DOWNLOAD PDF INSTRUMENT PROCESSING

Chapter 1 : Instrument Processing for Infection Prevention | Dental Learning

The ImpactDesign seminar, sponsored by Midmark Corporation, can help you achieve your ideal dental practice through a personalized, interactive discussion about efficient, and effective dental-specific design principles.

Technique Transport Transport contaminated instruments to the processing area in a manner that minimizes the risk of exposure to persons and the environment. Use appropriate PPE and a rigid, leakproof container. Cleaning Clean instruments using a hands-free, mechanical process, such as an ultrasonic cleaner or instrument washer. If instruments cannot be cleaned immediately, use a holding solution. Place a chemical indicator inside the package next to the instruments. If an indicator is not visible on the outside of the package, place an external process indicator on the package. Do not overload the sterilizer. Place packages on their edges in single layers, or on racks to increase circulation of the sterilizing agent around the instruments. Allow packages to cool before removing them from the sterilizer. Allow packages to cool before handling. Storage Store instruments in a clean, dry environment in a manner that maintains the integrity of the package. Rotate packages so that those with the oldest sterilization dates will be used first. Delivery Deliver packages to the point of use in a manner that maintains sterility of the instruments until they are used. Inspect each package for damage. Quality assurance program PPE, Personal protective equipment. Processing reusable instruments begins at the chairside at the completion of the patient visit and ends with procedures that ensure the quality of the entire reprocessing procedure. First, put on your utility gloves and discard disposable needles, scalpels, and other contaminated sharp items into a puncture-resistant sharps disposal container. Dispose of other waste, such as used cotton rolls and gauze squares Figure Now take the contaminated instruments to the sterilization center processing area. To prevent injury, the instruments should be transported in a rigid, leakproof, covered container Box

Chapter 2 : Instrument Processing - Midmark Medical

The instrument-processing area, or sterilization area, should be centrally located in the office to allow easy access from all patient care areas. This minimizes the need to carry contaminated items through clean areas of the office, where sterilized instruments, fresh disposable supplies, and prepared trays are stored.

Instrument Processing A critical element for a safe dental practice. Eve Cuny, MS Safe processing of reusable dental instruments is a basic tenet of patient safety in healthcare settings. As simple as it may seem, it is important to understand that sterilization is only one element of instrument processing. If any element is performed improperly, it can result in risk to either personnel or patients. All of the elements put together that result in successful sterilization practices lend themselves very well to a systematic approach. A systematic approach is methodical, repeatable, and learnable through a step-by-step process. Instrument processing is most successful when a set of appropriate steps and activities is identified, organized in the correct sequence, put into place, and then followed consistently each time the process is repeated. Sterilization of medical instruments is not a purely modern concept. From the time Pasteur developed the germ theory of disease transmission in s, medical scientists have been looking for ways to ensure that medical instruments and equipment can be rendered safe for reuse on multiple patients. In the past years, additional methods of heat sterilization and increasingly sophisticated autoclaves have emerged. Workflow Processes Instrument processing, as with many system processes, lends itself well to following standard operating procedures. Standard operating procedures are a list of instructions that help guide the person s performing the process through the steps involved in successful completion. An example of standard operating procedures for instrument processing is depicted in Table 1. The physical space in which instrument processing is performed should be arranged to create a natural and one-directional flow from dirty to clean areas. Delivery from the Treatment Area After completion of dental treatment, all reusable instruments and equipment should be removed to the sterilization area. Disposable sharps should be discarded into appropriate sharps containers at the location of use, not taken to the sterilization room for disposal. According to the Occupational Safety and Health Administration OSHA Bloodborne Pathogens Rule, contaminated reusable sharp instruments should be place in containers that are puncture-resistant, labeled or color-coded, and leak-proof on the sides and bottom. The use of instrument forceps or a basket that can be turned out onto a surface would be acceptable alternatives. Presoaking and Cleaning It is important to thoroughly clean instruments of all debris, including dental materials, blood, and tissue before sterilization. The presence of debris can interfere with the success of the sterilization process. In this case a pre-soak or pre-spray may be used to prevent the instruments from drying out. A pre-soak or pre-spray may also be used to pre-treat instruments that are particularly difficult to clean, such as surgical instruments with grooves that may contain blood or tissue. When the cavitation comes into contact with the instruments, it dislodges debris. These devices are manufactured and marketed as medical devices and should not be confused with household dishwashers, which have not been designed for cleaning dental instruments Figure 1. After washing, instruments should be thoroughly rinsed if they may have detergent residue and then dried before packaging. If using instrument cassettes, the entire cassette should be rinsed without opening. These should also be allowed to dry before packaging. Packaging There are several types of packaging available for sterilization. The type selected by an individual practice should be based on the type of sterilization process and the method of delivery of instruments to the treatment area. Pouches are available for packaging individual or sets of instruments, while sterilization wrap is intended for wrapped trays or cassettes. Pouches are constructed of paper, clear plastic, paper and plastic, or nylon. Instruments should be placed carefully into pouches, ensuring that the pouch does not become torn or punctured. Holes and tears in the pouch will compromise the sterility of the contents during storage. Pouches should be sealed before sterilization, ensuring that there are no gaps or openings that may allow contamination of the contents during storage and handling. Materials that are not specifically intended for this purpose should not be used to package instruments for sterilization. In rare circumstances, it may be necessary to sterilize an item unwrapped. These are steam under pressure autoclave , dry heat, and unsaturated chemical vapor. Steam

Sterilization There are two basic types of steam sterilization; gravity displacement and dynamic air removal pre-vacuum. Most tabletop-style autoclaves, which are commonly used in dental practices, are gravity displacement. In these sterilizers, steam is injected into the chamber, forcing the air out of the chamber via the drain. Pre-vacuum sterilizers employ a pump to remove air from the chamber before injecting steam, resulting in nearly instantaneous steam penetration. The time required to dry wrapped packs is similar for both gravity and pre-vacuum sterilizers at 15 to 30 minutes. Because the pre-vacuum sterilizer relies on complete air removal to allow the shorter cycle time, a daily air removal test is necessary before the first load of instruments for the day. Dry-Heat Sterilization Dry-heat sterilization is indicated for the sterilization of items that may be damaged by moist heat. It is noncorrosive and penetrates materials well, providing a suitable alternative for steam sterilization when needed. However, the longer cycle times and higher temperatures are incompatible with some commonly used items in dentistry, such as dental handpieces and most items constructed of plastic. Unsaturated Chemical Vapor Unsaturated chemical vapor sterilization uses a proprietary chemical formula to generate a chemical vapor with low humidity. Unlike steam, the unsaturated chemical vapor is noncorrosive to metals. Sterility Assurance Monitoring the sterilization process helps to identify equipment malfunction and operator error that may not otherwise be immediately apparent. Monitoring can be performed using mechanical, chemical, and biological methods. Mechanical monitoring relies on the gauges, tape, and digital indicators to provide information regarding temperature, pressure, duration, and other variables that are involved in the specific type of sterilization process. These should be monitored for proper functioning during each cycle. Chemical indicators include strips, paper, and tape embedded with chemicals that will measure various parameters of sterilization, including temperature, duration, and presence of steam. Available in a variety of forms, these should be used on the inside of each package of instruments to ensure that the sterilizing agent has reached the instruments in a pack and on the outside of each package as an indicator to personnel that the package has been subjected to a sterilization process. The test strip in a glassine envelope or vial is placed in the sterilizer with a load of instruments and removed at the end of the cycle. It is then either sent to a laboratory for processing and reading or incubated in the office. The Centers for Disease Control and Prevention CDC recommend that dental office sterilizers be monitored using biological indicators at least weekly. A small error, such as placing unsterilized packs of instruments in a location where another person may mistake them for sterilized packs, has potentially disastrous consequences for patients and for the dental practice. Good standard operating procedures, regular training, and consistent monitoring of sterilization procedures are all part of an effective instrument processing and sterilization program. Occupational exposure to bloodborne pathogens; needlesticks and other sharps injuries; final rule. Practical Infection Control in Dentistry. Comparison of an ultrasonic cleaner and a washer disinfector in the cleaning of endodontic files. Morrison A, Conrod S. Dental burs and endodontic files: Are routine sterilization procedures effective? J Can Dent Assoc. Sanchez E, Macdonald G. J Am Dent Assoc. Sterilization, Disinfection, and Asepsis in Dentistry. Disinfection, Sterilization, and Preservation. Guideline for disinfection and sterilization in healthcare facilities. Sterilization Procedures and Monitoring.

Chapter 3 : Sterilization - Cleaning | FAQs | Infection Control in Dental Settings | Oral Health | CDC

A peer-reviewed publication written by Eve Cuny, MS and Fiona M. Collins, BDS, MBA, MA. Educational Objectives. The overall goal of this article is to provide the reader with information on instrument processing requirements and the methods for instrument processing.

References What is a central instrument processing area? In dental health care settings, all instrument cleaning, disinfecting, and sterilizing should occur in a designated central processing area in order to more easily control quality and ensure safety. The instrument processing area should be physically divided into sections for 1 receiving, cleaning, and decontamination; 2 preparation and packaging; 3 sterilization; and 4 storage. This division is designed to contain contaminated items in an area designed specifically for cleaning, thus preventing contamination of the clean areas where packaging, sterilization, and storage of sterile items occurs. Reusable contaminated instruments and devices are received, sorted, and cleaned in the cleaning area. The packaging area is for inspecting, assembling, and packaging clean instruments in preparation for final processing. The sterilization and storage areas contain the sterilizers and related supplies, as well as incubators for analyzing spore tests, and can contain enclosed storage for sterile items and disposable single-use items. When it is not possible to have physical separation of these areas, clearly labeling each area e. Top of Page Why must instruments be cleaned before being sterilized? Cleaning should precede all disinfection and sterilization processes. Cleaning involves the removal of debris organic or inorganic from an instrument or device. If visible debris is not removed, it will interfere with microbial inactivation and can compromise the disinfection or sterilization process. Top of Page Which is the best method for cleaning instruments, manual e. Debris can be removed from an instrument either by scrubbing the instrument manually with a surfactant or detergent and water or by using automated equipment e. After cleaning, instruments should be rinsed with water to remove chemical or detergent residue. Splashing should be minimized during rinsing and cleaning. Considerations in selecting cleaning methods and equipment include their effectiveness, their compatibility with the items to be cleaned, and the occupational health and exposure risks they pose. Because instruments cleaned with automated cleaning equipment do not need to be presoaked or scrubbed, the use of automated equipment can increase productivity, improve cleaning effectiveness, and decrease worker exposure to blood and body fluids. Thus, using automated equipment can be more efficient and safer than manually cleaning contaminated instruments. Top of Page How do I perform manual cleaning? CDC also recommends using long-handled brushes to keep the hand as far away as possible from sharp instruments. Top of Page What type of personal protective equipment is necessary when cleaning instruments and surfaces? To avoid injury from sharp instruments, personnel should wear puncture-resistant, heavy-duty utility gloves when handling or manually cleaning contaminated instruments and devices. Because splashing is likely to occur, they should also wear a facemask, eye protection or face shield, and gown or jacket. Employees should not reach into trays or containers holding sharp instruments that cannot be seen. To reduce their risk of injury, they should instead remove instruments using forceps or empty them onto a towel.

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Instrument processing and recirculation involve a complex series of events. Appropriate cleaning, packaging, sterilization, and storage practices are essential to ensure contaminated items are appropriately treated and safe for patient care.

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Confusion about dental instrument processing can involve areas such as the efficacy of hand scrubbing versus mechanical cleaning of instruments, integration of instrument cassettes into practice, loading sterilizers, and monitoring sterilization cycles.

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In other words, the same sets of instrument processing, personal protection equipment, and engineering and work practice control precautions can be expected to protect against all bloodborne disease agents.(1) As such, instruments used on a known hepatitis patient need not be segregated from other contaminated instruments, can be cleaned in an.

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