NTDB® data points

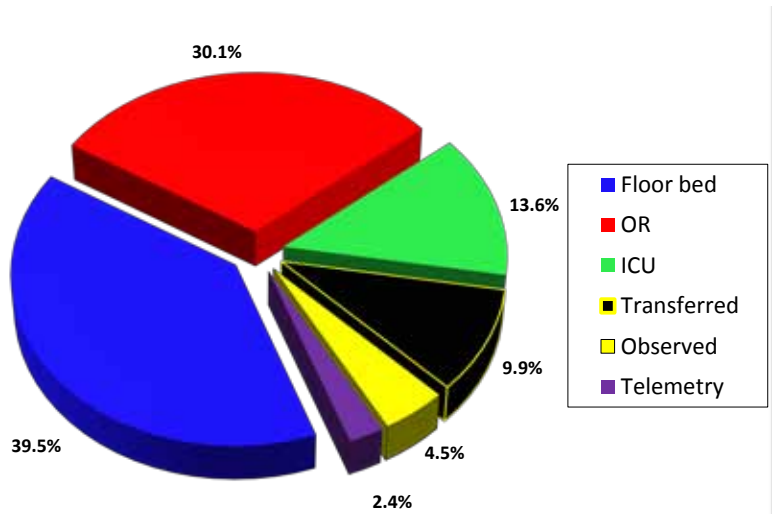
You'll shoot your eye out!

by Richard J. Fantus, MD, FACS

In 1882, Plymouth Iron Windmill Company of Plymouth, MI, started out—as the company's name implies—as a manufacturer of windmills. Due to a changing market and a struggling business during that decade, the company began to look for new ways to attract business. In 1886, a local inventor named Clarence Hamilton introduced a device made of wire and metal with a rudimentary shape resembling a gun that could shoot a lead ball using compressed air. The president of the Plymouth Iron Windmill Company tried out the device, which was essentially a BB gun, and proclaimed, "Boy, that's a daisy." The name daisy caught on and the air gun went into production as an item that was included as a gift when farmers purchased a windmill from the company. The gun was so popular, in fact, that the company changed its name to Daisy Manufacturing, halted the manufacturing of windmills, and began making the BB gun.

In 1938, the company produced the legendary Red Ryder BB gun modeled after the western Winchester rifle, which instantly became a popular American toy. In 1983, the Red Ryder BB gun was featured prominently in the movie *A Christmas Story,* in which the main character asks repeatedly for one as his Christmas gift. Each time he asks, he is met with the warning, "You'll shoot your eye out." (For more information, visit *http://www.daisy.com/history.html.*)

Emergency department discharge disposition



Originally, the BB gun used lead balls from shotgun shells as its ammunition. The BB-sized shot is derived from the size of the lead shot, which was larger than size B and smaller than size BBB. The current size of a BB is .175 inches in diameter.

In the late 1970s airsoft guns were created and marketed in Japan as a result of the ban on civilian ownership of firearms in that country. Airsoft guns fire a 6mm (.24 inch) plastic pellet that weighs approximately .20 grams and travels between 300 and 570 feet per second. Airsoft guns are "imitation" firearms created to closely resemble genuine firearms. In the U.S., federal law requires that all toy guns (including airsoft guns) have an orange tip on them to distinguish them from real firearms. However, over time, this orange coloring may wear off and there is no regulation in place mandating that the colored tip be replaced.

In the 1970s, the Nelson Paint Company produced the first paintball marker as a way for the U.S. Forest Service to mark trees from a distance. A few years of

sluggish paintball marker sales ensued until Charles Nelson moved to the Daisy Manufacturing Company—the same company that manufactures the BB gun. In 1976, a stock trader named Hayes Noel and a writer named Charles Gaines were talking about Gaines' recent safari in Africa. The two men wanted to recreate the rush of the hunt, and they came up with the idea to hunt each other. Not until a year-and-a-half later, when George Butler, a friend of theirs, showed them a paintball marker in an agricultural catalog did Noel and Gaines come up with the idea. The two each purchased the device, and the Noel-Gaines duel became the first paintball duel. On June 27, 1981 Gaines, Noel, and 10 other men participated in the first paintball game. The rest is history.

The current paintball marker fires a 68 caliber round colored polyethylene glycol-filled biodegradable gelatin capsule at approximately 300 feet per second. They break upon impact and leave a colored paint mark (*http://nicolpawn.ca/paintball-blog.php/2011/05/27/history-of-paintball-markers).*

More than 3.2 million air guns are purchased each year in the U.S., and more than 10 million Americans participate in paintball-related activities annually. This activity results in more than 20,000 individuals seeking medical care for BB- and paintball-related injuries each year. The majority of these injuries are not life-threatening, but some can be fatal, and others can leave an individual with permanent impairment. The muzzle velocities outlined in this article are sufficient to cause permanent blindness, hearing loss, or cosmetic deformities depending on the area hit by the projectile. Recreational weapons are packaged with warnings recommending proper supervision, as well as the use of proper safety precautions and safety devices such as eye protection (*http://www.hcup-us.ahrq.gov/reports/statbriefs/sb119.jsp*).

In order to examine the occurrence of air and paintball gun injuries in the National Trauma Data Bank® research dataset 2009, admissions records were searched using the International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) external cause of injury E codes. Records that contained one of the following E codes: 922.4/992.5 (injury caused by firearm and air gun missile, such as BB gun, Pellet gun, paintball gun), 985.6/985.7 (injury by firearms, air gun/paintball gun), or 968.6 (assault by air gun missile), were included in the analysis.

A total of 519 records were found, while 358 had an emergency discharge disposition that included some form of treatment. The records indicate that 148 were admitted to a floor bed, 113 went to the operating room, 51 ended up in the intensive care unit, 37 were transferred to another hospital, 17 were observed, and 9 were admitted to telemetry. These patients were 83.4 percent male, on average 18.2 years of age, had an average length of stay of 2.2 days, and an average injury severity score of 4.3. Of note, more than 30 percent of these patients went directly to the operating room from the emergency department, and 16.76 percent had an intent of assault.

While these devices may be plastic or metal toys, using them improperly may lead to serious consequences. If these items are on someone's holiday wish list, make sure that caution is exercised when using these items, and encourage users to carefully read all the safety instructions and to follow the manufacturer's recommendations. After all, without proper use, "You'll shoot your eye out."

Throughout the year, we will be highlighting data through brief reports that will be found monthly in the *Bulletin*. The NTDB *Annual Report* 2010 is available on the American College of Surgeon's website as a PDF file and as a PowerPoint presentation at *http://www.ntdb.org*. In addition, information is available on our website about how to obtain NTDB data for more detailed study. If you are interested in submitting your trauma center's data contact Melanie L. Neal, Manager, NTDB, at mneal@facs.org.

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