

SHARPS SAFETY

When procedures are not done carefully or correctly, or are done in haste, accidents do happen. These are common causes of sticks, scratches and cuts in a dental office:

1. Burs left in the handpiece, sitting upright in the bracket holder.
2. Aluminum or stainless steel crowns.
3. Laboratory knives.
4. Scalers, blades, needles or other sharp instruments on the treatment tray.
5. Cavitron scaler tips.
6. Transport of instruments from the operatory to the sterilization area.
7. Scalers, explorers, and other instruments with sharp edges (during procedures and while processing instruments for sterilization)

SAFE MANAGEMENT OF SHARPS

OSHA defines "sharps" as any object used or encountered that can be reasonably anticipated to penetrate the skin or any other part of the body, and to result in an exposure incident, including, but not limited to, needle devices, scalpels, lancets, broken glass, broken anesthetic carpules, exposed ends of dental wires and dental knives, drills and burs.

In this office, all sharps are to be handled in accordance with all applicable statutes.

According to OSHA's Bloodborne Pathogens Standard and the 2003 CDC Guidelines for Infection Control in Dental Health Care Settings, all recapping must be performed with a one handed method or a mechanical device. Here are the applicable sections:

From the Bloodborne Pathogens Standard:

[1910.1030\(d\)\(2\)\(vii\)\(A\)](#)

Contaminated needles and other contaminated sharps shall not be bent, recapped or removed unless the employer can demonstrate that no alternative is feasible or that such action is required by a specific medical or dental procedure.

[1910.1030\(d\)\(2\)\(vii\)\(B\)](#)

Such bending, recapping or needle removal must be accomplished through the use of a mechanical device or a one-handed technique.

This has been reiterated by the 2003 CDC Guidelines for Infection Control in Dental Health Care Settings:

Work-practice controls for needles and other sharps include placing used disposable syringes and needles, scalpel blades, and other sharp items in appropriate puncture-resistant containers located as close as feasible to where the items were used (2,7,13,113--115). In addition, used needles should never be recapped or otherwise manipulated by using both hands, or any other technique that involves directing the point of a needle toward any part of the body (2,7,13,97,113,114). A one-handed scoop technique, a mechanical device designed for holding the needle cap to facilitate one-handed recapping, or an engineered sharps injury protection device (e.g., needles with resheathing mechanisms) should be employed for recapping needles between uses and before disposal (2,7,13,113,114). DHCP should never bend or break needles before disposal because this practice requires unnecessary manipulation. Before attempting to remove needles from nondisposable aspirating syringes, DHCP should recap them to prevent injuries. For procedures involving multiple injections with a single needle, the practitioner should recap the needle between injections by using a one-

handed technique or use a device with a needle-resheathing mechanism. Passing a syringe with an unsheathed needle should be avoided because of the potential for injury.

Studies have shown that the most common injuries in the dental office are not caused by needles, but by instruments.

One common injury occurs as instruments are slid into bags for processing (as the instruments slide past your fingers it is easy to be pricked through a glove with a scaler and/or explorer), and doctors are scratched/stuck by burs left in the handpiece. These injuries are avoidable by using proper equipment and techniques.

In this office, thick utility gloves must be worn while processing instruments, and burs should be removed from handpieces when not in use, (or the handpiece placed in a safe position so that sticks are avoided).

Needlesticks are uncommon in dentistry. In 1993, the CDC determined that, once the typical two handed recapping method was replaced by a one handed recapping method, the incidence of sticks went down to an average of 1 stick per 16,000 injections. The sticks that do occur often occur in the mouth while giving the injection, in which case the safety feature would not prevent the injury. (*See the 1993 CDC guidelines for infection control in dentistry; Occupational Blood Exposures in Dentistry: A Decade in Review*, Cleveland, Jennifer, *Infection Control and Hospital Epidemiology*, Vol 18, No. 10, October 1997, 717-721; and "Preventing percutaneous injuries among dental health care personnel" *JADA*, Vol 138, Feb 2007; 169-178)

Other needlesticks can occur while disassembling the syringe. There are certain one-handed recapping devices that stand the needle cap in a stable base and the syringe is recapped by inserting the syringe in the cap. Sticks may occur if the employee isn't careful to secure the base with one hand and carefully hold the cap on while removing the syringe; the syringe may come out of the top and the employee may be stuck by the exposed needle.

In this office, unsheathed needles are never to be passed to employees or handled by employees. Instead, the doctor administering the anesthesia must recap the needle using a one handed method or an apparatus that allows one handed recapping. After the procedure, the capped syringe and other instruments must then be transported to the sharps container on a tray or in a cassette, and the needle should be properly removed from the device and immediately placed in the sharps container.

Sharps containers are located in the sterilization area where the instruments are processed. Sharps containers are all labeled, closable, stored upright, puncture and leak proof, and are not allowed to overfill. All instruments must be transported on a tray or in a cassette to the sterilization area for processing. Utility gloves must be worn whenever handling needles or sharps during instrument processing, and disassembling of syringes and disposal of sharps must be performed by the sharps container. Our needles are plastic hub needles so that the needles can be removed without extensive hand manipulation.

OSHA **prohibits** the following practices with regards to sharps management:

1. Shearing or breaking of contaminated needles, blades, and other contaminated sharps is prohibited.
2. Contaminated sharps shall not be bent, recapped, or removed from devices. EXCEPTION: Contaminated sharps may be bent, recapped or removed from devices if the procedure is performed using a mechanical device or a one-handed technique, and the employer can demonstrate that no alternative is feasible or that such action is required by a specific medical or dental procedure.

In this dental office, **sharps may be bent** while administering anesthesia, because some injection sites are inaccessible unless the needle is bent.

3. Sharps that are contaminated with blood or other potentially infectious material shall not be stored or processed in a manner that requires employees to reach by hand into the containers where these sharps have been placed.

4. Disposable sharps shall not be reused.
5. Do not pick up broken glass directly with hands. Use mechanical means, such as brush and dust pan or tongs.
6. Sharps containers shall not be opened, emptied, or cleaned manually or in any other manner which would expose employees to the risk of sharps injury.
7. Instruments should be removed from ultrasonic cleaners and cold sterile solutions using forceps, baskets or other mechanical means.

USE OF SAFETY NEEDLES AND SHARPS WITH ENGINEERED SHARPS INJURY PROTECTION

The Needlestick Safety and Prevention Act states that:

In addition to the existing requirements concerning exposure control plans (29 CFR 1910.1030(c)(1)(iv)), the review and update of such plans shall be required to also:

- (A) ``reflect changes in technology that eliminate or reduce exposure to bloodborne pathogens''; and*
(B) ``document annually consideration and implementation of appropriate commercially available and effective safer medical devices designed to eliminate or minimize occupational exposure''.

This office evaluates devices annually, and as they are introduced into the marketplace, to see if their use will improve workplace safety.

OSHA defines "engineered sharps injury protection" as it applies to dental safety syringes as: A physical attribute built into any other type of needle device, or into a non-needle sharp, which effectively reduces the risk of an exposure incident.

The ***Sharps Evaluation Forms*** are used to evaluate sharps with engineered sharps protection on an annual basis, or any time a new type of sharp is introduced into the marketplace (as require by the Needlestick Safety and Prevention Act under OSHA). Sharps are analyzed using these forms, their safety and effectiveness are discussed and evaluation and then a summary is written and filed. These forms contain information on sharps used in the dental office, including:

1. Type and brand(s) (if known)
2. Dental procedure(s) for which sharp is used
3. Whether the sharp has an engineered sharps injury protection feature which is a physical attribute built into the sharp which effectively reduces the risk of an exposure incident
4. If sharp has no "engineered sharps injury protection"

These evaluated sharps will **not** be used in the workplace if:

1. The specific type of sharp with an engineered sharps injury protection feature is not always readily available in the marketplace
2. Use of the sharp with engineered sharps injury protection jeopardizes patient safety or the success of the dental procedure. Use of this exception requires documentation, for example, a record of the dental office's experience with the sharp, or a scientific or clinical article published in a peer-reviewed or refereed journal.
3. Use of the sharp with engineered sharps injury protection is not more effective in preventing exposure incidents, as demonstrated by objective product evaluation criteria. Use of this exception requires documentation, for example, a record of the dental office's experience with the sharp, or a scientific or clinical article published in a peer-reviewed or refereed journal.
4. No reasonably specific and reliable information is available on the safety performance of the sharp with engineered sharps injury protection, and the office is actively determining by means of objective product evaluation criteria whether it will reduce the risk of exposure incidents.
5. Brands of sharps with engineered sharps injury protection which are available in the marketplace.

6. Whether sharps were involved in exposure incidents, and their frequency of use.

The availability of safety needles and other sharps with engineered sharps injury protection is researched through dental journals, periodicals and catalogs, inquiries of dental product suppliers and manufacturers, and visits with dental suppliers and manufacturers at dental meetings.

The following dental journals, periodicals, lists, websites and catalogs are reviewed: JADA (Journal of the ADA), CDC MMWR, OSHA and OSAP (Organization for Safety, Asepsis & Prevention)

This dental office has regular contact with our dental suppliers and manufacturers and they understand they are to keep us updated on information regarding safety needles and other sharps.

This dental office evaluates safety needles, sharps with engineered sharps injury protection, and other engineering controls on the basis of objective product evaluation by a third party whose report is reviewed by employees, and/or objective product evaluation by this dental office, including employee involvement. Employees attend annual reviews on new sharps technology, and employees are encouraged to submit any new technology they discover for evaluation by the office.

In this dental office, needles with engineered sharps injury protection are not used. First, according to our dental supply representatives, (because of low demand) the only safety syringe that is reliably available in the marketplace is the Septodent Ultra Safety Plus XL Safety Syringe. Secondly, several studies have shown that safety syringes do not reduce the incidence of sticks among experienced practitioners, and in fact, may increase stick injuries because of design issues with the product. We have evaluated the syringe and found that it does NOT meet the clinical needs of our doctors (see attached evaluation) and that using a traditional syringe with a one-handed recapping method is safer than using the Septodent syringe. (*See also: "Dental Safety Needles' Effectiveness: Results of a one year evaluation", Cuny, et al., JADA, Vol. 131, October 2000; 1443-1448*)

In this dental office, non-needle sharps with engineered sharps injury protection, such as safety scalpels, blunt suture needles, etc. are not used at this time, but are evaluated as new technology arises. We do use scalpel blade removers and sharps containers that remove needles without having to unscrew them/handle them.

MANAGING EXPOSURE INCIDENTS

In this office, exposure incidents are treated as medical emergencies and are dealt with promptly. Medical doctors who can provide proper post-exposure testing, followup and counseling are available at no charge to any employee who sustains an injury. All injuries should be reported immediately to the office OSHA coordinator so followup procedures can be implemented as soon as possible.

In this office, any time an injury occurs, the procedure/event that resulted in an exposure incident will be analyzed to determine whether any change in procedure or equipment will lessen the incident of injuries in the future.

Basic Steps to Follow After a Stick Incident (*a more detailed list is attached at the end of this section*):

1. Provide immediate first aid to the exposure site by washing with soap and water (*for mucous membrane exposure, flush with water*)
2. Report the incident to employer. (*If there is a problem, postexposure drug prophylaxis should be given within an hour or two, absolutely within 24 hours, to be most effective. Also, immediate reporting allows you to talk to the source patient while the patient is in the office so that he can be immediately sent for baseline testing, along with the injured employee.*)
3. Determine the risk of exposure and fill out an exposure report. (*Document the type of fluid involved, the*

type and degree of exposure, information about the source patient's health and level of infectivity, and the health status of the exposed person)

4. Call the PEP 24 hour Hotline: 888-448-4911 for advice, if needed. This hotline is staffed 24 hours a day by medical professionals who are specially trained to handle stick injuries. They can give excellent advice as to what procedures should be followed and whether the employee needs to take a prophylactic drug treatment. *(Their advice is very helpful because many health professionals are not very knowledgeable about dental stick injuries and, as a result, they may suggest drug treatment when it may not be indicated. Talking to these professionals gives some insight and information before seeing a local health care provider.)*

5. Refer the employee to a health care professional for testing, evaluation, followup counseling and post-exposure prophylaxis, if needed. The employer must provide a copy of the Bloodborne Pathogens Standard, job description of the employee, an incident/exposure report, any available information about the source patient's HIV/HBV/HCV status, if known, and information about the employee's HBV vaccination status and any other relevant medical information. The health care professional's job is to test the employee and the source patient *(no testing of the source patient is necessary if his HIV/HBV/HCV status is already known)*. The physician also notifies the employee of results of all testing, provides any counseling and provides post exposure prophylaxis, if needed. He also sends the employer documentation that the employee was informed of all results and the need for any followup and indicates whether HBV vaccine was administered. The employer must furnish the employee with a copy of this opinion within 15 days. This information should be placed in the employee's private medical record and kept separate from the rest of the OSHA materials. The employee has the right to refuse testing, or to delay testing of the drawn blood for up to 90 days.

6. The employer must maintain all related medical records for a period of thirty years past the term of employment.

Sources and links:

www.cdc.gov

www.ada.org

www.osap.org

www.osha.gov

http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10051 (Bloodborne Pathogens Standard)

http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=106_cong_public_laws&docid=f:publ430.106 (Needlestick Safety and Prevention Act)

<http://www.osha.gov/SLTC/dentistry/index.html> (dental topics)

www.niosh.gov

Articles:

Occupational Blood Exposures in Dentistry: A Decade in Review”, Cleveland, et al., Infection Control and Hospital Epidemiology, Vol 18, No. 10, October 1997, 717-721

“Preventing percutaneous injuries among dental health care personnel”, Cleveland, et al., JADA, Vol 138, Feb 2007; 169-178

“Dental Safety Needles’ Effectiveness: Results of a one year evaluation”, Cuny, et al., JADA, Vol. 131, October 2000; 1443-1448

CDC Guideline information (included related topics):

“Guidelines for Infection Control in Dental Health-Care Settings, 2003.” MMWR December 19, 2003 / 52(RR-17)

<http://www.cdc.gov/OralHealth/infectioncontrol/guidelines/index.htm>

1993 CDC Recommended Infection-Control Practices for Dentistry (MMWR, 5/29/93, Vol. 42, No. RR-8)

<http://www.cdc.gov/mmwr/preview/mmwrhtml/00021095.htm>

Centers for Disease Control and Prevention. Summary of Infection Prevention Practices in Dental Settings: Basic Expectations for Safe Care. Atlanta, GA: US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Oral Health; March 2016.

<https://www.cdc.gov/oralhealth/infectioncontrol/pdf/safe-care.pdf>

“Updated U.S. Public Health Service Guidelines for the Management of Occupational Exposures to HBV, HCV, and HIV and Recommendations for Postexposure Prophylaxis.” MMWR June 29, 2001; Vol. 50 (No. RR-11).

<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5011a1.htm>

“Updated US Public Health Service Guidelines for the Management of Occupational Exposures to HBV, HCV, and HIV and Recommendations for Postexposure Prophylaxis” (Information about hepatitis B booster recommendations and post-exposure prophylaxis can be found in the Appendix section, Table 3--updated HIV PEP info available in

"CDC Guidance for Evaluating Health-Care Personnel for Hepatitis B Virus Protection and for Administering Postexposure Management". Recommendations and Reports, 12/20/13, 62 (No. RR10); 1-19.

<https://www.cdc.gov/mmwr/preview/mmwrhtml/rr6210a1.htm>

"Updated US Public Health Service Guidelines for the Management of Occupational Exposures to HIV and Recommendations for Postexposure Prophylaxis, (MMWR, 9/30/05, Vol. 54, No. RR-9)

<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5011a1.htm>

"Immunization of Health-Care Workers: Recommendations of the Advisory Committee on Immunization Practices (ACIP) and the Hospital Infection Control Practices Advisory Committee (HICPAC)." MMWR December 26, 1997; Vol. 46 (No.

RR-1).<http://www.cdc.gov/epo/mmwr/preview/mmwrhtml/00050577.htm>

"Guideline for Hand Hygiene in Health-Care Settings." MMWR October 25, 2002 / Vol. 51 /

No. RR-16

<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5116a1.htm>

Date: _____

Sharps Evaluation of the Septodent Ultra Safety Plus XL Safety Syringe

(The Needlestick Safety and Prevention Act requires an annual review of any new technology that may make handling sharps more safely. This is a review of the only safety syringe that is readily available. Please review and discuss this with others in the office and file in OSHA notebook to satisfy the annual review requirements. You may also want to evaluate safety scalpels, blunt suture needles, etc.)

Dental supply representatives have indicated that the only syringe that is still widely available is the Septodent Ultra Safety Plus XL Safety Syringe, so that's what was evaluated. The syringe comes with an illustrated instruction sheet. Instructions can also be gotten from the internet or an instructional DVD.

The syringe is made of plastic, is reusable and accepts standard carpules. It has a sheath that fits over the needle after the injection is completed which easily locks into place (and it's easy to tell when the safety feature was engaged) and the entire needle apparatus can be removed in one piece with the sheath intact so the needle stays covered, which reduces the risk of a stick.

Here are the advantages of the ultra safety syringe over a regular syringe, **according to the manufacturer**: the protective sheath is part of the apparatus; providing an engineering control "makes incorrect needle recapping less likely"

Evaluators didn't really think that was an advantage over a traditional syringe recapped with a one handed recapping method; none of them had ever experienced "incorrect needle recapping" and since starting to use a one handed recapping method in the early 1990s, none had reported a stick injury from a needle (several reported minor injuries with a bur or a solid instrument over the past decade)

The evaluators agree that the device did not appear to increase patient discomfort, the safety device on the syringe was easy to recognize and use, the instructions given by the company were easy to understand, and the product could have been used without too much additional training (although the dental supply reps indicated that there is a learning curve and prior studies have indicated that dentists are more likely to be stuck during that time)

Here are the **disadvantages** according to the evaluators: the syringe was plastic and felt "flimsy" and "unstable" while using and loading with anesthetic carpules. All of the users felt that changing carpules was much more difficult than changing them on a traditional syringe. Some users with large hands didn't feel the syringe was comfortable. Seeing aspirated blood was more difficult through the protective sheath. The hub and sheath were large and difficult to see around, and depending on the angle of the practitioner, the needle tip and site of injection weren't always visible, especially in a smaller mouth or one with an active tongue; breath also fogged up the sheath, making it harder to see. Out of fourteen syringes, the sheath was accidentally placed from the holding position to the locked position on two of them and we had to get a new syringe.

Conclusion: The evaluators all agreed that device does not meet their clinical needs. After extensive discussion, evaluators agreed that the traditional syringe and a one handed recapping method was safer than using a safety syringe because of the lack of visibility and difficulty in loading and use. Previous studies have shown that most needle injuries occur among inexperienced practitioners; experienced practitioners do not find the "safety" syringes to be safer and do not intend to use them. Members of the dental team who break down traditional syringes are trained in methods to minimize exposure and do not report needlesticks (transport only sheathed needles and break down syringes where sharps containers are located)

Names of evaluators (doctors/hygienists/assistants): Laney Kay, JD, MPH Kenneth E. Kay, DMD, B. Walker (dental assistant), Dr. JR Smith, DMD

Sharps Evaluation Form

Office Name: _____

Product: _____ Number of times used: _____

Please **circle** the most appropriate answer for each question. Not applicable (N/A) may be used if the question does not apply to this particular product.

agree.....disagree

1. The safety feature can be activated using a one-handed technique 1 2 3 4 5 N/A
2. The safety feature **does not** obstruct vision of the tip of the sharp and the intraoral injection site. 1 2 3 4 5 N/A
3. Use of this product requires you to use the safety feature 1 2 3 4 5 N/A
4. This product **does not** require more time to use than a non-safety device 1 2 3 4 5 N/A
5. The safety feature works well with a wide variety of hand sizes 1 2 3 4 5 N/A
6. The device is easy to handle while wearing gloves 1 2 3 4 5 N/A
7. The device is easy to handle when wet 1 2 3 4 5 N/A
8. This device accepts standard anesthetic carpules and does not hinder carpule changing 1 2 3 4 5 N/A
9. The safety feature **does not** restrict visibility of carpule contents intraorally 1 2 3 4 5 N/A
10. This device accepts standard dental needles of all common lengths and gauges, and does not interfere with needle changing 1 2 3 4 5 N/A
11. The device provides a better alternative to traditional recapping 1 2 3 4 5 N/A
12. Sterilization of this device is as easy as a standard dental syringe 1 2 3 4 5 N/A
13. For syringes with integral needles only: The needle on this syringe **will not** break while bending and repositioning in the tissue 1 2 3 4 5 N/A
14. This device is no more difficult to break down after use for sterilization than a standard dental syringe 1 2 3 4 5 N/A
15. The safety feature operates reliably 1 2 3 4 5 N/A
16. The exposed sharp is permanently blunted or covered after use and prior to disposal 1 2 3 4 5 N/A
17. There is a clear and unmistakable change (either visible or audible) that occurs when the safety feature is activated 1 2 3 4 5 N/A
18. The user **does not** need extensive training to operate the product correctly 1 2 3 4 5 N/A
19. The design of the device allows for easy removal of the needle from the syringe 1 2 3 4 5 N/A
20. The design of the device allows for easy removal of the carpule from the syringe 1 2 3 4 5 N/A

After evaluation, I feel that this product: ___ DID ___ DID NOT make it safer to perform procedures because of the following reasons:

As a result, we: ___ WILL ___ WILL NOT be using this technology as a result of our findings.

NAMES/JOB TITLE: _____
