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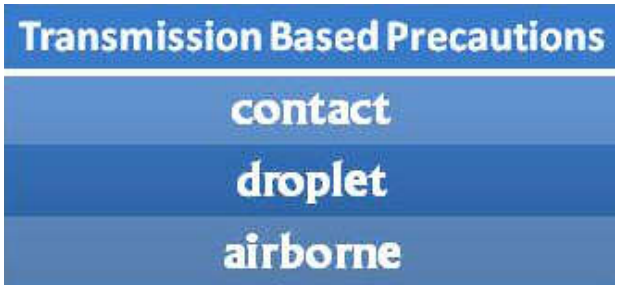
Transmission Based Precautions (8/11)

Question: Can you review Transmission Based Precautions and explain how they differ from Standard Precautions?

Answer: Using Standard Precautions is the primary infection control strategy and is designed for **all** patients regardless of their diagnosis or presumed infectious status. Standard Precautions are sometimes referred to as the first tier of precautions because when patients present with documented or suspected infection with highly transmissible pathogens additional measures, or a second tier of precautions, are necessary to prevent the potential spread of these diseases. In other words, when the routes of transmission cannot be completely interrupted with Standard Precautions alone, it is necessary to use Transmission Based Precautions. There are three categories of Transmission Based Precautions: Airborne, Droplet, and Contact which mirror the modes of disease transmission. More than one Transmission Based Precaution category may apply because some diseases are spread by multiple routes of transmission. It is important to note that when used alone or in combination, Transmission Based Precautions are always used in addition to Standard Precautions.



Contact Precautions are intended to prevent transmission of infectious agents spread by direct or indirect contact with the patient or the patient's environment. The goal of Droplet Precautions is to prevent transmission of pathogens spread through close respiratory or mucous membrane contact with respiratory secretions. Person-to-person transmission can occur when an infected person coughs, sneezes, or talks and generates large particle droplets (> 5 µm). Spatter of blood and saliva are frequently generated during dental treatment and if these materials from an infected patient contact unprotected broken skin or mucous membranes, disease transmission may occur. Generally, special ventilation requirements are not needed to prevent droplet transmission because these pathogens do not remain infectious over long distances in a health care facility. Airborne transmission involves smaller particles (< 5µm) called droplet nuclei or aerosols. Transmission occurs when these particles, which can remain suspended in the air for long periods of time, are inhaled by dental health-care personnel or patients. Exposure to aerosols containing microorganisms from patient's blood or saliva may occur when using rotary instruments including dental handpieces or ultrasonic scalers. Airborne Precautions are used to prevent transmission of infectious agents that remain infectious over long distances when suspended in the air. The following table presents representative conditions and disease requiring Transmission Based Precautions.

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Select Conditions/Diseases Requiring Transmission Based Precautions*

Disease/Condition	Contact Precautions	Droplet Precautions	Airborne Precautions
Clostridium difficile	X		
Herpes simplex (mucocutaneous, disseminated or primary, severe)	X		
Influenza Human (seasonal)		X	
H1N1 Influenza	X	X	X
Lice (Head—pediculosis)	X		
Measles (rubeola)			X
Methicillin-resistant *Staphylococcus aureus* (MRSA)	X		
Mumps		X	
Pertussis		X	
Rubella		X	
Severe acute respiratory syndrome (SARS)	X	X	X
Smallpox (variola)	X		X
Tuberculosis (confirmed pulmonary or laryngeal)			X
Varicella Zoster (chicken pox)	X		X

* Transmission based precautions are always used in addition to Standard Precautions.
Additional details and conditions requiring transmission based precautions can be found in Siegel JD, Rhinehart E, Jackson M, Chiarello L, and the Healthcare Infection Control Practices Advisory Committee. Guideline for isolation precautions: preventing transmission of infectious agents in healthcare settings, 2007 and Siegel JD, Rhinehart E, Jackson M, Chiarello L and the Healthcare Infection Control Practices Advisory Committee. Management of multidrug-resistant organisms in healthcare settings, 2006.
Table adapted from Harte JA. Standard and transmission-based precautions: an update for dentistry. J Am Dent Assoc 2010;141:572–581.

The Centers for Disease Control and Prevention (CDC) published updated isolation precaution guidelines addressing Transmission Based Precautions in 2007. While the principles of infection control remain unchanged, including the categories of Transmission Based Precautions, the new guidelines address the changing patterns of health care delivery as well as emerging and evolving pathogens. A primary difference between previous CDC isolation precautions is the inclusion of recommendations for a broader spectrum of health care delivery settings compared to previous isolation precaution guidelines which were primarily intended for hospitals. Specifically, recommendations are made for ambulatory care settings which include dental offices/clinics. Several challenges exist for ambulatory care/out-patient settings including not being able to identify infectious patients immediately; patients frequently stay in common waiting areas for prolonged periods; and treatment rooms may be turned around quickly with limited cleaning.

Another change from previous guidelines is that in 2006, the CDC published a comprehensive review and recommendations for prevention of transmission of multidrug resistant organisms (MDROs), most notably MRSA. Like the 2007 isolation guidelines, this guideline addresses a variety of health care settings and not just hospitals. Even though this document is a separate publication, it is considered a part of the 2007 CDC isolation guidelines.

Traditionally, patients with diseases requiring Transmission Based Precautions were too ill to seek routine outpatient dental care, however with the emergence of new pathogens and more patients seeking care in ambulatory care facilities dental health-care personnel need to be aware of additional measures to take when treating these patients in an outpatient setting to fully protect other patients, their staff, and themselves. The *Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings, 2007* and *Management of Multidrug-Resistant Organisms in Healthcare Settings, 2006* can be downloaded by visiting: www.cdc.gov/hicpac/pubs.html#.

References
- CDC. Guidelines for infection control in dental health-care settings - 2003. MMWR 2003; 52(No. RR-17).
- Garner JS, Hospital Infection Control Practices Advisory Committee. Guideline for isolation precautions in hospitals. Infect Control Hosp Epidemiol 1996;17:53–80.
- Harte JA. Standard and transmission-based precautions: an update for dentistry. J Am Dent Assoc 2010;141:572–581.
- Siegel JD, Rhinehart E, Jackson M, Chiarello L and the Healthcare Infection Control Practices Advisory Committee. Management of multidrug-resistant organisms in healthcare settings, 2006.
- Siegel JD, Rhinehart E, Jackson M, Chiarello L, and the Healthcare Infection Control Practices Advisory Committee. Guideline for isolation precautions: preventing transmission of infectious agents in healthcare settings, 2007.

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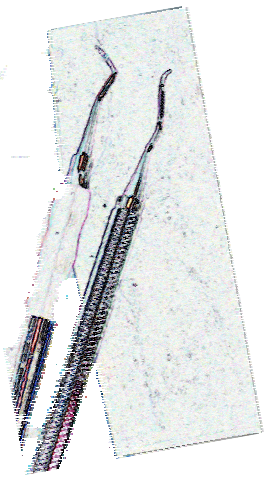
Infection Control Challenges when Sharpening Instruments (3/10)

Question: Do you have any safety and infection control tips to share regarding instrument sharpening?



Answer: Sharpening a contaminated instrument puts individuals at risk for disease spread from accidental cuts and punctures. The safest option is to provide extra instruments (e.g., scalers) in each instrument kit rather than sharpening contaminated instruments chairside. Since this may not be possible from a logistics standpoint, the safest option is to clean, sterilize, sharpen, and resterilize the instrument. If you do have to sharpen a contaminated scaler, Dr. Chris Miller suggests taping the sterile sharpening stone to the countertop and using one hand to sharpen the instrument. If using two hands, great care must be taken to prevent accidental cuts or punctures and appropriate personal protective equipment, including heavy duty gloves, should be worn. As a reminder, any time that a sharpening stone is used with contaminated instruments it must be cleaned and heat sterilized between patients.

Reference
Miller CH, Palenik CJ. Instrument Processing. In: Miller CH, Palenik DJ, eds. *Infection Control and Management of Hazardous Materials for the Dental Team*, 4th ed St. Louis: Mosby:2009:160.

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Food & Drinks in the Dental Operatory (11/09)

Question: I know we can't eat in the dental operatory, but can we store a bottle of water in a cabinet if we label it "Water, For Personal Use"?

Answer: No. Ideally, all clinics should establish a designated lunch/break area. As a reminder, the goals of the USAF Infection Control Program are to protect the health of all patients and employees and to comply with applicable federal, state, and local regulations. According to the OSHA Bloodborne Pathogens Standard (BBP), the most important infection-control regulation for protecting health-care personnel, "Eating, drinking, smoking, applying cosmetics or lip balm, and handling contact lenses are prohibited in work areas where there is a reasonable likelihood of occupational exposure." The BBP Standard also states: "Food and drink shall not be kept in refrigerators, freezers, shelves, cabinets or on countertops or benchtops where blood or other potentially infectious materials are present." This includes dental operatories, radiology, laboratory, and instrument processing areas. It is important to understand that in addition to the food or drink becoming contaminated, the containers may become contaminated, resulting in unsuspected contamination of your hands. Another concern of having food and drink in patient-care and other work areas is the attraction of insects to any debris or spillage as a result of eating/drinking. In summary, the above items must be stored and consumed outside of areas where there is the potential for contamination.

References

- US Department of Labor Occupational Safety and Health Administration 29 CFR Part 1910.1030 Occupational Exposure to Bloodborne Pathogens, Needlestick and Other Sharps Injuries; Final Rule. Federal Register 2001; 66 (12); 5317-25. As amended from and includes Federal Register 1991 29 CFR Part 1910.1030 Occupational Exposure to Bloodborne Pathogens; Final Rule. 56(235);64174–82.
- US Department of Labor Occupational Safety and Health Administration 29 CFR Part 1910.141 Occupational Safety and Health Standards: General Environmental Controls: Sanitation,1998.
- US Department of Labor, Occupational Safety and Health Administration. Enforcement procedures for the Occupational Exposure to Bloodborne Pathogens CPL 2–2.69; November 27, 2001.

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CDC Dental Infection Control Guidelines (2/08)

Question: I can't find our clinic copy of the 2003 Centers for Disease Control and Prevention (CDC) dental infection control guidelines. Can you please send us a copy for our clinic notebook?

Answer: The CDC Guidelines for Infection Control in Dental Health-Care Settings—2003 can be downloaded by visiting www.cdc.gov/oralhealth/infectioncontrol/guidelines/index.htm. They are also available on the DECS Web site on the Infection Control page in the *Infection Control Resource* Section.

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Setting Up Instruments before the Procedure (4/06) **UPDATED** (11/10)

Question: Many dental clinics follow the practice of setting up instruments, covered by a wrap, before leaving for lunch. What is the general opinion of this type practice?

Answer: This practice is not acceptable because all sterile supplies, including sterile reusable dental items, must be stored in a manner that will preserve their sterility until used. The purpose of packaging is to protect instruments from contamination after removal from the sterilizer and during storage. Instruments and devices should be kept wrapped until they are needed during the procedure, thus reducing the chance of contamination. Several sources provide guidance about whether or not this is an acceptable thing to do.

From the Centers for Disease Control and Prevention *Guidelines for Infection Control in Dental Health-Care Settings—2003:* When sterile items are open to the air, they will eventually become contaminated. Storage, even temporary, of unwrapped semicritical instruments is discouraged because it permits exposure to dust, airborne organisms, and other unnecessary contamination before use on a patient.

From *Infection Control and Management of Hazardous Materials for the Dental Team* (2009): "Sterilized instrument cassettes are distributed to and opened at chairside. Placement of unwrapped or wrapped instruments in drawers or cabinets for direct use at chairside during patient care is not recommended. The drawers or cabinets and their contents are contaminated too easily from retrieval of items with saliva-coated fingers and from contaminated aerosols. This type of storage/distribution system at chairside for instruments is fraught with great potential for cross contamination." Drs. Miller and Palenik also address procedures for opening packages: "One should open the packages with clean, ungloved hands after the patient is seated and then put on gloves just before first contact with the patient's mouth. Alternatively, one may open the packages with ungloved hands and immediately cover the instruments with a sterile drape before seating the patient. If one opens instrument packages with gloves hands, the gloves will

become contaminated with any microorganisms on the outside of the packaging." For additional details about opening sterile instrument packages click here.

From *Cottone's Practical Infection Control in Dentistry* (2009): "Proper care and storage of packaged, sterilized instruments will ensure that they will remain sterile until the package is opened at the time of use."

References

- CDC. Guidelines for infection control in dental health-care settings–2003. MMWR 2003;52(No. RR-17):23.
- Harte JA, Molinari JA. Instrument Processing and Recirculation. In: Molinari JA, Harte JA eds. *Cottone's Practical Infection Control in Dentistry*, 3rd ed. Baltimore: Lippincott Williams & Wilkins, 2009:228.
- Miller CH, Palenik CJ. Instrument Processing. In: Miller CH, Palenik DJ, eds. *Infection Control and Management of Hazardous Materials for the Dental Team*, 4th ed St. Louis: Mosby:2009:159.
- Miller CH, Palenik CJ. A Clinical Asepsis Protocol. In: Miller CH, Palenik DJ, eds. *Infection Control and Management of Hazardous Materials for the Dental Team*, 4th ed St. Louis: Mosby:2009:226.

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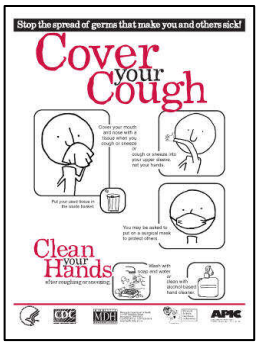
Respiratory Hygiene/Cough Etiquette (3/06) (UPDATED 4/08)

Question: I recently attended a course where the lecturer recommended placing signs in the dental clinic to help prevent the transmission of respiratory infections in health-care settings. Do you recommend this and where I can obtain these signs?



Answer: Several visual alerts are available from the Centers for Disease Control and Prevention (CDC) for use in outpatient health-care facilities, such as dental offices. These instruct patients and visitors to inform health-care personnel if they are experiencing any symptoms of a respiratory infection and to practice respiratory hygiene and cough etiquette. This is an excellent idea, especially during cold and flu season. Links to these signs can be found in the Influenza *InControl* Fact Sheet. These infection-control measures are now considered to be a component of Standard Precautions.

A notice for patients to report flu symptoms, emphasizing covering coughs and sneezes and hand hygiene is available by visiting: www.cdc.gov/ncidod/dhqp/pdf/Infdis/RespiratoryPoster.pdf.

"Cover your Cough" posters with tips to prevent the spread of germs from coughing can be downloaded from the CDC Web site by visiting: www.cdc.gov/flu/protect/covercough.htm.

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Plants in Patient-Care Areas (5/05)

Question: Is it acceptable to have live plants in the dental operatory?

Answer: Bacteria have been associated with flowers in vases and potted plants, however minimal or no evidence indicates that the presence of plants in immunocompetent patient-care areas poses an increased risk of health-care-associated infection. Nonetheless, according to the 2004 Centers for Disease Control and Prevention Guidelines for Environmental Infection Control in Health-Care Facilities several precautions should be implemented. These include advising staff members to wear gloves when handling plants and washing hands after handling plants. Additionally if fresh flowers are placed in a patient-care area, consider changing the vase water every two days and discharging the water into a sink outside the immediate patient environment. Cleaning and disinfecting vases after use is also recommended.

Reference

Sehulster LM, Chinn RYW, Arduino MJ, Carpenter J, Donlan R, Ashford D, Besser R, Fields B, McNeil MM, Whitney C, Wong S, Juranek D, Cleveland J. Guidelines for environmental infection control in health-care facilities. Recommendations from CDC and the Healthcare Infection Control Practices Advisory Committee (HICPAC). Chicago IL; American Society for Healthcare Engineering/American Hospital Association; 2004.

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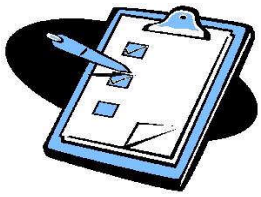
Frequency of Infection Control Inspections (1/05)

Question: How often should we perform infection control inspections in the dental clinic?

Answer: The goals of the USAF Dental Service Infection Control Program are to protect the health of all patients and employees and to comply with applicable federal, state, and local regulations. Creating and maintaining a safe workplace requires oversight. Inspections at periodic intervals provide an opportunity to identify unsafe practices and conditions and ensure that written policies are up-to-date and appropriate.

The *USAF Guidelines for Infection Control in Dentistry* state: “Conduct and document routine scheduled or unscheduled inspections of dental treatment rooms, dental laboratory and radiology areas, decontamination and sterilization areas, and locations where sterile and/or patient-care items are stored.” While the frequency for infection control inspections has never been specified, most facilities conduct weekly inspections. This can be time consuming with limited benefits.



Weekly inspections are not required by regulatory agencies. Inspections should be performed in accordance with the Medical Treatment Facility (MTF) Infection Control Program guidelines (e.g., monthly, quarterly). MTF Infection Control Personnel will continue to perform annual inspections and provide feedback to the area being inspected and appropriate agencies within the MTF. As a health-care profession, treatment and work areas should always meet standards, therefore unannounced inspections may provide a more realistic view of day-to-day activities when compared with announced inspections where individuals have time to prepare for the inspection. However, this does not mean that scheduled “clean-up” times should be discontinued. Individuals should still be given time to perform general cleaning, restocking of supplies, routine dental unit waterline maintenance, and other necessary tasks.

Some of the items in the dental operatories that inspections should focus on are proper instrument storage and rotation, monitoring for expired or soon to expire supplies/medications, and general cleanliness. Inspections can be performed all at once or broken down into manageable numbers using a rotating schedule that ultimately covers all areas in the specified time period. For example, if monthly inspections are required by the MTF and the dental clinic has 40 work areas, it may be more efficient to inspect 10 areas each week instead of all 40 on one day.

Inspections provide an opportunity to improve the effectiveness of both the infection-control program and dental-practice protocols, while ensuring the safety of our patients and staff. Feedback, both positive and negative, remains important. If deficiencies or problems in the implementation of infection-control procedures are identified, further evaluation is needed to eliminate the problems, which may include more frequent inspections.

Bottom Line for USAF Dental Clinics

Weekly infection control inspections are not mandatory or recommended. Inspections should be performed in accordance with the MTF Infection Control Program guidelines. The Dental Infection Control Officer and/or Non-commissioned Officer (NCO) are required to conduct a balanced and effective surveillance of dental clinic work areas for compliance with infection-control guidelines.

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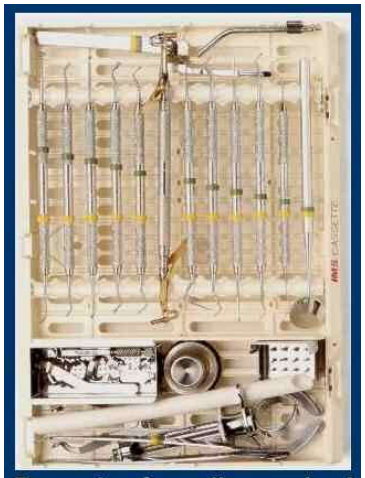
Preventing Downtime When Using Cassettes (Originally published in the May 2002 issue of InCONTROL)

Question: Our clinic uses cassettes for instrument processing. A lot of times during a procedure, a provider discovers that he needs an instrument that isn't in the kit. This delays patient treatment because we have to get the instrument for him. Is there a way to keep this from happening?

Answer: The challenge for dental instrument processing personnel is to offer the healthcare provider, in a timely manner, properly processed instruments needed for a procedure. Missing or damaged instruments create stress, confusion and lost productivity. Dental clinic personnel must work together to identify policies and procedures to address these concerns. This requires communication, problem solving, and team work in order to identify solutions.



Example of a well-organized dental cassette

Knowing at all times where instruments are and their status is crucial. This is the responsibility of both the dental assistant and dental instrument-processing individual. Dental assistants must notify the dental instrument-processing individual when instruments need to be replaced because they have been damaged or are missing from a cassette. This must be done prior to the next cycle of instrument reprocessing. It is also imperative that the dental instrument-processing person confirm that all required instruments are in the cassette before reprocessing.

From the point of view of the dental instrument-processing individual, it is important to have an organized, easy-to-clean, effective cassette system. This is easily accomplished by using standardized, organized cassette systems with protective inserts. Visual aids such as count sheets and illustrations or photographs of the layout of instrument sets within the cassette significantly improves instrument management. Also, simplifying the instrument sets saves time, money, duplication, and excess inventory.

The goal of instrument processing is to serve and protect the patient. By addressing the issue of missing and damaged instruments, we can reduce stress in our clinics, while at the same time save money, and provide a better level of care for our patients.

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Infection Control Notebook (Originally published in the Sept 2003 issue of InCONTROL)

Question: What documents should be kept in the dental clinic infection control notebook?

Answer: The following items should be maintained in the dental infection control notebook.

- Letters of appointment for the dental infection control officer (ICO) and dental noncommissioned officer (NCO);
- AFI 44-108, Medical Infection Control Program;
- Most current edition of the USAF Dental Infection Control Guidelines;
- Dental infection control operating instructions and exposure control plan;
- 29 CFR Part 1910.1030 Subpart Z (Amended)—OSHA Occupational Exposure to Bloodborne Pathogens; Final Rule or successor;
- Installation and/or medical treatment facility (MTF) regulations on infection control (e.g., occupational exposure to bloodborne pathogens, management of regulated medical waste);
- References, including current Centers for Disease Control and Prevention (CDC) and American Dental Association (ADA) infection control recommendations for dentistry;
- Policy letters and dental infection control consultant's updates (e.g., InControl newsletters);
- Monthly or quarterly reports to the MTF Infection Control Function/Committee;
- Infection Control related memos or correspondence (e.g., clinical/support flight meeting minutes, policy

changes within the clinic, MTF infection control function/committee meeting minutes);
- Initial and periodic training records, including the lesson plan or a copy of the presentation with a sign-in sheet or post-test attached[1];
- Results from inspections, dental unit waterline monitoring, and refrigerator temperature monitoring
- Health-care-associated infection program documentation (i.e., clinic acquired/nosocomial infections); and
- Sterilization monitoring records (i.e., spore test and other sterilizer monitoring results)[2]

It is not required that all of these items be maintained in a single notebook. The ICO could maintain some items (e.g., health-care-associated infection program, training documentation) and the NCO of infection control the others (e.g., inspection results, sterilization monitoring results).

[1]Maintain training records for three years IAW current OSHA and MTF guidelines.
[2] Maintain sterilizer documentation for a period dictated by local statutes and MTF policy or 2 years, whichever is longer.

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