Safer Triggers and Training Decrease Nail Gun Injuries

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Nail gun injuries decline with the use of safer triggers and training, but safety regulations are needed for residential carpenters, according to researchers at Duke University Medical Center.

"Over the past three years, we have consistently found the sequential trigger twice as safe as the more commonly used contact trip trigger," said Hester Lipscomb, Ph.D., professor of occupational and environmental medicine and lead author of the study.

The sequential trigger requires that the nose piece of the nail gun be pressed down before the trigger is pulled, while the contact trip trigger allows the gun to fire any time the nose and the trigger are both depressed.

"The contact trip trigger allows workers to rapidly fire the tool and more frequently results in injuries from accidental discharges, double fires and ricocheting nails," Lipscomb said.

Nail gun injuries are more common than people realize, said Lipscomb, whose research published in 2007 showed steady increases in nail gun injury rates. "There are more than 35,000 visits each year in the U.S. to emergency departments for injuries from nail guns," she said.

Most injuries involve puncture wounds or imbedded nails in the hand or fingers, but serious and devastating injuries involving the head, face and chest also occur, according to the research. A number of injuries,

including several fatalities, have received attention in the national press in the last few years surrounding the research published by Lipscomb and others.

The researchers studied injuries among apprentice carpenters affiliated with the Carpenters' District Council of Greater St. Louis and Vicinity (CDC-GSV). The findings are published in the American Journal of Industrial Medicine.

"We found that carpenters with more training were better equipped to handle the tool and less prone to an injury," Lipscomb said. "Carpenters were best protected when they received both classroom training and hands-on instruction. Unfortunately, most residential carpenters, including immigrant workers, are less likely to get training compared to the union workers we studied," Lipscomb said.

"There are currently no regulations that require the sequential trigger be used or that define minimal training requirements, even though data suggests there should be," Lipscomb said. The International Staple Nail and Tool Association sponsored a voluntary change in the standard trigger for pneumatic tools in May 2003.

"The voluntary standard change only called for shipment of the sequential triggers rather than their use," Lipscomb said. "Sequential triggers are now shipped with nail guns, but the contact trip trigger is still being shipped in the same box."

In 2007, half of the nailing time among carpenters continued to be completed with the more dangerous contact trip trigger, Lipscomb said. "This was in an area with heavy media coverage and communication of the safety hazards."

The researchers found that switching to the sequential trigger was more

effective than training in decreasing injury rates, and another recent study showed that switching triggers did not affect productivity.

Lipscomb's research, published last month in Public Health Reports, showed the differences in productivity between trigger types were less than one percent of the building time. "Additionally, the differences in speed were affected more by the skill of the carpenter than the trigger being used," Lipscomb said.

"Working towards the required use of the sequential trigger will be important in the prevention of injuries among carpenters."

Lipscomb believes the message is equally important to the general public. "Consumers can go to their local home improvement store and purchase the same tool carpenters are using, but they may not have any training."

"Consumers, who are less likely to receive training in tool use, need to be sure they ask for a tool with a sequential trigger, and they should ask for instructions in safe use as well."

Other researchers involved in the study include John Dement, Ph.D., of Duke, and James Nolan and Dennis Patterson of the CDC-GSV.

Provided by Duke University Medical Center