

ORAL HEALTH INFECTION PREVENTION AND CONTROL

Infection Prevention and Control

Considerations in Portable and Mobile
Oral Healthcare Settings

Part I: August 21, 2014

Part II: October 9, 2014

Part III: December 11, 2014

Forsyth

Pioneering Discoveries
Profound Change



Speakers

Jennifer Cleveland, DDS MPH

- Dental Officer, Surveillance, Investigation and Research Team, Division of Oral Health

Contact via email:

jlc0@cdc.gov

Kathy Eklund, RDH MHP

- Director of Occupational Health and Safety, The Forsyth Institute, Cambridge MA
- Patient Safety Advocate, ForsythKids
- OSAP Board of Directors
- Contact via email:
keklund@forsyth.org



MMWR™

Morbidity and Mortality Weekly Report

Recommendations and Reports

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Guidelines for Infection Control in Dental Health-Care Settings — 2003



INSIDE: Continuing Education Examination

DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR DISEASE CONTROL AND PREVENTION

“... the recommended infection control practices are applicable to all settings in which dental treatment is provided.”
www.cdc.gov/oralhealth/

Principle 1
Take Action to Stay Healthy

Principle 2
Avoid Contact with **Blood and OPIM**

Principle 3
Limit the Spread of Blood and OPIM

Principle 4
Make Patient Care Items Safe for Use

Summers C, et.al. **Infection Control for Screening and Surveys.** JADA 1994;125:1213-

PART I: Topics

- Resource – OSAP Site Assessment and Checklist for Infection Prevention and Control in Portable Oral Healthcare Settings (www.osap.org)
- Principle 1: Take Action to Stay Healthy –
 - Immunizations
 - Hand Hygiene
 - Education and Training

Part II – TOPICS

Principle 2: Avoid Contact with Blood and other Potentially Infectious Materials (OPIM)

- Personal Protective Equipment (PPE)
- Safe handling of sharp instruments

Principle 3: Prevent the Spread of Blood and Other Potentially Infectious Materials (OPIM)

- Environmental Infection Control
 - Clinical contact surfaces
 - Household surfaces
- Management of nonregulated and regulated medical waste

Part III – TOPICS

Principle 4: Make Patient Care Items Safe for Use

- Cleaning and Sterilization of Reusable Patient Care Items
- Sterilization Monitoring and Sterility Assurance
- Single Use Items and Devices
- Dental Water Quality

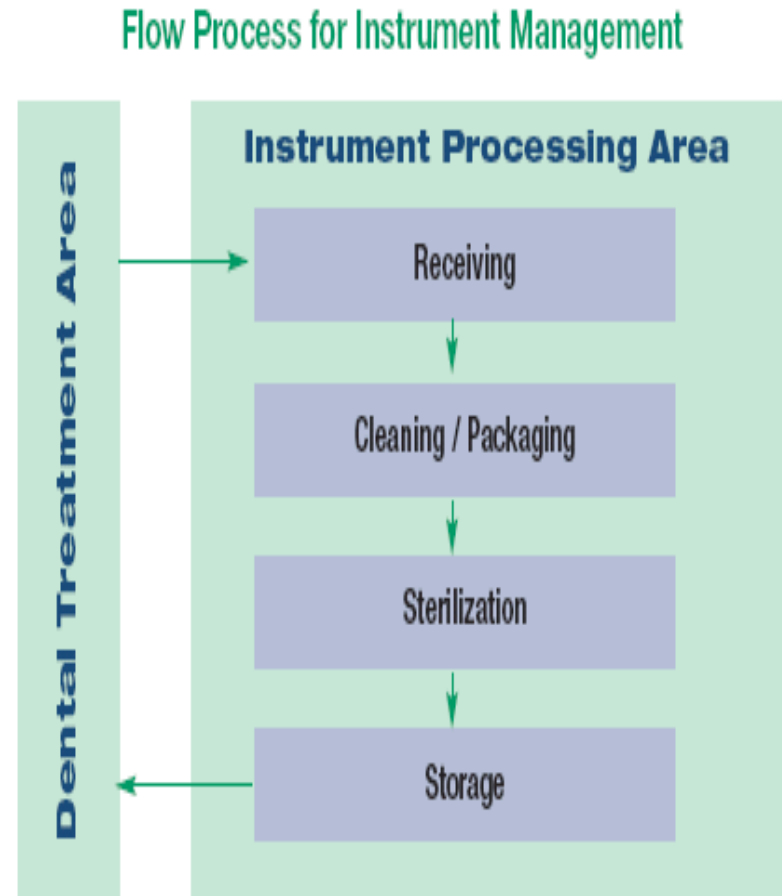
Considerations

- Services Performed and Instruments Needed
 - Reusable
 - Where to process (e.g., on-site, off-site)
 - Costs of processing
 - Disposable
 - Costs of instruments
 - Disposal costs (e.g. sharps waste)

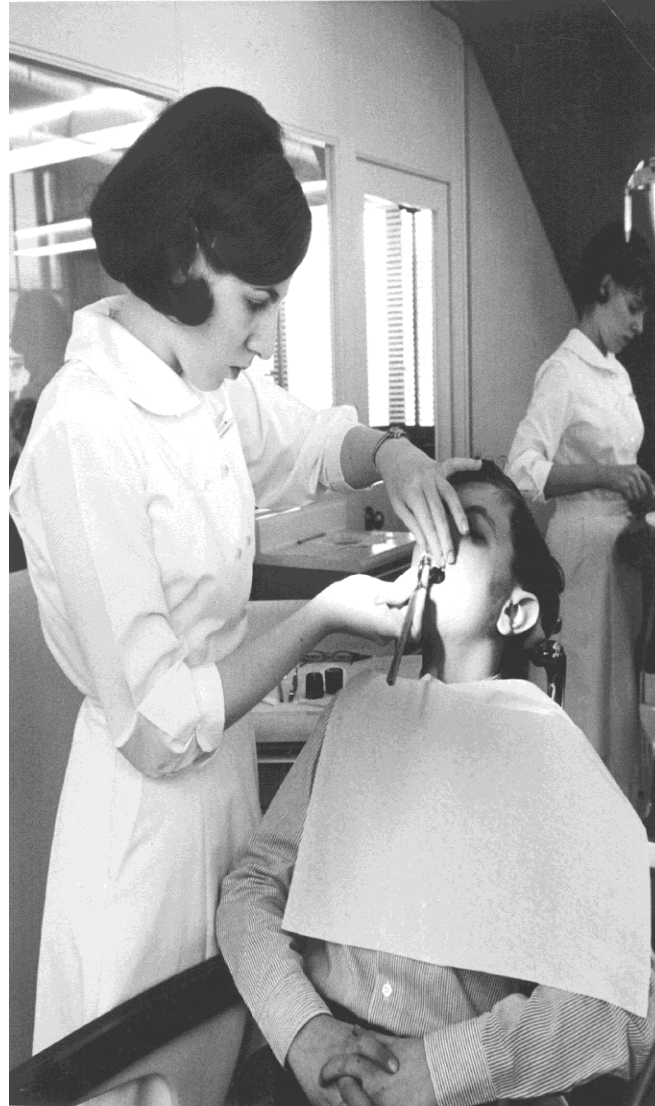
Principle 4

Make Reusable Patient Care Items Safe for Use

- Clean, heat sterilize or disinfect reusable patient care items that
- Monitor processes....
- Contain and dispose of single use items
- Considerations for on-site vs. centralized Processing of reusable patient care items.



In the Olden Days



Alternative Slow Speed Handpieces

- Hygiene Handpieces





Dispensing Supplies in a Multi-Clinician Environment



Managing Clean Supplies

Well organized



Needs improvement



What is in the box?



How do you manage sealant dispensers/syringes to prevent contamination?



Barriers – Do they work?

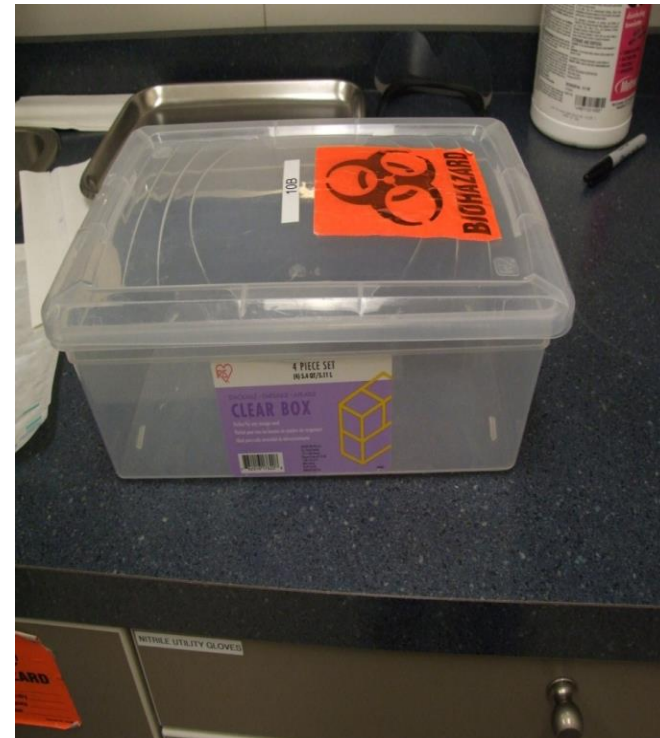


Multi-Dose Dispensers/Syringes

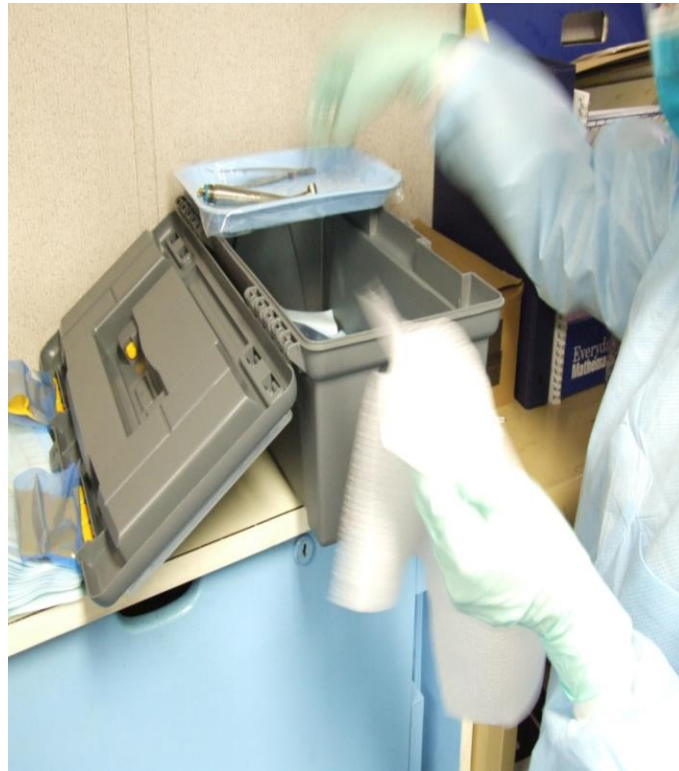


Transport of Contaminated Sharps

- Bloodborne Pathogens Standard 1910.1030
- (3) When moving containers of contaminated sharps from the area of use, the containers shall be:
 - (i) **Closed** immediately prior to removal or replacement to prevent spillage or protrusion of contents during handling, storage, transport...



Transporting Contaminated Instruments for Offsite Processing

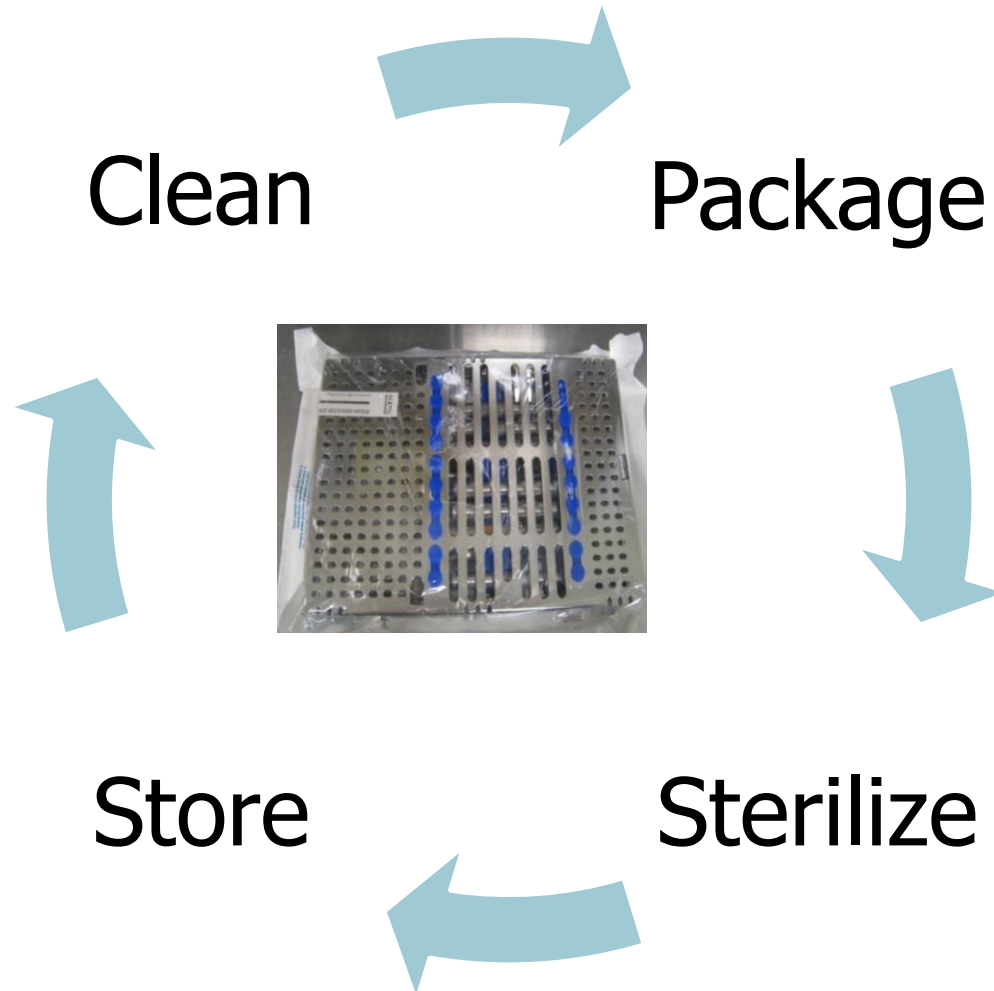


Heavy Duty Utility Gloves

- Handling contaminated sharp items during post procedure clean-up and in sterilization area.
- Puncture and chemical resistant.
- Sizable.
- May wash or surface disinfect.
- Discard when cracked, peeling, torn, punctured or when ability to protect is compromised.



Instrument Reprocessing



Proper Work Flow Prevents Errors



Home Instrument Processing – Considerations and Challenges



Considerations

- Separation of clean and dirty areas
- Storage of clean supplies
- Storage and handling of sterile packs
- Running water sinks (dirty instruments and clean hand washing sink)

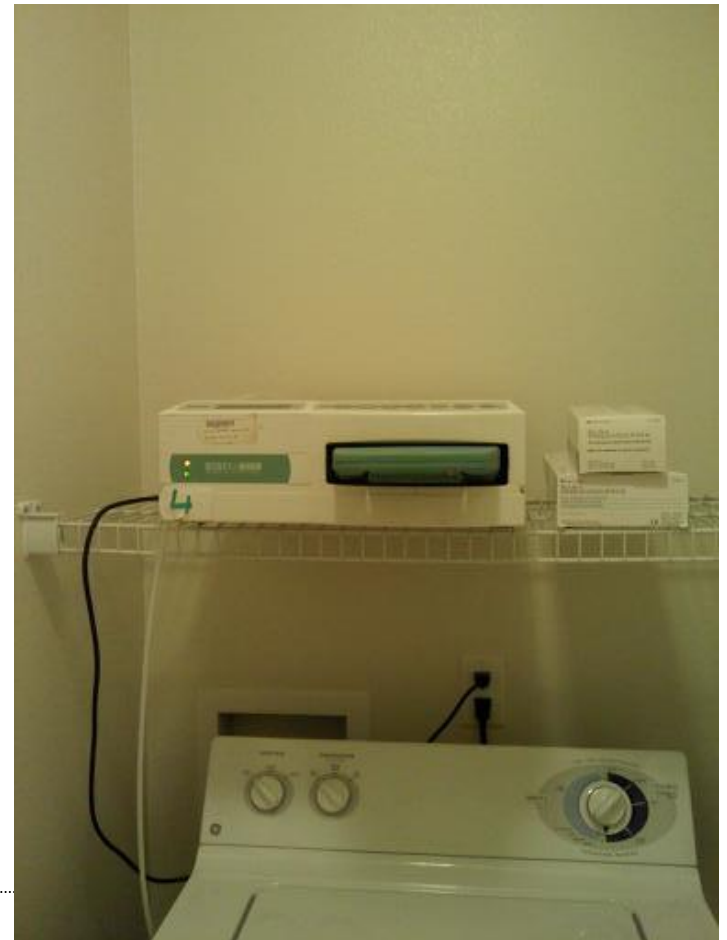


Home Instrument Processing

Mixed-use room not acceptable



Mixed-use room not acceptable

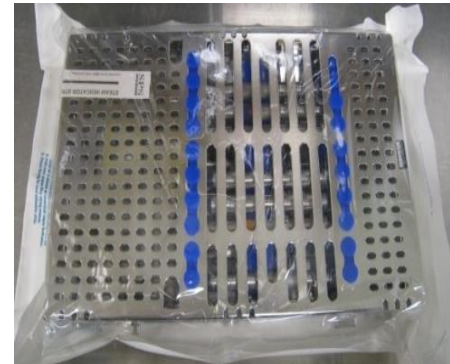


Packaging Materials

Place instruments
in pouch



Place cassettes in
pouch or wrap



Labeling Packaging

- Dating packages
 - Instruments remain sterile unless package is compromised (e.g., becomes wet or torn)
 - Ink may compromise packaging material on the paper side



Write only on the plastic side with a non-toxic permanent marker or wax pencil...WHY???



Monitoring of Sterilization Process

Sterilization Monitoring

- Mechanical
- Chemical
- Biological (spore tests)

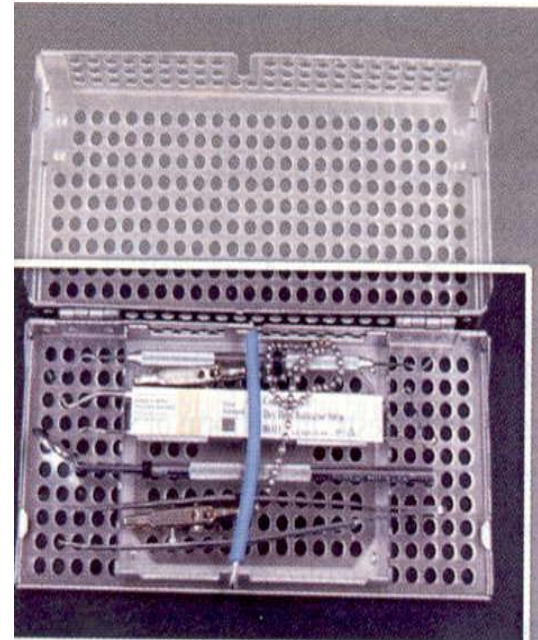
Mechanical Indicators

- Mechanical Indicators
 - Exposure time
 - Pressure
 - Temperature



Internal and External Chemical Indicators

- Place an internal chemical indicator inside each wrapped package or cassette tray
- If it cannot be seen from the outside then place an external one on the outer surface of the wrapped item.



Chemical Indicators

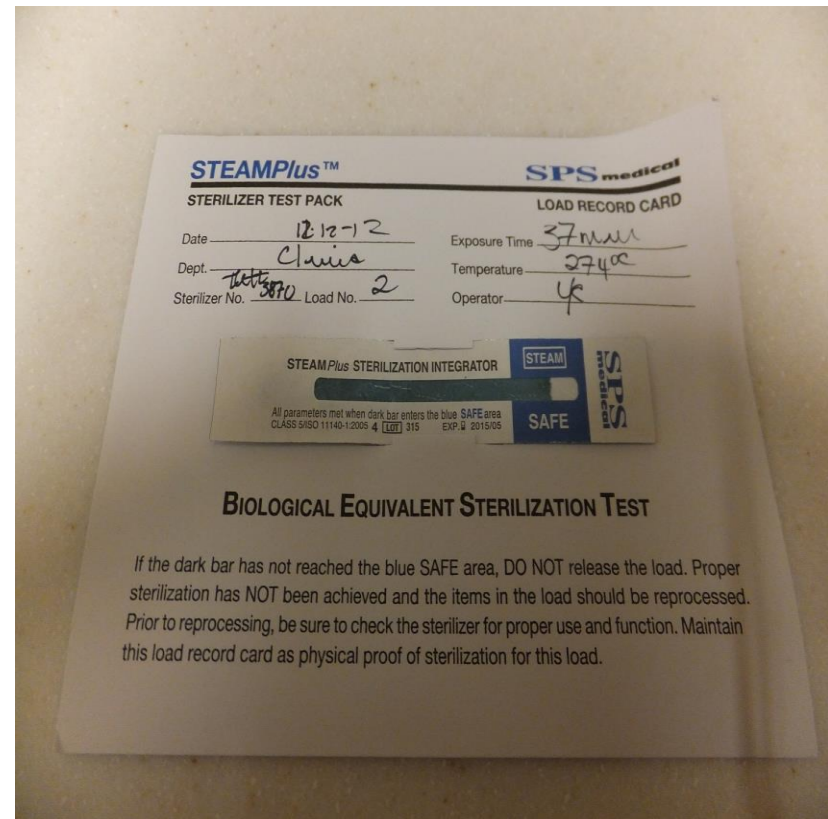
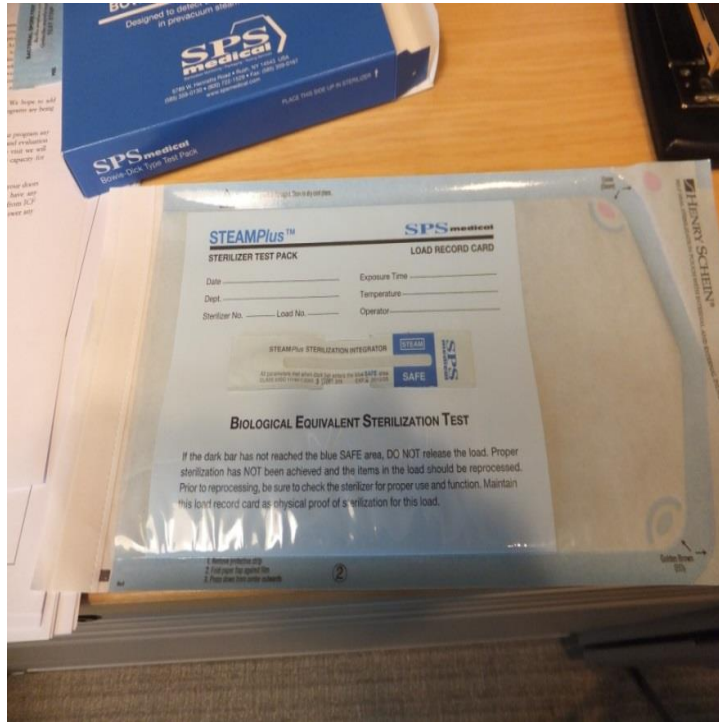
- **Do not** verify sterility/spore kill
- **Do** measure the parameters of the sterilization method
 - FDA Single Parameter Process Indicators: Temperature
 - FDA Cleared AAMI/ANSI Class I
 - FDA Multiple Parameter Chemical Integrators: Time, Temperature and Pressure
 - FDA Clears AAMI/ANSI Class, V, VI, but no class IV

Internal Chemical Indicator

Impregnated into packaging material



Multi-parameter Chemical Integrator – Added QI Performance Measure in Every Sterilization Load



Summary

- CDC has two guidelines that address the use of chemical indicators and parametric monitors for sterilization, in my viewpoint the definitive standard for this is the ANSI/AAMI ST79:2010 & A1:2010 & A2:2011 & A3:2012
 - Comprehensive guide to steam sterilization and sterility assurance in health care facilities. This standard describes each class of indicator, its purpose, what it is measuring, and how it is to be used.
 - Check indicators upon removal from the sterilizer and again at chairside when opening the pouch/wrapped pack in front of the patient.

Steam Autoclaves



Steam injection
Cassette autoclave



Hospital Pre-
vacuum
steam autoclave



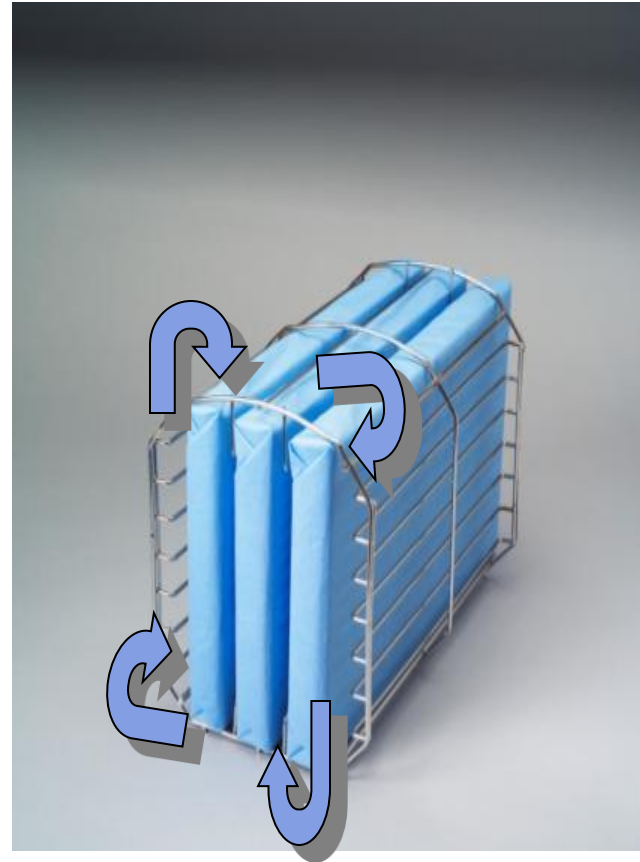
Table-Top Pre-Vac
Autoclaves



Preparing for Sterilization

- Positioning
- Packaging
- Wrapping

Sterilizing agent
MUST reach all
surfaces



Sterilizer Loading

Properly loaded



Over-loaded





Biologic Indicators and Monitoring



CDC Guidelines state...

“Proper functioning of sterilization cycles should be verified by the periodic use (at least weekly) of biological indicators (i.e. spore tests).”

May 28, 1993 and December
2003

Biological Indicators (BI)

- Processing nonpathogenic spore organisms impregnated on a strip or in a glass vial to verify sterility by killing bacterial endospores.
- Non pathogenic spores impregnated onto a strip or in a vial.
 - *Geobacillus* sp or *Bacillus* sp
 - Use correct BI for sterilization method

SPSmedical
BIOLOGICAL INDICATOR
-TEST STRIP-
Bacillus stearothermophilus
Bacillus subtilis var. *niger*

Control Strip
DO NOT OPEN
DO NOT STERILIZE

BACTERIAL SPORE TEST STRIP
Bacillus stearothermophilus
TEST STRIP

Customer ID: _____
Not acceptable for release for processing due to incomplete information.

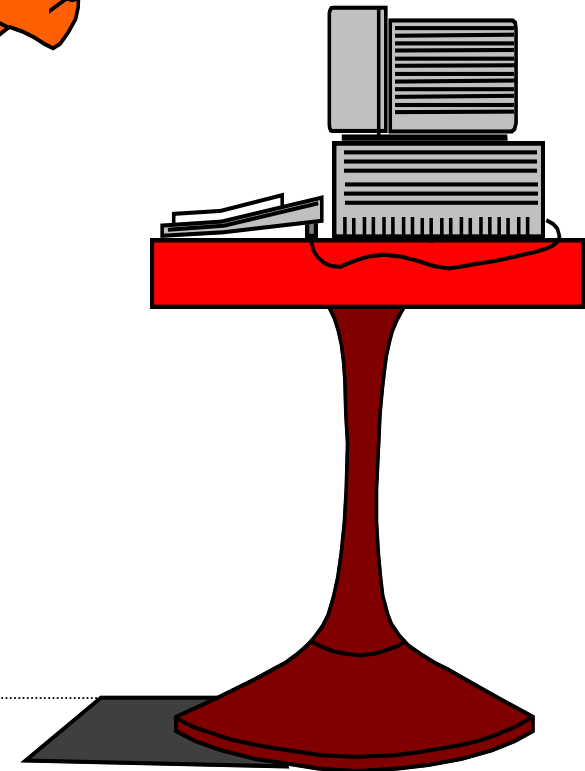
Required Information Needed on Every Test	Additional Required Information
Phone: () _____	Model # _____
Customer ID: _____ (Up to 40)	Operator _____
Sterilizer # _____ <small>The number is identified on the device or your test record.</small>	Test Time _____ Temp _____
Sterilizer Brand: _____	Pressure _____
Test Date: _____	New Customer? Change of Address? <small>Please indicate</small>
Type: <input type="checkbox"/> Steam <input type="checkbox"/> Chemical <input type="checkbox"/> EO <input type="checkbox"/> Dry Heat	Office Name _____
<small>Please follow instructions found on the box. Caution: The packaging of this product contains Dry Heat or Radioactive Labels. May cause allergic reactions.</small>	Address _____
1.800.819.2038 <small>General Laboratory Info</small>	City _____
LOT # 110304 EXP 02/2013	State _____ Zip _____
	Fax: () _____
	Email _____
	Contact Name _____



What to do if there is a sterilization failure.

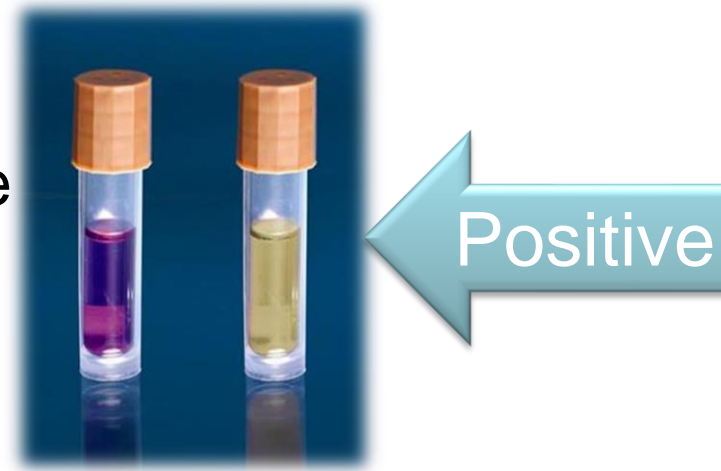
Guidance:

- Guideline for Disinfection and Sterilization in Healthcare Facilities, 2008
- ANSI/AAMI ST79 2010 & A1:2010 & A2: 2011. A3 2012



Positive Spore Test

- Following a single positive biological indicator:
 - Remove the sterilizer from service and review sterilization procedures (e.g., work practices and use of mechanical and chemical indicators) to determine whether operator error could be responsible.
 - Retest the sterilizer by using biological, mechanical, and chemical indicators.
 - Repeat spore test is negative, put the sterilizer back in service



Positive Spore Test

- If REPEAT test positive:
 - Do not use the sterilizer until it has been inspected or repaired or the exact reason for the positive test has been determined.
 - Recall, to the extent possible, and reprocess all items processed since the last negative spore test.
 - Before placing the sterilizer back in service, re-challenge the sterilizer with biological indicator tests in three consecutive empty chamber sterilization cycles after the cause of the sterilizer failure has been determined and corrected.

What if you take a sterilizer out of service for the summer?

- Out of service documentation
 - Out of service sign on the sterilizer with date taken out of service.
 - Notation in the sterilization log and BI log
 - If using a BI service, notify the service to inform them the sterilizer is out of service, reason, and for how long.
 - Do at least one biologic monitor and have the results before putting the sterilizer back in service.
 - Be sure to perform all necessary maintenance before the BI test.

Instrument Storage: “Event Related” Policy

- Maintain integrity of the package as a barrier
- Keep the package material dry
- Do routine inventory checks for damaged packaging material and always check at chairside before opening the pack.
- Repackage and re-sterilize damaged packages before use.
- Each program may determine a shelf-life for sterile packs to be repackaged and re-sterilized.

Dental WaterQuality

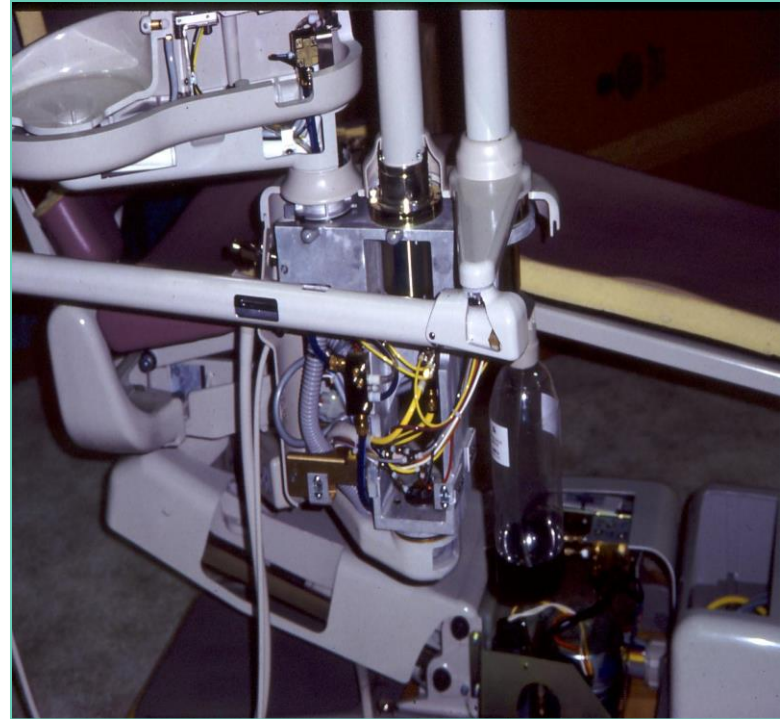


Flushing Waterlines

After each patient, discharge water and air for a minimum of 20-30 seconds from any dental device connected to the dental water system that enters the patient's mouth (e.g., handpieces, ultrasonic scalers, air/water syringe)



Dental Unit Design Issues

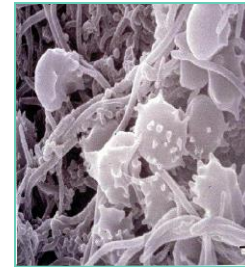


Sources of Microbial Contamination

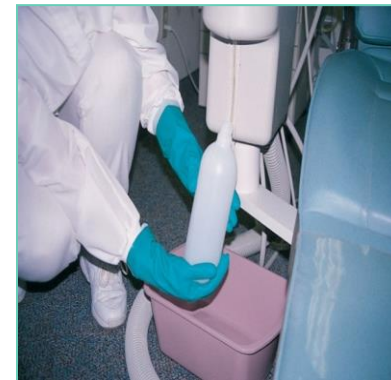
- Municipal water supplies
 - Gram-negative heterotrophic water bacteria



- Retraction of oral flora
 - Alpha streptococci found in dental water
 - Retraction of viruses possible, but colonization unlikely



- Separate water reservoirs
 - Careless handling may introduce skin or enteric flora



CDC Guidelines 2003

Dental Unit Waterlines and Water Quality

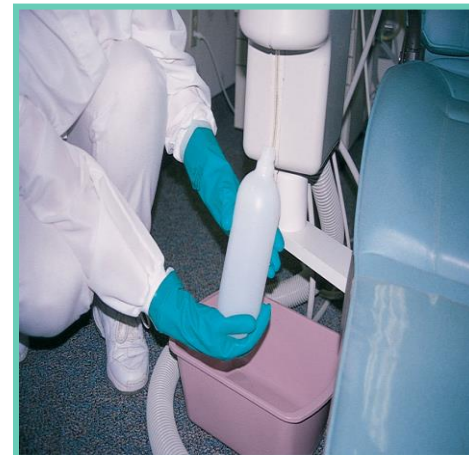
- For non-surgical treatment use water that meets EPA drinking water standards
(< 500 CFU/ml of HPC bacteria)
- Consult with dental unit manufacturer for appropriate methods to maintain dental water quality
- Follow manufacturer recommendations for monitoring water quality

DUWL Treatment Approaches

- Independent reservoirs
- Chemical treatment
 - Continuous
 - Intermittent
- Filtration
- Antimicrobial surfaces (tubing, reservoirs)
- Sterile water delivery systems
- Combined approaches

Independent Reservoirs

- Most economical option
- Manufacturer must provide guidance for use
 - Acceptable agents
 - Frequency of treatment
- Useless without EPA registered chemical treatment or other technology to control the biofilm in the dental unit waterline!
- Must use water of acceptable quality



Monitoring

- Follow manufacturer's instructions for monitoring dental water quality

Case Study 1

- State A has a new mobile oral health program.
- The mobile program has self-contained water systems for each dental unit.
- Staff were not regularly checking the dental unit waterlines. When they did test, the first test showed higher colony forming units (CFUs) than recommended (<500 CFUs.)

What should staff be doing on a regular basis?

Why is monitoring bacteria in dental unit water lines important?

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How do you know when to monitor and how?

Boil Water Advisory

- During the many natural disasters this past year, information on boil water advisories and OSAP infection and prevention resources were distributed to the man stakeholder groups.
- [*Boil Water Advisory*](#). An online OSAP toolkit for areas experiencing a boil-water alert.



Summary

- DHCP reduce infection risks by decreasing numbers of potential pathogens in the clinical environment
- Aseptic procedures are more important as numbers of immune-suppressed patients increase
- Improving the quality of water used in dental practice is consistent with other evidence-based measures that form the basis of infection control practice

