Why do you have to put your gloves on last?
Gloves should be put on just before entering the patient’s mouth or touching sterile items that will be used in the patient’s mouth. Otherwise too many extraneous microbes accumulate on the gloves during operatory preparation and are transferred to the patient. When removing contaminated PPE start by pulling off the gown over the gloves turning it inside out. Then remove your gloves and wash your hands. Remove your protective eyewear by touching the ear rests, then the mask by touching the elastic band or ties. A visualization of these removal procedures is available.1

How much should be taken out of my salary to buy those rubber gloves?
Requiring staff to purchase their own gloves or other PPE is in violation of the Occupational Safety and Health Admin-

Learning Objectives
After reading this publication, the reader should be able to:
► describe some key issues about the proper use of PPE.
► describe some key issues about proper instrument processing.
► state the types of disinfectants that should and should not be used for surface asepsis.
► define vegetative bacteria, clinical contact surfaces and EPA-registered hospital disinfectants.
► answer some frequently asked questions about infection prevention.
**Frequently Asked And Answered Questions**

Continued from page 1

**Editors**
Chris H. Miller PhD
Dr. Miller is Professor Emeritus of Microbiology, Executive Associate Dean Emeritus and Associate Dean Emeritus for Academic Affairs and for Graduate Education at Indiana University School of Dentistry. He is past Chair and a Founding Member of OSAP. Email: cmiller005@indy.rr.com

**Editorial Staff**
Denise Sabol RDH MEd
Managing Editor
Alison Hird
Layout Editor
Therese Long MBA CAE
Executive Director

**Editorial Review Board**
Amy Collins RN MPH
Centers for Disease Control & Prevention
Eve Cuny RDA MS
Arthur A. Dugoni Pacific School of Dentistry
Jackie Dorst RDH BS
Safe Practices
J. Hudson Garrett Jr. PhD MSN MPH APRN FNP BC
Professional Disposables International
Howard S. Glazer DDS FAGD
Past President Academy of General Dentistry
Leann Keefer RDH MSM
Crosstex International
Noel Brandon Kelsch RDHAP
Registered Dental Hygienist in Alternative Practice
Jackie L. Sanders RDH BS
Sunstar Americas, Inc.

**Editorial Consultants**
Enrique Acosta-Gio DDS PhD
National University MEXICO
Gerard Condon BDSc MDSc
Australian Dental Association AUSTRALIA
Jonathan Lawoyin DDS MMSc
College of Medicine Nigeria AFRICA
Nita Mazurat Msc DDS
University of Manitoba CANADA
Lakshman Samaranayake BDS DDS
University of Hong Kong CHINA

**Infection Control In Practice** is a Publication Member of the American Association of Dental Editors

---

**Infection Control In Practice** is a resource prepared for clinicians by the Organization for Safety, Asepsis and Prevention (OSAP) with the assistance and expertise of its members. OSAP is a nonprofit, independent organization providing information and education on infection control and protection and occupational health and safety to dental care settings worldwide. Infection Control In Practice is published six times per year and is a trademark belonging to OSAP. OSAP assumes no liability for actions taken based on information herein.

Printing and mailing of ICP is made possible through a generous support grant from Patterson Dental. Contents of the issue copyright © 2011 by OSAP. All rights reserved under international and Pan-American copyright conventions. Printed in USA. Reproduction in whole or part is forbidden without prior written permission. Back issues are available for a small fee. Send requests for permissions, purchases of back issues and address changes to OSAP, P.O. Box 6297, Annapolis, MD 21401 or office@osap.org.
Questions about Surface Asepsis

Why do we have to use that “glute” to wipe down surfaces after treating certain sick patients?

“Glute” refers to glutaraldehyde which is a type of liquid chemical sterilant/high-level disinfectant. This type of chemical can act as a sterilant and kill all microbes including high numbers of bacterial spores, if extended contact times are used. At lower contact times, only high-level disinfection is achieved. These types of chemicals can be toxic, and using them to wipe down surfaces causes dangerous vapor release. The labels on these products indicate to use only as immersion solutions. In fact the CDC states: “Do not use liquid chemical sterilants/high-level disinfectants for environmental surface disinfection or as holding solutions”.

I was told to use the “TB disinfectant” to wipe down the operatory between non-sick patients. Am I going to get TB here in the office?

A “TB disinfectant” refers to a tuberculocidal disinfectant. In dentistry a “TB disinfectant” is used not because there is a high risk of catching TB in the office but because it is a strong disinfectant. A “TB disinfectant” has been shown to kill a TB-related bacterium (Mycobacterium tuberculosis var. bovis) in laboratory studies. This bacterium is used as a high benchmark for microbial killing because it is more difficult to kill than most other bacteria.

Disinfectants are categorized into three levels based on the kinds of microbes they kill.

Low-level disinfectant destroys the majority of vegetative bacteria, certain fungi and viruses but does not inactivate Mycobacterium bovis. An example would be an Environmental Protection Agency (EPA)-registered hospital disinfectant with a label claim against human immunodeficiency virus (HIV) and hepatitis B virus (HBV).

Intermediate-level disinfectant destroys vegetative bacteria and the majority of fungi and viruses, inactivates Mycobacterium bovis (is tuberculocidal) but is not necessarily capable of killing bacterial spores.

High-level disinfectant destroys all microorganisms but not necessarily high numbers of bacterial spores.

The CDC recommends to clean and disinfect clinical contact surfaces that are not barrier-protected by using an EPA-registered hospital disinfectant with a low- (i.e., HIV and HBV label claims) to intermediate-level (i.e., tuberculocidal claim) activity after each patient. Use an intermediate-level disinfectant if visibly contaminated with blood.

Since it is frequently difficult to determine if a surface has been contaminated with blood or saliva, many believe that using an intermediate-level disinfectant at all times alleviates this problem and limits the number of disinfectants that need to be purchased.

Since we turn the plastic dental chair cover inside out and use it a second time, can we do that for the other covers like on the light handles and handpiece hoses?

No! This is not a good practice! When turning them inside out you’ve now contaminated the chair or other surface you were trying to protect. The CDC states: “use surface barriers to protect clinical contact surfaces, particularly those that are difficult to clean (e.g., switches on dental chairs) and change surface barriers between patients.” Chairs don’t need to be fully covered because the patients’ bodies serve as barriers. The headrest and the arms need to be properly managed between patients but not necessarily the body of the chair. Just clean it at the end of the day, unless it is visibly soiled. If visibly soiled, clean and disinfect the surface.

Why do we have to put that striped tape on the inside and outside of our wrapped packages?

The outside indicator shows if the package has been exposed to sterilizing conditions. This helps distinguish between packages that are ready to use and those that have not been processed through the sterilizer. The inside indicator shows if the sterilizing agent (e.g., steam, dry heat, hot chemical vapor) has penetrated the packaging material and reached the instruments inside. If the inside indicator can be seen from the outside (as with see-through packaging material), then an outside indicator is not needed. These (along with weekly spore testing) are specific recommendations from the CDC.

Why do we have to wait until the instruments are dry before taking them out of the autoclave?

At the end of a steam sterilizing cycle the packages are wet. Wet paper bags and wraps and paper/plastic peel pouches are much more susceptible to tearing when handled. Also wet paper packages foster wicking which is a drawing through of microbes or other particles from contamination on the outside of the paper. This is a specific CDC recommendation.

Continued on page 4
Why do we have to put the instrument packages on their edges in the sterilizer? If we stack them up we can get more in there.

It's much more difficult for a sterilizing agent to penetrate through a layered stack of packages. Placing packages on their edges creates a natural separation that facilitates proper exposure. Stacking also increases the risk of tearing the packaging material through compression.

How many times can we reuse those blue denin towels to wrap the instruments for sterilization?

Denim or other regular cloth towels are not good barriers to microbes. Thus, sterilized instruments can become recontaminated when exposed to the environment after removal from the sterilizer. Use only sterilization packaging material that has been cleared by the Food and Drug Administration (FDA), for these have been shown to allow penetration of sterilizing agents AND maintain sterility after removal from the sterilizer.

Shouldn't we have to have first-aid supplies in the office?

If your local or state regulations do not address this, dental offices must follow the Federal OSHA Medical Services and First Aid Standard that states:
1) the employer shall ensure the ready availability of medical personnel for advice and consultation on matters of plant health;
2) in the absence of an infirmary, clinic, or hospital in near proximity to the workplace which is used for the treatment of all injured employees, a person or persons shall be adequately trained to render first aid and adequate first aid supplies shall be readily available;
3) where the eyes or body of any person may be exposed to injurious corrosive materials, ensure there are suitable facilities for quick drenching or flushing of the eyes and body.

Should we use the same infection prevention procedures for hepatitis patients that we use for normal patients?

The procedures described in OSHA's Bloodborne Pathogens Standard and the CDC’s Guidelines for Infection Control in Dental Settings were designed to prevent the spread of bloodborne viruses such as HIV and HBV as well as other microbes. Since bloodborne diseases and many other diseases have asymptomatic states, a patient who appears well may be carrying and possibly spreading a dangerous microbe, and you’ll not know it. Thus, one needs to consider (for infection control purposes) that all patients are potentially infectious not just those who have symptoms or are known to be ill. Therefore, the infection control measures used for sick patients are also used for all other patients. The measures are not patient specific but procedure specific. For example, sterile gloves are used for surgery whereas exam gloves are used for more routine procedures.

Am I going to catch a serious disease from any of our patients?

Hepatitis B is a well-recognized occupational risk for health care workers. That’s why it’s very important to be immunized with the hepatitis B vaccine. The OSHA Bloodborne Pathogens Standard requires employers to offer this immunization free of charge to employees who may be exposed to patients’ body fluids. The risk of acquiring clinical infections in the office from other bloodborne agents such as hepatitis C virus (HVC) or HIV is extremely low. Avoiding occupational exposure to blood/saliva in dentistry is the primary way to prevent spread of HBV, HCV and HIV, and this is the basis for the prevention approaches required by OSHA’s Bloodborne Pathogens Standard.

Although it’s often difficult to identify exactly where/how we “catch” a disease, it is possible for dental workers to acquire respiratory or skin diseases in the office. For example, there is a documented case of herpes that was spread from a patient to the hand of a hygienist (see question three under Personal Protective Equipment on page one), who was not wearing gloves. Following the procedures outlined by OSHA and the CDC will greatly reduce the chances for microbe spread in the office.

Do you have anything I can read describing infection prevention policies and procedures?

Read the OSHA standards and the CDC’s recommendations. Also there are texts that give further explanations of infection prevention in dentistry. In addition OSHA requires dental offices to have a written exposure control plan, to make it available to employees and to update it at least annually. This written plan is to describe the jobs and tasks in the office that may lead to occupational exposure; the methods to be used to prevent exposure; the hepatitis B vaccination program; the post-exposure evaluation and follow-up procedures; how hazards will be communicated to employees; and the required recordkeeping.
What’s Wrong With This Picture?

Can you identify any breach in infection prevention and safety procedures in this photo? Check your answers below.

Drilling Down With OSAP

OSAP provides a wealth of infection prevention and safety information on its web site http://www.osap.org.

For example, on the home page highlight the “Guidelines/Standards” on the left-hand menu; click on “Guidelines by Topic Areas”; and you’ll see the “Toolkit Index” which is an alphabetical search engine to link you to multiple sites on a variety of topics. Try it!

If you’re a blogger or tweeter check out the bottom left-hand menu on OSAP’s home page http://www.osap.org.

“Thanks” to our SPONSORS

OSAP thanks the following companies that help to underwrite each issue of this special series of Infection Control In Practice in 2011.

SUPER SPONSORS

Crosstex ► crosstex.com
A leading global manufacturer of infection control and single-use disposable products for the healthcare industry.

Hu-Friedy ► hu-friedy.com
Hu-Friedy helps dental professionals perform at their best by providing superior products, knowledge and support.

Medicom ► medicom.com
Medicom, proud leaders in disposable infection control products since 1988.

SciCan ► scican.com
SciCan Inc., the final word in all dental instrument reprocessing.

Sultan Healthcare ► sultanhealthcare.com
Products to complete the cycle of infection control.

TotalCare ► kerrtotalcare.com
Offering high-quality infection prevention products to protect staff and patients in the dental operatory.

SPONSORS

A-dec ► a-dec.com
Enriching the lives of dental professionals by providing simple and creative solutions.

Biotrol ► biotrol.com
E-mail sciencegeeks@biotrol.com for infection control answers. Infection control down to a science.

Bosworth ► bosworth.com
Your Source for Quality Dental Materials Since 1912.

Certol International ► certol.com
Focused on cleaning technology and products to support your infection prevention program.

Coltene/Whaledent ► coltene.com
A worldwide and highly innovative developer, manufacturer and provider of dental consumables.

DentalEZ Group ► dentalez.com
DentalEZ's six brands provide a full line of products for the operatory.

DUX ► duxdental.com
Trustworthy innovation for superior infection control products, staff safety and patient comfort.

Henry Schein ► henryscheindental.com
We’re here for you! Supplies, equipment, services and technology for dental practices.

Midmark ► midmark.com
Midmark Corporation, a provider of innovative solutions that work for you.

Miele ► miele.com
Developed specifically to clean dental instruments and accessories and to reduce the risk of infection by providing high-level disinfection.

North Bay/Bioscience ► nbbs.com

Palmero Health Care ► palmerohealth.com
DisCide Ultra Spray & Wipes • DisCideXRA Hand Wipes • TelAseptic Wipes • Barriers • Safety & Disposable Eyewear.

Patterson Dental ► pattersondental.com
Dental’s most trusted partner for service, supplies, equipment and technology.

PDI, The healthcare division of Nice-Pak ► pdipdi.com
Live a healthier life with clinically proven products that safely clean, disinfect and control disease infection.

Septodont ► septodontusa.com
Septodont, providing better dentistry through pain control, restoratives and infection control products.

SmartPractice ► smartpractice.com
Join OSAP
If you have received this newsletter from a friend or associate, you can access other helpful resources and timely information on infection control and safety by becoming a member of the OSAP community.

*Member registration is easy.*

Online at [www.osap.org](http://www.osap.org) or by phone: 1-800-298-OSAP (6727) within the U.S. or 1-410-571-0003 outside the U.S.

Watch for new membership categories!

**Glossary**

*Vegetative bacteria:* are forms of bacteria capable of multiplying and are not dormant like spores. Vegetative bacteria are easier to kill by chemical and physical means than are spores.

*Clinical contact surfaces:* surfaces that may be touched with gloved hands during patient treatment or become contaminated with blood or saliva and subsequently contact instruments, devices, hands, or gloves (e.g., light handles, switches, drawer handles)

*EPA-registered hospital disinfectant:* a disinfectant that has been shown to kill *Staphylococcus aureus*, *Pseudomonas aeruginosa* and *Salmonella choleraesuis* using standardized methods and has been cleared by the EPA to be safe and effective.

**Links to Resources**


Continuing Education

CE Unit 5/11

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. OSAP is recognized by the American Dental Association as a CERP Provider.*

For each item, pick the best answer.

1. Gloves worn by dental personnel to help protect the:
   a. patients.  b. dental personnel.  c. patients and dental personnel.  d. operatory environment.

2. Sterilization wraps, pouches and bags need to be:
   a. cleared by the FDA.  b. made of denim.  c. reused only twice.  d. washed before use.

3. What two types of disinfectants does the CDC recommend for cleaning and disinfecting contaminated environmental surfaces in dentistry?
   a. A sterilant/high-level disinfectant and a low-level disinfectant
   b. A low-level and an intermediate-level disinfectant
   c. A sterilant/high-level disinfectant and an intermediate-level disinfectant
   d. Two different types of sterilant/high-level disinfectants

4. In donning PPE for patient treatment, which should be put on last?

5. The key property of an intermediate-level disinfectant is that it:
   a. kills high numbers of bacterial spores.  b. does not inactivate Mycobacterium bovis.
   c. is never EPA-registered.  d. is tuberculocidal.

6. Which one of the following is part of proper PPE for direct patient care?
   a. Protective eyewear with side shields  b. Gloves that have been used once but washed with an antimicrobial soap
   c. Short-sleeved scrubs suits  d. Bare hands treated twice with an alcohol-based hand rub

7. The CDC recommends changing environmental operatory surface barriers:
   a. after the last patient of the day.  b. after the last patient of the morning session and the afternoon session.
   c. after every other patient.  d. after each patient.

8. The CDC recommends using sterilization monitors:
   a. on the inside of all types of packages.
   b. on the outside of all types of packages.
   c. on the outside and inside of one package in the center of each sterilizer load.
   d. on the inside of one package in the center of each sterilizer load.

9. What accumulates on the inside of untreated dental handpiece waterlines and causes excessive microbial contamination of patients’ mouths?
   a. Lime deposits  b. Rust  c. Biofilm  d. Oil deposits

10. Vegetative bacteria are:
    a. dormant.  b. cannot multiply.  c. easier to kill than spores.  d. spore-forming bacteria.

*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 1-410-571-0003 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.

Please mail or fax completed test with the appropriate payment to receive one (1) hour of continuing education credit.

Your Name: __________________________________________ OSAP Member Name: __________________________
Address: __________________________________________ City: __________________________ State: _____ ZIP: ________
Email: __________________________________________
Fees: ☐ OSAP MEMBER, $15 ☐ NON-MEMBER, $20 Payment: ☐ MASTERCARD ☐ VISA ☐ CHECK ENCLOSED
Name on Card: __________________________________________ Card Number: __________________________ Exp. Date: ____ / ____

After completing the information above: mail to: OSAP CE, P.O. Box 6297, Annapolis, MD 21401, USA or fax to: 1-410-571-0028
What’s It All About?

One way to empower yourself with critical information in infection prevention is to ask questions about things that are not clear or just need further explanation.

“Why do I have to wash my hands before gloving?”

“Why do I have to put my gloves on last?”

“Why do I have to let instruments dry inside the autoclave?”

“Why should I wear long sleeves at chairside?”

Read On For Answers!

In the next issue.....Emerging Issues