

Innovative Syringe Management System

For home users—and some healthcare workers—there’s an exciting development in sharps safety

by Ron Stoker



Sharpsfree™ Syringe Management System

At least 800,000 accidental needlesticks are reported in the United States each year according to the Centers for Disease Control and Prevention. Some estimates place the number of accidental needlesticks as high as 2.5 million. Whatever the true number, it’s clear home syringe users and the healthcare industry face continuing challenges from sharps incidents.

The best solution? That’s difficult to say. In an ideal world we’d find a way to avoid using syringes. But since that’s not going to happen any time soon, other options must be explored. Safety syringes are the best real-world option. However, their higher costs, coupled with the array of options on the market, have dampened enthusiasm among some home users. Although home users have not adopted the use of safety syringes, I strongly encourage their use in the home care setting. I recently was diagnosed with drug-induced diabetes. I had to worry about using safety lancets, blood glucose monitors and being injected with insulin. All of a sudden the disposal of my sharps at home became a real issue. My wife and I talked about the proper way to dispose of these products to keep our family, sanitation workers, landfill workers and others safe from my blood.

Many home users and healthcare professionals wrestle with similar challenges of safety, economy, disposal, ease of use and compliance.

I recently had the opportunity to review an innovative product in a totally new safety product category. It addresses the home healthcare market and the apparent preference of home users to use the standard traditional syringe. This new product is called the Sharpsfree™ Syringe Management System.

Available in models for home users and healthcare professionals, this point-of-use system is simple and easy. Just insert the syringe and the machine does the rest, automatically separating the needle from the syringe. The used needles are stored inside the machine in a puncture-resistant cartridge for safe, convenient disposal. The remaining syringe can either be deposited into household trash or recycled as normal waste.

The Benefits

There are three key benefits associated with these kinds of devices. First, they greatly reduce



the post-use handling of syringes, resulting in a significantly reduced chance of accidental needlesticks during disposal for syringe users as well as those who handle the waste. Second, these systems are simple, fast and easy to use, increasing the probability of implementation. No product is effective if it's complicated or slow because people don't want to take the trouble to learn complicated and slow systems. Third, these systems save money. They allow use of regular syringes, if that's what users prefer, and they allow for the separation of the sharps from the plastic waste, which can then be disposed of more economically.

How It Works

To give an example, the Medtech Systems model for use at home holds up to 300 needles. That's a three-month capacity for a person using three to four syringes daily. It's configured to remove needles of 5/16-inch to 1/2-inch in length, gauges from 27 to 31, and syringes of .3cc to 1cc in volume. The simple device runs off a rechargeable battery. Easily portable—it's slightly larger than the size of an automatic pencil sharpener—it's small enough to be conveniently located within arm's reach of needle use. As a result it's ideal for safe, one-handed operation.

Safety

As previously mentioned, the ideal solution is a safety syringe. But for those home healthcare users who are currently using regular syringes, the increased safety from this product stems in large part from less handling of the used syringe. After use the syringe is inserted into the machine and the handling of the needle ends there. From a safety standpoint, it also helps that users are already familiar with safe use of regular syringes. In addition, the Medtech system emits no sparks or fumes during operation, so it's safe in any environment.

Quantification of Benefits

Many states have passed or are considering legislation banning home-used syringes from household trash. Two possible solutions include utilizing a "sharps by mail" program or driving the sharps to a drop-off location. Unfortunately these options can be expensive and/or time-consuming. One less expensive alternative could be a mail-in option Medtech is considering. This would enable home users to mail in their full needle cartridges. Keep in mind that no additional handling of the needles would be necessary because they would be sealed into the cartridge.

This may offer a significant cost savings. The most popular sharps by mail program costs about \$19.99 and can only handle 70 to 100 complete syringes at a time. The Medtech needle cartridge holds 300 needles at a cost of \$29.99. Quick math shows that current programs would cost \$60 vs. \$29.99 for the same number of needles in a Medtech device.

The cost of disposal of the syringe bodies as standard waste vs. regulated medical waste varies, depending on which state the units are being used in as well as the waste disposal contracts in place for the healthcare provider. It's safe to say, however, that disposal costs can be dramatically reduced with an automatic system because it's often less expensive to dispose of the plastics part of the syringe than the needle itself. With the Medtech system the waste is no longer totally "red bag" (contaminated). At least part of it is "black bag" (uncontaminated). Medtech is not alone in this belief. The Minnesota Pollution Control Agency has agreed, in writing, that plastic syringe waste, once the needles are removed, falls into the uncontaminated category.

More on Cost Savings

The savings associated with this type of product stems from:

- ▶ A reduction in the number of traditional sharps containers needed;
- ▶ Lower disposal costs;
- ▶ Reduced medical costs associated with accidental needlestick testing, treatment and monetary awards by reducing accidental needlesticks incidences.

Available in models for home users and healthcare professionals, this point-of-use system is simple and easy.

An Attempt to Quantify Increases in Safety

Attempting to measure cost savings from safety increases is tricky. But a consideration of the issues does indicate significant savings, even if numbers can't be assigned.

"Safety in familiarity of use" is a significant factor. You cannot overfill the needle cartridges in the Medtech machines because the number of needles is electronically controlled and counted. The polypropylene needle cartridge seals automatically when full. The unit automatically ejects the full cartridge and it will not work until a new empty cartridge is installed. Additionally, the needle cartridge has been tested to ensure it is puncture resistant. The Medtech product also renders the remaining syringe useless, eliminating any illegal secondary use of the syringe and thus further enhancing the overall safety profile.

Dr. John Beithon, who has a family medicine practice in Minnesota and frequently gives nerve block and joint injections, reviewed the use of the Medtech product. "The Sharpsfree from Medtech is a fascinating product that I believe would markedly reduce or totally eliminate needlestick injuries," said Dr. Beithon. "The product is simple to use. In fact, it could not be easier. I would recommend this product to all of my home healthcare patients who are able to self-inject medications such as insulin or B12. Many of them have typically thrown away their syringes in ways that they probably should not have. The Medtech device would allow them to drop the syringe into the unit—the needle is automatically separated from the syringe. The syringes could then be thrown away in their normal trash."

The Cost of Needlesticks

The costs associated with accidental needlesticks are reaching well into the billions worldwide.

We put the average cost for preliminary testing at a conservative \$3,500 per incident. Multiply that by a minimum of 800,000 incidents a year, which may be a very low figure, and you get \$2.8 billion in testing costs alone for employers and insurance providers.

That figure doesn't even begin to count the mounting costs of caring for those who contract bloodborne diseases from needlesticks, nor does it attempt to calculate the anxiety healthcare workers and others must deal with every day regarding the possibility of sharps incidents. For example, these worries may have a chilling effect on the industry's ability to attract qualified workers.

Mechanics of the Medtech Device

The units automatically begin processing the syringe after it is placed in the receiving opening. Once the syringe is positioned, the needle is gripped and completely extracted from the syringe and then deposited into a needle cartridge. The remaining syringe can either be deposited into household trash or recycled as normal waste (nonbiohazard).

The Medtech product counts the number of processed syringes: at a count of 295, the device signals, via a blinking red LED, that the needle cartridge is almost full. Upon reaching the full count of 300, a steady red LED signals that the cartridge is full and will need to be replaced before any further processing can take place. The product also automatically releases the needle cartridge for replacement once the cartridge is full. As the needle cartridge is removed, it is locked and sealed so that it can be disposed of safely. The product comes complete with two needle cartridges, one for immediate use and one replacement cartridge. Additional replacement needle cartridges can be ordered.

A True Win-Win

With devices like those pioneered at Medtech, home users and professional healthcare providers are more protected. Both entities can also enjoy significant savings. That's a winning combination. This product is an economical, real-world solution for home users, professional healthcare providers, insurance companies (via reduced testing and treatment of those who suffer sharps injuries) and any other users concerned about safety, waste management and costs. †

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Medtech Systems Inc. is located in Glencoe, Minn. Medtech is a medical product engineering company that designs and markets point-of-use automated syringe disposal products intended to reduce the risk of accidental needlestick injuries. For more information on Medtech and its products visit sharpsfree.com or call 320.864.2900.