

1 **Infection Control**

2 Hours CE

By Nancy Dewhirst, RDH,BS

2 **Dentistry can be a thrilling ride!**

- Sometimes we don't see what's coming
- Sometimes things change
- Sometimes things happen
- Handout
- Action items
- ?'s

3 **Must Post In Office:**

Appendix 3

Dental Board of California

Infection Control Regulations

California Code of Regulations Title 16 Section §1005

Minimum Standards for Infection Control

All DHCP must comply & follow OSHA laws

(b) (1-3)

4 **New CDC Recommendations**

<http://www.cdc.gov/OralHealth/infectioncontrol/guidelines/index.htm>

Checklists!

To be used along with 2003 Infection Control Recommendations

5 **Update & Edit SOP's**

- Standard Operating Procedures
- Location? Training?
- Must be specific & accurate
 - Surface disinfection
 - Hand hygiene
 - Instrument processing
 - Dental waterlines

6 **Who's Responsible?**

7

8 **The Good Old Days**

- No gloves
- No masks

- "cold sterilization"
- One handpiece for all
- Wiping room with 2 x 2 & alcohol
- "The" Cloth towel
-

9 **Chain of Infection**

10 **Breaking the Chain**

11 **Infection Transmission Routes**

- Percutaneous exposure
 - Open tissue, lesions, injury, dental care (pt.)
- Mucosal, ocular tissue exposure
 - Absorption
 - Injury (fragile)
- Direct skin contact with source
- Indirect skin contact with contaminated item, surface
 - Instruments, counters, waste, lab case
- Ingestion
- Inhalation – aerosols, droplets

12 **Standard Precautions
Minimum Standards for All Patients**

- Hand hygiene
- PPE
- Respiratory hygiene / cough etiquette
- Sharps safety
- Safe injections
- Instrument, device sterilization
- Environmental asepsis cleaning, disinfection, barriers

Written protocol shall be developed, maintained, and periodically updated for proper instrument processing, operatory cleanliness, and management of injuries.

13 **Standard Precautions**

- Proven effective for controlling
 - Bloodborne diseases
 - Contact diseases
 - Droplet diseases
- Not effective for airborne diseases

14 **Think Like A Microbe!**

15 **Standard Precautions**

- Proven effective for controlling
 - Bloodborne diseases
 - Contact diseases
 - Droplet diseases
- Not effective for airborne diseases

16 **Bloodborne Disease Risks**

- Risky sexual activity
- IV drug use
- Body modification
- Household exposure
- Sharing personal sharps
- Immunocompromised
- Travel
-

17 **Medical / Dental Risks??**

- 1 • Patient risks:
- Dialysis
 - Endoscopes
 - Mass disasters: medical transport, emergency room crisis
 - Poor asepsis practices
 -

18 **Risk of Infection after Needlestick**

- 1 Source
- HBV
 - HCV
 - HIV

- 2 Risk
- 6.0-30.0%
 - 1.8%
 - 0.3%

19 **Safe Injection Practices**

20 **Safe Injections**

21 **Most Likely Dental Exposures**

- Percutaneous
 - Needles
 - Burs
 - Instruments, files
- Compromised skin
- Mucosal exposure

- HBV = efficiently transmitted directly & indirectly (survives on surfaces – 7 days)

22 **Hepatitis**

- General term: “liver inflammation”
- Caused by:
 - Toxins
 - Drugs
 - Autoimmune diseases
 - Heavy alcohol use
 - Bacterial / viral infections

23 **Hepatitis B**

- Incidence declined since 1991 (infant vaccinations)

24 **Hepatitis B Virus (HBV)**

- Acute infection = rarely fatal .5%-1% die
- Age of exposure is important!
- 90% of infected infants become chronic
- 25%-50% of infected 1-5 Y/O's become chronic
- 5% of infected adults become chronic
- Chronic HBV = sometimes fatal
 - 25% fatal if infected in childhood
 - 15% fatal if infected in adulthood

25 **HBV Treatment / Vaccines**

- Vaccine = non-infectious HBsAg
- Vaccine gives immunologic memory \geq 23 years
 - No boosters – retain immunological memory indefinitely, protects vs. clinical illness & chronic dis.
- 95% seroconvert after vaccination
- PEP = vaccine – best within 24 hrs
- HBIG may also help as PEP
- Boosters may be needed for immunocompromised pts & hemodialysis pts.
- Tx = antiviral drugs - IMPROVED

26

27 **Stretch your Neck: Front, back, side to side.**

28 **Hepatitis C (HCV)**

- Most common chronic bloodborne infection in U.S.
- 2.7 – 3.9 million Americans have chronic HCV
 - 4 X more than either HBV or HIV
- Most chronic HCV carriers are baby boomers
 - Born 1946 – 1964
 - ~75% = unaware of infection

29 30 31 **Hepatitis C (HCV)**

- Some people clear infection
 - 85% develop chronic HCV
 - Can result in chronic liver disease, cirrhosis, liver cancer, death
 - Subclinical, asymptomatic 10 – 20 years
 - Some types of HCV can be cured
 - No vaccine
- HCV-related oral ulcerative lesions →

32 33 **New Testing Rec's**

- Traditional high risk people
- 1 time test for all baby boomers regardless of risk
 - 60% of DDS's = born 1945 – 1965
- New Rapid (40 min.) antibody tests
 - Venipuncture, finger-stick (less reliable)
 - OraQuick
 - Detect past or present HCV infection
 - Must be followed up with nucleic acid test (NAT) for viral RNA

34 **Hepatitis C (HCV)**

- No vaccine
- Antiviral drugs:
 - Eliminate virus or lower viral load
 - May reduce complications & progression

35 **Have You Been Tested?**

- A. Yes
- B. No

36 **Have You Been Tested?**

- A. Yes
- B. No

37 **Insect-borne Diseases**

- Malaria, Dengue, Zika, Yellow fever, Lyme, West Nile, chikungunya
- Primarily vector transmitted
- Treat as bloodborne disease

38 **HIV Update**

- 1 • Every 5- 7 sec. Someone = infected (worldwide)
- Virus attacks CD4 cells, weakens & destroys immune system

- Patient becomes susceptible to opportunistic infections
- Early tx before CD4 cells drop is vital
-

2 Infections are more severe & last longer

-

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40 **HIV / AIDS**

- Delayed diagnosis - still a problem
- 20% of infected = unaware of status
- Rapid testing: 1 min. oral swab or blood tests
- HIV tx cuts transmission to partners 96%
- PrEP (Pre-Exposure Prophylaxis)
 - Truvada (tenofovir & emtricitabine)
 - 92% effective IF TAKEN CONSISTENTLY
- Education is key

41 **Success!!!**

HIV Treatment

42 **ART Works!**

- HIV+ life expectancy \geq 24 years
- New concern: aging with HIV

43 **Our Overall Goals**

- Diagnose
- Link pt. To care
- Retain pt. In care
- Prescribe antiretroviral therapy
- Viral suppression

44 **Your Specific Goals**

- Know status of pt's labs:
- Measure CD4 or T-cell count
- Measure viral load
- Asymptomatic pts with undetectable viral load & CD4 counts >300 cells/mm³ test annually
- Symptomatic pts with CD4 count < 300 cells/mm³ need labs:
 - Platelet, absolute neutrophil & CD4 counts & viral load
 -
 -

45 **HIV-Related Questions**

- Premed?
 - Not based only on CD4 counts or viral load alone
 - Symptomatic? Taking meds?
 - Premed considered if absolute neutrophil count \leq 500/mcL for invasive dental procedures
- Ultrasonic scaler use?
 - Yes. HIV = bloodborne, not airborne
 - Water quality??
 -
 -

Resnik D, Bednarsh H Opportunity for Intervention. Dimensions of Dental Hygiene, 2014, Vol 12, No.12

46 **HIV / AIDS - Current Strategies**

- Rapid HIV type 1 + 2 Test: OraQuick:
 - Mouth swab or blood test
 - 99% accurate, 1 min. result
 - For source person testing or gen. Screening
 - Pre-arrange with Occupational Health M. D.

47 **Things Happen**

48 **One-handed Scoop Technique**

49

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51 **Are You Set UP?**

52

53 **Arms Clasped Behind back**

54

55 **Even When We Wash.....**

56 **Hand Hygiene**

- Hand hygiene is the single most important factor in transmission of disease
- 88% of dis. Trans. Is by hand contact
- 'Resident' skin flora is permanent (IN skin)
- 'Transient' flora is temporary (ON skin)

57 **How long should you lather for first & last wash of the day?**

A. 20 seconds

- B. 40 seconds
- C. 5 minutes
- D. 1-2 minutes

58 **How long should you lather for first & last wash of the day?**

- A. 20 seconds
- B. 40 seconds
- C. 5 minutes
- D. 1-2 minutes

59

60 **How long should you lather while washing repeatedly during day?**

- A. 1 minute
- B. 15 seconds
- C. 20 seconds
- D. 30 seconds

61 **How long should you lather while washing repeatedly during day?**

- A. 1 minute
- B. 15 seconds
- C. 20 seconds
- D. 30 seconds

62 **Soap Dispenser Contamination**

- Microbial contamination of soap linked to infections & outbreaks in hospitals
- 25% of refillable containers had bacteria
- 16% had coliforms
- Some bacteria remains on hands after washing
- No bacteria found in sealed (1 use) dispensers

63 **Most Recommended:
Combined Protocol**

- 1 • Plain soap – routine handwashing
- 2 • Antimicrobial / alcohol hand rub on unsoiled hands

64 **How Long Should The Alcohol Sanitizer Stay Wet on Your Hands?**

- 5 seconds
- 8 seconds
- 15 seconds
- 20 seconds
-

65 **How Long Should The Alcohol Sanitizer Stay Wet on Your Hands?**

- 5 seconds
- 8 seconds
- 15 seconds

- 20 seconds
-

66 **Waterless Hand-Rub Safety**

- Should have ethanol, not isopropyl alcohol
 - Less drying to skin
 - More effective vs. Viruses
- Must have enough emollients for heavy clinical use
- FDA cleared for medical use

67 **Hand Asepsis: Did You Know...**

- Inflamed, irritated skin retains more bacteria, (handwashing = less effective)
- May NOT treat pts. or handle pt. care items until dermatitis resolves
 - §1005 (b) (7)
-

68 **Skin Exposures**

- Non-intact skin may allow pathogens, irritants, allergens to enter
- Existing cuts / openings
- Dry, cracked skin

69 **Hand Hygiene**

- Required B4 & after glove use
- Why do we wash / sanitize every glove change?
 - Gloves fail
 - Organisms grow under gloves, doubling every 12 min.
- §1005 (b) (8)

70 **Common Mistakes
(That harbor organisms &
may damage gloves)**

- False nails, Nail polish & applications
- Un-manicured nails
- Jewelry
- Petroleum-based products
- Bar soap

71

72 **Look Out!**

73 **The patient had
Herpes Labialis**

74 **Dental assistant, cleaned op without wearing gloves,**

75 **Herpes will recure**

76 **She rubbed her eye**

- Ocular herpes is usually unilateral
- May migrate up nerve from oral infection.
- Recurs, leading to blindness
- 90% of U.S. adults carry herpes
- Neonates contract type 2 at birth

77 **Ocular Herpes**78 79 **Stretch Back of Neck**

- Turn head away from tight side
- Look down, feel stretch
- Hold chair on tight side
- Pull head forward with other hand
- Repeat, looking up

80

Protect skin openings
 Watch for symptoms
 Clean environmental surfaces

81 **Gloves**

- How do they fit?
- Are you allergic or sensitive?
 - Latex?
 - Accelerators?
 - Thiuram
 - Carbamate
- Do you trust your gloves?
- 4% may leak
 - Buy quality
-

82 **How Long Do Gloves Last?**83 **How Long Do Gloves Last?**

- 2
- No exact data
 - Change per patient & when compromised
 - No longer than 1 hour
 -
 - §1005 (b) (8)
 -

84 **Surgeon Infects 5 Heart Patients**

85 **Staph Infection Transmitted Through Damaged Gloves**

- Dr's dermatitis infected patients during heart valve implantation surgery
- Microscopic glove tears
- Staphylococcus epidermidis
- Over 1 hour of glove use, heavy suture material
- Dr. lost surgical privileges

86 **Is it OK to double glove?**87 **Is it OK to double glove?**

- Yes but "unresolved issue" (CDC)
- Per procedure, not for "special" people!
- For personal susceptibility
- Be consistent

88 **Respect Glove Limits****What destroys gloves?**

- Oils – petroleum, others
- Dental materials, water, soap, chemicals, stretching, use!

89 **Donning & Removal**90 91 **Back, Hip Stretch**92 93 94 **Aerosol-Transmitted-Diseases (ATD)**

- 3 • Inhalation of suspended particles
 - Small fluid droplets dry in nano-seconds, float
 - Particles remain indefinitely
 - Require special building design & PPE for safety
 - ATD patients must be screened and referred

95 **Airborne Diseases**

- Measles, mumps
- Varicella (including disseminated zoster) ¥
- Tuberculosis ¥£ , Flu
-
-
-
-
-

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¥ requires >1 precaution £ See CDC TB Guidelines

96 **Screening for ACTIVE Cases**

- Goals = reduce transmission by:
 - Early detection @ check-in
 - Prompt isolation
 - Implement respiratory hygiene / cough etiquette
 - Defer elective tx
 - Refer emergency / acute cases
 - For dental emergencies
 - For medical care
 - Implement appropriate precautions

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98 **Annual Flu**

99 **Find the 1 incorrect sign of influenza**

- A. Abrupt onset
- B. Extreme fatigue
- C. Body aches
- D. Subnormal temp.
- E. Fever

100 **Find the 1 incorrect sign of influenza**

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- B. Extreme fatigue
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- E. Fever

101 **Influenza Signs & Symptoms**

- Fever & chills – sudden onset
- Cough
- Sore throat
- Intense body aches, skin sensitivity
- Headache
- Diarrhea, vomiting

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103 **Measles – Still Killing Kids**

- Leading cause of death in children (worldwide)
- 10-12 day incubation
- High fever (1 wk), runny nose, cough, white spots in mouth: precede rash

104 **Koplik Spots**105 **Whooping Cough Adult**106 **Violent "Paroxysms"**

- Uncontrollable "100 day cough"
- Breaks ribs, causes vomiting, urination....
- Etiology: bacterium *Bordetella pertussis*
- Strips cilia, mucus stagnates, airways = raw, sensitive to touch, air, water...
- Confused with cold, symptoms build
- light fever

107 **Make Sure You Are Protected!**

- 1
 - HBV
 - Influenza
 - Measles
 - Mumps
 - Rubella
 - Varicella-Zoster
 -
 - www.CDC.gov: new adult vaccine recs
 - OSHA policies:
 - New hires & employees
 -
- 2
 - Tetanus
 - Polio
 - Pneumonia
 - Meningitis
 - HPV

108 **Tuberculosis Policy**

- MDR TB = worldwide risk
- Develop TB program appropriate to risk
- Tuberculin skin test (TST) when hired & per risk
- Ask all pts:
 - History of TB?
 - Symptoms of TB?

109 ***Mycobacterium tuberculosis***

- Mtb infection is NOT synonymous with ACTIVE TB!
- Positive skin test does NOT mean ACTIVE TB!

110 111 **Active TB**

112 **Have You Been Vaccinated Against TB?:**

- TB blood tests (interferon-gamma release assays or IGRAs), unlike the TB skin test are not affected by prior BCG vaccination
- Symptom tests
- ATD screening form
- Chest X-ray?

113 **Screen for TB:**

- Productive cough (> 3 weeks)
 - Bloody sputum
- Night sweats
- Fatigue
- Malaise
- Fever
- Unexplained weight loss
- If yes: medical referral, (reportable)

114 **Flu & Other ATD's**

Ask: Do you have....

1

- Flu
 - Fever?
 - Body aches?
 - Runny nose?
 - Sore throat?
 - Headache?
 - Nausea?
 - Vomiting or diarrhea?

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If yes, re-appoint, refer

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- Pertussis, measles, mumps, rubella, chicken pox, meningitis
 - Fever, respiratory symptoms +
 - Severe coughing spasms
 - Painful, swollen glands
 - Skin rash, blisters
 - Stiff neck, mental changes

115 **Chronic Respiratory Diseases
(NOT ATD's)**

- Asthma
- Allergies
- Chronic upper airway cough syndrome "postnasal drip"
- Gastroesophageal reflux disease (GERD)

- Chronic obstructive pulmonary disease (COPD)
- Emphysema
- Bronchitis
- Dry cough from ACE inhibitors

116 **Respiratory Hygiene /
Cough Etiquette**

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123 **Respiratory Hygiene, Cough Etiquette
Post Signs**

- Cover your cough (lists symptoms patients should report to staff)
- <http://www.cdc.gov/ncidod/dhqp/pdf/Infdis/RespiratoryPoster.pdf>
- Cover your cough instructions and fliers in several languages
- <http://www.cdc.gov/flu/protect/covercough.htm>

124 **Dental Worker Health**

- Symptomatic workers must be evaluated promptly
- No work until:
 - MD rules out ATD or
 - Worker is on therapy & is noninfectious

125

126 **Stretch Back of Neck**

- Turn head away from tight side
- Look down, feel stretch
- Hold chair on tight side
- Pull head forward with other hand
- Repeat, looking up

127 **PPE: Surgical Masks**

- Designed to protect patient from:
 - Oral, nasal, respiratory tract flora
 - (Breathing, speaking 1-3 cfu / min)
- Masks are bi-directional barriers

128 **Identify the mask YOU use**

- A. ASTM level 1

- B. ASTM level 2
- C. ASTM level 3
- D. Don't know

129 **Masks "single-use, disposable"**
Change between patients or sooner §1005 (b) (4)

130 **ASTM Levels**

131

132 **Fluid Resistance**

- Mask degrades from;
 - Perspiration
 - Talking
 - Sneezing
 - Length of time mask is worn
 - Dust, spray
- Shield may lengthen use-life
- Position mask to "stand out" from face
- 20 min - 1 hour!
-

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134

135 **Does Laser dentistry require special mask selection?**

- A. Yes
- B. No

136 **Does Laser dentistry require special mask selection?**

- A. Yes
- B. No
- C.

But recommendations vary for dentistry

137 **Laser Respiratory Protection**

- N95 / N100 respirators
- Or: full face shield & level 3 mask
- Facial fit = vital
- Fluid resistance
- Suction / filtration placed 1" from site
- Eye protection

138 **Clinic Attire**

- Protective attire
- Comply with Cal/OSHA regs

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§1005 (b) (5)

139 **Operatory Asepsis**140 **Dental Aerosols – Visible?**141 142 143 **Simplify Surfaces**

Environmental disinfection = cardinal feature in dentistry

144 **Cover or Remove Extra Items**145 **Barriers Prevent contamination of hard-to-clean surfaces**146 **Load trays outside operatory**147 **What is your protocol for retrieving items during procedures?**148 149 **Intermediate Level Disinfectants
vs. Low Level Disinfectants**

Intermediate-Level Disinfectants kill:

- Mycobacteria - *Mycobacterium tuberculosis*
- Nonlipid or small viruses (Non enveloped) - *Polio virus, enteroviruses*
- Fungi - *Trichophyton spp.*

(Low level hospital disinfectants kill only):

- Vegetative bacteria - *Pseudomonas aeruginosa, Staphylococcus aureus*
- Lipid (enveloped) or medium-sized viruses - *Herpes simplex virus, hepatitis A, B & C virus, HIV, Ebola* (CDC) §1005 (b) (14)

150 151 **Follow Label Directions**

- Clean before disinfecting
- Proteins neutralize disinfectants
- Wear Utility gloves

152 **Clean Before Disinfecting**153 **Leave For Stated Time**154 **Sharps & Waste**

- Follow OSHA rules
- Dispose of all sharp items in puncture resistant containers
- Dispose of pharmaceutical waste as per EPA

- Dispose of contaminated solid waste as per EPA §1005 (b) (9, 22)

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155 **Dental Lab Asepsis**

- Splash shields
- Fresh pumice
- Sterilized / new rag-wheels for EACH pt.
- Sterilize / discard equipment used on contaminated dental devices
- Clean & disinfect lab cases with intermediate-level disinfectant & rinse B4 placement in pt.
§1005 (b) (23,24)

156

157 **Stretch Chest and Shoulders**

- Place hands behind hips
- Inhale slowly, bringing elbows back
- Exhale slowly, bring elbows forward, bend head forward
- Stretch shoulders across your chest

158 **Instrument Processing:
Highest Level of Asepsis**

159 **Instrument Processing
“Traffic Flow”**

160 **How Do You Transport?**

- Protect Sharps
 - Cassettes
 - Tubs, trays with slides, lids
 - Avoid accidents
- Use Cassettes / tubs / lids
-

→

161 **Safe Transport?**

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163 **OK?**

164 **Pre-Cleaning / Holding**

165 **Minimize:**

166

167

168 **Instrument Washers**

-
- Cassettes
- Safer
- More efficient:
 - Space management
 - Instrument cleaning
 - Instrument management
-
-

169 **Now.... Maybe**170 **Cassette Design**171 **What's Wrong Here?**172 **Does Your Office Sterilize ALL Motor Handpieces After Each Use?**

- A. Yes
- B. No

173 **Does Your Office Sterilize ALL Motor Handpieces After Each Use?**

- A. Yes
- B. No

174 **CDC Update**

- Must heat sterilize ALL removable handpieces, even slow speeds
 - *electric handpieces: housing / sleeves = sterilizable, but micromotors may not be!

175 **Smaller, Faster**

Single use water

176 **Vacuum Sterilizer**

Single use water

Pre & post vacuum

Dry to dry time: 35-38 min.

Eliminates rust

177 **Paper Up? Or, Paper Down?**178 **Paper Up? Or, Paper Down?**179 **What's Wrong?**180 **What's Wrong?**181 182

183 184 185 186 **Sterilizer Monitoring**

- Indicators: per package
 - Heat
- Integrators: per load
 - Time, temperature, pressure
- Biological Monitors: weekly
 - Non - pathogenic spores
 - Keep written reports
 - §1005 (b) (17)

187 188 **Are we required to label sterilization packages?**

- A. Yes
- B. No
- C. Only surgical packages
- D. Only implantable devices

189 **Are we required to label sterilization packages?**

- A. Yes
- B. No
- C. Only surgical packages
- D. Only implantable devices

190 **Why label packages?**

- A. To re-sterilize after 3 months
- B. To identify date of sterilization in case of (+) growth spore test
- C. To identify person sterilizing items

191 192 **Stretch**193 **Water & Air**194 **Dental Water Quality**195 **DUWL – Related Death (2011)
Lancet**

- 82-yr old Italian Woman
- Legionnaires' dis (*L. pneumophila*)
- Proven from dentist's waterlines
- No other exposures

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- 196 **2015 *Mycobacterium abscessus* Infections - Georgia**
- 9 pediatric infections confirmed after pulpotomies
 - 11 more probable cases
 - July – Sept, 2015, One dental office
 - *M. abscessus* = waterborne
 - Water
 - Soil
 - Dust
 - Plumbing
 - Dental waterlines
 - Other outbreaks: medical, acupuncture, surgical clinics
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 -
- 197 **2015 *Mycobacterium abscessus* Infections - Georgia**
- All pts were immunocompetent
 - No deaths; hospitalizations, IV antibiotics, surgeries
 - Dept of Health notified Atlanta Dentists:
 - Follow DUWL disinfection protocol
 - Meet DUWL potable & surgical standards
 - Monitor DUWL
 - Promptly report suspected outbreaks
- 198
- 199 **What is your office using now?**
- A. Municipal water
 - B. Bottles, no chemicals
 - C. Bottles, chemicals
 - D. DentaPure (iodine)
 - E. Other
 - F. Sterile water systems for surgery?
- 200 **2 Standards for Dental Treatment Water**
- Surgical Standard: USP sterile water & sterile delivery system
 - Bulb or other syringe
 - Peristaltic pump, sterile lines
 - Aqua-Sept
 - Non-surgical dentistry: Potable (500 CFU/mL)
 - Chemical treatment

- Reservoirs
- Cartridges

§1005 (b) (18)

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201 **For Potable Water**

Your office should:

- A. Flush lines in AM & PM for 2 min./line
- B. Flush lines between patients for 20 sec.
- C. Purge lines weekly if using only water in bottles.
- D. Purge lines @ 1 – 2 months if using disinfecting product in dental water

202 **When doing surgical procedures, Do you use**

Sterile water & sterile separate delivery device? §1005 (b) (18)

203 **2 Standards for Water Safety**

- Sterile - for surgery, (cutting bone, normally sterile tissue)
 - 0 CFU/mL of heterotrophic water bacteria
 - CDC special update, OSAP, Dental Board law
- Potable - for non- surgical procedures -
 - 500 CFU/mL of heterotrophic water bacteria (meets EPA safe drinking water standards)
 - CDC, OSAP, EPA, Dental Board

204 **Waterline Treatment Options**

- Chemical "Shock" - removes biofilm
 - Sterilex, bleach
 - Caustic, may injure tissue. Rinse !
- Continuous chemical "maintenance" - prevents biofilm, keeps CFU's low.
 - DentaPure 1 /year (dry bottle at night)
 - BluTab (Silver ions) – ProEdge (keep bottle on)
 - ICX (Silver ions) – Adec
 - Team Vista - HuFriedy

205 **Do your waterlines retract?**

Handpieces, AWS, Ultrasonics §1005 (b) (21)

206 **Internal contamination of AW Syringes & Tips**

- Both syringe & tips demonstrate internal contamination
- Sources = waterlines & retraction
- Waterborne species & patient-derived organisms have been isolated from internal surfaces

207 **New Metal AW Tip**

208 **Used Metal AWS Tip**

209 **Dental Advisor Study**

J. A. Molinari, P. Nelson (Dental Advisor, 2012)

- ~10% of used & sterilized metal tips showed microbial contamination
- Visual debris was found

210 **If You Don't Clean It**

- You can't disinfect it
- You can't sterilize it

211 **Disposable**

Air / Water Syringe Tips

212 **How Do You Know Your Waterlines Are Safe?**

213 **You Can Do It!**

214 **Treat, Shock, and Test ALL waterlines**

215 **Is there a culture of safety where YOU work?**

- Is your team trained?
- How do patients view your office?
- Are you updated?

216 **What You Do Over & Over**

217 **Teamwork!**