

# Preventing Needlestick Injury: The Global Market for Safety Syringes

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Hospitals and clinics are places where the sick and injured go for vital treatments and recovery. Unfortunately, places designed for vital healing can also present life-threatening dangers for healthcare workers, such as the risk of being nicked by a needle, or a needlestick injury (NSI), which are all-too common occurrences. If the needle penetrates the skin, it could lead to the transmission of more than 20 bloodborne viruses, including HIV, hepatitis B and hepatitis C, from the source person to the healthcare worker. These injuries are constant dangers in the healthcare workplace, since up to 30 billion syringes are used annually around the world, including an estimated 8 billion units in the U.S. alone. Needlestick injuries also pose a great risk to military healthcare workers on the battlefield and VA hospitals—just about any environment where sharps are encountered presents a risk. For example, needlestick injuries are also of significant concern to police workers.

The World Health Organization estimates that nearly three million healthcare workers worldwide are exposed to bloodborne diseases in the course of their work every year, resulting in as many as 70,000 hepatitis B infections, 15,000 hepatitis C infections and 500 HIV infections per year.

In the U.S., the Centers for Disease Control and Prevention (CDC) estimates that there are about 385,000 sharps-related injuries per year for hospital-based workers alone; an average of 1,000 per day<sup>1</sup>. It is estimated that there are over 600,000 to 1 million *reported* accidental injuries from conventional needles and sharps annually in the U.S. when all healthcare professionals are taken into account. Another survey, conducted in 2006 by market research firm Kalorama Information, found that more than 80% of the incidents could be prevented with the use of safety syringes and needle-free devices.

These injuries are both dangerous and quite costly. The American Hospital Association estimates average treatment cost per needlestick injury at \$450-800, even if there is no transmission of disease; up to \$3,000 if there is a minor infection; and up to \$1 million if the needlestick results in a serious infection.

As the dangers of HIV transmission, and other viruses, from needlestick injuries increased from the mid 1980s to the 1990s, U.S. nurses and infection control specialists pressured government and regulatory agencies to mandate the use of safety syringes. Those efforts first led to the passage of state regulations, and then in the ratification of the Needlestick Safety and Prevention Act of 2000. The Occupational Safety and Health Administration (OSHA), the Federal agency charged with enforcing safety and health legislation, mandates that syringes and other needle devices utilize “Engineering Controls,” such as a self-sheathing feature. OSHA also requires hospitals and medical institutions to use these best-in-class products as they become available.

Other developed markets such as Europe, Canada and Australia are now in the process of adopting similar measures. As of 2005, an estimated 1 million needlestick injuries occurred in Europe each year, but only 2.5% of syringes on the market were fitted with a safety feature, according to statistics compiled by market research firm Frost & Sullivan.

A 2005 ruling in Scotland was considered an important first step in convincing the UK and Europe to adopt needlestick safety laws. The ruling involved the case of a Scottish paramedic who accidentally jabbed himself with a needle while giving a shot of adrenalin to a patient who had overdosed on drugs. Scotland's public service employee trade union Unison took the case to court since the possibility that the needlestick might have infected the paramedic with HIV or hepatitis caused him and his fiancée considerable anguish. Scotland's National Health Service (NHS) had been studying the introduction of safety devices, but decided against them because of higher costs. However, the judges ruled that NHS's refusal to introduce safety syringes on cost grounds alone was a breach of employment and safety laws.<sup>2</sup> Additionally, in 2007, Germany introduced legislation that made safety syringes mandatory in all healthcare facilities.

A recent study quantified the effectiveness of U.S. federal legislation and regulations in reducing healthcare workers' risk of exposure to bloodborne pathogens.<sup>3</sup> The study analyzed needlestick injury data from 1993 to 2004 from a large network of U.S. hospitals using the Exposure Prevention Information Network (EPINet) sharps injury surveillance program, developed by the University of Virginia Health System's International Healthcare Worker Safety Center. The researchers found a 34% decline in needlestick injury rates for U.S. healthcare workers overall, and a 51% decline in needlestick injuries for nurses alone.

The study found that the largest reductions in injury rates were for two device categories with the highest risk of transmitting infections. These two high-risk device categories—phlebotomy needles and I.V. catheter needles—showed reductions of 59% and 53% respectively. The study noted that adoption of safety devices for these applications has been particularly high, with market penetration of 90% or more. The study's co-author, Jane Perry, Associate Director of the International Healthcare Worker Safety Center, stated in an interview, "In the categories where we've seen the highest adoption of safety devices, we've also seen the most reduction in injury rates."<sup>4</sup>

The \$1.6 billion safety syringe market has three main categories: retrofitted, automatically retractable and manually retractable. Retrofitted needles dominate the market because it was the most affordable until recently. A recent study by marketing firm Greystone Associates, "Retractable Safety Syringes: Devices, Strategies, Markets and Opportunities," stated that the gold standard for safety syringes has become the retractable safety syringe, a system that eliminates the need for the caregiver to manually cap or disable the needle after use.

Greystone's study found that retractable designs address caregiver preferences while reducing part counts and manufacturing steps. These refinements are helping to close the price gap with naked disposable syringes and non-retractable safety devices, and this development should help retractable syringe manufacturers and their distribution partners make a more compelling sales proposal to healthcare buying groups that account for the vast majority of syringe purchases.

**Sources:**

<sup>1</sup> CDC website on Sharps Safety. *Workbook for Designing, Implementing and Evaluating a Sharps Injury Prevention Program*: [http://www.cdc.gov/sharpssafety/pdf/sharpworkbook\\_2008.pdf](http://www.cdc.gov/sharpssafety/pdf/sharpworkbook_2008.pdf), page 1.

<sup>2</sup> Sparrow, Norman. "A ruling in Scotland may spur uptake of safe syringes." *European Medical Device Manufacturer*, November 2005.

<sup>3</sup> *The Journal of Infection and Public Health*, December 8, 2008.

<sup>4</sup> Akridge, Jeannie. "Get sharp about safety." *Healthcare Purchasing News*, August 2009.

**Disclosure Statements:**

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