



A CUP OF HEALTH WITH CDC

Power Tools: Nail Down Safety First

Nail-Gun Injuries Treated in Emergency Departments—United States, 2001–2005

Recorded: June 19, 2007; posted: June 22, 2007

[Announcer] This podcast is presented by the Centers for Disease Control and Prevention. CDC – safer, healthier people.

[Matthew Reynolds] Welcome to *A Cup of Health with CDC*, a weekly broadcast of the MMWR, the Morbidity and Mortality Weekly Report. I'm your host, Matthew Reynolds. Speed, ease of use, and availability have made air-powered nail guns a common tool for construction professionals and do-it-yourselfers, alike. But nail guns can cause serious injuries. Researchers from NIOSH, the National Institute of Occupational Safety and Health, have recently collaborated with colleagues at Duke University on a study that examines the rate and causes of nail gun injuries. Dr. Hester Lipscomb, an occupational safety expert at Duke University who worked with NIOSH on this study, will discuss the study and what they learned. Dr. Lipscomb, welcome to the show.

[Dr. Lipscomb] Thank you, Matthew. It's a pleasure to talk with you.

[Matthew Reynolds] Dr. Lipscomb, this topic is very timely. During the summer, many homeowners or "weekend warriors" take on a variety of home improvement projects, some basic and others that are complicated. One thing many of these projects have in common is the use of power tools, which can include air-powered nail guns. Your study found that there are many people injured while using nail guns, some very seriously. What did you and your colleagues learn about the frequency and nature of injuries caused by nail guns?

[Dr. Lipscomb] We looked at injury data from the Consumer Product Safety Commission and NIOSH, which is the worker health and safety arm of the CDC. These data allowed us to look at consumers and workers who were treated in emergency rooms for nail gun injuries. Currently, there are about 37,000 nail gun injuries treated in emergency rooms each year in the U.S., and that translates to about 100 injuries per day. While that sounds like a lot of injuries, it's important to realize that we only collected information on injuries treated in emergency departments and there probably many more injuries that are treated at home or in other medical settings.

[Matthew Reynolds] That number is surprising, to say the least. What are some of the other highlights you found from the study, Dr. Lipscomb?

[Dr. Lipscomb] Well most of the injuries that we saw are to construction workers and others whose work includes the use of these tools. The number of injuries to professionals has remained pretty steady over the past several years. But in contrast, the number of injuries to consumers has gone up dramatically since 1991 with a 200% increase. In recent years consumers are accounting for nearly 40% of emergency room

visits caused by nail guns. As you might expect, most often these injuries occur in men in their mid-20's to mid-30's, although injured consumers are somewhat older.

[Matthew Reynolds] I've read newspaper articles and seen television news coverage about people who've had accidents with nail guns and wound up with nails in their head. Is this not the typical injury? I'm assuming it isn't.

[Dr. Lipscomb] No, the common nail gun injury is a puncture wound or nail embedded in a hand or finger. Other common injuries include similar wounds to the arms, the legs, and the feet. Less often, people are injured with a nail or nail embedded in their head, face, or chest. Nail guns can cause eye and dental injuries, but most people with injuries are treated in the emergency room and sent home. Some injuries are serious enough to require hospitalization and even surgery. Deaths are rare but they can occur and in fact, there has been a recent news report of the death of a young carpenter in Idaho who sustained a head injury from a nail gun.

[Matthew Reynolds] It seems to me that a person using a nail gun would be really careful, but apparently that's not always the case. So how are these injuries happening?

[Dr. Lipscomb] These tools are powerful and they fire rapidly and that makes them very convenient for work; but it's the same speed and power that are the features that can result in injuries. Hands or feet that are too close to where nailing is being done is one way that injuries can occur. Improper use, disabling safety features are other factors that can result in injuries. Locking the trigger and inadvertently touching the nose of the nail gun to a body part can result in nails being discharged unintentionally.

[Matthew Reynolds] Has anything been done to make nail guns safer to use?

[Dr. Lipscomb] There have been improvements to nail guns but despite this, injuries still happen. Since 2003, nail gun manufacturers have begun to comply with a voluntary industry standard that calls for equipping nail guns with a safer sequential trip trigger that's designed to prevent inadvertent discharge of nails. Unfortunately, there're still nail guns being sold that don't have this feature, and many older nail guns are still in use. Even the newer tools are often shipped with the older, more dangerous contact trip trigger in the same box and this can be really confusing to users. An inexperienced user may not know for sure whether the nail gun they planned to use is equipped with the newer safety features.

[Matthew Reynolds] Well then, let's say that I go to my local home improvement shop and buy a nail gun. How do I determine the type of trigger mechanism on the nail gun?

[Dr. Lipscomb] First, ask before you buy, and if the staff there can't help you, then shop somewhere else. If you already own a tool, there's a fairly simple test that you can do to determine what type of trigger mechanism you have. With the nail gun readied for safe nailing, the user can aim the nail gun at a thick board without the tip of the gun actually touching the board. While holding down the manual trigger, then touch the nose

piece to the board. If a nail discharges, the gun has the more dangerous contact trip trigger. In contrast, if you place the nose of the gun down first and then pull the trigger to discharge a nail, the tool has the safer sequential trigger. Regardless of the trigger mechanisms, if a nail gun ever discharges a nail without being pressed against an object or seems to be misfiring, it should be repaired before using or discarded.

[Matthew Reynolds] What can nail gun users do to prevent injuries to themselves and to others?

[Dr. Lipscomb] First, they should always choose the safer sequential trip trigger mechanism. If the user is uncertain about the trigger mechanism, employees at a local hardware or home improvement center should be able to check out the tool for safety features. If you already have a nail gun that's equipped with the contact trip trigger, the user should replace it or upgrade the nail gun so it's equipped with the safer sequential trigger mechanism. Those who work with nail guns as part of their job and consumers who only occasionally use a nail gun for home projects should recognize that even though these tools are easy to operate, they still need training in safe nail gun use. Some home improvement centers, vocational schools, and local industrial arts programs offer such training. And lastly, everyone who uses them needs to treat them like guns—use them with care and don't disable the safety features.

[Matthew Reynolds] That is really helpful information and I'm sure our listeners have a better understanding of some of the dangers of using nail guns. Thank you for taking the time to talk with us today, Dr. Lipscomb.

[Dr. Lipscomb] Thank you very much for inviting me. We appreciate your interest in getting information out about this public health problem.

[Matthew Reynolds] That's it for this week's show. Don't forget to join us next week. Until then, be well. This is Matthew Reynolds for *A Cup of Health with CDC*.

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