



THE CENTER FOR CONSTRUCTION
RESEARCH AND TRAINING

A National Research to Practice Initiative in Construction

R. Baker, C.Y. Chang, M. Gillen

Critical research questions:

- *How to get vital information to the worker “in the trench” or “on the steel?”*
- *How to persuade contractors and workers to use effectively the interventions that are developed through research?*

- Construction Research at NIOSH: Reviews of Research Programs of the National Institute for Occupational Safety and Health, National Academies Press, 2008.

The Research to Action Pathway

**Define the
problem**

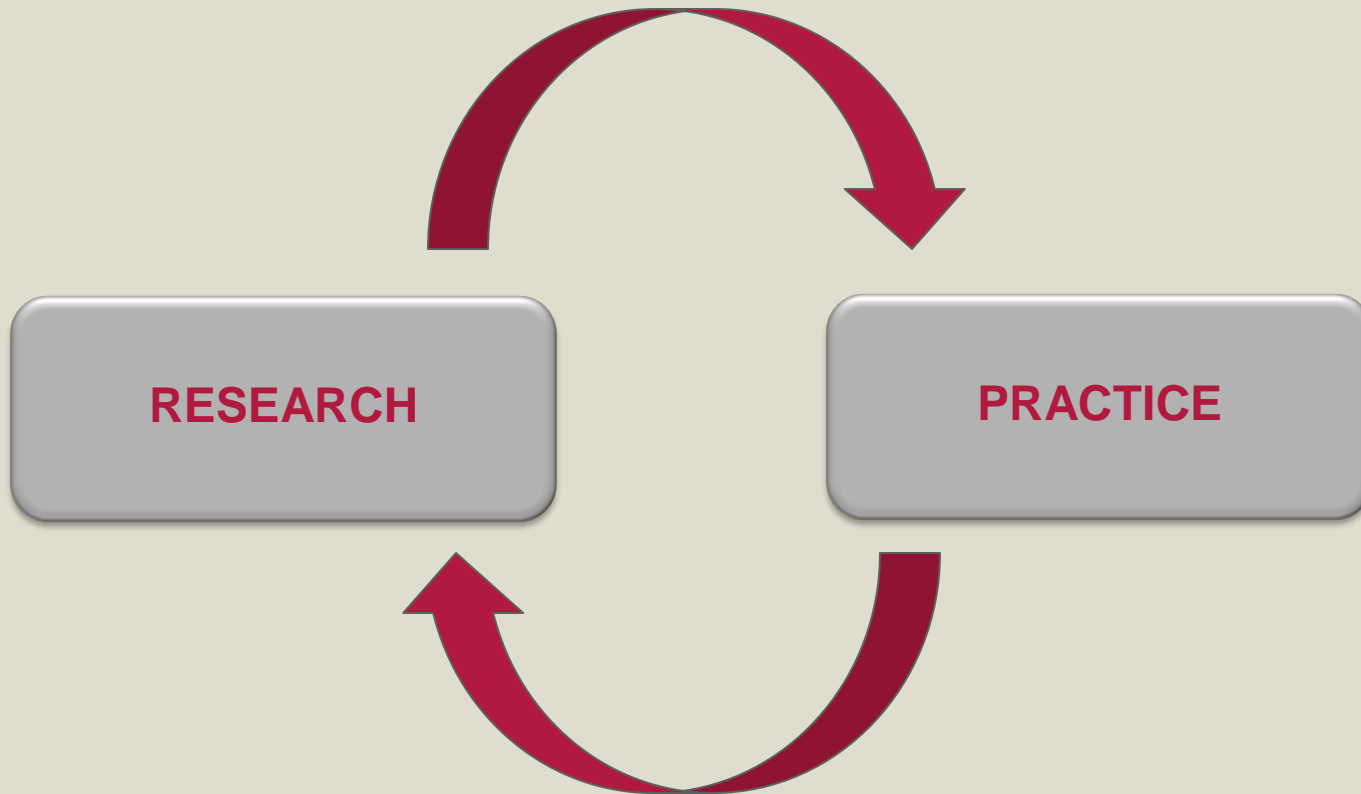
**Identify risk &
protective factors**

**Develop & test
prevention strategies**

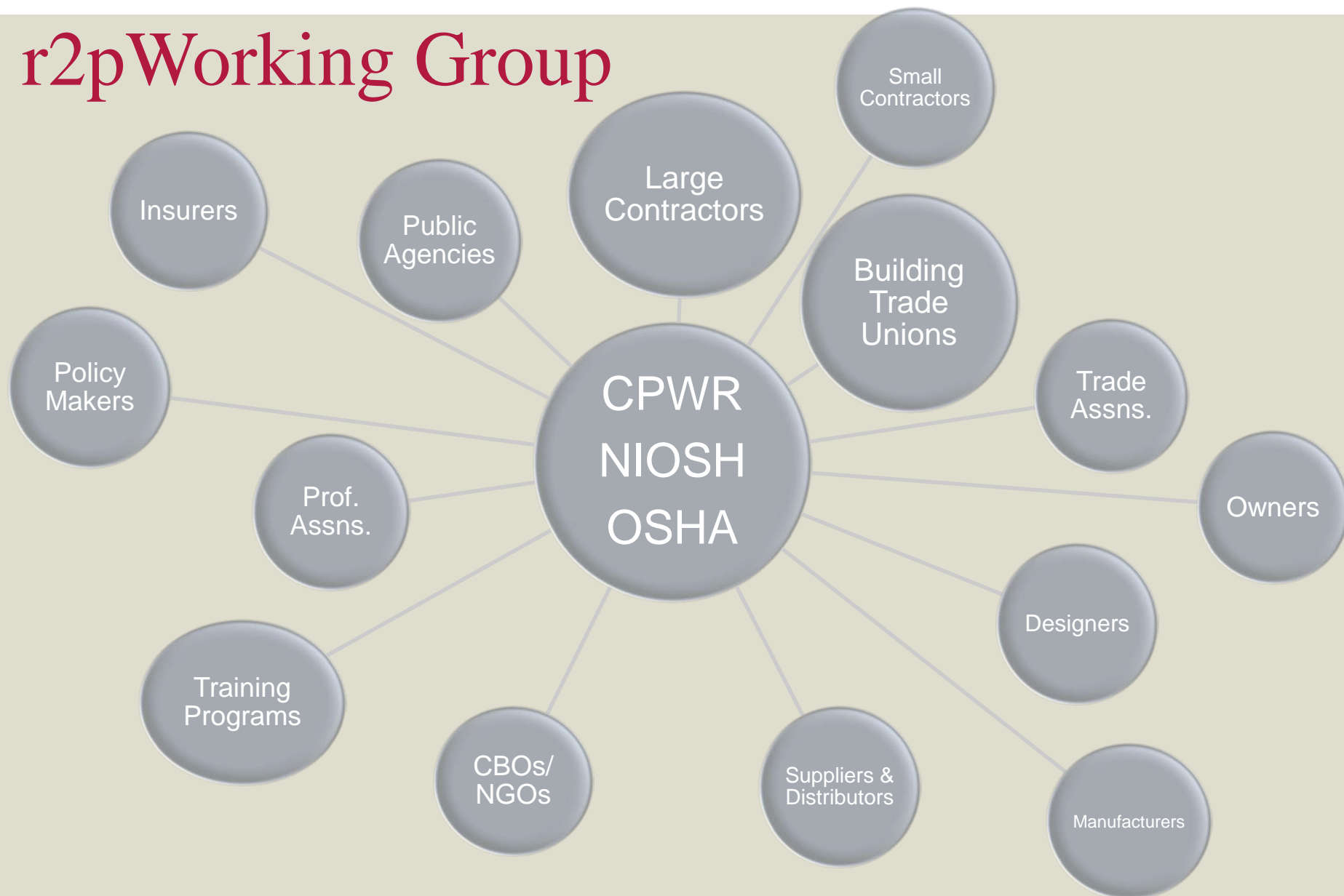
**Assure widespread
dissemination &
adoption**



r2p Cycle



r2p Working Group



CPWR's r2p Initiative



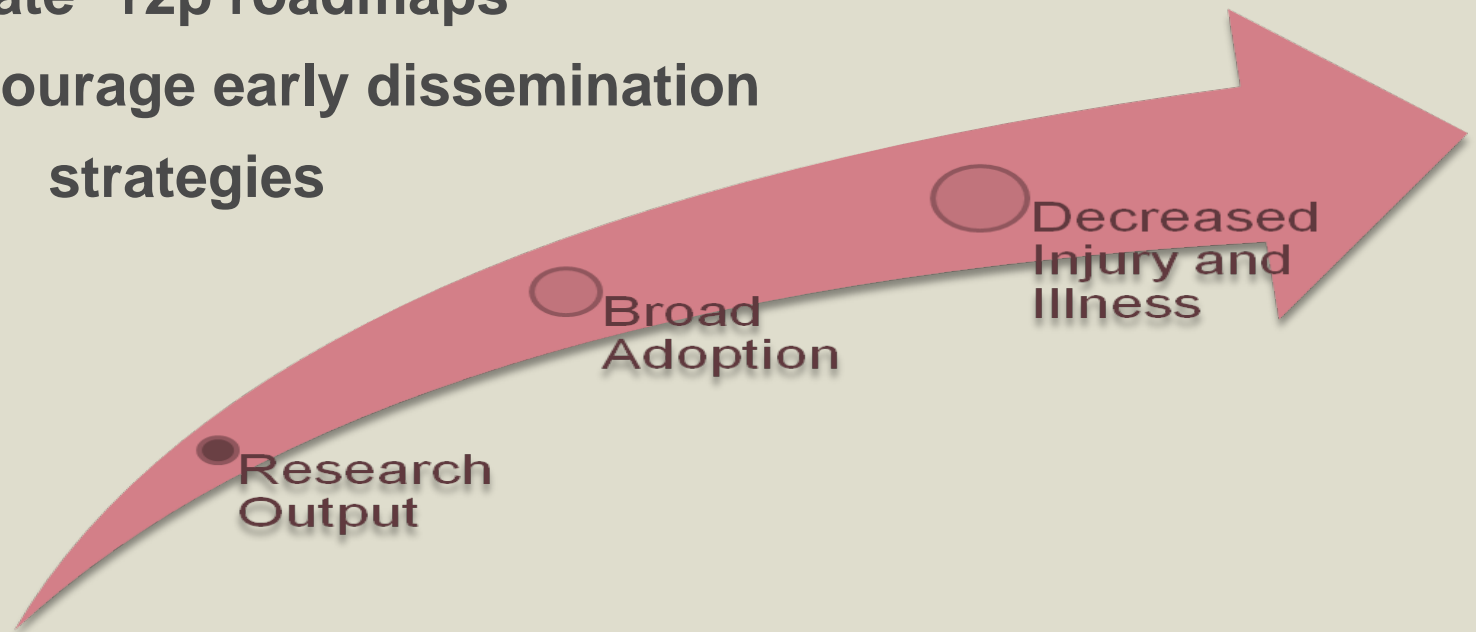
1. Research Pathways

Completed research

- **Triage to identify dissemination priorities**
- **Launch new r2p efforts**

Current research

- **Create “r2p roadmaps”**
- **Encourage early dissemination strategies**



2. Partnerships for Prevention

- **Case Studies**

- Asphalt Partnership

- Case examples of other successful partnerships

- **New Partnerships**

- Masonry Best Practices

- Latino Fall Prevention

Masonry r2p Partnership



CPWR - The Center for Construction Research and Training, BAC, ICE and IMI are taking a lead role in translating safety and health research findings into practical solutions on construction sites through the establishment of the Masonry Industry Research to Practice (r2p) Partnership.

Craft Committees Identify Safety and Health r2p Priorities

BRICK AND BLOCK COMMITTEE



Committee Co-Chairs - ICE President Fred Kintodis, left, and BAC President James Bohane - facilitated the Committee's discussions on safety practices, existing research, and potential areas for further study. Members also heard from Cellular Products, which produces a lightweight, environmentally friendly fly ash block, and IMI, an recently issued recommendations for the safe use of mast climbers for the

BAC, ICE and IMI are taking a lead role, in coordination with CPWR, The Center for Construction Research and Training, to translate safety and health research findings into practical solutions on construction sites through the establishment of the Masonry Industry Research to Practice (r2p) Partnership. In addition to using this Partnership to advance their shared goals of safe jobsites, BAC, ICE, and IMI are working with CPWR to develop a model r2p partnership structure and process that other segments of the construction industry will be able to replicate.

Executive Council & Craft Committees

New Mast Climber Website Launched by Masonry r2p Partnership

JOURNAL: ISSUE 2 - 2011

Given the physically demanding nature of masonry work it may not come as a surprise that masonry craftworkers and their employers are concerned about back injuries. What may be surprising is that the masonry industry has consistently had one of the highest rates for back injuries and illnesses out of all construction industries, so finding solutions that can help prevent these injuries and at the same time improve productivity is a benefit for both BAC members and their signatory contractors.

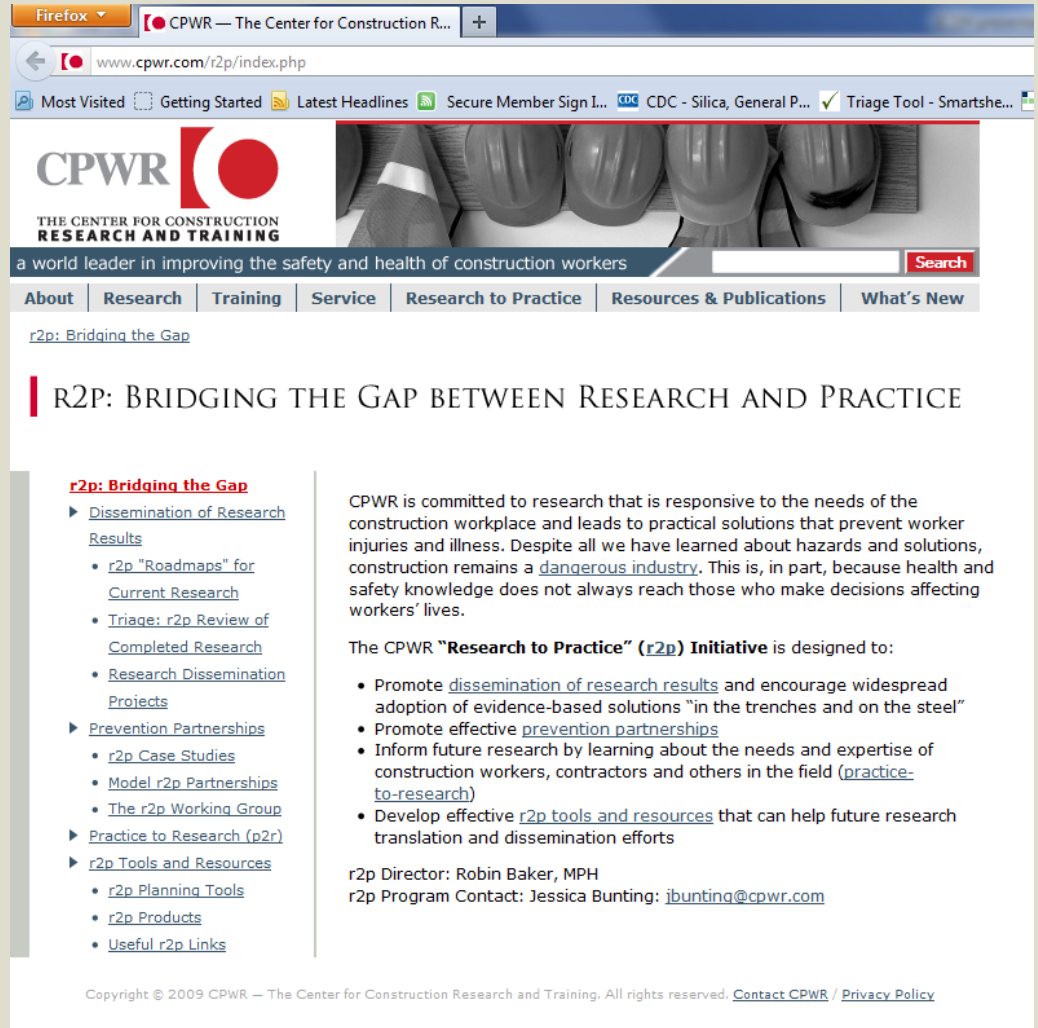
The use of mast climbers, also called mast climbing work platforms or mast scaffolding, is one such solution identified by the International Masonry Institute (IMI), Bricklayers and Allied Craftworkers (BAC) and the International Council of Employers of



- ▶ Developed safety and health priorities
- ▶ Identified communication methods
- ▶ Identified intervention gap
- ▶ Baseline surveys of workers and contractors

3. r2p Resources

- ▶ Impact cards
- ▶ CONDOR – contact database
- ▶ Triage and road map tools
- ▶ r2p website
- ▶ Tool kits



The screenshot shows the CPWR website interface. At the top, there is a navigation bar with the CPWR logo and the text "THE CENTER FOR CONSTRUCTION RESEARCH AND TRAINING". Below this, a search bar and a "Search" button are visible. The main navigation menu includes links for "About", "Research", "Training", "Service", "Research to Practice", "Resources & Publications", and "What's New". The current page is titled "r2p: Bridging the Gap" and features a large heading: "R2P: BRIDGING THE GAP BETWEEN RESEARCH AND PRACTICE".

On the left side of the page, there is a sidebar with a section titled "r2p: Bridging the Gap" and a list of links:

- ▶ [Dissemination of Research Results](#)
 - [r2p "Roadmaps" for Current Research](#)
 - [Triage: r2p Review of Completed Research](#)
 - [Research Dissemination Projects](#)
- ▶ [Prevention Partnerships](#)
 - [r2p Case Studies](#)
 - [Model r2p Partnerships](#)
 - [The r2p Working Group](#)
- ▶ [Practice to Research \(p2r\)](#)
- ▶ [r2p Tools and Resources](#)
 - [r2p Planning Tools](#)
 - [r2p Products](#)
 - [Useful r2p Links](#)

On the right side of the page, there is a main text block:

CPWR is committed to research that is responsive to the needs of the construction workplace and leads to practical solutions that prevent worker injuries and illness. Despite all we have learned about hazards and solutions, construction remains a *dangerous industry*. This is, in part, because health and safety knowledge does not always reach those who make decisions affecting workers' lives.

The CPWR "Research to Practice" (r2p) Initiative is designed to:

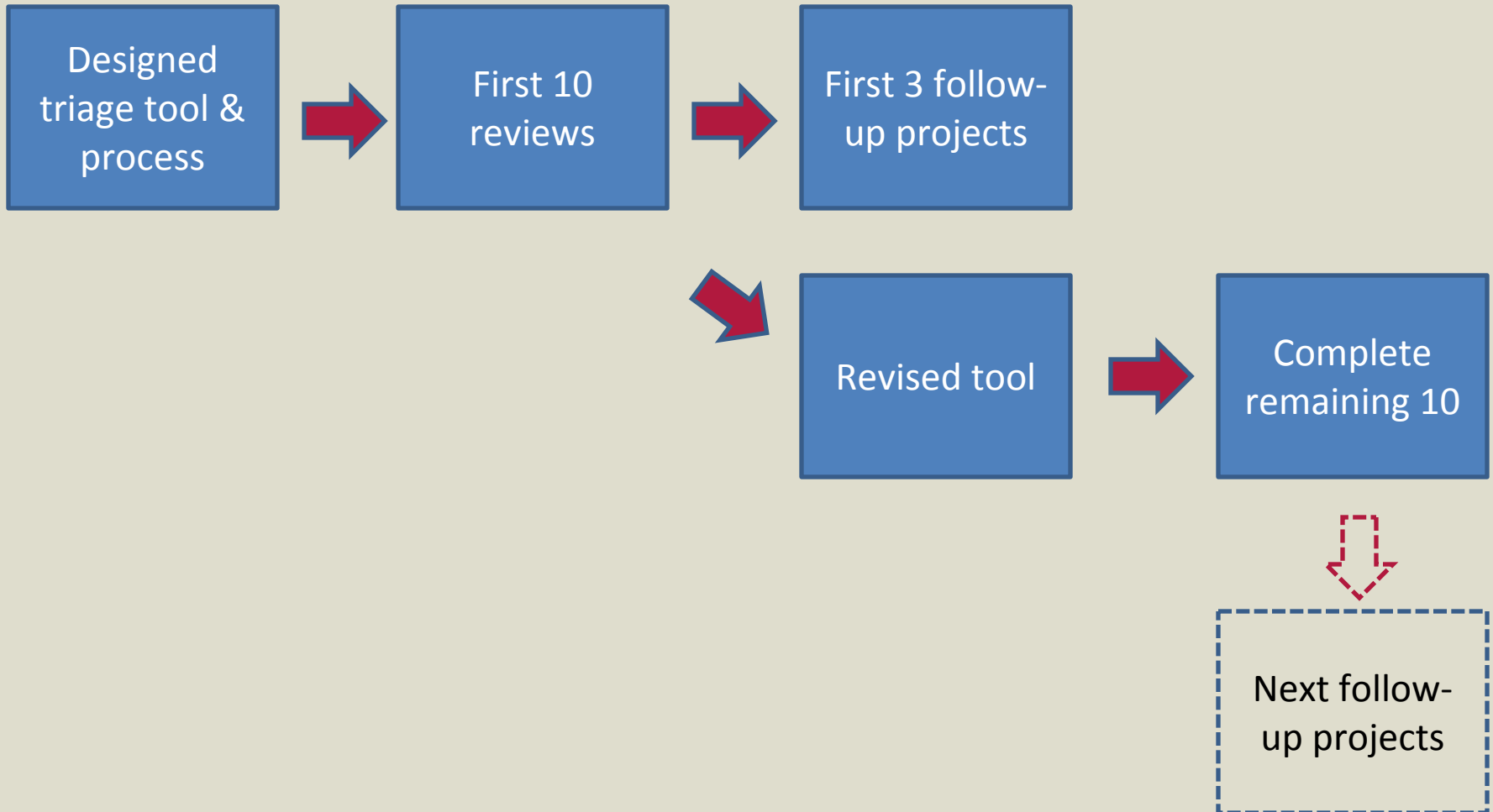
- Promote [dissemination of research results](#) and encourage widespread adoption of evidence-based solutions "in the trenches and on the steel"
- Promote effective [prevention partnerships](#)
- Inform future research by learning about the needs and expertise of construction workers, contractors and others in the field ([practice-to-research](#))
- Develop effective [r2p tools and resources](#) that can help future research translation and dissemination efforts

At the bottom of the page, contact information is provided:

r2p Director: Robin Baker, MPH
r2p Program Contact: Jessica Bunting: jbunting@cpwr.com

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Triage Progress to Date



Investigator Concerns

Role of scientists

- Are we now supposed to be communication experts?

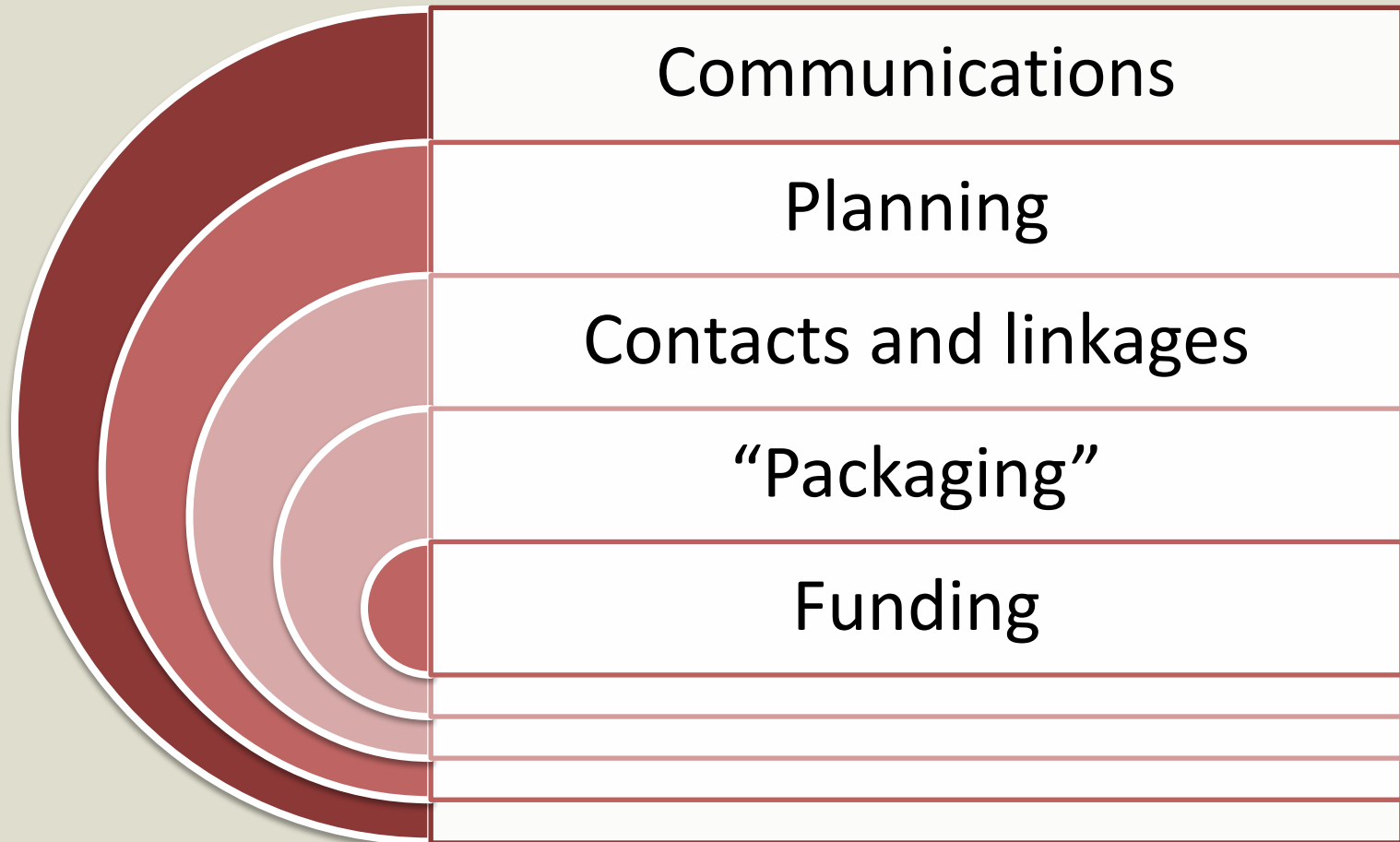
Funding for r2p

- Is this an unfunded mandate?

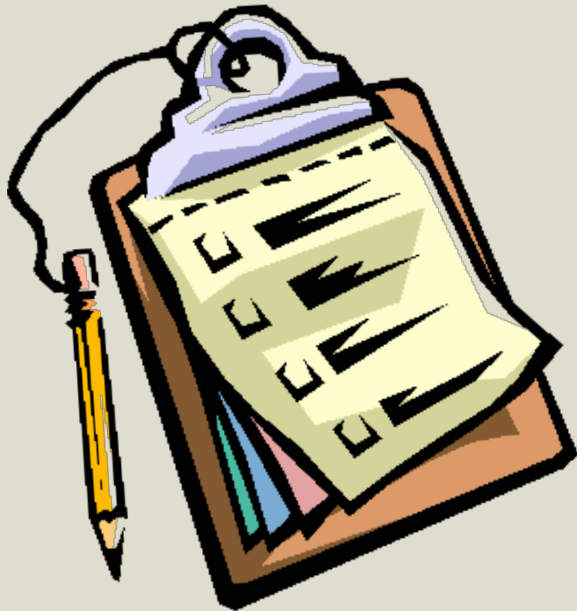
Responsibility for end outcomes

- How can I attribute injury and illness reduction to my work?

Support for Investigators



Triage Process



3 Reviewers:

- Lead Investigator
- Project Officer
- r2p Staff

Based on:

Final report + products
+ discussion

Triage Tool Section A: Overview

r2p Checklist for Completed Construction Research Projects
FORM #2: INTERVENTION STAGE RESEARCH

A. OVERVIEW	Date:
1. Research project :	2. Dates of project:
3. Lead Investigator(s):	5. Reviewer:
4. Partner(s):	Type of reviewer: <input type="checkbox"/> Project Officer <input type="checkbox"/> Lead Investigator <input type="checkbox"/> r2p staff <input type="checkbox"/> Other:
6. NORA Priority:	7. Sources used (final report; other sources, as needed):
8. Major research findings:	Purpose of study: <input type="checkbox"/> Problem definition/surveillance <input type="checkbox"/> ID risk and protective factors/health effects/exposure assessment <input type="checkbox"/> Develop or evaluate prevention/intervention strategies <input type="checkbox"/> Dissemination/adoption <input type="checkbox"/> Other

Section B: Intervention Priority Ratings

B. DETERMINE APPROPRIATE LEVEL OF TRANSFER EFFORT		
1. Intervention/Product:		# ___ of ___
2. Priority Ratings:	Priority for Transfer (1 = low, 3 = medium, 5 = high)	Comments
a. How strong are the findings? (strength of research design & results, findings supported by other research, etc.)	<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> N/A	
b. How large are the potential impact and reach of the findings? (potential impact on injury & illness prevention, severity of the issue addressed, number of workers/trades affected, etc.)	<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> N/A	
c. How strong is the potential for effective partnerships for the transfer effort? (e.g. Are there clear partners/stakeholders? Do relationships already exist to build on? Are partners likely to bring resources to the effort?)	<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> N/A	
d. How achievable is the proposed action/intervention? (Is the proposed change an easy or hard one? Is the intervention readily available? Are there major barriers anticipated? What are the costs involved for the potential adopters? Can the intervention be "packaged" with other interventions?)	<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> N/A	
e. How important are the findings in terms of addressing high priority areas (e.g. health disparities, NORA/National Academies Report priorities, gaps in the field, making a unique contribution, impacting safety culture, making "up-stream" change at the industry/societal level, etc).	<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> N/A	
f. Summary: Overall, how high a priority is this for an r2p effort?	<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> N/A	

Section C: Dissemination Recs

C. METHOD(S) FOR DISSEMINATION	
1. Most Promising Methods:	Describe including type of effort and targeted audiences:
<input type="checkbox"/> Education/training (integration into apprenticeship training, professional training, tailgate training, supervisor training, educational materials, peer training etc.)	
<input type="checkbox"/> Outreach/marketing (social marketing campaign, targeted diffusion effort, health communications program, media advocacy, educational entertainment, etc.)	
<input type="checkbox"/> Policy development (regulations, industry standards, building codes, labor-management agreements, licensing exam changes, etc.)	
<input type="checkbox"/> Technology transfer (licensing, manufacture, market approaches)	
<input type="checkbox"/> Coalition-building (multi-partner effort to promote interventions at the industry or trade level)	
<input type="checkbox"/> Communications products (press release, materials for lay audience, web posting/links, mailings, new/social media, etc.)	
<input type="checkbox"/> Other:	
4. Factors that may support or hinder an r2p effort (e.g., expertise, level of funding, partners, etc.):	
5. Recommended actions, if any:	
END HERE	

Top Priorities Addressed

NORA	Priority	# Projects
1.0	Falls	4
7.0	MSDs	3
11.0	Training & Education Issues	3
12.0	Disparities in Health & Safety in Construction	3
14.0	Improving Surveillance of Hazards & Outcomes	2

Purpose of Studies

Study Purpose	Number of Projects
Problem Def/Surveillance	8
ID risk & protective factors/ effects/exposure	4
Prevention/Intervention strategies	11
Dissemination/adoption	10

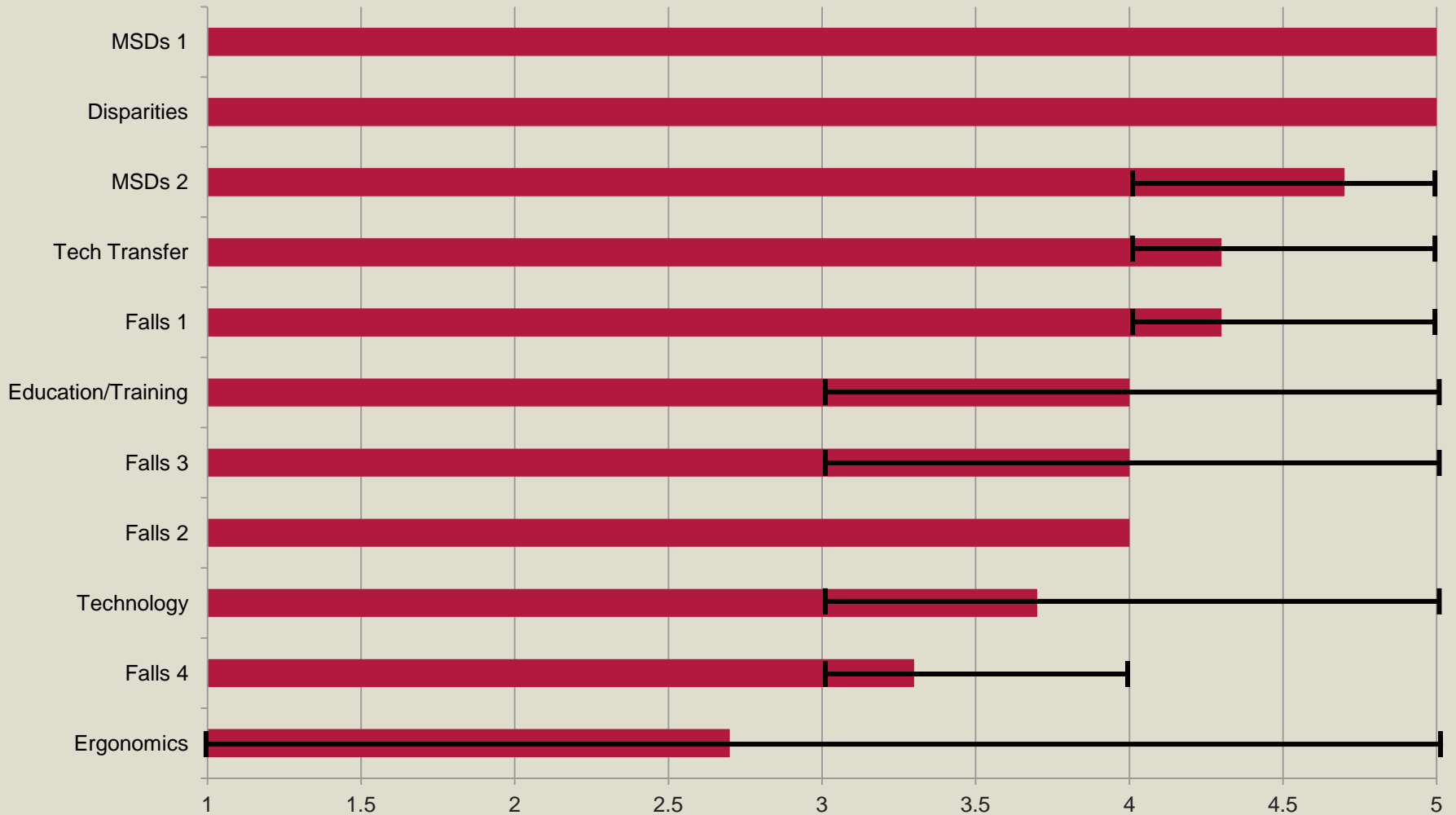
Dissemination Strategies Employed

Most	Less	Least
<ul style="list-style-type: none"> • Presentations & articles in construction • Professional meetings • Online postings 	<ul style="list-style-type: none"> • Research partners • Communications products • Coalition building • Education & Training (apprenticeship, voc ed) 	<ul style="list-style-type: none"> • Policy • Tech transfer • Mass media • Social media

Summary of Ratings


		Disparities	Training	Ergo
Strength of Findings	Average	4	3	3.3
	Spread	none	none	3-4
Impact & Reach	Average	4.7	4.7	3.3
	Spread	4-5	4-5	2-4
Partnership Potential	Average	4.7	2.7	1.7
	Spread	4-5	2-3	1-2
Achievability	Average	4.7	2.7	2.7
	Spread	4-5	2-3	1-5
High Priority Area	Average	4.7	5	3.3
	Spread	4-5	none	3-4
Summary Ranking	Average	5	4	2.7
	Spread	none	3-5	1-5

Summary Ranking




First Follow-Up r2p Projects

- Tech transfer
- Silica Solutions
- Nail guns



Reducing the Pain and Fatigue of Overhead Drilling

New tool wins support of workers and contractors



The Challenge

Drilling overhead into concrete or metal ceilings is punishing work. Electricians, plumbers, pipefitters, sheet metal, and other construction workers use 6- to 12-lb. hand-held rotary hammer drills to bore holes in ceilings where anchor bolts will be placed. Workers may drill hundreds of holes, one after another, spending up to two minutes per hole. The resulting sore hands, arms, shoulders, and backs help explain why the construction sector has the highest rates of non-traumatic soft tissue injuries to these areas.

“Drilling overhead into concrete is like holding a noisy, vibrating 50-lb. box above your shoulders while dust drops into your face and eyes—while you’re standing on a ladder.”

—Dr. David Rempel describes the traditional method



The Response

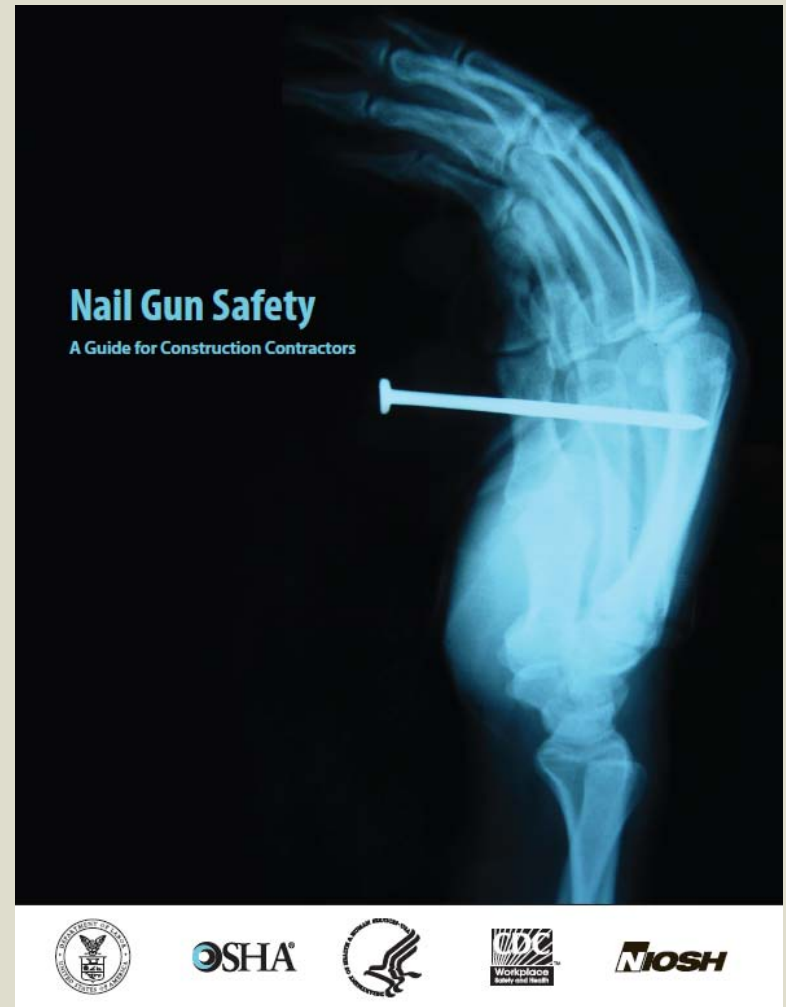
When Dr. David Rempel heard workers at a safety conference identify overhead drilling as a vexing issue, he began envisioning solutions. Rempel, an MD and engineer, heads the graduate ergonomics program at the University of California San Francisco and UC Berkeley.

His team began researching ways to minimize stress on the body and keep workers off ladders when drilling overhead. Partnering with Rempel's team were more than 20 contractors and labor unions representing workers in a range of trades. More than 100 workers in California, Oregon, and Washington took part in field testing. The team designed and built four generations of the tool through tests and improvements.

Nail Gun Research Dissemination

OSHA/NIOSH joint
Guidance released on
September 21, 2011

“Active
Dissemination”
of guidance



Examples of Reach

New NIOSH Publication - Nail Gun Safety: A Guide for Construction Contractors 2011-202

Nail guns are widely used on many construction jobs—especially in residential construction. While they boost productivity, they also cause thousands of painful injuries each year. This new publication is intended to help builders and construction contractors, subcontractors, and supervisors to prevent

OSHA Offers New Nail-Gun Safety Guide

Training and equipment knowledge are keys to preventing injuries.

By John Coufide

Every year, some 37,000 contractors and consumers end up in emergency rooms because of injuries caused by nail guns. A recent study of apprentice carpenters found that two out of five were injured using a nail gun during their four years of training, one in five was injured twice, and one in 10 was injured three or more times.

In light of those statistics, The Occupational Safety and Health Administration (OSHA) and the National Institute for Occupational Safety and Health (NIOSH) last week issued a 20-page nail gun safety guide for construction contractors.

The guide does not include new regulations for manufacturers or jobsite supervision. Instead, in the spirit of encouraging companies to provide a safe and healthier workplace environment (as they are mandated to do under the Occupational Safety and Health Act of 1970), the guide discusses common causes of nail gun injuries and offers practical steps to prevent them.

Given that many experienced carpenters have left the housing industry or went out of business during the recession, the guide arrives at a time when builders and training contractors might be reconsidering how best to retain their remaining field workers.

OSHA concedes that it's difficult to quantify the breadth of nail gun injuries because a certain percentage goes unreported. But using different field studies as its measures, the agency estimates that 68% of all nail-gun related emergency room visits involve workers. More than half of reported nail gun injuries are to hands or fingers, and one-quarter of hand injuries involve structural damage to tendons, joints, nerves, or bones.

The guide implies that injuries are often caused because workers aren't trained sufficiently to use nail guns with varying trigger mechanisms that can fire nails at different speeds and sequences, and have different safety contacts.

Indeed, unintended nail discharge from double fires or knocking the safety contact while the trigger is squeezed are two of the seven major risk factors that can lead to nail-gun injury, the guide states. Others include nail penetration through lumber pieces or nooselets after hitting a hard surface; backward position nailing, such as toe-nailing; and bypassing safety mechanisms, such as removing the spring from the safety contact tip, which can elevate the chances of an unintended discharge.

Among its six safety steps, OSHA recommends contractors use nail guns with full sequential triggers, which will fire a nail only when the controls are activated in a certain order. OSHA concedes that the rating time of nail guns with contact triggers is 10% faster. But it also cites one study that found "the trigger type was less important to overall productivity than who was using the tool; this suggests that productivity concerns should focus on the skill of the carpenter rather than the trigger [of the gun]."

Consequently, the second safety step recommends that companies provide better equipment training, including how the guns work and how they can malfunction or cause injuries. Companies should also establish nail gun work procedures, provide personal protective equipment, encourage reporting and discussions of injuries and close calls, and provide first aid and medical treatment.

Montana Contractors' Association Newsletter September 23, 2011



Safety Alert: Nail Guns

The Occupational Safety and Health Administration and the National Institute for Occupational Safety and Health have developed new guidance, [Nail Gun Safety -- A Guide for Construction Contractors](#), to help construction employers and workers prevent work-related nail gun injuries.

Quick Links

- [MCA Newsletter](#)
- [MCA Training Page](#)
- [MCA Website](#)

Calendar

Sep 27-28
SWPPP Administrator Certific

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All Blog Posts My Blog

Nail Gun Safety Guide

Posted by Safetyguy08 on September 29, 2011 at 8:15am

[View Blog](#)

Lethal Weapon Three (I believe)... Danny Glover is being suffocated by the plastic sheathing that is being used to protect the new addition that he's having built over his garage so he grabs the nail gun that's laying there and nails the bad guy (His pun, not mine). While it makes for exciting movie viewing, it's anything but fun when it happens for real. Tens of thousands of workers are injured each year by nail guns.

OSHA & NIOSH, in response to this growing safety hazard have now published a "[Nail Gun Safety: A Guide for Construction Contractors](#)."

According to the CDC website:

"The guidance was developed in response to a unanimous motion by industry, state, and labor stakeholders on OSHA's Advisory Committee for Construction Safety and Health (ACCSH) on the need to develop awareness and materials about nail gun risks. OSHA and NIOSH worked together to make sure the guidance reflects the most current information available. The guidance highlights what is known about nail gun injuries, including the parts of the body most often injured and the types of severe injuries that have been reported. It describes the common causes of nail gun injuries and provides six practical steps that contractors can take to prevent these injuries. The guidance includes actual workplace cases along with a short section on other types of nail gun hazards and sources of additional information. Our hope is that by working together with tool gun manufacturers, safety and health professionals, and other organizations, we can improve nail gun safety on the job site."



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September 28, 2011 | Show All

Nail Gun Safety Guide available for download

The National Institute for Occupational Safety and Health (NIOSH) and the Occupational Safety and Health Administration (OSHA) are pleased to announce the release of "Nail Gun Safety: A Guide for Construction Contractors." Nail guns are widely used on many construction jobs—especially in residential construction. While nail guns may boost productivity, they also cause tens of thousands of painful injuries each year. This new publication is intended to provide a resource for residential home builders and construction contractors, subcontractors, supervisors and workers to prevent these kinds of injuries. The guidance was developed in response to a unanimous recommendation by employer, labor and public members of OSHA's Advisory Committee for Construction Safety and Health (ACCSH), asking OSHA to develop awareness and materials about nail gun risks. OSHA and NIOSH worked together to make sure the guidance reflects the most current information available. The publication highlights what is known about nail gun injuries, describes the common causes of nail gun injuries and provides six practical steps that contractors can take to prevent these injuries. The guidance includes actual workplace cases along with

How to Prioritize?

Scores?
Opportunities?
Cross-cutting approaches?
Build r2p infrastructure?
Other???

