Infection prevention and safety is a discipline that requires constant attention. We need to chart a course to success by steering around obstacles and pitfalls, managing changes in regulations and recommendations and evaluating new products and procedures. So this year Infection Control in Practice will help you navigate a course to infection prevention and safety by presenting issues titled “Set Your Course for Safe Dental Care”, “Continuing Your Journey to Safe Dental Care”, “Microbes that Challenge the Journey to Safe Dental Care”, “Plotting a Course Around Infection Prevention Pitfalls”, “Plotting a Course to Prevention Through Immunization” and “Steering Toward Patient Safety”.

Continuing Your Journey to Safe Dental Care

Now is the time to ensure that your infection prevention procedures are being performed correctly and are in compliance with regulations and appropriate recommendations.

Scenario 1
The Incident
Dr. Toosey’s staff consists of two dental assistants [Bingie and Tember], one hygienist [Sander], and two front office staff. They all have been with Dr. T since his general dentistry practice opened 14 years ago. Dr. T decided to attend a local dental study club for the first time, and after talking with some of his peers about developments in dentistry, he thought he may need to update his infection prevention program. He was aware of some of the Occupational Safety and Health Administration (OSHA) rules but had not seen details of the Centers for Disease Control and Prevention (CDC) recommendations. Dr. T appointed Tember as the safety officer and asked her to review the office’s procedures to see if any changes were needed. She felt a little inadequate for the job (she had not kept up with things either) but knew that she would also learn from the experience. Tember decided to simply write down office procedures that she observed.

As designated safety officer, here is what Tember saw during her observation of procedures:

- Hand hygiene was practiced before and after gloving.
- All the staff wore scrubs at chairside, and everyone thoroughly washed them at home with hot water and detergent.

Learning Objectives
After reading this publication, the reader should be able to:

- describe the importance of reviewing infection prevention procedures.
- describe the importance of maintaining a proper inventory of supplies.
- define aseptic retrieval and unit dosing.
- describe regulations and recommendations on sterilization monitoring, instrument packaging, surface disinfection, placement of sharps containers, laundering protective clothing.
Continuing Your Journey to Safe Dental Care

The 4 x 4# gauze pads were thoroughly soaked in the iodophor and alcohol mixture for at least three days before use.

Spare instruments were stored in the white glass instrument holders in cabinet drawers at chairside.

The steam sterilizer was monitored once a month with a spore vial.

Placing the sharps container only in the sterilizing room prevents proper disposal of used needles, which should occur at chairside. Containers should be located in the immediate area of sharps use or workers are at increased risk when they must handle and dispose of the needle.

Contaminated surfaces were being disinfected between patients, but the disinfectant was being used in an off-label manner. Also it’s not clear that surfaces were being cleaned first before disinfection, as was likely indicated on the disinfectant label. Thus, the disinfection procedure may not have been working.

Also, using a supplies cart at chairside can result in gross contamination of those supplies (e.g., if the sliding top is left open during patient treatment; if an aseptic retrieval technique is not used with the bulk supplies). Instruments were being processed through a sterilizer, but they were unpackaged and manipulated after removing from the sterilizer allowing for unnecessary re-contamination before distribution at chairside. The unpackaged spare instruments being kept in drawers are subject to cross-contamination.

The office would be hard-pressed to state that they were using sterile instruments, since only one sterilizer run per month was being spore-tested, and no other means of sterilization monitoring was performed on any of the other days. In addition, a control spore vial was apparently not used, so a test with a single vial would not be a valid test.

Continuing Your Journey to Safe Dental Care continued from page 1
**Prevention**

This office needs to update infection prevention procedures and ensure they are based on current regulations and recommendations. A written exposure control plan (required by OSHA) that describes the procedures to be used to prevent occupational exposure to bloodborne pathogens needs to be prepared. Periodic reviews of the performance of these procedures need to be conducted by direct observation (second-hand verbal information may be suspect) to make sure they match what is in the exposure control plan.

Since there are very few ways to actually measure the effectiveness of infection prevention procedures in an outpatient environment (except for sterilization monitoring), effectiveness needs to be approached by determining the correct way to perform a procedure and then executing that every time. Here are several examples of infection prevention procedures that need to be performed consistently:

- Long-sleeved protective clothing needs to be worn at chairside when there is a chance for body fluid contamination of the forearms.

- Contaminated items such as protective clothing should not be worn or taken home for laundering. The employer needs to control this by in-office laundering or contracting with a medical laundry service.

- Ensure that sharps containers are located in the immediate area of use because placing sharps containers only in the sterilizing room promotes a second handling of sharps and puts others at risk of injury.

- Dental anesthetic needles need to be safely recapped and disposed in sharps containers at chairside.

- Disinfectants and all other products and equipment need to be used as directed by the manufacturer to help ensure their effectiveness.

- Mobile supplies carts used during patient treatment should be eliminated unless a stringent specific protocol is in place to avoid cross-contamination of those supplies. Such a protocol would include the use of aseptic retrieval procedures and limitations as to when the supplies may be exposed to the air. The need for such carts might be replaced by unit dosing.

- Instruments need to be packaged prior to sterilization to prevent re-contamination after sterilization and before they are presented for use on a patient.

- The CDC recommends spore-testing sterilizers weekly and mechanically monitoring every sterilizer run. Also, each package is to be monitored with chemical indicators.

- Drawers near chairside should not be used during patient treatment, for this contributes to cross-contamination of the drawer contents especially if the contents are not packaged.1

**PS: After returning from the symposium and after some additional reading**

Tember recommended several changes to Dr. T, one of which was joining OSAP to keep up-to-date with required standards and recommended guidelines for delivery of safe dental care.

**Related Regulations and Recommendations**

- Wear protective clothing (e.g., reusable or disposable gown, laboratory coat) that covers personal clothing and skin (e.g., forearms) likely to be soiled with blood, saliva, or other potentially infectious materials. Change protective clothing if visibly soiled (CDC).2

- Also wear gloves, surgical mask and eye protection with solid side shields when a potential exists for contacting blood or saliva (CDC).2

- Personal protective equipment will be considered “appropriate” only if it does not permit blood or other potentially infectious materials to pass through to or reach the employee’s work clothes, street clothes, undergarments, skin, eyes, mouth, or other mucous membranes under normal conditions of use and for the duration of time which the protective equipment will be used (OSHA).3

- The employer shall clean, launder, and dispose of personal protective equipment at no cost to the employee (OSHA).3

- Clean and disinfect clinical contact surfaces that are not barrier-protected, by using an EPA-registered hospital disinfectant with a low- (i.e., human immunodeficiency virus [HIV] and hepatitis B virus [HBV] label claims) to intermediate-level (i.e., tuberculocidal claim) activity after each patient. Use an intermediate-level disinfectant if visibly contaminated with blood (CDC).2

- Before sterilization of critical and semicritical instruments, clean and inspect the instruments for cleanliness, wrap or place them in containers designed to maintain sterility during storage (e.g., cassettes, organizing trays), and place an internal chemical indicator in each package. If the internal indicator cannot be seen from outside the package, also use an external indicator (CDC).2

- Monitor each load with mechanical (e.g., time, temperature, pressure) and chemical indicators (CDC).2

- Monitor sterilizers at least weekly using a biologic indicator with a matching control (i.e., biologic indicator and control from same lot number) (CDC).2

*continued on page 4*
Can you identify any breach in infection prevention and safety procedures in this photo? Check your answers below.

Scenario 2
The Incident
Dr. Gudda hired Erron to temporarily replace his only dental assistant who suddenly got sick with gastroenteritis (probably from a norovirus). Erron is a Certified Dental Assistant (CDA) and graduated from the local community college about six years ago.

On her first day at work she found out that sometimes when it rains it really does pour. The first problem was that the office was out of the small examination gloves, so Erron had to wear the large ones that Dr. Gudda used. After the last patient left, Erron began to process the contaminated instruments, but the steam sterilizer stopped working in the middle of a cycle and she couldn’t get it restarted. She called the local dental supplier, but the service technician was booked for the rest of the day and a back-up sterilizer would not be available until tomorrow afternoon. She went to the storage area in the sterilizing room to check on the inventory of instruments for use on tomorrow’s patients. She discovered some wrapped instrument cassettes stacked next to the sterilizer. She gave a sigh of relief until she noticed that they were sealed with what appeared to be duct tape. Erron asked Dr. G about the tape, and he said: “We ran out of autoclave tape so I brought in some duct tape. I’m sure they have been sterilized. We’ll use them tomorrow”. Dr. Gudda started reviewing the charts of tomorrow’s patients and discovered that the first patient in the morning has chronic obstructive pulmonary disease. So just before Erron left for the day Dr. G asked her to check on the oxygen tank. Well, you guessed it, the tank was empty!

Potential Consequences
Not being attentive to “behind the scene” details can really throw a monkey wrench into dental office operations. Having to use poorly fitting gloves can make safe handling of instruments and equipment quite a challenge. Not having a back-up plan for sterilizer failures can severely interrupt practice management and possibly put patients at risk by using non-sterile instruments. The latter is also possible when instrument packages are not properly identified with chemical indicators as having been processed through a sterilizer. Not maintaining emergency medical equipment and supplies can have life-threatening consequences.

Prevention
The availability of supplies and the proper functioning of equipment is clearly critical to maintaining an efficient operation. Inventory levels of supplies need to be regularly monitored based upon rate of use, bulk purchase price, storage space and shipping efficiency of the supplier. Sterilizer failures can be managed by having a second sterilizer in the office or having a guarantee from a supplier that a loaner can be obtained when needed. It is highly likely that the sterilizer failure in Dr. G’s office was due to improper maintenance, (e.g., not cleaning out the chamber drain as described in the user’s manual). Finally, duct tape CANNOT be used as an internal or external sterilization indicator. (Duct tape has its limitations after all!)

PS: Erron was glad when the regular assistant returned to work.

What’s Wrong With This Picture?
Can you identify any breach in infection prevention and safety procedures in this photo? Check your answers below.

Answer: The patient has not been given protective eyewear to wear. The doctor and dental assistant are not wearing long-sleeved protective clothing at chairside when there is a chance for body fluid contamination of the forearms. Using barriers to protect the microscope would be better than trying to clean and disinfect it.

Related Regulations and Recommendations
• The employer shall ensure that appropriate personal protective equipment in the appropriate sizes and types is readily accessible at the worksite or is issued to employees (OSHA).^3
• Designate a central processing area. Divide the instrument processing area, physically or, at a minimum, spatially, into distinct areas for 1) receiving, cleaning, and decontamination; 2) preparation and packaging; 3) sterilization; and 4) storage. Do not store contaminated instruments in an area where cleaned instruments are held or cleaned (CDC).^2
• Use an internal chemical indicator in each package. If the internal indicator cannot be seen from outside the package, also use an external indicator (CDC).^2
• Check that portable emergency oxygen tanks are full and easily accessible. Check portable emergency tanks for adequate pressure to enable a continuous flow of six liters per minute for 30 minutes. Check function of the positive pressure resuscitation bag (bag-mask or ambu bag) and hoses and look for cracks.^4
What Can OSAP Do for You?

Shortly after my appointment as Associate Dean for Clinical Affairs, the designated Infection Control Officer (ICO) for this institution resigned from that position to take on other duties. Rather than appoint another ICO immediately, I registered for the OSAP meeting in Palm Springs to discover for myself the value of this organization and events that it sponsors. The level of experience and expertise, evidence based science and government regulatory information that is available through this organization is a vital resource in support of the daunting task of ensuring a safe environment for patients and healthcare workers in a large educational clinical setting.

The online resources available for clinical managers and educators are excellent. The timely updates, responding to current issues, as well as the bi-monthly newsletter, address seasonal and timely issues and point to external regulatory resources. The annual conference provides interaction with corporate sponsors whose products aid us greatly in our mission of safety and infection control.

The chance to collaborate and interact with other members of OSAP regarding all safety and compliance issues that we have in common has been extremely valuable both during the meetings and online between meetings. I always leave the OSAP annual conference “revived” and enthused about what I have learned from presenters with a renewed commitment to do it better. I would definitely recommend OSAP to anyone with responsibilities to ensure clinical safety and compliance for their organization.

It is gratifying to see the growing global influence of OSAP over the past several years. As a member of the Business and Financial and Clinical Administrators section of The American Dental Education Association it is good to see OSAP being recognized as a leader and supporter of dental education.

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Need some help in continuing your journey for safe dental care?
Visit www.osap.org and simply select your job role category at the top of the OSAP home page. You will land on a page customized with resources specifically designed to meet your needs. It’s your online tool to resources that help the dental team practice infection prevention and deliver safe dental care.

continued on page 6
OSAP Membership
EVERYONE has a role to play in ensuring safe, infection-free oral healthcare. If you know someone who can benefit from OSAP membership please encourage them to visit OSAP.org to learn more about the benefits of OSAP membership. OSAP offers ways to stay current, informed and connected through several membership categories.

OSAP member categories are designed to meet the needs of dental health care professionals in a variety of job roles:

- **Professional Practice**: Includes up to 10 individual email address log-ins $150
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- **Student**: Must provide proof of full-time enrollment $25
- **Corporate** memberships are welcome; please contact OSAP for information.

Contact us at www.osap.org, or by phone: 1-800-298-OSAP (6727) within the U.S. or 1-410-571-0003 outside the U.S.

Glossary

- **Aseptic retrieval**: Retrieving a single item from a container without contaminating the other items in the container.
- **Critical items**: Devices or instruments that cut or otherwise penetrate bone or soft tissue providing them with access to the bloodstream or normally sterile tissues.
- **Duct tape**: A highly versatile super adhesive tape originally designed to seal the seams of furnace ducts. It should not be used as a sterilization indicator or on any medical device.
- **Semi-critical items**: Devices or instruments that contact mucous membranes or nonintact skin; will not penetrate soft tissue, contact bone, enter into or contact the bloodstream or other normally sterile tissue.
- **Unit dosing**: Supplies are distributed or packaged in small numbers sufficient for the treatment of one patient and are placed at chairside before treatment begins.

Links to Resources

If you wish to obtain one (1) hour of continuing education (CE) credit, complete the following test by selecting the best answer and fax or mail it to the OSAP Central Office for grading. Please include a check or credit card to cover the handling charges. Pending satisfactory results (at least seven out of ten), you will be issued a letter for one (1) CE credit hour. Educational Method: Self-Instruction. OSAP is recognized by the American Dental Association as a CERP Provider.*

For each item, select the best answer.

1. What should be done to make a mobile supplies cart safe for use at chairside?
   a. Mark it with a biohazard symbol
   b. Position it only on the left side of the patient
   c. Only use it with an aseptic retrieval technique
   d. Clean and disinfect it at the end of the day

2. How should disinfectants be used to help ensure their effectiveness?
   a. Presoak gauze wiping pads in the disinfectant for at least two days before use
   b. Use a surface contact time of 10-20 seconds
   c. Add alcohol (ethyl or isopropyl) to a final concentration of 10%
   d. Follow the manufacturer’s directions on the label

3. What should the performance of infection control procedures be compared with to ensure they are being conducted properly?
   a. Hazard communication program
   b. Exposure control plan
   c. Vaccination declination statement
   d. Safety data sheets

4. Where should sharps containers be placed for use?
   a. Sterilizing room and laboratory
   b. Chairside and darkroom
   c. Where sharps are used or may be found
   d. Where sterile packages are stored

5. When packaging instruments for sterilization what should be done if the internal chemical indicator cannot be seen from the outside of the package?
   a. Place another chemical indicator on the outside of the package
   b. Add a biological indicator to the inside of that package
   c. Document the temperature half-way through the sterilization cycle
   d. Double the sterilization time when processing that package

6. Why shouldn’t a dental assistant launder protective clothing at home?
   a. Items may get lost
   b. Home washing machines are not adequate
   c. It’s the responsibility of the employer
   d. OSHA requires the use of a commercial laundry

7. Why package instruments prior to sterilization?
   a. Prevents unnecessary recontamination after removal from the sterilizer
   b. Keeps carbon steel instruments from rusting in steam sterilizers
   c. Allows the sterilization time to be cut in half
   d. So a chemical indicator can be used to monitor sterilization

8. What federal agency requires that healthcare employees be provided gloves that fit properly?
   a. Department of Homeland Security
   b. Occupational Safety and Health Administration
   c. Environmental Protection Agency
   d. Food and Drug Administration

9. According to OSHA what should personal protective equipment protect?
   a. Street clothes and undergarments
   b. Street clothes, work clothes, and undergarments
   c. Street clothes, work clothes, skin, and mouth
   d. Street clothes, work clothes, undergarments, skin, eyes, and mouth

10. How is unit dosing implemented?
    a. Prescribing antibiotics based on their international units
    b. Distributing supplies for just one patient
    c. Disinfecting the dental unit all at one time
    d. Aseptically retrieving a single item from a bulk container

*ADA CERP is a service of the American Dental Association to assist dental professionals in identifying quality providers of continuing dental education. ADA CERP does not approve or endorse individual courses or instructors, nor does it imply acceptance of credit hours by boards of dentistry. Concerns or complaints about a CE provider may be directed to the CE provider or to ADA CERP at ADA.org/goto/cerp. Please email the OSAP central office at office@osap.org or call 410-571-0003 if you wish to be in contact with the course author/creator(s) with any questions or for clarification of course concepts. All participants assume individual responsibility for providing evidence of contact hours of continuing education to the appropriate authorities and for the maintenance of their individual records. Publication date: April, 2013. Expiry date: April, 2016.

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What's It All About?

This issue emphasizes ways to continue your journey for safe dental care by bringing infection prevention procedures to the forefront for review.

Are your infection prevention procedures being performed correctly?

Do these procedures match what is described in your exposure control plan?

Do you have a back-up plan for management of a sterilizer failure?

Are you maintaining your equipment as recommended by the manufacturers?

Is your inventory of supplies adequate or over-stocked?

Read On!

In the next issue: Microbes that Challenge the Journey to Safe Dental Care