Strategies & Partnerships
to Advance Safety & Health
June 2015 – June 2019



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Research to Practice (r2p) In Construction: *Science, Strategies & Partnerships to Advance Safety & Health*

June 2015 – June 2019

In 2010, CPWR-The Center for Construction Research and Training established its Research to Practice (r2p) program in response to a recommendation from the National Academies to increase the use of research findings and resulting interventions by workers and contractors on construction sites to reduce occupational injuries, illnesses, and fatalities. Since then, the r2p program's focus has been on developing an infrastructure to support Center-wide r2p activities and creating a system for continuously learning from and improving the process.

The annual r2p Seminar and Partnership Workshop (meeting), initiated in 2015 and held in conjunction with the annual meeting of CPWR's Research Consortium, is an integral part of this system. This meeting provides a platform for researchers to report on their projects' progress and findings and to receive feedback from industry stakeholders (e.g., contractors, trade associations, unions, trainers, manufacturers and insurers) and other researchers. It also creates an opportunity for an ongoing dialogue between researchers and industry stakeholders on how best to: 1) distill scientific knowledge into understandable and actionable information; 2) use different partnership structures and targeted approaches to make end users aware of research results; 3) ensure the use of research findings and interventions; and 4) plan for and evaluate these activities.

A broad cross-section of industry stakeholders and researchers participated in the meetings held between 2015 and 2019 (see Appendix 1). The discussions, findings, and evaluations from each meeting were used to influence future themes and topics, and led to information and resources for researchers and industry stakeholders to use in support of current and future research projects and outreach activities.

Between meetings, pilot projects were undertaken to test promising strategies and take advantage of opportunities to partner on r2p initiatives. This document includes a summary of meeting discussions, information from related r2p initiatives, and examples of resulting r2p pilot projects and new resources.

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PART I - REACHING TARGET AUDIENCES & ENGAGING INTERMEDIARIES

During Seminar presentations and Partnership Workshops between 2015 and 2019, researchers and industry stakeholders (participants) discussed opportunities and challenges to working together on research projects and r2p initiatives, how to engage influential intermediary organizations who have regular contact and credibility with target audiences, and ways to reach and influence construction workers' and contractors' use of safety and health research. The following is a summary of what was learned from these discussions. Appendix 2 contains a more detailed breakdown of the key findings, and additional statements and suggestions.

Advantages, Challenges and Suggestions for Researchers & Stakeholders When Working in Partnerships

Conducting research and moving research findings and solutions into practice on construction job sites requires the active engagement of those intended to benefit from the research. Partnering with industry stakeholders can provide that connection. Participants identified several advantages and challenges to working together, and offered suggestions for more effective partnerships.

The advantages to researchers and stakeholders of working in a partnership included, for example:

- ❖ **Creating early buy-in and support for the research** and helping to facilitate the involvement of others who could benefit from the research findings or help with dissemination.
- ❖ **Ensuring that both researchers and stakeholders understand potential research and dissemination challenges**, and providing an opportunity to find ways to overcome them. As one industry representative noted: *"We have rules within our organization for how information needs to be funneled to members. We're balancing selling our own stuff to our members. Through a partnership [we] can create a ground swell of support for communicating information."*
- ❖ **Obtaining industry-specific input** at each stage of a project and access to the population needed for the research.

Participants also identified challenges that researchers and stakeholders may encounter, including:

- ❖ **Competing priorities and time constraints.** Stakeholder participants noted that when they decide to support a research project they have to take into consideration the time commitment and cost involved. Their first commitment is to their full-time work and changes in schedules, workload, and staffing over the lifecycle of a research project may impact their ability to help. As such, it may be difficult for partners to deliver what the researchers need within the given timeline. Similarly, researcher participants noted that they typically have limited flexibility under grant agreements, have stringent demands on their time and resources, and may not be able to respond to all of the partners' needs. When researchers' and partners' priorities and time demands conflict, it can be hard for researchers to meet the terms of their project agreement.

To address these challenges, participants suggested that:

- ✓ Researchers provide potential partners with information on how the research will benefit their organizations that can be used to justify the time and resources that their organizations will need to devote to the research project.
- ✓ Both researchers and partners be upfront from the very beginning about potential conflicts that could arise based on: 1) the timing of the project and potential delays; 2) competing demands placed on the stakeholders; and 3) project or industry conditions that may prevent either side from delivering what was initially promised or anticipated (e.g., workers may not be available during business hours to participate in lab-based research; a construction project that was the intended site for the research may be completed, delayed, or cancelled; research funding may run out; or early findings may require a change in the direction or scope of the study).

- ❖ **Concerns about unintended consequences** among stakeholders who need and could benefit most from the research, such as small contractors, immigrant workers, and young and older workers. Participants noted that these groups may be reticent to participate in a research project because of concerns the research findings will be reported to OSHA and used for enforcement, or negatively impact their employment status. As one participant noted: *“Word of mouth spreads like wildfire. When one bad thing happens with a researcher or a research project, even if it’s not true, it spreads.”*

To address these challenges, participants suggested that researchers:

- ✓ Identify possible concerns and barriers to participation before approaching partners, and be prepared to address them.
- ✓ Clearly communicate who they are (*“We’re not OSHA”*) and the research purpose when approaching potential partners and be proactive in addressing concerns.
- ✓ Recognize that companies and workers get very nervous when strangers come into a business, and provide partners with information that they can use to address their workers’, members’, or clients’ concerns. As one industry participant requested: *“Help us help you inform people about that.”*

- ❖ **Unrealistic expectations for what industry partners can deliver.** The following is one example provided: *“The researcher had a protocol approved and assumed that she could just come in and do the work. When we found out about it, she had a time schedule that didn’t coincide with what we could provide...It’s easier to work with someone who understands the industry and its cycles, or who involves us earlier.”*

To address this challenge, participants suggested that:

- ✓ Researchers and partners be specific about what is expected (ideally when the proposal is being written) and what will happen if one or the other cannot deliver or gets push-back. As one industry participant noted: *“The world of getting to workers on worksites has gotten harder.”*
- ✓ Researchers be willing and able to modify expectations based on the realities of what the stakeholders can actually provide.

- **Researchers not understanding the industry and/or the target audience(s) for their research.** Several stakeholder participants noted that oftentimes researchers do not understand that construction workers are not all the same, or that the construction industry is very dynamic – working conditions, the volume of work or a project’s status can change significantly while a research project is underway. For example, one participant described a research project his company was asked to support that required access to exterior

work, but bad weather forced the construction project to be delayed and later canceled. By the time the participant had a construction project that could be used for the research, “...the researcher [was] not available...It would have been a good project for us... we could use the info...but now it won't happen.”

To address this challenge, participants recommended that researchers:

- ✓ Take time to learn about the segment of the industry their research involves before locking into a rigid research schedule, and to understand their target audience(s) and the realities of reaching and working with them. This would include being aware of their working conditions and company policies and procedures. For example, before including a research step requiring workers to use their cell phones on the worksite, make sure it is allowed by the employer. As one industry stakeholder noted, *“If it goes against a policy or procedure, don't ask them [the workers] to put themselves into a position like that.”*
- ✓ Not assume that an association, union or insurance company can guarantee that their members or clients will support a research project – they can say “No.”
- ✓ Identify and respond to the differences between groups of workers and contractors. An r2p study on the use of a tool developed for small employers noted: *“Using instruments that have been successfully applied in certain groups is not enough reason to assume that they can be used in a different context. Therefore, it is important to guarantee that the new group understands the instrument and understands it in the way that it was intended. Translated instruments in particular need to be validated to address characteristics specific to the population, culture, or the industry where they will be applied.”¹*

In addition to discussing the advantages and challenges to working in a partnership, participants also suggested ways to increase partners' involvement with dissemination, including:

- ❖ **Make the research accessible to each target audience.** What is an appropriate product or communication channel for one audience may not work for another. Participants noted that most industry stakeholders don't have time to read, or are not even aware of, peer-reviewed journals. Suggestions for increasing accessibility included, for example, publishing in places that your target audience reads, as well as involving stakeholders who understand the target audience in the development of materials to ensure they are appropriate for the audience's culture, educational level, and language.
- ❖ **Make it as easy as possible for stakeholders to help with dissemination.** Participants suggested using webinars or providing articles for newsletters, and not waiting for the research to be completed to get the word out – make information accessible as it is being generated.
- ❖ **Use different pathways to the target audiences.** Be sure to include all possible target audiences in your dissemination efforts – *“Don't disseminate only to the contractors”* – and tailor materials, pathways, and messaging to each audience.

¹ Marín, L.S., Al-Bayati, A. 2018. CPWR Report: *Pilot-testing the Safety Climate Assessment Tool (S-CAT^{sc}) for Small Hispanic Construction Firms*, p. 3. <https://www.cpwr.com/sites/default/files/publications/RR2018-SCATSC-Spanish-Report.pdf>.

Key Intermediaries' Contributions, Challenges & Needs

Since intermediaries provide researchers with critical connections to workers, contractors, and job sites, several industry panels and workshops focused on the potential contributions, challenges, and needs of specific intermediary groups. The following is a brief summary of what was learned. *Note: for some projects, the groups listed here may be considered primary target audiences, but for others they can act as intermediaries.* (See Appendix 2 for more detail and additional examples and suggestions).

Insurance Industry

The insurance industry was identified as an intermediary group that has the potential to play a positive role in advancing r2p. A panel at the first r2p meeting in 2015, “*Exploring Ways to Work with the Insurance Industry to Advance r2p*,” led to a 2016 survey conducted by CPWR to identify gaps in construction safety and health researchers’ and professionals’ understanding of how construction projects and contractors are insured and the types of data collected (see Appendix 3 for a summary of the survey results). The results of this survey informed the content of a [NIOSH insurance industry webinar series](#). Subsequent workshop discussions on how to reach and work with the insurance industry provided additional insights into potential contributions, barriers, and needs.

In terms of contributions, participants viewed the insurance industry as a valuable source for data and a good research partner because of its interest in reducing injuries and illnesses and ability to support dissemination (e.g., co-branding safety and health products, educating their technical advisors on research findings, sharing resources with clients). Insurance participants cautioned that there may be limitations to the role they can play and the data shared due to company restrictions and data security issues. Other challenges included not being able to guarantee their clients’ participation in surveys and other research activities. As one participant noted, “*many contractors don’t have a ‘love-love’ relationship with their insurer.*”

Several suggestions were made for ways researchers could help overcome these challenges and work with the insurance industry, including, for example, conducting webinars for the insurer’s clients or the insurance industry as a whole, developing products on research findings specifically targeted for use by their clients, and making presentations on the research findings at risk management conferences.

Contractors/Trade Associations

Contractor trade associations can provide access to construction employers, and contractors can provide access to job sites and workers. They can also contribute other types of support for research projects, including:

- ❖ Helping with relationship building.
- ❖ Administering surveys.
- ❖ Conducting and promoting training programs.
- ❖ Communicating and promoting research findings.
- ❖ Setting realistic expectations.
- ❖ Providing insights into how the industry functions and/or how the target audience thinks. As one contractor/trade association participant noted: “*A researcher thinks ‘I want to do two hundred 30-minute surveys in the field’...The contractor’s thinking ‘you’re asking for \$5,000 [lost time]’.*”

When working with trade associations, it is important to keep in mind they face their own challenges reaching and engaging their members, particularly small contractors. A common reminder from trade association participants was that their first priority is to respond to their members' needs and they cannot force members to participate in research. Similarly, contractor participants pointed out that they do not always have the authority to give researchers the job site access needed for the research. As one contractor representative noted: *"Contractors are a guest in the [project] owner's 'house' – [we] need their permission to take videos, photos, etc."* Participants identified several ideas for helping contractors and trade associations generate support for a research project, such as:

- ❖ Identifying upfront a 'simple' product/output from the research that contractors/members can use.
- ❖ Providing easy access to information about the research they can share.
- ❖ Creating opportunities for their active involvement throughout the research process.
- ❖ Recognizing participation with awards or certificates.

Small Contractors/Hispanic Contractors Associations

Small construction contractors (those with fewer than 20 employees), in particular those that identify as Hispanic contractors and employ Hispanic workers, have higher injury and fatality rates than larger contractors, according to data compiled by CPWR's Data Center.² As such, it is critical that we find ways to reach them and influence their safety and health practices. Participants identified several ways that contractor associations that represent or are connected to these populations could help, including:

- ❖ Helping with the development of training programs and communication products to ensure they resonate with the workforce.
- ❖ Identifying other intermediaries that these contractors are involved with (e.g., local Hispanic Chambers of Commerce).
- ❖ Sharing insights into the social leadership structure. As one participant noted for very small Hispanic contractors, there is often *"an informal leadership structure on job site – one guy is 'in charge' and if you fire him the whole crew will quit. If you identify and win over that leader, you may engage the entire group."*

Participants cautioned that too often small employers, Hispanic contractors, and Hispanic workers are lumped together. Several participants noted that the term "Hispanic" encompasses many countries, cultures, and language variations – *"You cannot treat them all the same."* The same approach – even within a group – may lead to different results.

Those participants with firsthand knowledge of working with very small contractors recommended doing personal outreach to these contractors, approaching them early in the day before work or during lunch, and using the time wisely, cautioning: *"don't keep going back to the same ones – their time is very limited."* Recurring points were that it takes time to build relationships with small contractors and the language that you need to use with them is different than the language you would use with a large contractor.

² CPWR-The Center for Construction Research and Training. (2018). The Construction Chart Book (page 40): Fatal and Nonfatal Injuries in Construction by Employment, Establishment, and Geographic Trends, 6th edition. <https://www.cpw.com/chart-book-6th-edition-fatal-and-nonfatal-injuries-fatal-and-nonfatal-injuries-construction>

To help build the relationships and support needed for research, participants suggested working with those connected to small contractors/Hispanic contractors to develop mentorship programs, creating training to fill skills gaps, and tailoring programs and materials to the different populations. [Additional information can be found in the next section, *Challenges and Strategies for Reaching and Influencing Vulnerable Workers' Safety.*]

Unions/Trainers

Unions and their jointly funded labor-management training programs have well established relationships and a formal structure for reaching members/trainees. They can provide access to construction workers and trainers needed for research and provide help with:

- ❖ Understanding different trades and trade jargon.
- ❖ Validating research findings and solutions.
- ❖ Collecting information from trainees on products/equipment they use on the job.
- ❖ Surveying trainers and trainees.
- ❖ Incorporating research findings into training classes.
- ❖ Promoting occupational safety and health in member publications.
- ❖ Incorporating safety and health language into collective bargaining language.

Similar to other intermediary organizations that researchers look to for support, unions cannot guarantee access to job sites or require members and trainers to help. They also have competing priorities and limited opportunities to convey information to their members. In addition, union trainers may have limited flexibility to use new training programs developed through research or time to devote to research-related activities. Training schedules can change at the last minute to accommodate the volume of construction work in a market, and not all workers complete their apprenticeship program. Participants identified several ideas for helping unions and trainers support research, such as creating flexible training modules or activities that can be worked into existing programs, and using apps and other technology to capture trainees'/members' attention.

Manufacturers

Manufacturers can be either a barrier or a pathway to moving safer tools and equipment to the market place (technology transfer) and onto job sites. Manufacturers may have information and data on the use of tools, equipment and products, the ability to test interventions, and ultimately the knowledge and business structure to commercialize a research-based intervention. While manufacturers have these capabilities, they may be reticent to support research because of cost, competition, and liability concerns. Participants with technology transfer experience noted that manufacturers may not see a financial benefit to expanding tool and product research and development (R&D) to include safety and health instead of just productivity, and they may be unwilling to share data because of trade secrets.

To encourage manufacturer involvement in safety and health research, participants suggested providing them with information on how they can use the research findings in their packaging or promotional activities. As one participant noted, *"when you go to buy a dishwasher for your home, low noise is a selling point...manufacturers of tools and equipment could use low noise as a selling point too."* They also suggested providing manufacturers with information about the short- and long-term safety and health consequences of tools/products on the market and the benefits of using new research-based alternatives.

Challenges and Strategies for Reaching and Influencing Vulnerable Workers' Safety

All construction workers, but especially immigrant workers, women, and young workers, are considered to be at a high risk for injury and difficult to reach with safety and health information that could help mitigate their risk.³ A 2019 Partnership Workshop led by CPWR's Environmental Career Worker Training Program (ECWTP) Director explored ways to reach these vulnerable worker populations. Members of the ECWTP staff, who work with these construction populations, shared their experiences and facilitated discussions on the challenges to and ideas for reaching them. The following is a brief summary of these discussions (see Appendix 2 for more detail and additional examples and suggestions).

Challenges identified included:

- ❖ **Limited or no access to the support structure needed to succeed.** Participants noted that those worker populations considered at a disproportionate risk are typically not part of an organized communication network, such as a union, and lack awareness of how to participate in and access the information shared through such networks (e.g., safety and health information, anti-discrimination laws, wage protections). These workers often have limited knowledge of the soft skills (e.g., communication, time management) that can improve their situation, and are less likely to have worked on jobs with others similar to themselves in leadership positions.

To address this challenge, participants recommended:

- ✓ Using other types of organizations and channels to share information (e.g., vocational schools, job fairs, charities, churches).
- ✓ Establishing mentorship programs with leaders and peer/student mentors who match the workforce they will be mentoring.
- ✓ Employing trainers who are able to connect with the workers they are training (e.g. Spanish language skills, an understanding of different cultures).
- ✓ Including diverse populations on resource materials and developing materials in the target audience's primary language.
- ✓ Sponsoring contests to foster worker involvement in safety and health. One participant described a successful contest in Massachusetts: *"We hosted a poster competition for young workers. We asked them to create a poster to highlight a workplace safety and health issue they faced. We had lots of winners from each district and then engaged local politicians to present the awards. It highlighted young worker issues to the politicians and educated the workers and the public."*
- ✓ Providing future workers with knowledge of their rights when they are in middle school and high school.
- ✓ Identifying ways to disseminate information outside of the jobsite and without relying on the structured avenues that may not reach these workers. For example, put posters or ads with QR codes in grocery stores, schools, movie theaters, or place ads on public buses or billboards.

³ [Overlapping Vulnerabilities: The Occupational Health and Safety of Young Immigrant Workers in Small Construction Firms \(2015\)](#)

- ❖ **Language and literacy barriers**, particularly when trying to reach immigrant workers.

To address this challenge, participants recommended:

- ✓ Providing GED support and tutoring programs or working with a community partner that can provide that support.
- ✓ Teaching soft skills, such as the classes taught in the Environmental Career Worker Training Program (ECWTP).
- ✓ Using diverse communication methods that the target audiences can access independently, such as interactive apps, social media, and text messaging.

- ❖ **Hostile work environments – bullying on the job site.** Several participants raised concerns about workplace cultures that inhibit vulnerable workers from speaking up or create negative perceptions of and biases against having a diverse workforce. “Bullying” was a term used frequently to describe behaviors that caused workers to feel they had to adopt a “macho” or “risky” approach to their work to survive or fit in (e.g., forgo safety equipment, lift materials in excess of recommended or employer limits), leave the job, or stay silent even when at risk because they are too afraid to speak up. For women on the job site, a lack of access to properly fitting personal protective equipment and restrooms/proper sanitation can contribute to feelings of not fitting in, as well as create safety and health issues.

To address this challenge, participants recommended several actions that could be taken to promote respect and end bullying on job sites:

- ✓ Develop resources that contractors can use to stop the hazing/bullying – let employers know that they have the support of other organizations (e.g., unions).
- ✓ Clearly communicate expectations around behavior to employees.
- ✓ Require diversity training as part of contractor pre-qualification and at bigger sites require everyone on the site to have diversity training – *“Training is for all because all of us deserve respect.”*
- ✓ Create/identify training on harassment and workplace violence and encourage contractors to provide it to all workers.
- ✓ Use CPWR’s Foundations for Safety Leadership (FSL) program to create safety leaders and build confidence.
- ✓ Help companies see the connection between diversity/inclusion/anti-harassment and worker retention. Companies need to understand that what a person makes per hour may not be enough to keep them at a company.
- ✓ Demonstrate that inclusion improves safety and health outcomes and return on investment.
- ✓ Make harassment on the job site have financial implications (i.e., shut down the jobsite when there are reports of harassment).
- ✓ Include provisions in the job specifications or bid to ensure proper personal protective equipment (PPE) is provided to all workers and address sanitation issues.
- ✓ Work with manufacturers to produce a wider variety of PPE in sizes to accommodate all workers.
- ✓ Have ECWTP share safe practices with employers.

- ❖ **Lack of familiarity with construction work and working where hazardous conditions may exist.** Participants noted that since many vulnerable workers are new entrants to the construction industry it is important to find a balance between making sure they understand the nature of the work and the potential risks without scaring them away from the work.

To address this challenge, participants recommended conducting pre-job visits to the job site or pre-apprenticeship programs to ensure vulnerable workers are aware of the nature of the work before starting on a job.

PART II – IMPROVING DISSEMINATION TO ENSURE USE OF RESEARCH FINDINGS & SOLUTIONS

Many of the strategies listed in Part I are meant to enhance a researcher’s ability to work with industry partners and intermediaries and understand what is needed to influence target audiences’ use of the findings and outputs while a research project is underway. However, the need to move research findings into practice and ensure the research is having its intended outcome does not end when the research project is completed. Since the 2019 meeting was taking place in the final year of a five-year grant cycle, one of the Partnership Workshops focused on next steps that could be taken to ensure that completed research continues to make its way into practice once the funding ends and ideas to measure the use of research findings and interventions (see Appendix 2 for more detail and additional examples and suggestions).

Suggestions to Ensure Use of Research Findings

Participants shared ideas to increase the likelihood that target audiences are aware of the research findings and how to use them, some of which reinforced earlier suggestions for reaching and influencing different audiences. In summary, they suggested:

- ❖ **Tailoring messages and materials for ALL potential audiences.** While a project is underway, a research team may have only been in contact with a fraction of the potential audience(s) for their research. Finding a “hook” to personalize the message or make the information interactive through apps and gamifying can help get the attention of the target audience(s). Before the project ends, researchers should develop a list of all potential audiences, and the messages, materials, and media to use with each (e.g., videos, print articles).
- ❖ **Identifying early adopters of the research.** Early adopters of research findings may be able to offer insights into other potential users of the research and what could motivate them to use the research. They may also be willing to help promote the research findings moving forward.
- ❖ **Thinking outside the box when finding intermediaries.** Consider where your target audience goes to for information (other than safety and health), such as ESL classes.
- ❖ **Developing a campaign around the findings.** Campaigns, such as the joint OSHA-NIOSH-CPWR Campaign to Prevent Falls in Construction, can be an effective way to reach broad audiences (see [Social Network Analysis](#)); however, they can be labor and resource intensive. When considering a campaign, take into account the scope, the resources available, and if the potential impact warrants the time and resources that would need to be invested.

- ❖ **Using the intermediaries and partners identified early in the research process to help with future dissemination and adoption.** Manufacturers, for example, may be willing to help with promoting findings that relate to their products. Since contractors look to manufacturers for advice when purchasing equipment, products and materials, having manufacturers share the research findings can increase the chance that contractors will adopt the research finding. In addition to product expertise, they may be willing to use their marketing and advertising resources to help with dissemination.
- ❖ **Integrating research findings into training programs.** Use training staff to introduce research findings and interventions as part of their training programs to raise awareness and support for adoption of the findings by those they train (e.g., apprentices, journey-level workers, foremen).

Ways to Measure the Use of Research Findings

In addition to ensuring that research findings are used, it is important to be able to measure the extent to which they are used and to determine if they are having their intended impact. This is an ongoing challenge given the decentralized nature of the construction industry and predominance of small employers. Participants offered the following suggestions:

- ❖ **Conduct periodic short surveys of potential end-users.** Participants noted that surveys of target audiences are helpful, but steps need to be taken to prevent survey fatigue. One participant suggested surveying stakeholders to find out the frequency, length, and topics that they would be willing to be surveyed on to help prevent survey fatigue. Others suggested fielding surveys using more creative “out-of-the-box” methods, including a survey ‘stand-down’ once a year, or using a text message system or survey app. Participants cautioned that some audiences may be hesitant to use a survey app out of concern that their personal data may be collected. However, another participant noted that many subcontractors are using apps such as the MyComply app for training information and safety programs.
- ❖ **Interview potential or existing end-users.** While interviews can be time consuming, participants noted it is an opportunity to collect more detailed information than can be obtained through a survey. Participants suggested that interviews could be done during periodic check-ins with known early adopters in exchange for some type of training or technical support on use of the research finding.
- ❖ **Use metrics that may already exist.** Participants suggested tracking downloads, social media hits, app usage, and training evaluations, for example. One participant suggested using an app to track how many times certain words were used before and after an intervention was accessed (e.g., falls, ladders, fall protection). Another participant suggested using unique links on hardcopies to direct people to additional resources and tracking clicks on the links to gain additional insights.
- ❖ **Review company policies and safety documents** to see if research findings have been incorporated.

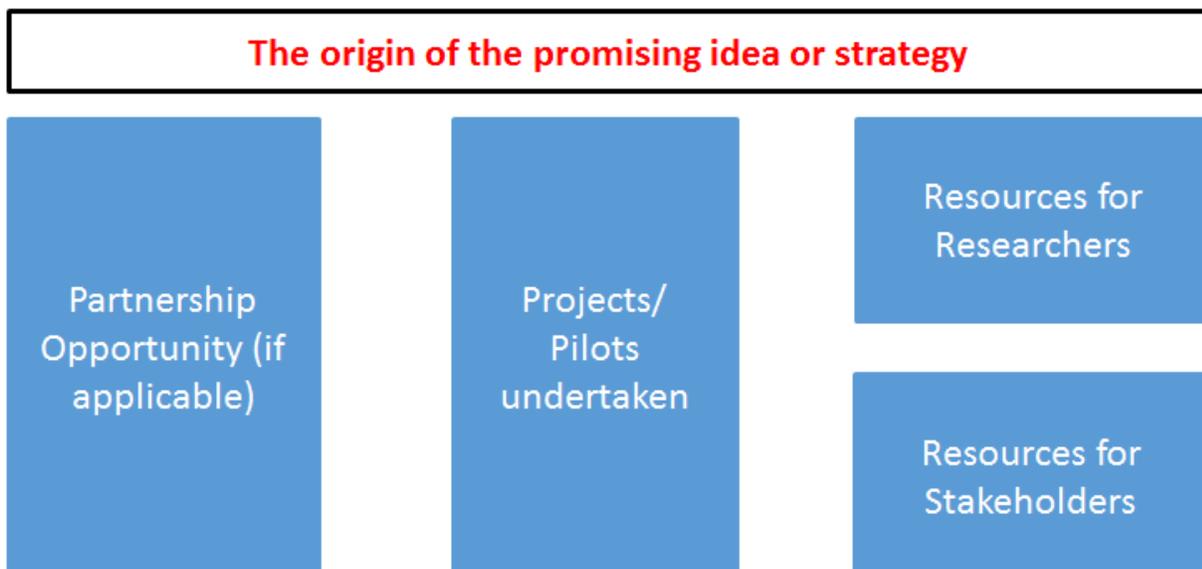
- ❖ **Create and track awards.** Several participants suggested creating a certificate, participation award, or other method to recognize and incentivize use of research findings. This can help raise awareness and encourage later adopters to consider using the findings.
- ❖ **Use Industry Panels.** One participant suggested creating “Construction Safety & Health Panels” of contractors and stakeholders that could be called upon for surveys, interviews, or other activities to determine if research findings are being used.
- ❖ **Access workers compensation and other insurance data.** Participants suggested working with insurance partners to see if the use or the impact of research findings can be tracked through their insurance or workers compensation records.

PART III – EXAMPLES OF R2P PILOT PROJECTS AND RESOURCES

In addition to identifying ways to reach and work effectively in partnership with key intermediaries and target audiences, the presentations and workshop discussions led to pilot projects that tested or expanded on promising ideas and r2p strategies, new partnership activities, and new products and resources for use by researchers and industry stakeholders.

Several of these resulted in new platforms to disseminate research findings and interventions from other CPWR and NIOSH projects.

The following charts present examples of pilot projects and activities that flowed from these discussions. Each chart includes the following information and links to supporting documentation or resulting products:



Tapping Trainer Expertise (CPWR-r2p Training Program Workshop & OSHA-NIOSH-CPWR r2p Working Group Initiative)

Partnership Opportunity

2014:
Trainers & Researchers United Network (TRU-Net)
established

Projects/Pilots

2015: TRU-Net Pilot Focus on Noise & Hearing Loss Prevention

- 2015-2016: Noise & Hearing Loss Trainer Survey
- 2016-2017: Noise & Hearing Loss Worker Survey

Resources for Researchers

2014: Trainer Enhancement Workshop – Understanding Research Strategies and the Potential Role of TRU-Net

2015: TRU-Net: Connecting Training and Research to Advance Research to Practice (r2p)

2015: Noise Survey Results of Construction Safety and Health Trainers

2019: TRU-Net Noise Survey for Workers (Apprenticeship & Journey-level Trainees) Survey Results

Resources for Stakeholders

2015: Noise infographics

2018: Construction Noise and Hearing Loss Prevention Training Program

Learning from Other Sectors (2015 Presentation - NIOSH Tractor Roll-Over r2p)

Partnership Opportunity

2015:
Ergonomics Community of Practice
established

Projects/Pilots

2016: Social Marketing Ergonomics Pilot (contractor surveys, small group discussions, market research)

2018-2019: Best Built Plans Pilot (reducing manual materials handling)

Resources for Researchers

2016: Construction Safety & Health Social Marketing Toolkit

2017: Engaging Construction Contractors to Identify Barriers and Promising Practices to Reduce the Risk for Occupational Injuries Associated With Manual Materials Handling

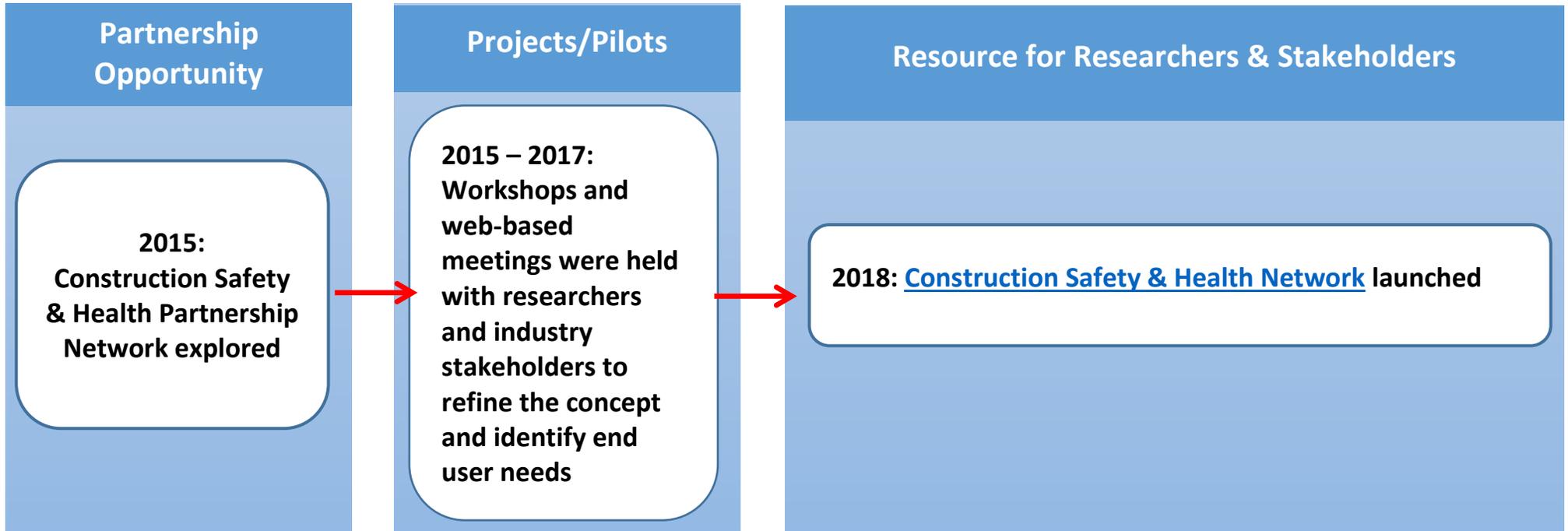
Resources for Stakeholders

2016: Construction Ergonomic Research & Solutions (platform for sharing other research – SAVE; Test Bench; SME; Solutions; etc.)

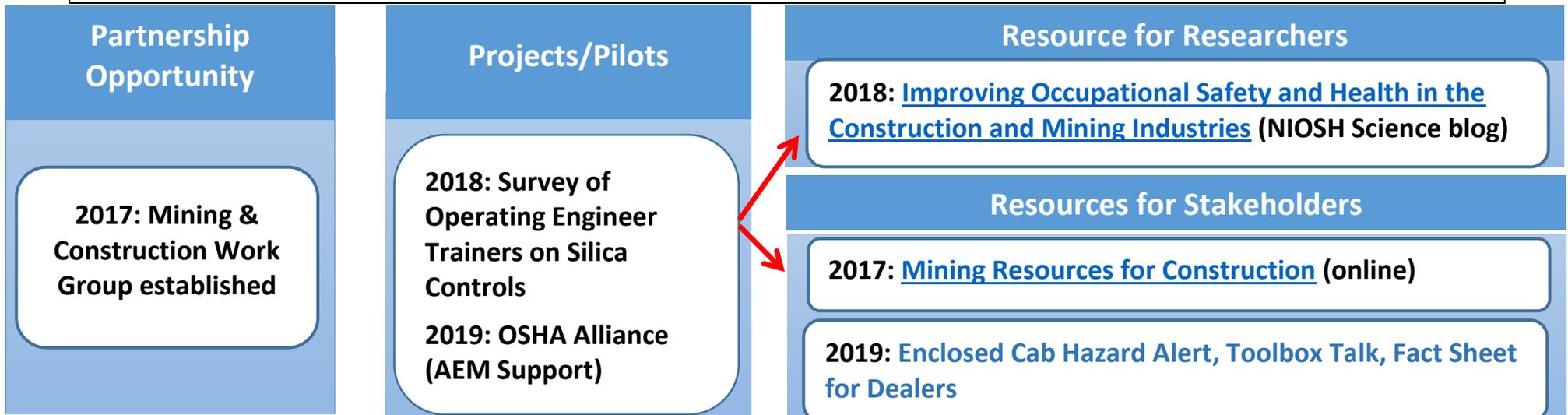
2018: Best Built Plans planning, training & coaching resources (online & PC); 2 Smartphone Games; and Infographics

2019: Best Built Plans App; and Spanish version of Planning Tool; Ergonomics Training Program for Workers, Train-the-Trainer, and Contractors

Building a Network of Partners (2015 – 2017 Workshops)



Partnering with Other Sectors (2015, 2016, 2017 & 2019 Presentations)



r2p Evaluation (2015 – 2019 Workshops and Presentations)

Projects/Pilots

2017: Social Network Analysis Pilot

Resource for Researchers

2019: Construction Safety & Health Research: A Social Network Analysis Primer

Resource for Stakeholders

2018: [The National Campaign to Prevent Falls in Construction: A Social Network Analysis – Executive Summary](#)

Projects/Pilots

2015: Roadmap workshop for researchers

2017, 2018 & 2019: workshops on reaching and working with industry stakeholders & target audiences

2018: Concept Mapping Pilot

Resources for Researchers

2018: [Using Delphi Panels to Assess Construction Safety Research to Practice: A Narrative Review](#)

2019: [CPWR r2p Concept Mapping Report](#)

2019: [Exploring Potential Methods to Evaluate Impact and Outcomes of Construction Safety and Health Research](#)

2019: Revised Roadmap based on researcher feedback

Resource for Researchers & Stakeholders

2014 – 2019: [Construction Research to Practice \(r2p\) Partnership Toolkit](#)

r2p Seminar and Partnership Workshop Participating Organizations 2015-2019

The following is a list of the organizations (departments or divisions) that participated in one or more of the annual r2p Seminars and Partnership Workshops:

1.	American Contractors Insurance Group
2.	American International Group
3.	American Society of Safety Professionals
4.	Association of General Contractors
5.	Builders Mutual Insurance Company
6.	Carpenters Training Fund of Louisiana
7.	CPWR Technical Advisory Board
8.	Dimeo Construction Company
9.	Eastern Washington University
10.	Elevator Industry Work Preservation Fund
11.	George Mason University
12.	Georgetown University
13.	Institute for Work & Health
14.	International Association of Bridge, Structural, Ornamental and Reinforcing Iron Workers
15.	International Association of Heat and Frost Insulators and Allied Workers
16.	International Brotherhood of Boilermakers
17.	International Brotherhood of Teamsters
18.	International Masonry Institute (r2p Masonry Partnership)
19.	International Union of Bricklayers and Allied Craftworkers (Masonry r2p Partnership)
20.	International Union of Painters & Allied Trades
21.	JobTrain
22.	Kentucky Labor Cabinet
23.	Laborers' Health & Safety Fund of North America
24.	Liberty Mutual Group
25.	Lincoln Electric
26.	Marsh Risk Consulting
27.	Massachusetts Department of Public Health
28.	Matrix NAC
29.	McGriff, Seibels & Williams, Inc.
30.	Michigan Bricklayers and Allied Craftworkers

31.	NABTU/BCTD
32.	National Asphalt Pavement Association
33.	National Association of Home Builders
34.	National Electrical Contractors Association
35.	National Hispanic Construction Association
36.	National Roofing Contractors Association (Roofing r2p Partnership)
37.	NIOSH - Center for Workers' Compensation Studies
38.	NIOSH - Division of Applied Research & Technology
39.	NIOSH - Division of Safety Research
40.	NIOSH - Education & Information Division
41.	NIOSH - Mining Division
42.	NIOSH - Musculoskeletal Health Cross-Sector
43.	NIOSH - Office of Construction Safety & Health
44.	NIOSH - Office of Extramural Programs
45.	NIOSH - Research Translation Office
46.	NIOSH - Western States Division
47.	NIOSH - Work Organization & Stress Research Team
48.	Northeast Center for Occupational Health & Safety
49.	Northeastern University
50.	Ohio Bureau of Workers' Compensation
51.	Oregon State University
52.	OSHA - Directorate of Construction
53.	OSHA - Directorate of Cooperative and State Programs
54.	OSHA - Directorate of Standards and Guidance
55.	OSHA - Office of Outreach Services & Alliances
56.	Robert Bosch Tool Corporation
57.	SafeBuild Alliance
58.	Safety Council of Texas City
59.	Sarpy and Associates, LLC
60.	Sheet Metal and Air Conditioning Contractors' National Association
61.	Sheet Metal Occupational Health Institute Trust
62.	Sherman Dunn, PC
63.	Social Marketing Consultant
64.	St. Paul Building and Construction Trades Council
65.	State Building & Construction Trades Council of California
66.	State of Ohio, Department of Safety & Health
67.	The Association of Union Constructors
68.	The Electrical Training Alliance
69.	The Penta Building Group
70.	UCOR
71.	United Association of Journeymen and Apprentices of the Plumbing, Pipefitting and Sprinkler Fitting Industry of the United States and Canada

72.	United Union of Roofers, Waterproofers & Allied Workers (Roofing r2p Partnership)
73.	University of Colorado, Boulder
74.	University of California, Berkeley
75.	University of California, San Francisco
76.	University of Colorado, Denver
77.	University of Massachusetts, Lowell
78.	University of Miami
79.	University of Nebraska, Lincoln
80.	University of Oregon
81.	University of Pittsburgh
82.	University of Washington
83.	Valley Interior Systems
84.	Virginia Polytechnic Institute and State University
85.	Visible Lab Networks
86.	Washington University in St. Louis
87.	West Virginia University

Summary of Comments & Suggestions from r2p Seminar Presentations and Partnership Workshops

The following is a detailed breakdown of comments and suggestions from r2p Seminar presentations and Partnership Workshops conducted between June 2015 and June 2019, and selected information from related CPWR and NIOSH reports. *Please note: common statements were consolidated and listed once.*

Advantages, Challenges and Suggestions for Researchers & Stakeholders When Working in Partnerships

Advantages to researchers and stakeholders of working in partnership

- ❖ **Creates early buy-in and support for the research:**
 - Stakeholders who participate early in the research process and have the opportunity to provide input have greater buy-in and later are willing to help disseminate solutions because “they feel responsible for its success.”
 - Buy-in from stakeholder leadership can help facilitate participation by others, such as local affiliates of their organization, other industry stakeholders, and the target audiences of the study.
 - *“Researchers need to remember that the partnership opened a door to let them in and partners are putting their own relationships on the line.”*
- ❖ **Helps the researcher understand the research and dissemination challenges they may face, and build in strategies to overcome them:**
 - *“We [stakeholders] have rules within our organization for how information needs to be funneled to members. We’re balancing selling our own stuff to our members. Through a partnership [we] can create a ground swell of support for communicating information.”*
- ❖ **Leads to industry-specific input and support at each stage of a project:**
 - Having a *point person* on your side can help get things done.
- ❖ **Provides access to the population needed for the research:**
 - Researchers will have a larger sample of end users to test interventions.
 - Having partners vouch for researchers can get them on site and provide them with information on how to work with the workers, foremen and contractors – in other words – *“provide [researchers] with the information that the industry says researchers don’t understand.”*

Challenges to working together

❖ **Competing priorities & time constraints:**

- **Stakeholders** have to take into consideration issues like time commitment and associated cost when asked to participate in research.
 - Unlike researchers whose job and main priority is research, this is not the main focus or may not be the highest priority for the stakeholders. While stakeholders want to help with research, their main priorities relate to their full-time work.
- Even when expectations are made clear upfront, it is important for researchers to keep in mind that schedules, availability of resources, workload, and even the people involved may change over the lifecycle of the project. It may at times be difficult for partners to deliver what the researchers need within the given timeline.
- **Researchers** have limited flexibility under grant agreements. They have stringent demands on their time and resources that they need to adhere to in order to meet the terms of their project agreement.
 - The research project may not go according to plan or end with the result partners anticipated.
 - The partnership may want help with one issue while researchers are interested in another.
 - The benefits or findings realized from the research may have to be shared broadly beyond the partners helping with the research, which may not be acceptable to some participants.
 - Everything has to go through the partnership, which can add a layer of review and bureaucracy rather than going directly to individual contacts.
 - Controversy can exist within a partnership and make it hard to get things done.

SUGGESTIONS:

- ✓ Researchers need to be able to show potential partners “What’s in it for them?” so they can sell senior management on the idea of participating.
 - What will the company get out of it? For example: 1) help with OSHA compliance; 2) save them money, increase efficiency, address something they would already have to do even without the research; and 3) improve their productivity, quality, and safety.
- ✓ Everyone with a financial interest will be asking questions if they believe supporting a project will increase their time or cost.
 - They will want to know whether any productivity will be lost in helping with research, and if so – why? Is it worth it?
 - Supervisor buy-in is key, but they are very busy. They have to be able to justify spending time on a research project.
- ✓ Researchers need to be prepared to explain how the project can benefit other decision makers, such as the project owner and developer.
 - It would be helpful for stakeholders to have information or a presentation that can be used to explain the research project to decision-makers within the partner organizations and get their buy-in – *“helpful to have dog and pony show.”*
- ✓ Researchers’ initial contact with potential partners should include a discussion of the research project, including the purpose, goals, timing, and stage the project is in.

- Be upfront about the timing of the project and potential delays due to the project approval process to avoid tension with stakeholders later. Remember, at this stage, the researchers need the stakeholders more than the stakeholders need the researchers.
- Build flexibility into the research project – have a plan B. Acknowledge upfront that project delays, difficulties in scheduling, or changes in a construction project’s status may impact a stakeholder’s ability to provide what was originally promised (e.g., workers may not be available during business hours to participate in lab-based research; a construction project that was the intended site for the research may be completed, cancelled, or delayed).
- If at the proposal development stage, researchers should:
 - Find out if the potential partner has needs which they can help with. Research projects that respond to a request from stakeholders or an industry identified need, particularly if it has broad application, are more likely to be supported. What a researcher may consider a new idea or hazard may not be new to the industry. Sometimes the industry needs research on how to control a hazard, but sometimes they only need help with raising awareness.
 - Similarly, researchers may be on the right track with the hazard they are trying to address, but be proposing a solution or product that does not work for the industry, for example, a training program that will require too much time to fit in the existing training program or uses a format that won’t work with the target audience.
- ✓ Researchers should discuss the timeframe, duration, start date, location, and what will be needed from the different stakeholders for each stage/activity of the project.
 - Will the research need help from a couple of people or a larger crew? Not all contractors have large crews or projects that are of a long duration.
 - What size project? *“It’s easier to get in and out on smaller project.”*
 - Will sampling be involved? Bulk sampling is easier than personal sampling; *“My [stakeholder] issue is who do I pick that isn’t going to change what they do when observed.”*
 - Biological monitoring is more difficult/ invasive (blood draw, urine sample) – *“[For partners] it’s harder to commit to this since individual workers have to agree to participate.”*
- ✓ Researchers need to keep the focus of the research very specific and directly tied to what workers and contractors experience on the job. Make it as easy as possible for the partners to help.
- ✓ Stakeholders need to understand that researchers have funding constraints and may have limited flexibility to address what they may want under the grant agreement.
- ✓ Stakeholders need to help the researchers understand each target population involved and what the members of those populations (worker, manager, owner, etc.) may be dealing with.
 - For example, just because stakeholders work in the same industry, the same type of construction, or the same trade, it does not mean that they have the same goals, needs, and challenges.

❖ Concern about unintended consequences:

- Stakeholders and target audiences who need and could benefit most from the research, such as small contractors, immigrants, and young and older workers, may feel inhibited to participate because they fear being targeted or harmed because of the results.^{4,5,6}
 - There is concern that results will be reported to OSHA or used for enforcement in some way. For example, a contractor who has a bad safety record may avoid participating in a safety survey or research project that would bring their record to light.
 - *“Word of mouth spreads like wildfire. When one bad thing happens with a researcher or a research project, even if it’s not true, it spreads.”*

SUGGESTIONS:

- ✓ Researchers should identify potential concerns and barriers to participation before approaching stakeholders, and be prepared to address them.
 - Examples of concerns that may need to be addressed: *“This [researcher] is OSHA here to get them [contractor, worker, etc.] in trouble”* and they will be cited because of the research findings; helping the researcher will lead to other types of government visits, such as from ICE; and the researchers’ *“safety offerings”* are actually opening a door to ensure other types of compliance.
- ✓ Researchers need to clearly communicate to stakeholders who they are and the purpose of their research.
 - Companies and workers get very nervous when strangers come into a business and want to take blood and urine samples, for example. Researchers should have time and a process built into their project to help the company/union explain the study, the benefits, and how any samples collected will be protected – *“Help us help you inform people about that.”* Depending on the study, it may need to be more than a paper they sign agreeing to participate.
 - Even for surveys or other types of projects that involve worker participation but do not require the collection of biological samples, it is important for researchers to be clear about how identifying information and responses will be kept anonymous or confidential.
 - Employers may be concerned that employees will sue because of the research. Researchers should be able to address this concern – even if it’s to say they [the researchers] have no control.

⁴ Scroggs, K., Baker, R., Betit, E., 2014. *CPWR Report: Reaching and Influencing Small Residential Contractors' Safety and Health Practices.*

<https://www.cpw.com/sites/default/files/publications/Reaching%20and%20Influencing%20Residential%20Contractors.pdf>

⁵ NIOSH and ASSE, 2015. *Overlapping Vulnerabilities: The Occupational Health and Safety of Young Immigrant Workers in Small Construction Firms.* <http://www.elcosh.org/record/document/3932/d001367.pdf>.

⁶ Reaching and Influencing Small Residential Contractors' Safety and Health Practices (2014)

<https://www.cpw.com/sites/default/files/publications/Reaching%20and%20Influencing%20Residential%20Contractors.pdf>

❖ Unrealistic expectations:

- Disconnects between the help researchers think a stakeholder can provide and what the stakeholder can or may be able to provide can have a direct impact on the success of a project.

SUGGESTIONS:

- ✓ Researchers need to be specific about what is expected of the stakeholders and stakeholders need to be specific about what they can realistically do.
 - Researchers and stakeholders need to have an open discussion of expectations (ideally when the proposal is being written) and what will happen if one or the other can't deliver or gets push-back. *"The world of getting to workers on worksites has gotten harder."*
- ✓ Researchers need to be willing to modify expectations based on the realities of what the stakeholders can actually provide.
 - Apprenticeship and training funds and their training programs, for example, have a limited number of hours available for instruction, and varying schedules depending on time of year, location, type of training, etc. It may be hard to find extra time and support for research that requires the involvement of trainers and trainees. A training program developed without the active involvement of the training fund and its staff may not be adopted because it doesn't fit with the overall training curriculum.

❖ Not understanding the industry or the target audience:

- The construction industry is very dynamic. The working conditions, volume of work or a project's status today may be completely different a few months later.
 - For example, one research project required access to exterior work, but bad weather forced the project to be delayed. The project ended up a year behind schedule and then permanently canceled. A stakeholder commented, *"It's ready now, but now the researcher is not available... It would have been a good project for us... we could use the info...but now it won't happen."*
- Work is highly cyclical and workers need to take advantage of job opportunities when they are available.
 - Workers may be available to help with a project in a lab during the winter months, but may not be available once work picks up.
 - Employers may not be willing to devote work hours to a research project.
- All construction contractors and workers are not the same.
 - There are regional differences in worker populations.
 - Large contractors have more resources to devote to safety than smaller contractors.
 - The workforce includes workers with different demographics, levels of experience and education, etc. These workers have different needs and knowledge of safety and health.

SUGGESTIONS:

- ✓ Researchers need to learn about the segment of the industry their research targets and the specific groups, locations, and stakeholders involved in the study before locking into a rigid research schedule.
 - *“The researcher had a protocol approved and assumed that she could just come in and do the work. When we [stakeholder] found out about it, she had a time schedule that didn’t coincide with what we could provide... It’s easier to work with someone who understands the industry and its cycles, or who involves us earlier.”*
- ✓ Be sensitive to the needs of the workers and what they’re going through (e.g., working in hot weather, wearing PPE for 8 hours).
 - Be aware of company policies and procedures. If workers are not allowed to use phones or bring them on the worksite, do not ask them to do something that goes against a policy or procedure. *“Don’t ask them [the workers] to put themselves into a position like that.”*
 - Realize that a stakeholder, such as an association/contractor, can agree to support a research project, but contractors/workers could say “No”.
 - This is particularly important when working with a trade association, union, insurance company or other intermediary – they can help, but can’t control what their members or clients decide to do.
 - Recognize and respond to the differences between groups.
 - For example: *“Using instruments that have been successfully applied in certain groups is not enough reason to assume that they can be used in a different context. Therefore, it is important to guarantee that the new group understands the instrument and understands it in the way that it was intended. Translated instruments in particular need to be validated to address characteristics specific to the population, culture, or the industry where they will be applied.”*⁷
 - Hispanic construction workers, particularly those employed by businesses with fewer than 10 workers, may have a lower level of formal education.”^{8,9}
- ✓ Don’t rely on surveys – according to stakeholders:
 - *“They’re harder than you think...”*
 - *“We have the same struggles as you guys [researchers] do with surveys.”*
 - *“We want to ask our members about technical standards, business questions, not just about safety...but members get an email that says “survey” and are turned off. Everyone is so inundated with info these days...it’s hit or miss if you get a survey back.”*

⁷ Marín, L.S., Al-Bayati, A. 2018. CPWR Report: [Pilot-testing the Safety Climate Assessment Tool \(S-CAT^{sc}\) for Small Hispanic Construction Firms](#), p. 3.

⁸ Marín, L.S., Al-Bayati, A. 2018. CPWR Report: [Pilot-testing the Safety Climate Assessment Tool \(S-CAT^{sc}\) for Small Hispanic Construction Firms](#), p. 3.

⁹ [Overlapping Vulnerabilities: The Occupational Health and Safety of Young Immigrant Workers in Small Construction Firms](#) (2015)

Increasing partners' involvement with dissemination

❖ Make the research accessible to the target audience:

- Most stakeholders don't have time to read, or aren't even aware of, peer-reviewed journals.
- Important target audiences may be missed depending on the types of dissemination products created and channels used. What is appropriate for one audience may not work for another.

SUGGESTIONS:

- ✓ Publish in places that your target audiences read
- ✓ Use accessible language, avoid jargon
- ✓ Create more concise, executive briefs
- ✓ Include stakeholders in the publication process as well as the planning and execution phases
- ✓ Direct materials to the target audience(s) – “*not at other scientists*” – what small contractors say they need most are “printed materials related to site-specific safety and health hazards” and “toolbox training resources”¹⁰
- ✓ Create products that are appropriate for the culture, educational level, language, etc. of the target audience^{11,12}

❖ Understand stakeholder challenges with dissemination:

- Stakeholders have other information they need to share with their constituents and only a finite number of opportunities: “*We struggle to get out what we think is important too. We've been told we send too much.*”
- Stakeholders are also trying to find the best way to reach their members (clients, etc.) because their “*communication lines are clogged.*”

SUGGESTIONS:

- ✓ Make it as easy as possible for stakeholders to help with dissemination (i.e., webinars or prepared write-ups for newsletters)
- ✓ Don't wait for the project's completion to get the word out – make information accessible as it's being generated
- ✓ Use different pathways to the target audiences – “*don't disseminate only to the contractors.*”
 - Put additional tools and resources at the end of every topic in the OSHA 30-hour. As workers take these courses, they can have that to refer to
 - Take advantage of others' networks, associations, and safety days
 - Tap into insurance companies and state workers' compensation funds – they have a financial interest in improving their clients' safety performance.
 - Contractors talk among themselves and will let each other know, “*Go here for more information!*” Knowing the source or author and if they are reliable is important.

¹⁰ [Contractor Use of Safety Best Practices](#) (2018)

¹¹ Marín, L.S., Al-Bayati, A. 2018. CPWR Report: [Pilot-testing the Safety Climate Assessment Tool \(S-CAT^{sc}\) for Small Hispanic Construction Firms](#), p. 3.

¹² [Overlapping Vulnerabilities: The Occupational Health and Safety of Young Immigrant Workers in Small Construction Firms](#) (2015)

Key Intermediaries' Contributions, Challenges & Needs

Insurance Industry

Contributions:

- ❖ Share claim data (limited)
- ❖ Recruit for research participation (access to groups/clients)
- ❖ Distribute information on research findings and materials - Insurance brokers are the best for dissemination because they know their clients' needs
- ❖ Take safety and health information into account during underwriting
- ❖ Co-brand safety and health products
- ❖ Connect researchers with insurance brokers
- ❖ Provide information on practices in the field and emerging issues
- ❖ Conduct training and education
- ❖ Assist with surveys (limited)
- ❖ Offer awards for research
- ❖ Fund research
- ❖ Educate their technical advisors and field consultants on research findings, provide training, and share the resources with clients
- ❖ Provide rebates or other benefits for following evidence-based safety practices
- ❖ Grants for equipment. Some funds might be available from insurers, depending on state laws for funding research

Challenges:

- ❖ Providing either raw data or data analysis covering trends, injury & illness numbers, causation (root cause analysis), and costs because of restrictions on sharing data and data security
- ❖ Getting groups/clients engaged in research activities such as surveys
- ❖ Providing incentives is difficult and probably unlikely – it depends on state laws, but in general you can't even mention the word discount
- ❖ Getting clients to agree – many contractors don't have a "love-love" relationship with their insurers
- ❖ Most clients comprehend the legal reasons for safety, but may not understand the financial, moral, or public image reasons until they are faced with a negative event, such as a funeral

Needs:

- ❖ Evidence-based information – for example, webinars and information that reaches all carriers (e.g., ISO Safety Services (<https://www5.iso.com/ess/app/start.do>))
- ❖ Information targeted to specific industry segments – the topic makes a big difference
- ❖ Products that can be used with their clients, like the nail gun guide, forms and checklists
- ❖ Workshops that include information on best practices and provide tools
- ❖ Measures of impact that can be tied to premiums
- ❖ Presentations at risk management conferences
- ❖ Research that lines up with their (the company and clients) interests

Contractors/Trade Associations

Contributions:

- ❖ Help build relationships – both individual contractors and trade associations – can make introductions and help to establish more lasting relationships
- ❖ Administer surveys (to a limited extent) – associations may be able to survey individual contractor members and contractors may be willing to complete or administer surveys to workers
- ❖ Provide safety and health training for estimators
- ❖ Create buy-in by demonstrating to their audiences how the research can get them ready for new standards, technology, work practices, etc.
- ❖ Coordinate activities: research, communication (helping think through how to reach the right people), and delivery of information and new practices
- ❖ Provide experience and expertise, helping researchers understand how contractors think: How do they make the decision about buying this type of equipment or that one? How do they decide on the PPE to provide? How do they hire supervisors? How do they plan for the job? What are the barriers to supporting research? *“A researcher thinks ‘I want to do two hundred 30-minute surveys in the field...The contractor’s thinking you’re asking for \$5,000 [lost time].”*

Challenges:

- ❖ Contractor associations face challenges reaching/engaging small contractors.
- ❖ Contractor associations face challenges reaching their members.
- ❖ *“Contractors are a guest in the [project] owner’s ‘house’ [and] need their permission for videos, photos, etc.”*
- ❖ A contractor association’s first priority is to respond to what their members want and need – they cannot force their members to participate in a research study or to use the findings.
- ❖ A change in leadership can change a contractor’s/association’s support for a research project.

Needs:

- ❖ ‘Simple’ products they can use and adapt – such as editable safety model programs
- ❖ Easy access to information they can share
- ❖ To be actively involved in the research planning
- ❖ Recognition – a safety excellence award or a certificate of participation – collect data on safety programs and recognize them – this can be very valuable to a contractor when trying to win new business or promote safety with employees

Small Contractors/Hispanic Contractors Associations

Contributions:

- ❖ Help determining what small contractors/Hispanic contractors and workers need
- ❖ Input on curriculum development to ensure it resonates with the workforce
- ❖ Help identifying what types of local meetings (such as local chambers of commerce) these contractors may be involved in
- ❖ Insights into the social leadership structure – for very small Hispanic contractors there is often *“an informal leadership structure on the jobsite – one guy is ‘in charge’ and if you fire him the whole crew will quit – if you identify and win over that leader you may engage the entire group.”*

- ❖ Help identifying and testing communications methods (text, infographics, etc.)
- ❖ Conducting outreach by people who reflect the community they are trying to influence

Challenges:

- ❖ It's important to remember that "Hispanic" is a word encompassing many countries, cultures, and language variations – you cannot treat them all the same.
- ❖ The same approach – even within a group – may lead to different results:
 - *"We used to text [Hispanic] workers and email management, but found out that there is a low literacy level for workers even when the texts were in their native language, so we started using audio messages instead."*
- ❖ Getting workers to participate in training programs (resulting from the curriculum development)
- ❖ The smaller the contractor the more challenging it is to reach them – go to them, use the time wisely, and don't keep going back to the same ones – their time is very limited.
 - Early before work begins and during lunch are good times to reach them
- ❖ The numbers - there are many small employers and they have high turnover
- ❖ Language used to talk with large contractors might not work with small contractors
- ❖ It takes time to build relationships and even more time to build them with small contractors

Needs:

- ❖ Mentorship and development program
- ❖ Skills gap assessment training
- ❖ Materials tailored to different populations and different channels to distribute the materials

Unions/Trainers

Contributions:

- ❖ Unions/trainers can provide access to apprentices and other union members for research activities.
- ❖ Unions/trainers can help researchers understand trade jargon.
- ❖ Unions/trainers can help validate research findings and solutions.
- ❖ Trainers can help identify trainees for focus groups, collect information from trainees on products/equipment they use on the job, and help with surveys.
 - Paper surveys work better with trainees than electronic
- ❖ Unions/trainers can use text messages/social media to reach workers (to some extent).
- ❖ Trainers can use case examples in training classes – such as FACE exercises. For example, apprentices can be broken up into groups, given a case with an issue, and asked to come up with the solution.
- ❖ Trainers can help find (and use) motivators such as close calls and personal experiences to promote research interventions.
- ❖ Training centers can be used to test new occupational safety and health products.
- ❖ Trainers can add new research findings to OSH Training (e.g. OSHA-10).
- ❖ Unions can promote OSH in member publications.
- ❖ Unions can incorporate OSH into collective bargaining language.
- ❖ Unions can promote OSHA standards.

Challenges:

- ❖ Unions cannot guarantee access to job sites or force members and trainers to participate.
 - Their members may feel low motivation to participate in research.
- ❖ Unions face challenges getting information to members and ensuring it's read/listened to
- ❖ There are a limited number of times and ways to reach members and many topics are beyond safety that the union needs to convey (e.g., benefits, bargaining information).

Needs:

- ❖ Hands-on activities to incorporate into training
- ❖ Apps – novel ways to capture workers' attention
- ❖ Anonymous tip line or text message sent about an unsafe condition with GPS disabled, photo link option, etc.

Manufacturers

Contributions:

- ❖ Provide job site knowledge – information and data on the use of their tools, equipment and products
- ❖ Train on safety features on tools and products
- ❖ Help test interventions (to some extent)
- ❖ Anticipate shifting markets and identify emerging safety issues
- ❖ Tie tool design to safety (e.g. should a handle be longer, better balanced – and not just related to the task it's for but for things like carrying ladders safely) – could add a QR code on packaging to link to how-to videos or other resources

Challenges:

- ❖ Expanding tool and product research & development (R&D) to include safety and health instead of just productivity can be expensive
- ❖ Transparency – balancing trade secrets with health & safety concerns
- ❖ Unintended consequences of new technologies

Needs:

- ❖ Information on how to link safety and health training to tools packaging
 - As one participant noted, *“When you go to buy a dishwasher for your home, low noise is a selling point...manufacturers of tools and equipment could use low noise as a selling point too.”*
- ❖ Information on health and safety concerns both for short- and long-term use of equipment – anticipate chronic exposures

Challenges and Strategies for Reaching and Influencing Vulnerable Workers' Safety

❖ Limited or no access to the support structure needed to succeed:

- Vulnerable workers are difficult to reach to get them into the trades and are often not part of an organized communication system.

- Young workers and other vulnerable workers are less likely to know safety and health, wage, whistleblower, discrimination, and regulations.
- These populations do not see other workers similar to themselves on jobs in leadership positions.
- These populations have less knowledge of soft skills.

SUGGESTIONS:

- ✓ Utilize other communities and organizations to share information (e.g., vocational schools, job fairs, charities, churches)
- ✓ Establish mentorship programs with leaders, students, and peers that match the workforce to help vulnerable workers navigate challenges and train mentors
 - Make sure trainers are able to connect with the workers they're training (e.g. are representative of different ethnicities and cultures, speak the language of the workers their training, understand different cultures)
- ✓ Match vulnerable worker with another employee
- ✓ Talk to and utilize communities to share information (e.g., Sierra Club, vocational schools, job fairs, charities, churches, Bucket Brigade) and to build respect when relaying information
- ✓ Provide potential workers with knowledge of their rights at a young age – middle school and high school
- ✓ Sponsor contests to foster worker involvement in safety and health
 - Successful example from Massachusetts: *"We hosted a poster competition for young workers. We asked them to create a poster to highlight a workplace safety and health issue they faced. We had lots of winners from each district and then engaged local politicians to present the awards. It highlighted young worker issues to the politicians and educated the workers and the public."*
- ✓ Develop resources to reach at-risk workers that are not part of an organized communication system: games and apps to answer worker questions and promote safety – more interactive
- ✓ Identify ways to disseminate information outside of the jobsite and without relying on the structured avenues that may not reach these workers (e.g. put posters with QR codes, ads in grocery stores, schools, movie theaters, on public buses or billboards)
- ✓ Ensure photos include a diverse workforce
- ✓ Promote OSHA and NIOSH young worker programs

❖ Language and literacy barriers:

- Literacy and math skills may be at a low grade level
- Higher percentage of no high school diploma or GED

SUGGESTIONS:

- ✓ Improve literacy – provide GED support and tutoring programs
- ✓ Work with a community partner that can provide support (e.g., ESL schools or programs)
- ✓ Teach soft skills, such as the classes taught in the Environmental Career Worker Training Program (ECWTP)
- ✓ Address basic needs such as transportation through ride sharing, pickups, or public transportation options

- ✓ Customize messages and use multiple paths to reach them - apps, texting to reach younger generations
- ✓ Rely on word of mouth – particularly important for establishing trust and for getting people in the door
- ✓ Conduct group presentations or one-on-one presentations
- ✓ Utilize social media – Twitter and Instagram are free
- ✓ Use image-driven materials such as infographics and posters with QR codes to apps

❖ **Hostile work environments – bullying and inequality on the job site:**

- Bullying cultures on worksites place the workforce at higher risk because workers are afraid to speak up, and lead to good employees leaving.
- The behavior of people around the workers may influence their perceptions of vulnerable workers and create unconscious biases.
- Bullying may lead to workers to ignore their feelings and adopt a ‘macho’ approach to survive or fit in.
- Leadership may not always understand the value of a diverse workforce.
- Women on the jobsite often face issues including bullying, lack of access to restrooms, and a lack of correctly fitting personal protective equipment (PPE).

SUGGESTIONS:

- ✓ Promote a culture of respect on the job site using trusted community partners
- ✓ Clearly communicate expectations around behavior to employees
- ✓ Conduct training on leadership, diversity, and anti-harassment
 - *“Training is for all because all of us deserve respect”*
 - Conduct FSL training for workers to create safety leaders and/or for confidence building
 - Include Spanish speaking foreman and management
 - Offer diversity training as part of pre-qualification – at bigger sites require everyone on the site to do site training and diversity training
 - Offer “free” training
 - Create appropriate diversity and anti-harassment training programs
- ✓ Understand the jobsites and companies that workers are placed in, possibly through surveys or personal conversations
- ✓ Connect diversity/inclusion/anti-harassment to retention of workers – it benefits companies to do this because workers will stay at the company.
 - What you make per hour may not be enough to keep you at a company
- ✓ Connect inclusion/diversity to improved safety and health outcomes
- ✓ Make harassment on the jobsite have financial implications (i.e., shutting down the jobsite with reports of harassment)
 - Small businesses often pay in cash, lack a safety management structure, and don’t offer safety training – need to show them the ROI of safer practices
- ✓ Have ECWTP share safe practices with employers
- ✓ Develop resources that contractors can use to stop the hazing/bullying – let employers know that they have support

- ✓ Address safety & health issues for women – build resources into the job specs including: access to restroom and proper sanitation and properly fitting PPE to avoid dangerous work conditions
- ✓ Work with manufacturers to produce a wider variety of PPE in additional sizes

❖ **Lack of familiarity with construction work and working on a job site where hazardous conditions may exist:**

- Workers are not familiar with working on a job site with the hazards and culture of construction

SUGGESTIONS:

- ✓ Ensure vulnerable workers are aware of the nature of the work before starting and have pre-apprenticeship job site visits
- ✓ Find a balance between communicating risk and scaring people away from the work
- ✓ Connect concepts of training to how it helps them return to work

Suggestions to Ensure Use of Research Findings

❖ **Tailor messages and materials for ALL potential audiences:**

- ✓ Publish in publications targeted to different audiences – not just peer-reviewed journals (e.g., white papers, drop-in articles for trade and local magazines)
 - Go to private industry publications and not just safety-focused publications
- ✓ Sell the “hook” via personalization of the message being communicated and materials being created – make the information relatable and personal
 - Put findings in the language of your target audience and explain why should they be interested
 - Use worker and family stories and soundbites
- ✓ Provide photos that show best practices – stakeholders can’t publish or share photos with mistakes
- ✓ Use apps and gamifying the information, interactive learning and app incentives for motivation to use – streaks, etc.
- ✓ Tailor strategies for different employers like small contractors
 - Tell contractors how the information can help them compete – make the business case and adjust message branding appropriately
- ✓ Make information bite-sized, timely, and relevant
 - Provide pocket sized reminders
- ✓ Take advantage of timing – when an accident is fresh in people’s mind, use it to catapult them into action
- ✓ Put information in paychecks
- ✓ Hold “Safety Fests”
- ✓ Stress adoption through frontline managers
- ✓ Engage young workers in new resources – they are interested in how things should be, instead of how it’s always been done.
 - Use social campaigns and activism to appeal to their desire to be a part of the change

- Inform young workers of the hazards that are getting ready to be addressed with new innovations so they are ready for the new education, technology, or standard when it happens.
- ✓ Develop videos that show hazards are not a part of the job and choice of tool matters. Empowers workers to ask for change

❖ **Identify & encourage early adopters of the research:**

- ✓ Use testimonials from early adopters in drop-in articles and materials – develop success stories – “Stories + Statistics is a good formula”
- ✓ Offer benefits to the stakeholders participating in your research since they will likely be the first adopters – free training, technical support, discounts on equipment or products that come out of the research
- ✓ Incorporate stakeholders early in the design phase to increase your impact – focus on Prevention thru Design
- ✓ Ask early adopters who else can benefit from the solutions

❖ **Think outside the box when finding intermediaries:**

- ✓ Engage local Chambers of Commerce
- ✓ Go to School Boards (they are the owner when a new school is being built)
- ✓ Present at the more obscure association meetings and conferences you may not normally go to
- ✓ Put information in job specs for engineers and other professionals
- ✓ Get families involved
- ✓ Use radio/TV
- ✓ Involve rental or sale companies
- ✓ Disseminate information with building permits
- ✓ Reach out through ESL and other immigrant classes
- ✓ Use contractors to share information with other contractors
- ✓ Reach out to aging workers (i.e. AARP)
- ✓ Go to union halls and ask for active job lists
- ✓ Visit the department of buildings
- ✓ Go to smaller stores in addition to big box stores (Grangers, White Cap)

❖ **Consider a campaign around the findings:**

- ✓ Campaigns are good – each region can do something specific to them
- ✓ Young people especially like social campaigns and respond well to the community aspect
- ✓ Campaigns are extremely time intensive
- ✓ Campaign may not be appropriate for all national level efforts
- ✓ Local face-to-face outreach and building relationships can be extremely effective

❖ **Utilize the intermediaries and partners identified early in the research process who can help with dissemination and adoption:**

- ✓ Partner on research with manufacturers and others who can then help with adoption – ask manufacturers to disseminate the information on packaging

❖ **Integrate research findings into training programs:**

- ✓ Offer training to study participants that they would otherwise have to pay for as a benefit of research participation
- ✓ Integrate and create synergy between research and training to increase uptake.
- ✓ Integrate information into refreshers
- ✓ Use apprentices to filter up information to foremen – foremen want to be more “in the know” than their apprentices

Ways to Measure the Use of Research Findings

❖ **Conduct periodic short surveys of potential end-users:**

- ✓ Ask stakeholders how frequently they would be willing to be surveyed and how long of a survey they would be willing to take –
 - Short and simple, but frequent
 - Long and extensive, but infrequent
 - Survey “stand down” once a year
 - Send with dissemination of materials
- ✓ Conduct ecological momentary assessments – text prompts – daily or weekly prompts to ask about use or knowledge (like best built plans) –
 - Use to create a network to get immediate feedback

❖ **Interview potential or existing end-users:**

- ✓ Conduct periodic check-ins – offer technical support and ask questions at the same time
- ✓ Visit job sites – talk to workers, conduct before/after resource sharing visits
- ✓ Offer refresher training and compare evaluations

❖ **Use online metrics that may already exist:**

- ✓ Use links to direct people to additional resources on hard copies that can then be tracked through unique URLs and other metrics
- ✓ Track downloads and survey users, similar to a “terms of service” pop-up box or ask for contact information to follow up
- ✓ Utilize social media
- ✓ Use apps that tell you how many times certain words were used before and after an intervention (e.g., falls, ladders, fall protection)
 - Possible challenge to apps are the pre-conceived idea that apps record personal and location information

❖ **Review company policies and safety documents:**

- ✓ Examine training curricula
- ✓ Review company policies and safety documents to see if they include safety practices, planning tools, toolbox talks, etc.

- ✓ Use the app MyComply or other apps
 - Many subcontractors in the DC area are using MyComply to track all training information, which workers have received which type of training, info on safety programs, and more -- it could possibly be used by researchers

❖ **Create and track awards:**

- ✓ Recognize contractors for using a new product or resource – put them on your website, list in an article, provide awards, etc.
- ✓ Use certificates of participation

❖ **Use industry panels:**

- ✓ Create construction safety and health panels consisting of several hundred contractors and stakeholders who agreed to be used for surveys, interviews, whatever is needed

❖ **Access workers compensation and other insurance data:**

- ✓ Utilize state Workers' Comp programs to reach small contractors
- ✓ Use insurance partners to track use and impact of research findings through their records

Summary of Insurance Survey Results (July 2016)

Summary of results from a 2016 survey of construction safety and health researchers and professionals conducted by CPWR and NIOSH's Office of Construction Safety and Health as a follow-up to the 2015 r2p Seminar Panel "Exploring Ways to Work with the Insurance Industry to Advance r2p" and in support of a NIOSH insurance industry webinar series – [Part 1](#); [Part 2](#); [Part 3](#); [Part 5](#) (Part 4 is not available on NIOSH's website).

Between June 29 and July 7, 2016, CPWR conducted an anonymous survey of construction safety and health (S&H) researchers and professionals to identify gaps in their understanding of the insurance industry and to learn what questions they have about how construction projects and contractors are insured and the types of data insurance companies collect.

The survey was developed in Qualtrics and approved by CPWR's Internal Review Board. A link to the survey was distributed via email to a convenience sample of CPWR consortium and NIOSH researchers, and other safety and health researchers and professionals identified in CPWR's outreach database (CONDOR). The survey link was also shared by one recipient with others identified as having an interest in this topic. No identifying information was collected.

A total of 118 S&H researchers and professionals responded to the survey. More than half (58%) were professionals with a construction company or industry organization/association, 13% identified themselves as researchers with a government agency (7%) or an academic institution (6%), and 28% identified themselves as "other": insurance company/department employee (12%), S&H trainer (9%), or government employee (3%). The remaining 4% included a journalist in workers' compensation, a safety and health professional for a building owner, a safety and health consultant, and a labor relations professional.

Experience working with the industry and using insurance data:

Just under half (47%) of the respondents said they had worked with insurance company staff on a research project; the remaining 53% had not.

A higher number (62%) had used insurance data for research or to promote safer work practices. When given a list of common sources of insurance data and asked to identify the ones they had used, the majority said they had used data from private insurers (78%), followed by data from government websites/publications (58%), CPWR (48%), and public insurers (42%).

More than half (54%) said there were times when they wanted to use insurance data for a S&H related initiative (research project or communications product) to raise awareness or promote safer work practices, but did not have access to the data. In a follow-up question, respondents were asked to briefly describe the types of data they had wanted to access. The following are their responses grouped by general categories:

Loss/claims/premiums data

- Detailed loss runs
- Total loss cost data

- Loss benchmarking data by construction type
- Loss rate per man hour worked for various workers comp job classifications
- Loss data of non-union companies
- Loss frequency, cost trends (e.g. cause, body part, nature of injury, lag time for reporting, etc.)
- Loss control staffing and operations data, including how clients are contacted and assisted/inspected by insurer safety and health agents
- I wanted to use specific loss type trends and wanted to identify actual losses of a certain type to quantify them and could not get the data I wanted.
- Wanted to use loss data from OCIP/CCIP projects but data is VERY DIFFICULT to get from the "alleged" administrators – have to beg to get data relating to our companies losses – HATE CIP projects for this reason
- Cost incurred, paid, average cost per claim, cause of loss by industry for 5 years and benchmarking data
- Claims data for occupational illness and injury – occurrence and cost
- Claims information identifying causation factors, severity of injuries, demographics of injured workers
- Claims timeliness reporting, mod analysis and comparison against other contractors within the same NAICS for the carrier
- How long injury/illness claims for certain types of accidents take a worker out of the workforce – searching the BWC database such as what some researchers at NIOSH in Cincinnati are doing can show trends in incident rates and help guide our training focus – this was done with the fall prevention program – but it can be broken down to be trade specific
- Costs of falls in construction related to falls from height – my own carrier would not release any information and gave me a lot of run around about where I could go to get the information – seemed very political in that they did not want to appear to assist in data gathering and usage which might put an industry in bad light
- I have thought about using the premium data. I am interested in how premiums can change based on injury rate in a workplace or industry. I thought speaking in \$\$\$ might help influence employers to enact safer work practices.
- Fact sheets on large loss w/c injuries/fatalities
- Workers' Comp pay out over a particular time frame
- Workers' comp claims data

Injury/illness data

- Accidents and fatalities – Job site death totals and causes. Job site injury totals, and causes
- Detailed accident cause and event data
- Type of injury/illness; type of hazard; body part affected; days away; industry comparisons
- Body parts injured / amount of slips trips falls / strains and sprains / the average cost of an injury
- Causation data (i.e.: slips, trips, and falls; over-exertions; struck by/against, exposure to chemical substance); / base rate data for [NCCI] manual classifications
- Serious injuries and fatalities involving falls from ladders
- Injury data: time of day, day of week, contributing causes, etc.
- Number of people hurt in our industry – the injuries are most reported
- Dollar amount of different loss time injuries
- Statistics on worksite injuries and worksite injury rate improvements

- More detailed data on demographics of workers and injury
- Better data on the effect, if any, of safety innovations
- Annual employer costs for worker injuries and lost or reduced wages for workers / broken down to types of injuries / effective safe work practices implemented and results
- Numbers related to union vs. non-union
- All fall information available
- Specific injury data related to women in construction.
- Injury reports and narratives would be useful.
- It would be interesting to know whether they have ever rolled out specific interventions as part of their site visits to clients, and whether they have evaluated the success of the interventions in reducing events/claims.
- Access to other carriers' data related to frequency/severity of construction accidents – while I would not expect an individual carrier would publish their data it would be helpful if data collected could be made available through a single source. WorkSafe BC provides some statistics on types of claims - very helpful.
- Pre-construction and construction data, safety and health

Other data*

- Injury claims for the logging industry
- From State/Public Insurance Company
- Nursing home quality survey data from CMS
- Availability of compliant safety programs
- The training procedures / Equipment qualities and deficiencies data
- A lot of workers hurt on the job use private insurance rather than workers comp.

**It is important to note that some of the data respondents identified as being unavailable can be accessed through CPWR or BLS, such as: falls in construction, injury rates, injuries resulting in lost time (days away from work), etc.*

A few respondents also mentioned how they would like to use the data:

- I am trained in epidemiology and bio-statistics. Having good access to injury and illness data sets is important for descriptive and analytical analysis. Generally my access is limited to authorized access by a client to their data only or public access data via BLS and similar types of health databases. I do descriptive research to inform my EH&S presentations and this is always limited. Having insurance-based data would be a huge boon to independent inquiries.
- To accurately estimate injury rates for health and safety research to improve construction worker safety
- Many construction companies do not recognize how company and project-specific decisions relate to OSH risk and claims because there are no easy ways to quantify the decisions. It would be great to combine the insurance information with a measure that quantifies the organizations safety policies and practices as well as worker productivity and satisfaction. This would require insurance information, company information, and worker surveys or interviews.
- As a union trainer I would like to show the benefits of safety training that is part of our system. Many times there are studies showing differences in ethnic groups such as Hispanic workers vs. White workers but I have not seen union vs. non-union injuries and what is the truth on effectiveness. Is our training that we provide adequate or is it only slightly better than non-union? I know what I feel but have no data to back it up.

Knowledge of how projects are insured:

Just over a fourth (27%) of respondents felt they are very knowledgeable about how construction projects are insured, about a third said they are somewhat knowledgeable (36%), and the remaining 37% said they have a little (22%) or no (15%) knowledge.

When asked what questions they have about how construction projects are insured, their responses fell into the following general categories:

Wrap-ups (general vs. sub-contractors' insurance)

- What percentage of large projects is written on a construction wrap-up basis for WC?
- Would like to know more about wrap up projects where the general contractor policies are covering the subcontractors.
- I do not always understand how subs and general contractors split insurance costs or share liabilities.
- Liability responsibilities of general versus subs and tiers for different types of arrangements. It would be great to learn how the insurance arrangement of a project affects the safety on the project and how the workers' performance responds to the safety program.
- I'm interested in the relationship between the overall project manager/contractor with sub-contractors and independent tradespeople.
- I know something about multiemployer sites, but not how the insurance, especially workers' comp, is handled? That is, is there a master policy with lots of sub-policies, or does each sub have their own policy. Who checks to see if each sub has insurance?
- Would like to know if wrap-around (comprehensive multi-employer) insurance plans have better safety records than stand-alone plans
- OCIP (Owner Controlled Insurance Programs) vs. CCIP (Contractor Controlled Insurance Program)

Types of coverage

- Are construction projects covered by insurance other than workers' compensation? Who covers workers for small construction crews that are not required to have workers' compensation insurance? Is there separate insurance that covers the actual materials/equipment being used that is separate from the insurance that covers the workers?
- I would assume it would depend on state laws regarding workers' compensation coverage – correct?
- What is the basic process and what criteria do insurance companies look at?

Premiums/Rates/Response to Accidents

- How often do insurance premiums change? What are insurance premiums based on i.e., location, size of crew, cost of job...?
- How is the mod rate determined? How are the various other ratings determined? There's mystery regarding the whole picture.
- Has there been consideration given to modifying workers compensation manual base rate data based on the anticipated degree of hazard(s) attendant to specific construction projects? [Note: Some construction projects carry greater safety/health risks than other construction projects.]
- Rating by construction trade / effects of safety program / zero or no accidents for a period of time

- I would like to know more about how workers' compensation insurance responds to an accident.

Knowledge of workers' compensation:

Although respondents felt they were more knowledgeable about workers' compensation than how projects are insured, less than half (46%) said they are very knowledgeable. Roughly a third (32%) said they are somewhat knowledgeable, and the remaining 22% said they have a little (18%) or no (4%) knowledge of workers' compensation insurance.

When asked what questions they have about workers' compensation, their responses fell into the following general categories:

State-by-state requirements

- Would like to know more about how workers comp insurance works in other states besides Oregon, such as Washington
- I've never been able to find a single source to go to that answers/compares comp info from state to state.
- The nuances of the state rules are varied and so this is a very geographical driven discussion. A comparative matrix by state could be helpful.

Premiums/Rates

- How often do insurance premiums change? What are insurance premiums based on i.e. location, size of crew, cost of job...? Do workers' compensation insurance carriers offer any incentives for lowering injury rates or implementing safer work practices? Are there any criteria an employer must meet in order to be insurable?
- Do private carriers provide discount premium programs to their policy holders?
- How are rates and ratings determined?

Workers' comp's role in risk reduction

- Describe prevention 'outreach' activities undertaken by private carriers towards their policy holders
- How do private carriers 'compare' to one another in terms of offering safety and health risk reduction services?
- Why isn't there more attention paid by insurers to improving hazards at workplaces? How much do insurers know about the hazards of exposures at work? Do they care if those hazards are unlikely to result in occupational illnesses or injuries many years down the road?

Coverage

- What is the main difference between privatized and non-privatized worker's compensation insurance? Offer S&H risk reduction/prevention services? Specific efforts? Differences between carriers?
- Are all workers on a construction site required to be covered under workers' compensation, or are some exempt (e.g. sole traders)?
- When an ADR (alternative dispute resolution) applies... how can an OCIP (Owner Controlled Insurance Programs) /CCIP (Contractor Controlled Insurance Program) refuse a sub-contractor's use of an ADR?
- How specifically do wrap-up policies work?

Data

- What kind of analysis do workers' compensation insurance carriers do of their data? What kind of workers comp insurance carrier data have employers shown an interest in?
- Is there a way to use WC data to compare the performance of projects in different states or are there too many differences in the programs?

CPWR Construction Safety & Health Research and Resources on Vulnerable Worker Populations and Small Businesses

The following is a compendium of CPWR and CPWR-funded resources focused on selected vulnerable worker populations and small businesses.

Studies/Publications that Encompass More Than One of the Three Groups

These CPWR and/or CPWR-funded studies/publications may cover more than one of the groups:

- ➔ **Nonstandard Work Arrangements in the Construction Industry, 2019**
Link: <https://www.cpwr.com/publications/nonstandard-work-arrangements-construction-industry>
- ➔ **Pilot-testing the Safety Climate Assessment Tool (S-CAT^{SC}) for Small Hispanic Construction Firms, 2018**
Link: <https://www.cpwr.com/sites/default/files/publications/RR2018-SCATSC-Spanish-Report.pdf>
- ➔ **The Construction Chart Book: The U.S. Construction Industry and Its Workers, 6th Ed., 2018.** The Chart Book contains statistics on the construction industry's demographics and safety and health trends, including information on Latino/Hispanic workers, young workers, and small construction contractors.
Link: <https://www.cpwr.com/publications/construction-chart-book>
- ➔ **Caught-in/between Injuries and Prevention in the Construction Industry, 2017**
Link: <https://www.cpwr.com/publications/fourth-quarter-caught-inbetween-injuries-and-prevention-construction-industry>
- ➔ **Workplace Safety and Health Perceptions of Construction Workers, 2016**
Link: <http://www.cpwr.com/publications/third-quarter-workplace-safety-and-health-perceptions-construction-workers>
- ➔ **Work-related musculoskeletal disorders among construction workers in the United States from 1992 to 2014, 2016**
Link: <https://www.cpwr.com/sites/default/files/publications/DongWMSDs1992KF.pdf>
- ➔ **Electrocutions and Prevention in the Construction Industry, 2017**
Link: <https://www.cpwr.com/publications/third-quarter-electrocutions-and-prevention-construction-industry>
- ➔ **Struck-by Injuries and Prevention in the Construction Industry, 2017**
Link: <https://www.cpwr.com/publications/second-quarter-struck-injuries-and-prevention-construction-industry>

- ➔ **Fall injuries and prevention in the construction industry, 2017**
Link: <https://www.cpwr.com/publications/first-quarter-fall-injuries-and-prevention-construction-industry>

- ➔ **Fall risk characteristics in the construction industry, 2016** (In: Hongwei Hsiao, eds. *Fall Prevention and Protection: Principles, Guidelines and Practices*, pp.41-60.)
Link: <https://www.crcpress.com/Fall-Prevention-and-Protection-Principles-Guidelines-and-Practices/PhD/p/book/9781482217148>

- ➔ **Health, Healthcare, and Medical Expenditures among Construction Workers, 2016**
Link: <https://www.cpwr.com/publications/fourth-quarter-health-healthcare-and-medical-expenditures-among-construction-workers>

- ➔ **Impact of the Affordable Care Act on health insurance coverage and healthcare utilization among construction workers, 2015**
Link: <https://www.cpwr.com/publications/fourth-quarter-impact-affordable-care-act-health-insurance-coverage-and-healthcare>

- ➔ **Temporary Workers in the Construction Industry, 2015**
Link: <https://www.cpwr.com/publications/second-quarter-temporary-workers-construction-industry>

- ➔ **Fatal falls in the U.S. residential construction industry, 2014**
Link: <http://onlinelibrary.wiley.com/doi/10.1002/ajim.22341/abstract>

- ➔ **Risks of a lifetime in construction, Part I: traumatic injuries, 2014**
Link: <http://www.ncbi.nlm.nih.gov/pubmed/25060328>

- ➔ **Data Brief, New Trends in Fatalities among Construction Workers, 2014**
Link:
<https://www.cpwr.com/sites/default/files/publications/New%20Trends%20in%20Fatalities%20among%20Construction%20Workers.pdf>

- ➔ **Fatal falls from roofs among U.S. construction workers, 2013**
Link: <https://www.cpwr.com/publications/fatal-falls-roofs-among-us-construction-workers>

Latino Worker Research and Resources

The following are CPWR and/or CPWR-funded Latino worker resources:

- ➔ **Hispanic Employment and Business Owners in the U.S. Construction Industry, 2016**
Link: <https://www.cpwr.com/publications/first-quarter-hispanic-employment-and-business-owners-us-construction-industry>

- **Promoting adoption of fall prevention measures among Latino workers and residential contractors: formative research findings, 2015**
Link: <https://www.ncbi.nlm.nih.gov/pubmed/26010497>

- **Using social media to inform Latino construction workers about fall protection, 2015**
Link: http://www.cpwr.com/sites/default/files/publications/WolfsonSocialMediaToolKF_2.pdf

- **Bending Toward Justice, How Latino Immigrants became community and safety leaders, 2014**
Links:
English - <http://www.cpwr.com/sites/default/files/publications/Bending%20Toward%20Justice.pdf>
Spanish - <http://www.cpwr.com/sites/default/files/publications/Hacia%20la%20Justicia.pdf>

- **Construction Working Conditions in Texas: Survey Instrument Development and Pilot Project, 2013**
Link: http://www.cpwr.com/sites/default/files/publications/WorkerDefenseKF_0.pdf

- **Analysis of Ethnic Disparities in Workers' Compensation Claims Using Data Linkage, 2012**
Link:
<http://www.cpwr.com/sites/default/files/publications/FriedmanRuestowForstWhiteConstructionKF.pdf>
Link:
http://journals.lww.com/joem/Abstract/2012/10000/Analysis_of_Ethnic_Disparities_in_Workers_.13.aspx

- **A longitudinal assessment of occupation, respiratory symptoms, and blood lead levels among Latino day laborers..., 2011**
Link: <http://www.cpwr.com/publications/longitudinal-assessment-occupation-respiratory-symptoms-and-blood-lead-levels-among-0>

- **Occupational Exposures, Respiratory Symptoms and Blood Lead Levels among Latino Day Workers in Greater New Orleans, 2011**
Link: <http://www.cpwr.com/publications/occupational-exposures-respiratory-symptoms-and-blood-lead-levels-among-latino-day-0>

- **Immigrant Workers in U.S. Construction: Sharing Lessons Learned in Our Unions, 2010**
Link: <http://www.cpwr.com/research/immigrant-workers-construction-sharing-lessons-learned-our-unions>
Link: http://www.cpwr.com/sites/default/files/Immigrant%20Workers%20in%20Construction_CPWR-LOHP%20Report.pdf

- **Part V. Empirical Studies, Chapter 16: Expanding Access to Health Care for Hispanic Construction Workers and Their Children, *Expanding Access to Health Care: A Management Approach*, 2009**
Link: <http://www.cpwr.com/publications/expanding-access-health-care-hispanic-construction-workers-and-their-children>

- **Medical costs and sources of payment for work-related injuries among Hispanic construction workers, 2007**
Link: <http://www.ncbi.nlm.nih.gov/pubmed/18231083>

- **Occupational fatalities of Hispanic construction workers from 1992 to 2000, 2004**
Link: <http://www.ncbi.nlm.nih.gov/pubmed/14691968>

- **Analysis of Work-Related Safety & Health Hazards of Unrepresented Workers in the Iron Working Industry, 2010**
Link: <https://www.cpwr.com/publications/analysis-work-related-safety-health-hazards-unrepresented-workers-iron-working-industry>

- **Work-Related Injuries among Hispanic Construction Workers: Evidence from the Medical Expenditure Panel Survey, 2010**
Link: <http://www.ncbi.nlm.nih.gov/pubmed/20187004>

- **The Economics of Immigration, CERN Meeting, 2007**
Link: <http://www.cpwr.com/research/cern-meeting-december-2007>

- **Spanish-Speaking Construction Workers Discuss Their Safety Needs and Experiences, 2004**
Link: <https://www.cpwr.com/publications/spanish-speaking-construction-workers-discuss-their-safety-needs-and-experiences>

- **Latino Worker Resources Collection, 2014.** This collection contains additional resources (not listed above) including: 4 longer case examples, 13 shorter project write-ups, a list of 36 articles, as well as a list of thematic issues and potential areas for future research on Latino construction workers.
Link: <https://www.cpwr.com/whats-new/latino-construction-worker-resources-collection>

The following CPWR and/or CPWR-funded Latino worker resources are included in this collection:

1. **Latino Fall Prevention Partnerships, 2014**
Link: <http://www.cpwr.com/research/latino-fall-prevention-partnerships>

2. **Using Social Media to Inform Latino Construction Workers about Fall Protection, 2014**
Link: <http://www.cpwr.com/publications/using-social-media-inform-latino-construction-workers-about-fall-protection>

3. **The Impact of a Peer-Led Participatory Health and Safety Training Program for Latino Day Laborers in Construction, 2014**
Link: <http://www.cpwr.com/publications/impact-peer-led-participatory-health-and-safety-training-program-latino-day-laborers>

4. **Use of a TV Show to Inform Latino Viewers about Construction Hazards and Safe Practices, 2013**
Link: <http://www.cpwr.com/publications/use-tv-show-inform-latino-viewers-about-construction-hazards-and-safe-practices>
5. **Safety and Health Disparities among Construction Workers, 2009 - 2013**
Link: <http://www.cpwr.com/research/safety-and-health-disparities-among-construction-workers>
6. ***The Impact of Language Barriers on Healthcare Utilization among Hispanic Construction Workers*, 2013**
Link: <http://www.cpwr.com/sites/default/files/publications/donglanguagebarrierskf.pdf>
7. ***Fatal falls among Hispanic construction workers*, 2009**
Link: http://www.cpwr.com/sites/default/files/publications/dongfatalfallshispanicworkerskf_0.pdf
8. **Evaluating the Efficacy of Safety Liaisons and Worker Training, 2012**
Link: <http://www.cpwr.com/research/evaluating-efficacy-safety-liaisons-and-worker-training>
9. ***Beyond the Classroom – A Case Study of Immigrant Safety Liaisons in Residential Construction*, 2012**
Link: <http://www.cpwr.com/sites/default/files/publications/ochsnerbeyondclassroomkf.pdf>
10. **Latino Construction Worker Safety and Health Project, 2011**
Link: <http://www.cpwr.com/research/latino-construction-worker-safety-and-health-project>
11. ***Empowering Day Laborers to Work Safely in Construction*, 2011**
Link: <http://www.cpwr.com/sites/default/files/publications/EmpoweringDayLaborersIMPACTCardPDF.pdf>
12. **Hispanic Workers in Construction, 2009 – 2010**
Link: <http://www.cpwr.com/research/hispanic-workers-construction>
13. **Hispanic Employment in Construction, 2009**
Link: <https://www.cpwr.com/publications/vol-1-no-1-hispanic-employment-construction>
14. **Health Insurance Coverage and Health Care Utilization Among Hispanic Construction Workers, 2010**
Link: <https://www.cpwr.com/publications/health-insurance-coverage-and-health-care-utilization-among-hispanic-construction>
15. **Fatal and Nonfatal Injuries among Hispanic Construction Workers, 1992-2008, 2010**
Link: <https://www.cpwr.com/publications/fatal-and-nonfatal-injuries-among-hispanic-construction-workers-1992-2008>

Young Worker Resources

- **Long-term health outcomes of work-related injuries among construction workers—findings from the National Longitudinal Survey of Youth, 2015**

Link: <https://www.cpwr.com/publications/long-term-health-outcomes-work-related-injuries-among-construction-workers-%E2%80%93findings>

- **Formative Research Findings - Integrating Occupational Safety and Health Training into Career Technical Education in Construction, 2013**

Link: <http://www.cpwr.com/publications/integrating-occupational-safety-and-health-training-career-technical-education>

- **Disparities Surveillance Research**

Link: <http://www.cpwr.com/research/disparities-surveillance-research>

- **Safety Voice for Ergonomics (SAVE)**

Link: <http://www.cpwr.com/research/safety-voice-ergonomics-save>

- **OSH Education in Post-secondary Career Technical Education Construction Programs**

Link: <http://www.cpwr.com/research/osh-education-post-secondary-career-technical-education-construction-programs>

Small Business Resources

- **Fatal Injuries among Small Construction Establishments, 2018**

Link: <https://www.cpwr.com/publications/third-quarter-fatal-injuries-among-small-construction-establishments>

- **Safety Management in the Construction Industry, 2017**

Link: https://www.cpwr.com/sites/default/files/publications/Dodge_Safety_Report_2017.pdf

- **Workers' compensation loss prevention representative contact and risk of lost-time injury in construction policyholders, 2017**

Link: <https://www.cpwr.com/sites/default/files/publications/SchofieldInsuranceLossPreventionKF.pdf>

- **Building a Safety Culture: Improving Safety & Health Management in the Construction Industry, 2016**

Link:

<https://www.cpwr.com/sites/default/files/publications/Building%20a%20Safety%20Culture%20SmartMarket%20Report%202016%20off.pdf>

- ➔ **Reaching Residential Contractors and Influencing their Safety and Health Practices Survey, 2014**
Link: <https://www.cpwr.com/sites/default/files/publications/Reaching%20and%20Influencing%20Residential%20Contractors.pdf>
- ➔ **Literature Review and Environmental Scan for Better Translation of Research to Practice in Residential Construction, 2013**
Link: <https://www.cpwr.com/publications/literature-review-and-environmental-scan-better-translation-research-practice>
- ➔ **Safety Management in the Construction Industry, 2013**
Link: https://www.cpwr.com/sites/default/files/publications/SafetyManagementinConstructionSMR-2013_0.pdf
- ➔ **Injury underreporting among small establishments in the construction industry, 2011**
Link: http://www.cpwr.com/sites/default/files/publications/DongUnderreporting_webpost.pdf

Other CPWR Materials and Resources for the Three Groups (those available in Spanish are noted)

- ➔ **Best Built Plans – Manual Materials Handling Planning Tool and Resources:** provides contractors and workers with practical tools and information to plan for safe materials handling while staying productive and profitable.
Link: <https://www.cpwr.com/research/research-practice-library/construction-ergonomic-research-solutions/manual-materials-handling-planning-tool-and-resources>
- ➔ **Best Built Plans – Lift Coach Smart Phone Games:** These games are used with related CPWR Toolbox Talks and Hazard Alert card, as well as with training programs to reinforce safe materials handling practices. They can also be used on their own.
Lift Coach: Plan Your Route (English and Spanish) Link: <https://www.cpwr.com/do-you-know-how-safely-move-materials>
Lift Coach: Plan Your Lift (English and Spanish) Link: <https://www.cpwr.com/do-you-know-how-safely-move-materials>
- ➔ **Foundations for Safety Leadership (FSL):** The FSL training module is an OSHA approved 30-hour elective module. It is designed to provide construction foremen and other lead workers with the skills to become effective safety leaders who are able to create a strong job site safety climate. The training module can also be used as a stand-alone class.
Link: <https://www.cpwr.com/foundations-safety-leadership-fsl>
Many of the FSL materials are available in Spanish: <https://www.cpwr.com/research/foundations-safety-leadership-fsl-spanish>

➔ **Safety Climate Assessment Tool (S-CAT):** The S-CAT is a tool for contractors to assess their company's safety climate and get tips to improve it. The S-CAT is available in both online and print formats, and there is a streamlined version for small contractors (S-CAT^{SC}). Both the S-CAT and S-CAT^{SC} are available in English and Spanish.

Safety Climate Assessment Tool (S-CAT):

Booklet Links:

English - https://www.cpwr.com/sites/default/files/research/Safety_Climate_Assessment_Tool-S-CAT_092116.pdf

Spanish - https://www.cpwr.com/sites/default/files/publications/spanish/Safety_Climate_Assessment_Tool-S-CAT_Spanish_5-7-18.pdf

S-CAT Online: Click on the English or Spanish buttons to take the S-CAT.

Links:

English Instructions - https://safetyclimateassessment.com/?page_id=71204

Spanish Instructions - <https://safetyclimateassessment.com/s-cat-pdfs/Instructions%20in%20Spanish.pdf>

Safety Climate Assessment Tool for Small Contractors (S-CAT^{SC}):

Booklet Links:

English - <https://www.cpwr.com/sites/default/files/publications/SCAT-SC.pdf>

Spanish - https://www.cpwr.com/sites/default/files/research_s-cat-sc-small-contractors_spanish.pdf

S-CAT^{SC} Online:

English - https://cpwr.az1.qualtrics.com/jfe/form/SV_3x6RhwceVP6A2z3

Spanish - https://cpwr.az1.qualtrics.com/jfe/form/SV_7UNw5Ud9Y0cz91X

Additional S-CAT^{SC} resources:

Link: <https://www.cpwr.com/research/s-cat-sc-small-contractors>

➔ **Your Construction Safety Program: Safe Students, Safe Workers:** This handbook can help Career and Technical Education program administrators ensure that students entering the trades receive occupational safety and health preparation for their new careers, as well as skills training.

Link: https://www.cpwr.com/sites/default/files/publications/LOHP_toolkit_final-12-4-17.pdf

➔ **Materials developed for the safety and health training program for Latino day laborers:** A complete safety and health training program for Latino day laborers. It includes the following materials, available in English and Spanish.

Link: <https://www.cpwr.com/research/completed/evaluating-efficacy-safety-liaisons-and-worker-training>

1. ***The Day Laborers' Health and Safety Workbook***

Links:

English - <http://www.cpwr.com/sites/default/files/publications/DayLaborersTrainingGuide-UIC-edition-English.pdf>

Spanish -

http://www.cpwr.com/sites/default/files/publications/Latino%20S%26H%20Training%20Workbook_Rutgers-New%20Labor-2014.pdf

2. **Trainer's Companion Guide to the Day Laborers' Health and Safety Workbook**

Links:

English - http://www.cpwr.com/sites/default/files/publications/Training%20Guide-English_Latino%20S-H%20Workbook.pdf

Spanish - http://www.cpwr.com/sites/default/files/publications/Training%20Guide-Guia%20complementario_Libro%20de%20trabajo%20de%20salud%20y%20seguridad.pdf

3. **Construction Safety Checklist:** Printed checklists folded to fit in a pocket.

Links:

English - http://www.cpwr.com/sites/default/files/publications/ConstructionSafetyChecklist_English.pdf

Spanish - http://www.cpwr.com/sites/default/files/publications/ConstructionSafetyChecklist_Lista-de-Chequeo-es.pdf

4. **About the Safety Checklist**

Links:

English - http://www.cpwr.com/sites/default/files/publications/About_SafetyChecklist_English_web.pdf

Spanish - http://www.cpwr.com/sites/default/files/publications/About_SafetyChecklist_Spanish_web.pdf

5. **Safety Audit Checklist for Construction – a free bilingual template for an app**

Link:

<http://www.cpwr.com/sites/default/files/publications/Sandy%20Audit%20LIVE%20draft%20EDITED.pdf>

6. **Tools for Researchers and Trainers:** Bilingual surveys developed through research to measure progress made in understanding construction safety hazards and control techniques and reducing/eliminating hazards.

Links:

Safety Liaison Follow-up Survey -- Actions Taken -

http://www.cpwr.com/sites/default/files/publications/Follow-up%20Survey_Encuesta%20de%20seguimiento.pdf

Safety Liaisons: Baseline Survey -

http://www.cpwr.com/sites/default/files/publications/Baseline%20Survey_Encuesta%20de%20referencia.pdf

- ➔ **Toolbox Talks:** CPWR's Toolbox Talk series is designed to help contractors of all sizes educate their employees on how to identify and respond to hazards and improve job site safety. All are available in both English and Spanish for download on the CPWR website. New topics are added on a regular basis.
Link: <https://www.cpwr.com/publications/toolbox-talks>
- ➔ **Hazard Alert Cards:** CPWR Hazard Alerts describe common hazards and steps to reduce risks and prevent injuries and illnesses. All are available in both English and Spanish for download on the CPWR website. New topics are added on a regular basis.
Link: <http://www.cpwr.com/publications/hazard-alert-cards>

➔ **Infographics:** Using data from CPWR research and other trusted sources, these infographics were created to raise awareness of occupational hazards and solutions. They are available in English and Spanish and can be downloaded as PDFs or JPEGs for use in social media, presentations, and print materials. New topics are added on a regular basis.

Link: <https://www.cpwr.com/research/infographics>

➔ **Videos on a construction fatality or hazard and prevention**

Link: <https://www.youtube.com/channel/UCAC28BCIEBdALIJ8A--MhWw>

1. **Lessons to Go Home Safe:** Two 3-minute videos on trench collapse, overhead power line electrocution, and using a stepladder. All videos are available for download on the CPWR website and on YouTube in English and Spanish.

Link: <https://www.cpwr.com/publications/handouts-and-toolbox-talks/health-and-safety-videos>

2. **Don't Fall For It!** An 11-minute training video on ladder safety in high- and low-resolution and accompanying worker tip sheets. Videos and tip sheets are available in English and Spanish.

Link: <https://www.cpwr.com/publications/handouts-and-toolbox-talks/health-and-safety-videos>

➔ **eLCOSH – Electronic Library of Construction Occupational Safety and Health:** Allows the user to easily identify materials by category (toolbox talks, presentations, etc.).

Links:

English – <http://www.elcosh.org>

Spanish – <http://www.elcosh.org/es/>

For future updates visit: <https://www.cpwr.com/research/research-practice-library/r2p-and-p2r-work/reaching-vulnerable-workers>