

IN PRACTICE

Dentistry's Newsletter for Infection Control and Safety

SPECIAL SERIES

This is the third part in our series to help you with infection control by compartmentalizing the issues and procedures. We began with "Before You Walk in the Door" and "The Reception Area", and we'll follow the current issue with, "The Instrument Processing Room", "Support Equipment" and "Ending the Day".

The Operatory

Chairside asepsis involves the infection control procedures performed at chairside just before, during, and immediately following patient treatment. Since the patients' mouths are the primary sources of potential pathogens in the office, these chairside procedures take on a special meaning. At this point, all three major routes of microbial spread can occur from the:

- ♦ patient to you,
- ♦ you to the patient, and/or
- ♦ patient to patient.

There are numerous ways microbes can escape from patients' mouths.

Anything that goes into the mouth and is removed is contaminated and must be discarded or properly managed before reuse. These include your hands, instruments, handpieces, syringe tips, anesthetic syringes, tempo-

raries, impression trays, fluoride trays, needles, 2 x 2s, cotton rolls, and other disposables. Surfaces that you touch during patient care become fomites supporting the indirect spread of the microbes. In addition, use of high-speed and low-speed handpieces, air/water syringes, ultrasonic scalers, and air-abrasion systems can generate aerosols and/or spatter that contain microbes. Interfering with the spread of these microbes is based within the concept of standard precautions that considers all body fluids and mucous membranes and non-intact skin to be potentially infectious.

Just before patient treatment

Perform hand hygiene. Put on appropriate personal protective equipment (PPE) including heavy duty gloves, a face mask and protective eyewear, and clean and disinfect those touch surfaces that may not be protected by environmental barriers. Remove gloves and mask and perform hand hygiene. Place environmental barriers, make sure engineering controls are available or are in place, assure good quality treatment water will be available, place the patient charts and x-rays in their appropriate place, bring up the computer images if using digital x-rays, and assure any needed items re-

continued on page 2

Learning Objectives

After reading this article, the reader should be able to:

- ▶ understand how microbes are spread at chairside.
- ▶ prepare for a patient appointment from an infection control point of view.
- ▶ visualize how hand hygiene, engineering controls, work practices, surface asepsis and personal protective equipment play an important role in chairside asepsis.
- ▶ maintain proper infection control during operatory clean-up.



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Please forward this issue of ICIP to anyone you feel will find it of interest.



The Operatory

continued from front cover

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ceived from the dental lab have been decontaminated. Distribute the instrument packages, trays or cassettes, equipment and supplies needed for the appointment. Seat the patient and give them protective eye glasses and place the napkin. Open cassettes or spill instrument packages onto a sterile surface without touching the contents, and put on your mask and then your protective eyewear or face shield. Wash your hands or use an alcohol hand rub and put on gloves (preferably in view of the patient). Connect the handpieces, air/water syringe, high-volume evacuator and saliva ejector tips. Run water for 30 seconds. Have the patient rinse with an antimicrobial mouthrinse.



During treatment

Use the engineering controls and safe work practices as listed in "Putting It All Together" on pages 4-5. Take precautions if using supply or instrument drawers at chairside during treatment. Do not store unpackaged instruments or supplies in these drawers, for they can easily become contaminated by hands, spatter and dust. The classic glass holders for unpackaged hand instruments in cabinets/drawers are not conducive to proper infection con-

trol. Consider eliminating a chair-side drawer system or assure the items will be covered/packaged, and design an aseptic retrieval system (e.g., provide overgloves and sterile cotton forceps and/or tongs with each patient set-up) to assure that the drawer contents will not become involved in cross-contamination.

Just after treatment



While still wearing your PPE flush water through the air/water syringes, handpieces and ultrasonic scalers, and remove and discard any environmental barriers. Remove and discard your gloves, perform hand hygiene and put on heavy duty gloves to clean appropriate touch surfaces in the operatory. Transport instruments and waste in a covered container to the instrument processing room. Rinse and disinfect any prosthodontic items before taking them into the in-office lab. Remove and decontaminate eyewear. Remove your gloves and other protective barriers and perform hand hygiene (see "Putting It All Together" on pages 4-5).

Step-by-step clinical infection control protocols for chairside asepsis are available¹.

— OSAP

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Communicating for Compliance

Communication is important in any business. In the dental office it involves expressing correct information to the boss, the rest of the staff and to patients.

Employer



Evaluate chairside asepsis in the office. Note any procedures that need to be reinforced and any suggestions from the staff for improvements. Review sources of information for any new products, equipment or procedures that may help chairside asepsis be performed more efficiently. Inform your boss of your findings.

Staff

Continue to remind staff that chairside asepsis protects them and the patients. Have the staff read this issue of *Infection Control In Practice* and take the continuing education exam. Then discuss the answers. Seek staff input to help you evaluate chairside asepsis. For example ask:



- ◆ what can be done more efficiently and in a safer manner,
- ◆ if there are any problems with handwashing or use of alcohol hand rubs,
- ◆ if it is clear what to do if a sharps injury or other exposure occurs,
- ◆ if the personal protective equipment provided is still acceptable,
- ◆ if there are any problems with the spray or wipe disinfectant used.

Patients



Here are some examples of what you can say to patients about chairside asepsis. "We take your safety very seriously in this office. I:

- ◆ wash my hands or use an alcohol hand rub before gloving to remove germs that have contaminated my hands, for this reduces the chances of anything on my hands contaminating you if my gloves should tear.
- ◆ wear a new pair of gloves for you and for every patient so I don't spread anything into your mouth or from your mouth to someone else.
- ◆ am giving you safety glasses to protect your eyes from infectious and physical injuries.
- ◆ cover or clean and disinfect the surfaces in here to prevent carry over of germs from the previous patient."

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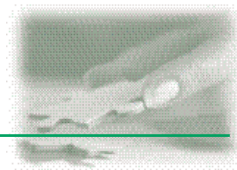
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Putting It All Together



This information will help you implement some of those behind the scenes infection control and safety efforts.

Examples of specific pathways for microbial spread in the operatory

Patient to you where you become contaminated:

- ♦ through breaks in your skin.
- ♦ through sharps injuries with items contaminated with patient materials.
- ♦ from direct contact with spatter from patient's oral fluids or contaminated dental unit water.
- ♦ from contact with aerosol from patient's oral fluids or contaminated dental unit water.
- ♦ from contact with contaminated operatory surfaces or equipment with ungloved hands.

It has happened! (Manzella, JP et al. **An outbreak of herpes simplex virus type I gingivostomatitis in a dental hygiene practice.** *J Amer Med Assoc* 1252:2019-22, 1984)

You to the patient when you accidentally:

- ♦ injure yourself and bleed into a patient's mouth.
- ♦ bleed on something used in the patient's mouth.

It has happened! (Ciesielski, C et al. **Transmission of human immunodeficiency virus in a dental practice.** *Ann Intern Med* 116:798-05, 1992)

Patient to patient when

- ♦ contaminated operatory surfaces are not decontaminated between patients.
- ♦ instruments including handpieces are not properly cleaned and sterilized before being used on a subsequent patient.
- ♦ hands/gloves contaminated with patient materials carry microbes to another patient's mouth.

It has happened! (Redd, JT. **Patient-to-patient transmission of hepatitis B virus associated with oral surgery.** *J Infect Dis* 195:1311-14, 2007)

Chairside asepsis involves:



Hand hygiene

- ♦ wash hands with non-antimicrobial or antimicrobial agent, or
- ♦ use an alcohol hand rub when no visible soil is present

Personal protective equipment

- ♦ wear gloves, mask, eyewear with side shields, protective clothing
- ♦ use heavy duty gloves for cleaning and disinfection and operatory clean-up

Surface asepsis

- ♦ use fresh environmental barriers for each patient, or
- ♦ clean and disinfect between each patient with a disinfectant spray using spray-wipe-spray, or
- ♦ clean and disinfect between each patient with a disinfectant wipe using wipe-discard-wipe (one wipe to clean followed by another wipe to disinfect)

Engineering controls

- ♦ place sharps containers wherever sharps may be used or found (e.g., at chairside, in the instrument room)
- ♦ use a cap holder to recap needles between multiple injections or before removing the needle from a non-disposable syringe
- ♦ use the rubber dam
- ♦ use high-volume evacuation
- ♦ assure good quality dental unit water

Work practices

- ♦ look carefully before reaching for a sharp instrument

continued on page 5

What's wrong with these pictures?

Take this chairside asepsis challenge and see if you can readily identify the breach in aseptic procedure in these photos.

PHOTO CHALLENGE 1

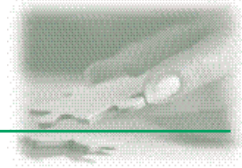


PHOTO CHALLENGE 2



SEE PAGE 6 FOR PHOTO CHALLENGE ANSWERS.

Putting It All Together continued . . .



continued from page 4

- ♦ pass sharp instruments carefully and only when necessary
- ♦ make sure instruments returned to the tray/bracket table are placed in a stable position
- ♦ retrieve supplies aseptically without contaminating adjacent items
- ♦ recap/dispose of used needles and other sharps immediately after use rather than passing them to others
- ♦ do not bend, break or remove needles before disposal and do not remove needles from disposable syringes before disposal
- ♦ recap needles using a one-hand scoop technique rather than using both hands or any other technique that directs the point of the needle towards any part of your body
- ♦ replace handpieces in holder with burs pointing in
- ♦ if gloves are torn, remove, perform hand hygiene and replace with new gloves
- ♦ keep from touching your face and hair with contaminated gloves
- ♦ remove gloves when leaving chairside to avoid painting the patient's microbes on touched surfaces



Examples of touch surfaces

- ♦ Chair headrest and control buttons and top part of chair back*
- ♦ Light handles and switch*
- ♦ Bracket table and handpiece/dental unit control switches*
- ♦ Handpiece and evacuator connectors and hoses*
- ♦ Ultrasonic scaler connector and hose*
- ♦ Air/water syringe handle and hose*
- ♦ X-ray handle, cone, controls* and view box
- ♦ Dental team chair backs
- ♦ Supply containers and bottles
- ♦ Light curing equipment
- ♦ Shade guides

* usually best to cover these since cleaning is not easy or they have electrical components - although most, if not all, surfaces lend themselves to covering



Some key CDC recommendations for chairside asepsis

Hand hygiene

- ♦ Perform hand hygiene with either a non-antimicrobial or antimicrobial soap and water when hands are visibly dirty or contaminated with blood or other potentially infectious material (OPIM). If hands are not visibly soiled, an alcohol-based hand rub can also be used. Follow the manufacturer's instructions.
- ♦ Indications for hand hygiene include
 - ✓ when hands are visibly soiled
 - ✓ after barehanded touching of inanimate objects likely to be contaminated by blood, saliva, or respiratory secretions
 - ✓ before and after treating each patient
 - ✓ before donning gloves, and
- ♦ For oral surgical procedures, perform surgical hand antisepsis before donning sterile surgeon's gloves. Follow the manufacturer's instructions by using either an antimicrobial soap and water, or soap and water followed by drying hands and application of an alcohol-based surgical hand hygiene product with persistent activity.
- ♦ Store liquid hand-care products in either disposable closed containers or closed containers that can be washed and dried before refilling. Do not add soap or lotion to top off a partially empty dispenser.

Additional CDC recommendations for chairside asepsis, such as those on personal protective barriers, surface asepsis, dental unit waterlines, handpiece management and more on hand hygiene, can be found at the CDC Web site² (see "Links to Resources" on page 6).



Europe

Among infection control specialists within the European Union there are strong movements to link infection control with antibiotic resistance as well as human rights and environmental concerns. I believe it is crucial for OSAP to endorse these perspectives. We must not see infection control in a narrow clinical perspective anymore. A recent survey in Sweden on the use of antibiotics in dentistry revealed that 25% of all out clinic patients taking penicillin V received their antibiotic prescription from a dentist. "We must think globally and act locally."

Dr. Mikael Zimmerman
Karolinska Institutet Stockholm
SWEDEN

Australia

One area that causes some confusion in Australia is the concept of

aseptic procedures encompassing "sterile" and "clean" fields. Some procedures (oral surgery, implant placement, periodontal surgery) require a sterile field and instruments to be sterile at the time of use. On the other hand, most dental procedures (conservative, prosthetic, simple periodontal) only require a clean field with cross contamination controls in place (i.e., instruments sterilized between patients and environmental surfaces in the working zone managed by barriers). Non-dental infection control practitioners occasionally find this concept difficult and would like there to be "sterile field" conditions for all dental procedures. Education of such practitioners in the peculiarities of dentistry needs to continue.

Dr. Gerard Condon
Australian Dental Council

Ask OSAP

Q Why do you have to spray a surface a second time with a disinfectant?

A Many disinfectants were registered with the EPA based on tests that first cleaned the surface and then added the disinfectant to disinfect the surface. The labels of those products will state "Pre-clean the surface then disinfect by applying the product..." or similar words. Some products received registration as a "one-step" disinfectant. Cleaning before disinfecting (with any surfactant-containing disinfectant) reduces the bioburden and helps assure that the disinfectant will work.

Do you have a question or challenge about the instrument processing room, support equipment and ending the day? Send your questions to editor@OSAP.org. Dr. Miller can ensure we incorporate the answer into the upcoming issues of this Special Series.

Links to Resources

1. Miller, CH and Palenik, CJ: A clinical asepsis protocol. In *Infection Control and Management of Hazardous Materials for the Dental Team*. St. Louis, 3rd ed. 2005, Elsevier-Mosby, p. 333.
2. CDC. Infection control guidelines for dental health-care settings - 2003. Accessed April, 2008 at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5217a1.htm>.

Engineering controls: Controls that isolate or remove the blood-borne pathogens hazard from a workplace; examples include sharps disposal containers and safer medical devices (such as self-sheathing needles and needless systems).

Fomite: An inanimate object that becomes contaminated and can serve as a mean for spreading microbes.

Standard precautions: Practices and procedures that expand the elements of universal precautions into a standard of care designed to protect healthcare workers and patients from pathogens that can be spread by blood or any other body fluid, excretion, or secretion; applies to contact with blood, all body fluids, secretions, and excretions (except sweat), regardless of whether they contain blood; non-intact skin; and mucous membranes.

Surfactant: A wetting agent that lowers the surface tension of a liquid, allowing easier spreading.

Touch surfaces: Operatory surfaces that are contaminated (e.g., by touching or other means) during patient treatment and that need to be properly managed before treating the next patient.

Work practices: Practices that reduce the likelihood of exposure by changing the manner in which a task is performed (for example, recapping needles with a one-handed scoop technique instead of using two hands).

Photo Challenge Answers – "What's wrong with these pictures?"

(FROM PG. 4)

PHOTO CHALLENGE 1 Forearms are not covered. Dental assistant and the patient are not wearing safety glasses. Dentist is not wearing safety glasses with side shield.

PHOTO CHALLENGE 2 Face masks are not covering nose. No safety glasses on the dentist, dental assistant and the patient. Forearms are not completely covered. No headrest cover. No protective barrier on operatory light handle.



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 appropriate fee as indicated below. Pending satisfactory results (at least seven out of ten), you will be issued a letter for one (1) CE credit hour. OSAP is recognized by the American Dental Association as a CERP Provider. For more information, call OSAP at 800-298-6727 (410-571-0003).

For each question, pick the best answer.

1. Which of the following modes of microbial spread is least involved in chairside asepsis?
a. You to the patient b. The patient to you c. The office to the community d. Patient to patient
2. Which of the following can serve as a fomite?
a. Teeth being restored b. Mucous membranes c. Handpiece holder d. Tongue
3. When should an alcohol hand rub be used?
a. Under any circumstances b. Only following handwashing with another antimicrobial agent
c. Only if sterile gloves will be donned afterward d. Only if no soil is visible on the hands
4. When leaving chairside to obtain a forgotten supply item, what barrier should be removed and then replaced upon returning to the patient?
a. Gloves b. Mask c. Eyeglasses d. Protective clothing
5. Wearing gloves when working at chairside protects:
a. you. b. the patient. c. you and the patient. d. neither you nor the patient.
6. Sharps containers should be placed:
a. in the instrument room. b. at chairside. c. near waste containers. d. wherever sharps may be used or found.
7. When should environmental barriers in the operatory be changed?
a. After every patient b. At the end of the day
c. Over the lunch hour d. After patients with respiratory disease symptoms
8. Which of the following operatory surfaces is usually not considered as a touch surface?
a. Light handles b. Floor c. Handpiece connector/hose d. Light switch
9. Which of the following is not an engineering control?
a. Sharps container b. Rubber dam
c. High-volume evacuator d. Recapping a needle by the one-handed scoop technique
10. How many disinfectant wipes should be used for proper treatment of a contaminated light handle?
a. One b. Two c. Three d. Four

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Practice Tip



Using the dental dam

Dental dams are thin squares of latex rubber or silicone used mainly in endodontic treatment. They serve as an engineering control to help isolate the tooth/teeth from contamination of blood or saliva and protect the patient's oral pathway from any materials that may fall during treatment.

To simplify and expedite dental dam application, use a pre-framed dental dam. Consider using dental dam stabilizing cord in place of clamps to secure the dam on both ends of your isolation. The cord is



stretched between the teeth and left in place.

For best infection control, isolate in the traditional manner as follows: lubricate the tissue side of the dental dam with a water-soluble lubricant such as KY Jelly® to facilitate placement of the dam between the teeth. Be careful not to bunch the dental dam and place an edge between the teeth first. Carry the remaining dam through the contact with your fingers. For difficult contacts, use waxed dental floss to carry an edge through first, loop the floss to the lingual and pass it through the contact carrying more dental dam into the contact area. Pull both strands of floss through the buccal embrasure and repeat the process until all the dam is through the contacts.

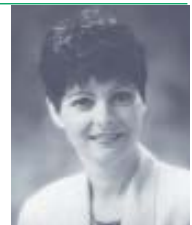
A non-traditional option is general field isolation. This option does not provide maximum infection control, but the tongue, cheeks, and most

soft tissues are isolated. There are variations to this technique, but the most simple involves cutting a slit between two punched holes. The dam is stretched over the area to be isolated, and stabilizing cord can be used to anchor the dam on both ends or a clamp is used on the posterior with cord on the anterior.

Dental dams can increase the safety and infection control of dental procedures. Practicing on a dental mannequin may be helpful in increasing your confidence and application technique.

Mary R. Costello, CDA

Ms. Costello has a BS in Health Administration from Governor State University, IL. She is currently Manager of Continuing Education and Professional Relations-Hygenic Products for Coltene Whaledent, Inc.



Do you have a practice tip you'd like to share with other OSAP members and subscribers? Be sure to include contact information, a jpeg photo and a 10-word bio. Thanks!

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In the next issue...

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