Sam Barry, DMD

Course 8166: “Review of CDC Guidelines for Infection Control in Dental Health-Care Settings”

Saturday, April 8
1 pm - 4 pm
Review of CDC Guidelines for Infection Control in Dental Health-Care Settings

Oregon Dental Conference
April 8, 2017
Samuel Barry, DMD
541-969-6129

Disclaimers & Acknowledgements

• The speaker is an employee of Henry Schein Dental
• The speaker may mention certain products and services provided by Henry Schein Dental
• Some slide content & images provided by:
  - HPTC, Inc.
  - Centers for Disease Control and Prevention
  - Washington Dept. of Labor & Industries
  - OSHA
  - Karen Gregory, RN – Total Medical Compliance

“CDC Guidelines for Infection Control in Dental Health-Care Settings – 2003”

www.cdc.gov/mmwr/PDF/rr/rr5217.pdf

Federal Agencies & National Organizations
Infection Control/Prevention is Important

• To make sure we protect both healthcare workers and patients from disease (infection prevention)
• Infectious disease death rate was 46 per 100,000 people in the U.S. in 2014
• Increasing worldwide antibiotic resistance
• Very little R & D for new antibiotics
• Emerging and reemerging diseases

CDC Quote

“We need to take a comprehensive approach to infection control in all dental settings. Robust infection control practices in dental clinics are critical for the health of both patients and staff.”

Arjun Srinivasan, MD, FSHEA
Associate Director for Healthcare Associated Infection Prevention Programs at the Centers for Disease Control and Prevention

CDC & FDA Advisory

Immediate Need for Healthcare Facilities to Review Procedures for Cleaning, Disinfecting, and Sterilizing Reusable Medical Devices

This is an official CDC HEALTH ADVISORY

Distributed via the CDC Health Alert Network
September 11, 2019, 12:15 EDT (12:15 PM EDT)
CDC/HAN-00382
Information in this HAN Advisory has been updated. Please see HAN Fax for updated information.

Routes of Transmission

Patient ➔ DHCP ➔ Patient

Patient ➔ Patient
Modes of Disease Transmission

- Direct contact with blood or body fluids (OPIM)
- Indirect contact with a contaminated instrument or surface
- Contact of mucosa of the eyes, nose, or mouth with droplets or spatter (droplet transmission)
- Inhalation of airborne microorganisms

What is the goal?

Goal: Break the Chain of Infection

Pathogen
(sufficient virulence & adequate numbers)

Susceptible Host
(i.e., one that is not immune)

Source
(allowed pathogen to survive & multiply)

Entry
(portal that the pathogen can enter the host)

Mode
(of transmission from source to host)

CDC Guidelines

- OSHA can enforce CDC guidelines, even though they are written by the CDC, under the "General Duty Clause"
- Must comply with OSHA BBP Standard
- State Dental Boards can/will also enforce them as well
- Legal liability – increased public awareness
- Infection prevention is a public trust and expectation!

OSHA Bloodborne Pathogens

OAR 437, Division 2
Subdivision Z
1910.1030
Bloodborne Pathogens

Requires annual training with in 12 months of the previous years training
Idaho Board of Dentistry

Documents Incorporated by Reference:

“CDC Guidelines for Infection Control in Dental Health-Care Settings - 2003”

http://isbd.idaho.gov/rules.htm

Oregon Board of Dentistry

Division 12 - Standards of Practice
OAR 818-012-0040
Infection Control Guidelines

“In determining what constitutes unacceptable patient care with respect to infection control, the Board may consider current infection control guidelines such as those of the Centers for Disease Control and Prevention and the American Dental Association.........”

Stat. Auth.: ORS 679.120, 679.250(7), 680.075 & 680.150
Stats. Implemented: ORS 679.140, 679.140(4) & 680.100
http://arcweb.sos.state.or.us/pages/rules/oars_800/oar_818/toc.html

Oregon Board of Dentistry

OAR 818-042-0030 - Infection Control

The supervising dentist shall be responsible for assuring that dental assistants are trained in infection control, bloodborne pathogens and universal precautions, exposure control, personal protective equipment, infectious waste disposal, Hepatitis B and C and post exposure follow-up.

Stat. Auth.: ORS 679
Stats. Implemented: ORS 679.140
Hist.: OBD 9-1999, f. 8-10-99, cert. ef. 1-1-00

Oregon Board of Dentistry

DIVISION 21 - EXAMINATION AND LICENSING
OAR 818-021-0060
Continuing Education — Dentists

(6) At least 2 hours of continuing education must be related to infection control.

(Effective January 1, 2015)
Stat. Auth.: ORS 679
Stats. Implemented: ORS 679.250(9)
Oregon Board of Dentistry

DIVISION 21 - EXAMINATION AND LICENSING
OAR 818-021-0070
Continuing Education — Dental Hygienists

(6) At least 2 hours of continuing education must be related to infection control.

(Effective January 1, 2015)
Stat. Auth.: ORS 679
Stats. Implemented: ORS 679.250(9)

Washington Board of Dentistry

WAC 246-817-601 Infection Control

The purpose of WAC 246-817-601 through 246-817-630 is to establish requirements for infection control in dental offices to protect the health and well-being of the people of the state of Washington. For purposes of infection control, all dental staff members and all patients shall be considered potential carriers of communicable diseases. Infection control procedures are required to prevent disease transmission from patient to doctor and staff, doctor and staff to patient, and from patient to patient. Every dentist is required to comply with the applicable standard of care in effect at the time of treatment. At a minimum, the dentist must comply with the requirements defined in WAC 246-817-620 and 246-817-630.

[Statutory Authority: RCW 18.32.035. WSR 95-21-041, § 246-817-601, filed 10/10/95, effective 11/10/95.]


CDC Guidelines

www.cdc.gov/mmwr/PDF/rr/rr5217.pdf

CDC - March 28, 2016

www.cdc.gov/oralhealth/infectioncontrol/guidelines/index.htm

Does not replace 2003 Guidelines – it highlights and clarifies existing CDC Guidelines, updates source documents and references, provides a dental specific checklist
CDC Dental Checklist App

Interactive version of the new “Infection Prevention Checklist for Dental Settings”
For use on all mobile IOS devices only
Free download at the iTunes App store

ADA Statement

...The ADA urges all practicing dentists, dental auxiliaries and dental laboratories to employ appropriate infection control procedures as described in the 2003 CDC Guidelines, and 2016 CDC Summary and to keep up to date as scientific information leads to improvements in infection control, risk assessment, and disease management in oral health care.

American Dental Association
www.ada.org/en/member-center/oral-health-topics/infection-control-resources

CDC Standard Precautions

• Must use the same infection control procedures for all patients

• Assume all patients are infectious

• Infection control policies are determined by the procedure, not from your view of the patient

Essentials for Standard Precautions

• Proper hand hygiene
• Proper use of personal protective equipment (PPE)
• Proper cleaning and disinfecting environmental surfaces
• Proper cleaning and sterilization of instruments and devices
• Sharps safety - engineering and work practice controls
• Respiratory hygiene and cough etiquette
• Safe injection practices
1. Develop written comprehensive policies and programs for infection control (IC) – appoint an Infection Control Coordinator
2. Follow the CDC Guidelines as close as possible
3. Follow the manufacturer’s instructions for use (IFU)
4. Provide Training on procedures, products and devices
   - on hiring, new tasks or procedures, at least annually
5. Use FDA registered equipment and devices - 510(K)
6. Use EPA registered disinfectant products

7. Cleaning is a very important step in IC
8. Allow packages to dry and cool, in the sterilizer, before they are handled to avoid contamination
9. Designate a central processing area into distinct areas; receiving, packaging, sterilization and storage
10. Transport instruments in a covered container
11. Do not refill soap dispensers without washing and drying them first
12. SINGLE USE (disposable) items - throw them away!

13. Examine wrapped packages of sterilized instruments before using to ensure the barrier wrap has not been compromised and indicators have changed
14. Avoid using carpeting and cloth-upholstered furnishings in operatories, lab, and sterilization
15. Owner’s Manuals/Directions (IFU) for equipment
   - routine maintenance performed
   - Training – Competency
   - Testing/Monitoring

Infectious Diseases
Bacterial Resistance
• 700 + species of bacteria isolated from the oral cavity
• Bacterial antibiotic resistance increasing rapidly – “super bugs”
• Very few new antibiotics on the horizon
• Some bacterial pathogens of concern:
  - Staphylococcus aureus (MRSA)
  - Mycobacterium tuberculosis – XDR in India, Italy, Iran
  - Streptococcus pyogenes – flesh eating
  - Streptococcus pneumonia
  - Neisseria gonorrhoeae
  - Pseudomonas aeruginosa
Additional bacteria and viruses to be concerned about in the dental setting:

- Treponema pallidum – syphilis
- Herpes Simplex Virus – HSV1 & HSV2
- Varicella Zoster Virus (VZV) - shingles
- Epstein Barr Virus – mono, cancer
- Human Papilloma Virus – cancer

HBV - Hepatitis B Virus

- Hearty - can live for 7+ days on surfaces
- 100 times more contagious than HIV
- Approximately 20,000* new infections per year
- Estimated up to 2.2 million* chronic carriers
- Approximately 1,800* deaths/year
- No cure, but there is a preventative vaccine

* 2014 CDC estimates

HBV - Hepatitis B Virus

<table>
<thead>
<tr>
<th>Clinical Features</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incubation period</td>
<td>60-90</td>
</tr>
<tr>
<td>Range 45-180 days</td>
<td></td>
</tr>
<tr>
<td>No sign or symptoms</td>
<td>30%</td>
</tr>
<tr>
<td>Acute illness (jaundice)</td>
<td>30%-50% (≥5 years old)</td>
</tr>
<tr>
<td>Chronic infection (carrier)</td>
<td>5%-10% (of infected adults)</td>
</tr>
<tr>
<td>Premature death from chronic liver disease</td>
<td>15-25% (of chronically infected)</td>
</tr>
<tr>
<td>Immunity</td>
<td>Protected from future infection</td>
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</table>

HCV - Hepatitis C Virus

- The most common chronic bloodborne infection in the U.S.
- Can live from up to 6 weeks at room temperature on environmental surfaces
- CDC estimates 2.7 - 3.9 million chronically infected
- CDC estimated 30,500 new infections in 2014
- Leading cause of liver transplantation
- About 19,659 deaths from chronic disease in 2014
- Three new FDA approved medications
- Various genotypes – at least 6
- No vaccine available
**Human Immunodeficiency Virus (HIV)**

- Fragile – survives only a few hours in dry environment
- Attacks the human immune system
- Cause of AIDS
- >1.2 million infected in the U.S. – estimated 13% unaware
- Estimated about 40,000 new infections annually in U.S.
- No cure; no vaccine available

**Human Immunodeficiency Virus (HIV)**

HIV Infection → AIDS

- Many have no symptoms or mild flu-like symptoms
- Most infected with HIV eventually develop AIDS
- Incubation period ≈10-12 yrs.
- Opportunistic infections & AIDS-related diseases - TB, toxoplasmosis, Kaposi’s sarcoma, oral thrush (candidiasis)
- Treatments are limited; do not cure

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**Tuberculosis**

- Bacterial infection primarily of the lungs
- *Mycobacterium tuberculosis*
- Risk in dental settings is usually low
- Immune system usually prevents spread
- Usually needs repeated exposures to infect
- Follow CDC Guidelines for preventing TB transmission in healthcare settings
  - conduct an annual risk assessment
  - develop a written TB infection control plan

**Tuberculosis**

- Spread by microscopic airborne particles called droplet nuclei
  - airborne – speaking, coughing, sneezing, laughing, singing
  - can travel at least 1 meter
  - respiratory aerosols can remain airborne for several hours
- Bacteria can remain alive in the lungs for many years (latent TB) – if untreated ~10% will develop active TB
- TB bacteria can survive on dry surfaces for weeks
Tuberculosis

- Signs & Symptoms of active tuberculosis disease:
  - productive cough (may have streaks of blood)
  - fever
  - night sweats
  - weight loss
  - fatigue
  - malaise
  - chest pain
- One third of the world’s population has latent TB
  - 10.4 million fell ill worldwide in 2015
- About 1.8 million deaths worldwide in 2015
  - 493 deaths in U.S. in 2014

High Risk for Developing TB

- Close contact with someone with TB
- Immigrated from an area with a high TB rate
  - India, Indonesia, China, Nigeria, Pakistan, South Africa
- Children less than 5 y.o. with positive TB test
- Injection drug users
- Homeless
- Work or reside in correctional facilities, nursing homes, residential homes for HIV/AIDS
- HIV infection (35% of HIV deaths was from TB in 2015)
- Compromised immunity – corticosteroids, silicosis, diabetes, severe kidney disease, organ transplant

Annual Community Risk Assessment
- call County Health Department
- develop a written TB infection control plan

Tuberculin skin test (TST) – low risk = <3/year
  - baseline test on hiring
  - when an exposure occurs

Tuberculin skin test (TST) – Medium risk = ≥3/year
  - baseline test on hiring
  - when an exposure occurs
  - annually

Assess patients for history and risk of TB
- Isolate patient, then refer for medical evaluation, if suspect TB
- Deferr all elective dental treatment until medically cleared
- Refer to a healthcare facility with respiratory airborne isolation rooms if urgent dental care is needed
- Need fit tested N-95 respirator masks to treat active patient
- Standard surgical/procedure mask does NOT provide complete protection
Immunizations for DHCW

CDC Guidelines for Infection Control in Dental Health Care Settings – 2003 (page 65)

- Hepatitis B (mandatory by OSHA)
- Influenza (annually)
- Measles, Mumps, Rubella (MMR)
- Tetanus, Diphtheria, Pertussis (Tdap)
- Varicella (Chickenpox)
- Possibly others based on age, medical conditions, travel plans
  - consult with personal physician

Hepatitis B Vaccine

- No cost to you (within 10 days of employment)
- Need written proof of vaccination or antibody titer
- 3 injections: 0, 1, & 6 months
- Effective for 85 - 95% of adults
- Post-vaccination testing for high risk HCW
  - 1 - 2 months after 3rd dose (60 – 70% no titer after 12 years)
- Post-exposure treatment (if not vaccinated or no proof of immunity)
  - Hepatitis B immune globulin (< 24 hours)
  - Begin vaccination series
- If decline, you must sign a “Declination Form”
  - vaccine available at later date if desired

Tuberculosis


www.cdc.gov/mmwr/preview/mmwrhtml/rr5417a1.htm?s_cid=rr5417a1_e

www.doh.wa.gov/YouandYourFamily/ILLNESSandDISEASE/Tuberculosis

Hepatitis B Vaccine

CDC Update

Pre-exposure evaluation for health-care personnel previously vaccinated with complete, ≥3-dose Hepatitis B vaccine series who have not had post vaccination serologic testing.

http://www.cdc.gov/mmwr/pdf/rr/rr6210.pdf

December 20, 2013

Exposure Incident

If you have an exposure incident to blood or OPIM, immediately do the following:

- Thoroughly clean the affected area:
  - Wash needle sticks, cuts, and skin with soap and water
  - Flush with water splashes to the nose and mouth
  - Irrigate eyes with clean water, saline, or sterile irrigants
- Report exposure to (supervisor, person or department responsible for managing exposures, etc.); fill out an Incident/Accident Report Form

Exposure Incident

Exposure Incident/Accident report form should include at least the following:

- Date and time of exposure
- Procedure details: where, when, how, with what device
- Exposure details: route, body substance involved, volume and duration of contact
- Information about source patient
- Exposure management details

Check with your Worker’s Compensation Insurance Company

Our company’s responsibility:

- Provide immediate (within 2 hours) post-exposure medical evaluation and follow-up to exposed employees from a qualified HCP:
  - At no cost
  - Confidential
  - Testing for HBV, HCV, HIV
  - Preventive treatment when indicated
- Test blood of source person if HBV/HCV/HIV status unknown, if possible (document refusal); provide results to exposed employee, if possible
Post Exposure Evaluation

Items to Consider

- Who will manage the post exposure process???
  - Emergency Room
  - Urgent Care
  - County Health Department
  - Occupational Health/Medicine
- Establish the relationship in **advance**
  - Current with most recent guidance on BBP exposures
  - Business hours & wait times – evaluated within 2 hours
  - Rapid HIV test
  - Availability of post exposure medications
  - Timely HCP written opinion
  - Payment of services

Post Exposure Evaluation

Our company’s responsibility:

- Make arrangements in **advance** as to where to go for medical evaluation
- Provide to the evaluating health care professional:
  - A copy of BBP regulation
  - Description of exposed employees duties
  - Documentation of the routes of exposure & circumstances
  - Results of the source patient’s blood tests, if available
  - All medical records relevant to the appropriate treatment of the employee, including vaccination status

Post Exposure Evaluation

Our company’s responsibility:

- Make an incident packet (not required, but good idea – saves time, reduces stress):
  - Incident/Accident report form
  - BBP regulations
  - Release forms
  - Any other forms that evaluating HCP recommends
  - “PEP Steps” pamphlet
  - “CDC Exposure to Blood” pamphlet
- Put name, address and phone number of facility, on outside of envelope, of where to go for medical evaluation

Post Exposure Evaluation

Our Company’s Responsibility

- Provide exposed employee with copy of the evaluating health care professional’s (HCP) written opinion within 15 days of completion of evaluation
- Provide employee with information about laws on confidentiality for the source individual
- Provide post-exposure treatment as needed, including counseling

Our HCP is: ???
Post Exposure Evaluation – CDC Update

### Occupational Exposure Flow Chart

**Exposure incident Occurs**

**Clean/Flush**

**Employee** reports to employer immediately

**Employer**

Direct employee to Healthcare Professional, obtain authorization for testing.

Send to HCP:

- Employee’s job description, incident report, HBV/HCV/HIV status including B vaccine & titers.
- Patient’s identity, HBV/HIV/HCV status or send for testing.

Document event.

**Healthcare Professional**

Evaluates exposure incident

Tests employee and source patient (rapid HIV)

Notifies employee of results

Provides counseling

Provides post-exposure prophylaxis

Evaluates reported illnesses

**ABOVE ITEMS CONFIDENTIAL**

Sends written opinion to employer:

- Need for follow-up
- Employee informed

Receives copy and forwards to employee within 15 days

**Employee** receives copy of written opinion

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Post-exposure Treatment

- HCV – no prophylaxis treatment
- HBV - Immune globulin B and vaccination series if not immune
- HIV – Anti-HIV medications for high risk exposures – 2 or 3 drugs
- Test for infection at baseline, then varies from 6 weeks to 12 months depending on which virus, testing method, status of source patient and status of injured employee

**Hot line:** 888-448-4911

[http://nccc.ucsf.edu/clinical-resources/pep-resources/pep-quick-guide/](http://nccc.ucsf.edu/clinical-resources/pep-resources/pep-quick-guide/)

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Medical Conditions/Work Restrictions

- DHCP are responsible to monitor their own health
- If acute or chronic conditions, consult with physician
- Decisions on work restrictions are based on:
  - mode of transmission
  - period of infectivity
- Policies should be in writing

- [www.cdc.gov/mmwr/PDF/rr/rr5217.pdf](http://www.cdc.gov/mmwr/PDF/rr/rr5217.pdf) (Table 1)
- [www.sheaonline.org/Assets/files/guidelines/BBPathogen_GL.pdf](http://www.sheaonline.org/Assets/files/guidelines/BBPathogen_GL.pdf)
Medical Records

- Required by OSHA BBP standard
- Confidential – secured location
- Name and social security number
- Hepatitis B vaccination and post-exposure evaluations or declination forms
- Incident/Accident forms
- HCP's written opinions
- Information provided to HCP
- Maintain for length of employment plus 30 years

Medical Conditions/Work Restrictions

Policies should include restrictions for the following:
(CDC Guidelines for Infection Control in Dental Healthcare Settings – Table 1)

- Conjunctivitis
- Diarrheal diseases
- Enteroviral infection
- Hepatitis A
- Hepatitis B
- Hepatitis C
- Herpetic whitlow
- HIV
- Measles
- Meningococcal infection
- Mumps
- Pediculosis (lice)
- Pertussis
- Rubella
- Staphylococcus infection
- Tuberculosis
- Varicella (chicken pox)
- Zoster (shingles)
- Viral respiratory infection

Respiratory Hygiene

- Post CDC Poster
- Provide tissues and disposal receptacles
- Provide resources for hand hygiene
- Offer masks to coughing patients
- Encourage patients with symptoms to sit away from others if possible

Why Is Hand Hygiene Important?

- The most common mode of transmission of disease is with the hands
- Hands contaminated with transient bacteria pose a high risk for the transmission of disease
- Good hand hygiene helps prevent healthcare acquired infections (HAI)

Hands Need to be Cleaned When:

- Visibly soiled/dirty
- After touching contaminated objects or surfaces with bare hands
- Before and after patient treatment (before glove placement and after glove removal)
- 15 - 20 seconds minimum wash
- Dry with disposable towel
- Turn off faucet with a dry towel - consider no-touch electric/foot controlled faucet

Hand Hygiene Definitions

- Hand washing
  - Washing hands with plain soap and water
- Antiseptic hand wash
  - Washing hands with water and soap or other detergents containing an antiseptic agent
- Alcohol-based hand rubs (60% - 95%)
  - Rubbing hands with an alcohol-containing preparation
- Surgical antisepsis
  - Hand washing (2-6 minutes) with an antiseptic soap or plain soap and an alcohol-based hand rub

Efficacy of Hand Hygiene Preparations in Reduction of Bacteria

<table>
<thead>
<tr>
<th>Good</th>
<th>Better</th>
<th>Best</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plain Soap</td>
<td>Antimicrobial soap</td>
<td>Alcohol-based handrub</td>
</tr>
</tbody>
</table>

Source: [www.cdc.gov/handhygiene/materials.html](http://www.cdc.gov/handhygiene/materials.html)
Posters: [www.cdc.gov/handhygiene/Basics.html](http://www.cdc.gov/handhygiene/Basics.html)

Alcohol-based Preparations

**Benefits**

- Rapid and effective antimicrobial action
- Improved skin condition
- More accessible than sinks
- Better compliance

**Limitations**

- Cannot be used if hands are visibly soiled
- Follow IFU for amount (hand size)
- Store away from high temperatures or flames

*Rub hands until DRY! (15 – 20 seconds)*
Special Hand Hygiene Considerations

- Use hand lotions to prevent skin dryness
- Consider compatibility of hand care products with gloves (e.g., mineral oils and petroleum bases may cause early glove failure)
- Keep fingernails short - NO artificial nails
- Avoid watches and bracelets
- Avoid any hand jewelry that may tear gloves
- Place a band aid over any existing lesion before donning gloves

OSHA BBP Standard

Personal Protective Equipment (PPE)

You must wear all required PPE. Employer must provide employees with appropriate PPE at no cost to the employee such as but not limited to:

- Gloves
- Lab coats
- Gowns
- Shoe covers - optional?
- Face shields or Masks and eye protection
- Head covers – optional?
- Resuscitation devices

PPE used:
Based on procedures – the degree of anticipated exposure

Aerosols can travel up to 15 feet
Gloves

• Gloves should be worn whenever hand contact with blood or OPIM is likely to occur
• Gloves should be worn when touching contaminated items or surfaces
• Do not reuse clinical gloves - single use only
• Replace gloves if they become torn or punctured
• Use utility gloves for clean-up activities (disinfect daily)
• Use sterile surgical gloves for surgical procedures
• Beware of Dermatitis & Hypersensitivity (latex, nitrile?)
• Gloves do NOT replace the need for hand washing

Masks, Protective Eyewear, Face Shields

• Wear a surgical mask and eye protection with solid side shields or a mask and face shield to protect mucous membranes of the eyes, nose, and mouth

• Eyewear (ANSI Z87.1) – also provide patient eyewear

• Change masks between patients and when they become wet (cover nose) – at least 95% filtration

• Clean and disinfect reusable face protection when visibly soiled

Protective Clothing

• Wear gowns, lab coats, or uniforms that cover skin and personal clothing likely to become soiled with blood, saliva, or infectious material (long sleeves, and knee length)

• Change if visibly soiled or at end of day

• Remove all barrier PPE before leaving the work area (before entering break room, bathroom, or leaving the building)

Exposure Controls

Personal Protective Equipment (PPE)

Donning Sequence:
1. Protective Clothing gown/jacket
2. Mask
3. Protective eyewear
4. Wash Hands
5. Gloves

Removal (doffing) Sequence:* 
1. Gloves
2. Protective eyewear – from side
3. Protective clothing – gown/jacket
4. Mask – from side
5. Wash hands

*Perform hand hygiene between steps if hands become contaminated and immediately after removing all PPE
Sharps Safety

- Consider contaminated sharp items potentially infective
- Whenever possible use engineering controls (device based) to reduce exposures:
  - needle re-cappers, safety scalpels, sharps containers, scalpel blade removers, transport containers
  
- When engineering controls unavailable or not appropriate, use work practice controls (behavior based)
  - one handed scoop technique
  - don’t pass syringe with uncapped needle
  - don’t wipe sharp instruments with gauze in hand
  - remove bur from handpiece when done

- See “Sharps Safety” handout

Spaulding Classification

**Definitions**

- **Critical**: penetrates soft tissue, contacts bone, enters into or contacts the bloodstream or other normally sterile tissue

- **Semi-critical**: contacts mucous membranes or non-intact skin; will not penetrate soft tissue, contact bone, enter into or contact the bloodstream or other normally sterile tissue

- **Non-critical**: contacts intact skin

Instrument Transport Containers

- CDC Guidelines and OSHA Bloodborne Pathogen Standard
Spaulding Classification

Examples

• **Critical**: e.g. surgical instruments, scalpels, periodontal instruments, burs, etc.

• **Semi-critical**: e.g. mouth mirrors, amalgam carriers, condensers, reusable impression trays, dental high and low speed handpieces (includes low speed motors), x-ray sensors, bib clips

• **Non-critical**: e.g. blood pressure cuff, stethoscope, pulse oximeter, facebow, radiograph head/cone

Sterilization Methods

• **Critical**: heat sterilize

• **Semi-critical**: heat sterilize if at all possible; if heat-sensitive then at minimum process with an FDA cleared, and registered sterilant/high-level disinfectant
  - try to avoid heat sensitive items – use is discouraged

• **Non-critical**: clean and disinfect with EPA registered hospital intermediate-level (TB claim) cleaner/disinfectant

Manual Cleaning

• **Avoid manual** cleaning instruments if possible use automated methods

• Place in holding solution if not cleaned right away after patient treatment

• If you must hand scrub - wear heavy-duty utility gloves, mask, eyewear, protective clothing

• Scrub only 2 or 3 instruments at a time near the bottom of a deep sink under running water. Use a long handled brush – these minimize injury risk and splatter

*“Non-Sterile” & “Sterile” area signs, tape boundaries on counters*
**Automated Cleaning**

- Ultrasonic cleaner
- Instrument washer
- Washer-disinfector

*Use only FDA approved devices – no household dishwashers

**Automated Cleaning**

- Automated cleaners increase the efficiency of the cleaning process
- Reduces risk of an exposure incident
- Know how to properly operate the device
- Follow the manufacturer’s instructions for use (IFU)

**Automated Cleaning**

**Ultrasonic Use**

- Follow the manufacturer’s directions for time, solution, and maintenance
- Do not lay instruments on bottom, always place them in a basket, don’t overload, don’t add additional items to cycle
- Cover the unit with the lid while in use
- Rinse instruments thoroughly and allow to dry
- Change solution at least daily
  - Maintain on Chemical Inventory List & SDS
- Labels – chemical & biohazard

**Automated Cleaning**

**Ultrasonic Use**

- De-gas new solution
  - The removal of air bubbles found in fresh solution that act as a barrier to efficient cleaning
  - Is necessary every time new solution is added
  - De-gas by activating unit for 15 minutes before adding any items to be cleaned
Automated Cleaning

Ultrasonic Use

- Aluminum Foil Test
  - Monthly, quarterly?
  - Cut a piece of aluminum foil to fit the chamber
  - Prepare fresh solution and de-gas
  - Insert foil vertically, the length of the chamber, 1 inch from bottom
  - Hold foil steady or drape over a stiff wire, dowel, etc.
  - Run for 20 seconds
  - Remove foil – uniform indentations (pebbling)
  - Follow the manufacturer’s instructions

Foil Test

Preparation and Packaging

- Wear heavy-duty, puncture-resistant utility gloves
- Critical and semi-critical items, that will be stored, should be in wrapped cassettes or placed in pouches before heat sterilization (if not used in 15 – 20 minutes)
- Instruments should be clean and dry
- Hinged instruments opened and unlocked
- Make sure packaging material is compatible with sterilization process and is FDA approved
- Do NOT reuse packaging material – pouches or CSR wrap

Preparation and Packaging

- Place a chemical indicator inside the cassette or pouch and outside if the inside one cannot be seen and in the chamber with unwrapped instruments
- Do not overfill the pouch – use proper size pouch, flat in single line, finger width space on each side and top
- Cassettes (“gold standard”) – in a pouch or wrapped with indicator strip inside
- Make sure pouch is sealed properly
- Date, load number, and identify sterilizer on the pouch or wrapped cassette – non-toxic, water proof ink
Seal & Label Pouches

- Remove excess air, fold end tab/flap straight across at scribed line, 50% on plastic and 50% on paper – press firmly
- Do Not write on paper side
- Write on end tab/flap folded over on to plastic or on the plastic side
- Approved ink:
  - Sharpie Industrial Marker – fine point #13601
  - Sharpie Markers labeled - “AP”
  - Hu-Friedy ID Marker - #IMS-1235

Pouches - Incorrect

- Incorrect

Pouches - Correct

- Correct

Sterilization Monitoring

- Mechanical - sterilizer device
  - Measure time, temperature, pressure
  - Review after each sterilizer cycle
- Chemical - internal and external indicator strips
  - Change in color when physical parameter is reached
  - **Check each pouch/pack when removed from the sterilizer to verify color change**
  - Multi-parameter indicators provide more reliability
- Biological - spore tests
  - Use biological spores to assess the sterilization process directly
Spore Test

- Performed at least **WEEKLY**
- Follow mfg. directions
- Control should have same Lot #
- Steam & Chemical Vapor Sterilizers
  - *Geobacillus stearothermophilus*
- Dry Heat Sterilizer
  - *Bacillus atrophaeus*
- Keep Spore Testing Log (check with state board of dentistry)
  - Washington – 5 years
  - Oregon – current calendar year and the two preceding calendar years
  - Idaho – at least one year

Spore Test Failure

- Have a BACKUP person to test the sterilizers
- Have a BACKUP sterilizer
- Remove the failed sterilizer (positive spore test) from service and review procedures and maintenance schedule
- Retest sterilizer, immediately, using spore test, mechanical and chemical indicators after correcting any procedural problems *(Recall instruments?)*
- If repeat spore test is **negative**, and mechanical and chemical indicators are WNL, put it back in service

Spore Test Failure

- If repeat spore test is **positive** do **not** use - have sterilizer inspected and repaired
- **Recall**, to the extent possible, all items processed in that sterilizer, since the last negative spore test
  - Before placing sterilizer back in service, retest in 3 consecutive cycles after the cause of the failure has been determined and corrected

Spore Test

- Spore test with 3 consecutive cycles:
  - after initial installation
  - when relocated
  - after major repair

- Spore test failure rate is about 2%
**Bowie-Dick Test**

- For Class B pre-vacuum sterilizers
  - Scican Bravo
  - Adec Lisa
  - Tuttnauer Elara & Nova
- **Daily** air removal test – test pack
- Follow manufacturer’s instructions (IFU) – sterilizer & test pack
  - first thing in the morning
  - place at lowest level over drain in an empty chamber
  - run at 273°F/134°C for 3.5 minutes
- May not be indicated in newer models with built in tests

**Sterilization – Sterilizer/Autoclave**

- Do **not** overload sterilizer or stack packages in a manner that prevents circulation and penetration of steam – single layers, ¼ inch between, do **not** overlap
- Stand pouches & solid cassettes on **edge** is preferred
- Perforated cassettes **flat**
- Alternate pouches – paper to plastic side
- Consider using a vertical rack
- Allow the appropriate drying time
- Do not interrupt a sterilization cycle

**Sterilization**

**Sterilizer/Autoclave**

- Do **NOT** handle packages while they are wet, should allow to dry and cool in sterilizer
- **Verify** that chemical indicators have changed color
- Keep handling of sterile instruments to a minimum
- Follow the manufacturer’s recommended operation & maintenance instructions (IFU) for the sterilizers
- Access to owner’s manual
- Make sure employees are trained and the training is documented

**Sterilization**

**Liquid Sterilant/High-level Disinfection**

- Chemical Sterilants or “Cold Sterile” Solutions
  - glutaraldehyde, OPA, hydrogen peroxides, etc.
- **Disadvantages:**
  - Toxic – keep container lid closed, good ventilation
  - Less reliable than heat sterilization
  - Has a limited use life
  - Time consuming - up to 12 hours
  - Cannot be spore tested
  - Cannot be used with packaged items
  - PPE required during use – utility gloves, mask, eyewear
Sterilization
Liquid Sterilant/High-level Disinfection

- **Disadvantages (continued):**
  - Need good ventilation – at least 10 air exchanges per hour
  - Items must be rinsed off with sterile water, sterile gloves
  - If items stored – not considered sterile
  - May rust and corrode metal
  - Maintain on Chemical Inventory List and SDS
  - Disposal issues – Washington requires neutralization

- **Use is discouraged** - heat sterilize or single use items are better options

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**Sterilization**
Liquid Sterilant/High-level Disinfection

- Use **only** with heat sensitive semi-critical items
- Use an FDA approved product and use **test strip** daily
- Log for changing solution
- Follow the manufacturer's directions
- Keep container closed/covered - label
- Allow to soak for proper time completely submerged – time starts over when new item is added
- Use heavy duty utility gloves and PPE
- Rinse well - sterile water is best
- Handle with aseptic technique – sterile gloves or tongs
- Dry and place in clean/sterile packaging for storage

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**Sterilization**
Liquid Sterilant/High-level Disinfection

“Heat-sensitive critical and semi-critical instruments and devices can be sterilized by immersing them in liquid chemical germicides registered by FDA as sterilants. When using a liquid chemical germicide for sterilization, certain post sterilization procedures are essential. Items need to be 1) **rinsed with sterile water** after removal to remove toxic or irritating residues; 2) **handled using sterile gloves** and dried with **sterile towels**; and 3) delivered to the point of use in an aseptic manner. If stored before use, the instrument should not be considered sterile and should be **sterilized again just before use.**”

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**Storage of Sterile, Clean Items and Supplies**

- Use date or **event-related** shelf-life practices
- Use “oldest” sterile packs first - **FIFO**
- Examine wrapped items carefully prior to use
- **Verify** chemical indicators have changed color
- When the packaging of sterile items is damaged, wet, or indicators not changed - re-clean, re-wrap, and re-sterilize
- Storage area should be clean, dry and enclosed or covered for sterile items and clean patient care supplies – dust free and protected from obvious sources of contamination (below 75°F and 30 - 70% humidity)
General Cleaning Recommendations

- Use PPE barrier precautions – heavy-duty utility gloves, masks & protective eyewear when cleaning and disinfecting environmental surfaces

- Physical removal of microorganisms by cleaning is as important as the disinfection process - vigorous wipe

- Follow manufacturer’s instructions for proper use of EPA registered intermediate-level hospital cleaner/disinfectants
  - Maintain on Chemical Inventory List and SDS

- Do not use liquid sterilants/high-level disinfectants on environmental surfaces – eg. glutaraldehydes

Environmental Surface Infection Control

- **Clinical Contact Surfaces:**
  - light handles
  - switches
  - drawer handles
  - HVE & SE valves
  - stool handles
  - faucet handles
  - air/water syringe
  - x-ray equipment
  - reusable containers of materials
  - counter tops
  - pens/pencils
  - chair side computers
  - doorknobs
  - radiograph equipment

- **Housekeeping Surfaces:**
  - floors
  - walls
  - sinks

Cleaning Clinical Contact Surfaces

- Risk of transmitting infections greater than for housekeeping surfaces

- **Surface barriers** can be used and changed between patients – disinfect if barrier tears and at end of day

- Clean then disinfect using an EPA registered intermediate-level (tuberculocidal claim) hospital cleaner/disinfectant

- “Wipe-Discard-Wipe-Wait” or “Spray-Wipe-Spray-Wait”

- AVOID – presoaked 4x4 gauze (mfg’s., effectiveness, expense)

Operatory Processing

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Cleaning Housekeeping Surfaces

- Routinely clean (written schedule) with floor soap/detergent and water or an EPA-registered detergent/hospital floor disinfectant
- Clean mops and cloths and allow to dry thoroughly before re-using or use disposable mops
- Prepare fresh cleaning and disinfecting solutions daily per the manufacturer’s instructions for use

Dental Unit Waterlines and Biofilm

- Biofilms form in small bore tubing of dental units
- Biofilms serve as a microbial reservoir
- A primary source of microorganisms is the water supply

Sources of Dental Unit Water Line Contamination

- Source water - This is not universally controlled. Some areas will have higher CFU/ml than other areas
- Retracted oral fluids - All new dental units have anti-retraction valves built in, but they can wear out or fail. Many older units have no anti-retraction valves
- Biofilms - These will always form in dental unit waterlines – it’s the nature of the beast

Dental Unit Water Quality

- Using water of uncertain quality is inconsistent with infection control principles
- Colony counts in water from untreated systems can exceed 1,000,000 CFU/mL
  CFU = colony forming units
- Untreated dental units cannot reliably produce water that meets drinking water standards
Dental Water Quality

For routine dental treatment, must meet EPA regulatory standards for drinking water*

*<500 CFU/mL of heterotrophic water bacteria

• Legionella species
• Pseudomonas species
• Non-TB Mycobacterium species**
• Klebsiella species
• Oral flora (bacteria, fungi)
• Amoebas
• others

Mainly gram negative – endotoxins - Asthma

Amoeba in Water Lines

Acanthamoeba Keratitis

First Documented Patient DEATH

• “The Lancet” - February 18-24, 2012
• 82 year old woman in Rome, Italy
• Legionnaires’ Disease
• Genetic sequencing matched the bacteria Legionnaires pneumophila to the dental unit waterlines

Available DUWL Technology

• Independent reservoirs
  - when filling water bottle – Don’t touch pickup tube
• Chemical treatments
• Filtration – DentaPure, Sterisil, Vistaclear, etc.
• Combinations
• Sterile water delivery systems
• Anti-retraction valves – studies show some retraction still can occur
• Avoid “dead legs” – unused water lines, unit water heaters
• Follow the manufacturer’s instructions for use (IFU)
Flush Dental Devices

- Anti-retraction valves or devices – maintain, test - follow mfgs. instructions for use (IFU)
- Devices connected to dental unit water system and enter the mouth should be flushed after each patient
- Minimum of 20 – 30 seconds
- Includes:
  - Handpieces
  - Ultrasonic scalers
  - Air/Water syringes

Monitoring Options

- In-office testing with self-contained kits
- Water testing laboratory – mail-in labs, local labs, dental schools
- Follow recommendations provided by the manufacturer of the dental unit and waterline treatment product for monitoring water quality and maintenance routines
- Test at least Quarterly – Document – Keep a Log

Monitoring Options

- In-office testing - advantages
  - relative short lag time for results
  - can test frequently
  - simple, visual reading of results
  - can use as screening tool for regular DUWL quality
- In-office testing – disadvantages
  - personnel dependent
  - limited bacterial range
  - cost per test
  - less accurate

Common in office test:

- Aquasafe HPC Water Test Kit
- Correction factor of 1.5
How Clean Is Your Dental Unit Water?

These tests indicate bacterial growth

Monitoring Options

- Mail-in lab testing advantages
  - third party DUWL validation & documentation
  - consistent sample test analysis
  - broad spectrum bacterial culturing
  - easy, requires little time

- Mail-in lab testing disadvantages
  - potential for sampling errors
  - lag time for mailing and results
  - bacterial viability during mailing
  - costly – lab test plus overnight shipping

Laboratory Testing:

- ProEdge Laboratory, 888-843-3343
- OHSU School of Dentistry, 503-494-4641
- Loma Linda Univ. School of Dentistry, 909-558-0656
- Other labs available

Lab needs to test sample within 24 hours of collecting the sample

Spread plate method with R2 agar incubated to 20 - 28° for 7 days (APHA method 9215 C)

Surgical Water Quality

Use only sterile water for Surgery

Options:

- Sterile water source with sterile disposable or autoclavable tubing

- Turn off handpiece water and use bottled sterile water and sterile irrigating syringe
Saliva Ejectors

- Previously suctioned fluids might be retracted into the patient’s mouth when a seal is created.
- Do not advise patients to close their lips tightly around the tip of the saliva ejector.

Basic Aseptic Techniques

- Proper hand hygiene
- Proper PPE
- Touch as few surfaces as possible
  - remove gloves or use over gloves
  - use cotton pliers or tongs to retrieve items
- Minimize aerosols & spatter
  - HVE
  - Rubber dam
  - Pre-procedure mouth rinse
- Store items so they are out of aerosol & spatter area
- Consider unit dose items
- Proper disinfection and sterilization procedures

Pre-procedural Mouth Rinses

- Antimicrobial mouth rinses prior to a dental procedure
  - Reduces the number of microorganisms in aerosols/spatter
  - Decreases the number of microorganisms introduced into the bloodstream ???
    - unresolved issue – no evidence that infections are prevented

Oral Surgical Procedures

- Presents a risk for microorganisms to enter the body
- Involves the incision, excision, or reflection of tissue that exposes normally sterile areas of the oral cavity
- Examples include: biopsy, periodontal surgery, implant surgery, apical surgery, and surgical extractions of teeth
Precautions for Surgical Procedures

- Sterile Irrigating Solutions: One time use!
- Surgical Scrub
- Sterile Surgeon’s Gloves

Lasers

- ANSI Z136.1 and ANSI Z136.3 (Healthcare)
- Training
- Protective eyewear – specific to wavelength
- Appoint a “Laser Safety Officer”
- Use HVE – laser plume has viable microbes – within 2 inches
- Mask – filter to 0.1 micron
- Disposable tips are biohazardous waste
- Warning signs posted
- BEWARE of alcohol products and oxygen use

Parenteral Medications

- Medications that are injected into the body – most frequently by intravenous or intramuscular routes
- Cases of disease transmission have been reported
- Handle safely to prevent transmission of infections
- Follow safe injection practices

Safe Injection Practices

- Prepare injections using aseptic technique in a clean area
- Disinfect diaphragm on vial with 70% alcohol
- Do not use needles and syringes for more than one patient
- Do not reuse needles or syringes to enter a medication vial
- Do not use fluid infusion or administration sets for more than one patient
- Use SDV whenever possible
Safe Injection Practices

- Do not use SDV, ampules, bags or bottles of IV solution for more than one patient
- Do not combine leftover contents of SDVs
- Dedicate MDV to a single patient whenever possible
- If MDVs will be used for more than one patient, they should be restricted to a centralized medication area and not enter the patient treatment area
- Date MDVs when opened, discard in 28 days – unless the mfg. specifies a shorter or longer date

Regulated Waste

- Liquid or semi-liquid blood or OPIM
- Contaminated items that would release blood or OPIM in a liquid or semi-liquid state if compressed
- Items caked with dried blood or OPIM that are capable of releasing these materials during handling
- Contaminated sharps
- Pathological and microbiological wastes containing blood or OPIM

Extracted Teeth

- Considered regulated medical waste
  - Do not incinerate extracted teeth containing amalgam
  - Clean and disinfect before sending to lab for shade comparison
- Can be given back to patient
  - Clean and disinfect before giving to patient

Regulated Waste - Containers

- Easily accessible
- Labeled or color-coded
- Leak-proof, closeable
- Puncture-resistant for sharps
- Replaced routinely (do not overfill!)
- Ensure acceptable with state and local regulations
Regulated Waste - Containers

- Close immediately before removing or replacing
- Place in second container if leaking possible or if outside contamination of primary container occurs
- If reusable - open, empty, and clean it in a manner that will not expose you and other employees
- Maintain disposal records - manifest

Regulated Waste

Washington Department of Ecology – Dental Waste:


www.ecy.wa.gov/programs/hwtr/pharmaceuticals/pages/dualwaste.html

www.ecy.wa.gov/programs/hwtr/pharmaceuticals/pages/pie.html

Regulated Waste

- Oregon:
  www.oregondental.org/docs/librariesprovider42/default-document-library/best-management-practicesc24fc2dcb07d6e0c8f46ff0000eea05b.pdf?sfvrsn=0
  www.oregondental.org/government-affairs/regulatory-information/infectious-waste
  www.deq.state.or.us/lq/sw/infectiouswaste/

Radiography

- Barrier protect surfaces – change between patients
  - tube head/x-ray cone
  - control panel
  - exposure button
  - work surfaces/countertops
  - keyboards, mouse
- Once gloves on – only touch barrier protected surfaces
Radiography

- Film based intraoral
  - use film packet barriers if possible
  - open in lighted area with gloves on
  - drop film onto paper towel or in paper cup
  - film can be opened in darkroom without gloves
- Digital sensors & phosphor plates
  - use FDA approved barriers – 44% failure rate
  - clean & disinfect per manufacturer’s directions with EPA registered product

Dental Laboratory

- Clean and disinfect prostheses, impressions and lab equipment
- Wear appropriate PPE until disinfection has been completed
- Clean and heat sterilize heat-tolerant items used in the mouth
- Communicate specific information about cleaning & disinfection procedures with commercial lab
- Disinfect prostheses before delivery to patient

Dental Laboratory

- Impressions
  - Clean & rinse under running water
  - disinfect with appropriate intermediate or high level disinfectant
  - follow the manufacturer’s IFU
  - should use longest contact time on the label
  - rinse well to remove any chemical residue
  - oral bacteria are viable in set gypsum for up to 7 days

Dental Laboratory

- Lathe
  - use plexiglass shield and protective eyewear
  - use mask
  - turn on vacuum
  - cover pumice tray with barrier/liner
  - mix pumice with clean water or 1:10 bleach
  - change pumice and barrier for each case
  - Heat sterilize burs, rag wheels, lab knives, polishing points, etc. if used on contaminated or potentially contaminated appliances or materials
Dermatitis and Hypersensitivity

- **Irritant contact dermatitis**
  - common
  - dry, itchy, irritated area around area of contact
  - increased risk of exposure to body fluids

- **Allergic contact dermatitis (type IV hypersensitivity)**
  - rash beginning hours to days after contact
  - confined to area of contact
  - similar to irritant contact dermatitis

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Dermatitis and Hypersensitivity

- **Latex allergy (type I immediate hypersensitivity)**
  - whole body reaction that usually begins in minutes
  - runny nose, sneezing, itchy eyes, scratchy throat; hives, burning skin sensations
  - More severe symptoms include difficulty breathing, coughing, wheezing
  - rare cases can be life threatening – anaphylaxis

- **Predisposing conditions to latex allergy**
  - history of spina bifida, urogenital abnormalities
  - allergies to kiwis, nuts, bananas

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Dermatitis and Hypersensitivity

- **Get tested – do not self diagnose**
  - Average HCW with skin disease suffers 3 years before seeking help

- **Can have serious consequences**
  - Osteomyelitis in fingers
  - Increase risk to BBP
  - Anaphylaxis

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Dermatitis and Hypersensitivity

- #1 allergy in DHCW - acrylics (methacrylates) - 20%
  - Do NOT put bonding agents on gloves

- Latex – 8-12% HCW, 1-6% general population
  - Glutaraldehyde
  - Formaldehyde
  - Eugenol
  - Metals (nickel, gold, platinum, palladium, etc.)
  - Disinfectants, soaps
  - Fragrances and flavorings
### Dermatitis and Hypersensitivity

- Be alert to signs, symptoms and risks in staff and patients
- Obtain a diagnosis and treatment
- Modify behaviors, work practices and product choices as needed
- Have latex free products available

### Prion Diseases

- Rapidly progressive, fatal degenerative neurological disorders
  - incubation period can be years
  - fatal within 1 year of diagnosis
  - 1 case per 1 million population
  - 85% cases have no recognizable pattern of transmission
- Caused by an unusual pathogen called a Prion
  - prions are isoforms of normal proteins

- Prions have a unusual resistance to decontamination and sterilization
- Transmission during dental procedures is believed to be low to nil – it is an unresolved concern
- Diseases in humans include:
  - Creutzfeldt-Jakob Disease (CJD)
  - variant CJD
  - Gerstmann-Straussler-Scheinker Syndrome
  - Fatal Familial Insomnia
  - Kuru

- Known iatrogenic case have resulted from contact
  - central nervous tissue
  - pituitary tissue
  - eye tissue
- August 2014 – nasal brush biopsy became available
- [http://www.cdc.gov/ncidod/dvrd/prions/index.htm](http://www.cdc.gov/ncidod/dvrd/prions/index.htm)
- [www.cdc.gov/ncidod/dvrd/cjd/qa_cjd_infection_control.htm](www.cdc.gov/ncidod/dvrd/cjd/qa_cjd_infection_control.htm)
Program Evaluation

“Have a systematic way to improve infection control procedures so they are useful, feasible, ethical, and accurate” – Review annually and update as needed

- Develop standard operating procedures
- Evaluate infection control procedures
- Document any adverse outcomes
- Document any work-related illnesses
- Monitor any healthcare associated infections
- Evaluate new technology
- Updated guidelines and/or regulations

About 100,000 Americans die each year from HAI

References

- CDC. Summary of Infection Prevention Practices in Dental Settings Basic Expectations for Safe Care, 2016
- CDC. Guidelines for Environmental Infection Control in Health-Care Facilities.
- ANSI/AAMI. Comprehensive Guide to Steam Sterilization and Sterility in Healthcare Settings. ST79

Go to www.osap.org to learn more
References

• Miller, CH. *Infection Control and Management of Hazardous Material for the Dental Team*. 5th ed, St. Louis, 2014, Elsevier


• OSAP. OSHA and CDC Guidelines: Interact Training System, Self-instructional Workbook. OSAP, 2017

• OSAP. *Infection Control from Policy to Practice*. OSAP, 2016

Resources

• www.cdc.gov
• www.osap.org
• http://osha.oregon.gov/Pages/index.aspx
• www.osha.gov
• www.Lni.wa.gov
• www.ada.org
• www.fda.gov
• www.epa.gov
• www.airforcemedicine.af.mil/decs
1. The bubble on the front right corner of the Stat/M 2000 & 5000 should be in the 4 to 5 o'clock position, NOT in the center of the circle. This allows water to flow to the back left corner of the cassette where it is vented out. Use the Stat/M's 3 adjustable feet to change the way it is leveled starting with the front right leg extended fully. G4 Stat/Ms have a virtual level located in the user menu and will not run if leveled incorrectly.

2. For the 2000 & 5000, make sure that the port in the back left corner on the inside of the cassette tray does not have any debris plugging up the teeth at the bottom. On the 7000, check the screen under the rubber fitting under the tray at the back left corner.

3. You must use the wire rack inside of the Stat/M cassette. For optimum drying, make sure that the feet on the rack are facing down to give the maximum amount of airflow under the instruments.

4. It is very important for successful drying to change the Microbiological Air Filter (Part # 01-102119S) every 3 months or at least every time you change the cassette seal. It is a very fine filter and therefore may be significantly plugged up even if it does not look dirty. Failure to change this filter regularly is the number one cause of poor drying performance. The filter is located on the back of the Stat/M 2000 & 5000, and behind the water tank on the Stat/M 7000. Some older Stat/Ms do not have this filter. You can tell if yours does by looking at the back of the machine. It is a rectangular clear plastic filter with 2 gray hoses coming off of it. To remove it, just pull the filter out of the bracket and pull the 2 tubes off of the filter. To install the new filter, make sure the arrow on the filter and the arrow on the bracket are facing the same direction and then push the tubes onto the ports on the filter. Clip the filter back into the bracket.

5. On the Stat/M 2000, 7000, and some Stat/M 5000s there is also a filter on the air compressor. This filter should be replaced every 6 months. On the Stat/M 2000 it is a donut shaped filter (Part # 01-100207s) located at the rear of the machine and is under the round silver cap with a screw in the middle of it. Simply remove the screw to access the filter. The Stat/M 7000 and some Stat/M 5000's have a green and white air filter (Part # 01-101652S) on the back of the machine. Unscrew by hand to remove and replace it.

6. Put bagged instruments paper side down and do not overstuff the cassette. The Stat/M needs airflow through the cassette to dry the instruments. Putting the instruments paper side down allows water to "wick" out through the paper and speeds up drying.

7. Check that there a not any kinks in the exhaust tubing running from the back of the Stat/M to the waste bottle. Kinks in this tubing will significantly reduce the Stat/M's ability to dry instruments. If there is a kink that you cannot straighten out, please call a service tech to replace the tubing.

8. To improve drying performance we recommend using Stat-Dri spray on our legacy Statims at least twice a week. Spray it on the inside surfaces of the cassette and use a gloved hand to spread it around so that you have covered the top and bottom. You are not trying to wipe off the Stat-Dri, you just want to spread it around onto all of the internal cassette surfaces. This prevents water from beading up on the inside of the cassette and allows the water to flow to the exhaust port much easier.

9. The Stat/M drying cycle runs for an hour after sterilization, but can be stopped sooner. In a properly set up and maintained Stat/M, wrapped instruments are usually dry after about 15-20 minutes of the drying cycle. Loose or unwrapped instruments can be removed immediately after the sterilization cycle completes for immediate use under the AAMI "Immediate-use steam sterilization" protocol.
10. Use a green Scotchbrite pad and a chlorine free stainless steel cleaner such as Cameo, Zud, or Bar Keepers Friend to scrub off any debris built up on the inside of the cassette. Be careful not to scrub the cassette seal with the Scotchbrite pad.

11. For the StatIM 5000 ONLY: If using instrument pouches it is very important for proper drying to use either the wire pouch rack or Stat-Dri plates. These separate the pouches and allow sufficient airflow to dry the instruments. Depending on when you purchased your StatIM 5000, Stat-Dri plates may have come with it. These are metal plates that attach to the flat wire rack and heat up during the sterilization process, then release the heat during the drying process. Stat-Dri plates can speed up the drying process.

12. Be sure to replace the seal in your StatIM every 6-months or 800 cycles; whichever comes first. You don’t want to wait until there is steam pouring out of the cassette before you replace the seal. StatIM seals should last between 600 - 800 cycles. A StatIM 7000 RF seal talks to the machine and will last 1100 cycles. For proper operation ensure that you use a genuine SciCan seal. These are green in color and carry the StatIM name molded into the seal. In our experience aftermarket seals do not last as long and are prone to steam leaks which can damage your StatIM.

13. To ensure that you do not damage the probes that go into the ports in the back of the cassette, gently insert the cassette until it stops, then push the rest of the way until the StatIM clicks. Inserting the cassette too fast and forcefully can cause the probes to bend, requiring the StatIM to be sent to the factory for repair. This is a very preventable problem provided that the proper care is taken while inserting the cassette.

14. When adding water to your StatIM, remember to empty the waste bottle and then refill the bottle with cold tap water to the minimum line. Adding water to the machine without emptying the waste bottle, may cause the waste bottle to overflow. The StatIM 7000 does not need water added to the waste bottle after emptying it.

15. If your StatIM 2000/5000 reads “water quality unacceptable”, you will need to try a different bottle/brand of distilled water. In a G4 StatIM, you will see a red X on the display and after pressing the H2O button, you will be told if the water quality is bad or the unit is out of water. If you are using a water distiller, you will need to clean it. Even if you have been using the same brand of distilled water for a long time, you can eventually get a few bottles that are not as well distilled as normal. Try switching brands for a short time. A bad water quality sensor in the StatIM is extremely rare, and 99% of the time, changing the brand of water or cleaning your distiller fixes the problem. To drain the StatIM of the unacceptable water use the suction in your sterilization area, or pull out the gray drain tube with the orange plug at the end under the newer units. This should pull out about 6 inches past the front of the StatIM. Remove the orange plug and let it drain into the sink or a bucket. To clean most steam water distillers, leave 3 inches of white vinegar or CLR in the boiling chamber overnight, and then scrub it out with a sponge the next day. Do not run the distiller with vinegar or CLR in it. Depending on how much is dissolved in your water, you may need to clean your distiller as often as every week.

16. For more information on maintenance please refer to your StatIM operator manual.

17. If you have any issues that still persist after following this guide, please call a service technician to inspect the machine or call SciCan technical help at 800-572-1211.

**Replacement Part #**
- Microbiological filter for StatIM 2000, 5000 & 7000 - 01-102219s
- StatIM 2000 Air Compressor Filter - 01-100207s
- StatIM 7000 and StatIM 5000 Air Compressor Filter - 01-101652s
- Cassette Seal StatIM 5000 - 01-101649s
- Cassette Seal StatIM 2000 - 01-100028s
- Cassette Seal StatIM 7000 - 01-110295s
- Stat-Dri w/sprayer - 80ZPLUST
- Stat-Dri Refill - 32OZPLUS
Sharps Safety

1. Avoid bending, breaking, or manipulating needles before disposal.
2. Do NOT recap a needle by hand.
3. Safely recap used needles before removing from nondisposable syringes.
4. Recap needles using a recapping devise or the one-handed scoop technique.
5. Avoid removing needles from disposable medical syringes before disposal.
6. Dispose of used needles as soon as possible after use (e.g., at chairside).
7. Evaluate needle safety devices for possible use when they become available.
8. Avoid putting others at risk for an injury – be aware of the location of a sharp item at all times.
9. Avoid hand-to-hand passing sharps to another person; use a neutral zone.
10. Be extra careful when giving a second aesthetic injection to the same patient.
11. Use round-tipped scalpel blades instead of pointed-tipped blades.
12. Consider using instruments rather than fingers to retract tissue when giving injections or suturing.
13. Use tongs or cotton pliers (rather than fingers) to pick up sharps from the floor.
14. Transport/Distribute your instruments in instrument cassettes; this greatly reduces direct handling of the instruments as they remain in the cassettes during transport, cleaning, packaging, sterilizing, and distributing to chairside.
15. Organize sharp instruments in trays/cassettes so that their tips are not pointing up.
16. Make sure handpieces are in their holders and have the bur pointing away from the operator.
17. Use instrument cassettes that hold instruments to avoid sharps from protruding out of the cassette.
18. Place sharp instruments back in a stable fashion when returning them to trays, cassettes, or bracket table.
19. Look before reaching for a sharp instrument or instrument package.
20. Carefully check instrument packages for protruding instruments before handling.
21. Do NOT reach blindly into a container of sharp items.
22. Wear heavy duty utility gloves during operatory clean-up and instrument processing.
23. Do NOT sharpen contaminated instruments.
24. Reduce the need for chairside sharpening by providing multiples of an instrument in the setup.
25. If discarding a disposable medical needle syringe, discard the entire unit without removing the needle.
26. Use puncture-resistant, closable, labeled sharps containers for sharps disposal.
27. Close sharps containers before moving them to avoid spillage if dropped.
28. Fill sharps containers only three-fourths full to avoid sharps protruding from the top (be aware of the fill line on the container and do NOT overfill)
29. Use sharps containers with wide enough bases so they do not easily fall over.
30. Do not routinely hand scrub sharp instruments (use ultrasonic or automatic washer units).
31. Use a basket or cassette rack to place instruments/cassettes into an ultrasonic cleaner.
32. If an instrument must be hand-scrubbed, on occasion, use a long-handled brush.
33. Consider using tongs or cotton forceps rather than fingers to remove burs from the high-speed handpieces.
34. Do NOT wipe sharp instruments with gauze in hand – tape several cotton rolls to tray and wipe on them.