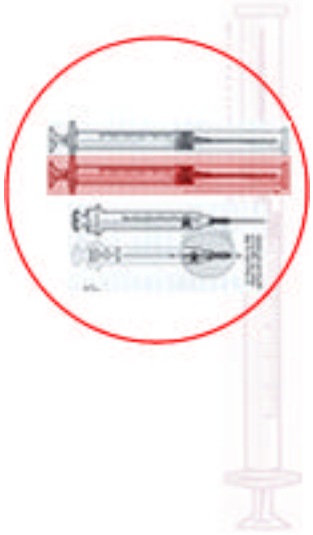
NIOSH recommends that health care facilities use safer medical devices to protect workers from needlestick and other sharps injuries. Since the passage of the Needlestick Safety and Prevention Act in 2000 and the subsequent revision of the OSHA Bloodborne Pathogen Standard, all health care facilities are required to use safer medical devices.

SAFER MEDICAL DEVICE IMPLEMENTATION IN HEALTH CARE FACILITIES

SHARING LESSONS LEARNED

NIOSH has asked a small number of health care facilities to share their experiences on how they implemented safer medical devices in their settings. These facilities have agreed to describe how each step was accomplished, and also to discuss the barriers they encountered and how they were resolved, and most importantly, lessons learned.



Phase 4 -- Evaluate Safer Medical Devices

The Department of Dentistry is a unit of a multi-site, public healthcare system. The system includes a 728 bed main campus teaching hospital and outpatient-based patient services. The system also includes 12 satellite outpatient locations. Dentistry sees patients at four sites: the main campus of the medical center, two satellite health centers and a skilled nursing center.

We evaluated the three dental safety syringes devices that were available:

- One safety needle that fits the metal dental syringes that are widely used by dental practitioners.
- Two types of safety-needle/plastic plunger assemblies

Dental staff were trained to use the devices in a variety of ways:

- One of the safety needle/plastic plunger systems included a video training tape. The staff were given the videotape to view and then practiced using the device.

- The second system had written instructions only. The staff and I read and interpreted the written instructions and then we practiced using the device.

- A manufacturers sales representative demonstrated and trained the staff before they used the third device.

The intent of the evaluation period was to evaluate each device separately. Each device was evaluated for a two week time period. There was a gap of several months between the evaluation of devices number two and three as device number three was remanufactured and not reintroduced until late August 2003. The forms that NIOSH provided were used to evaluate the devices.

Product Number One

Product Number One is a safety needle for metal dental syringes. This is a needle that is intended for routine administration of local anesthetics. It screws onto the metal syringe via a pre threaded plastic hub. It contains a stainless steel needle that is covered with a plastic sleeve. The sleeve is slid rearward over the syringe and slide forward over the needle when not in use. The needle is disposed of by covering the needle with the plastic sleeve and then unscrewing it from the metal syringe. A syringe with a non-removable hub is preferred when using the needle. We had a few metal syringes with non-removable hubs in the clinic, and tested the product with this type of syringe as well.

Three issues surfaced during the evaluation of this device. One dentist did not believe the quality and sharpness of the needles to be consistent with the top

brands of non-safety needles available. A second dentist who used the needle found that when sliding the sleeve off the needle it stuck on the metal hub of the syringe. His second issue was that when he recovered and tried to unscrew the needle the metal hub unscrewed as well. This issue proved to be the most serious as the metal hubs came off when the needle assembly was unscrewed and were often thrown into the sharps containers with the needle. A syringe with a non-removable hub is *preferred* by the manufacturer, but syringes with non-removable hubs are *no longer available*.

Product Number Two

Product Number Two is a safety needle/plastic plunger assembly. We were only able to obtain one box of this product and one plastic syringe. The staff had difficulties with this product from the beginning. Recapping the syringe was very difficult. Once the needle was recapped it was very difficult to recap again. In addition, some staff bend the long needles when injecting anesthetic. When the needles are bent, the needle cannot be recapped, and used again for multiple injections.

Product Number Three

Product Number Three is also a plastic syringe/needle system. The product uses a one-handed approach for both uncapping and recapping the needle. This product had been recently redesigned. The product is much more complicated to use. Aspiration is particularly complex. The manual dexterity needed to use the product though is only secondary to the fragile nature of the product. The plunger assembly tended to break if too much pressure was applied during the uncapping and setup, the device broke and the plunger could not be used.

Conclusion:
None of the above products was judged to perform adequately to use in everyday clinical practice. Product Number One if redesigned to fit on the removable hub syringes would be acceptable to use for a longer trial, where the quality of the needle could be assessed.

Staff Hours

Type of Staff	Hours Spent on Phase 3
Management	1
Administrative	35
Front-line	50
Total	86

Other, non-labor items:

Item
1. Contact dental supply and manufacturers sales representatives
2. Duplicating forms for evaluating the product
3. Review sources for new products