Preparation Course for the
DANB Infection Control Examination

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Be sure to bring this handout, paper, and a pen to the course!

Suggested resources:

- danb.org/PDFs/CDAExamBlueprint.pdf
- danb.org for additional study guides
- Handouts
- Quizlet.com
- Dalefoundation.org - interactive courses and study aids
- OSHA.gov
- 2003 CDC Guidelines for Infection Control in Dental Health-Care Settings and OSHA Standards
  https://osap.site-ym.com/store/view_product.asp?id=396090

Please familiarize yourself with the information below:

Annual Evaluation and Updating of OSHA Requirements

- OSHA - Occupational Safety and Health Administration
- Federal Agency
- Protects all employees
- States may have their own requirement that add to, but not subtract from national OSHA requirements
- Requires annual review with employee input on safer devices
- Training records must be kept for 3 years and include date, content summary, speaker/qualifications, names and job titles of all attending

Sharps

- Do not overfill – no more than ¾ full to avoid protrusion
- Biohazard Label
- Leak-proof, puncture resistant, keep upright
- One-way valve
- Located in treatment room
Biological Monitoring - Spore Test

- Autoclave and Chemical Vapor: Geobacillus Stearothermophilus
- Dry Heat and Ethylene Oxide: Bacillus Atrophaeus
- Chemical Sterilants: None
- Biological monitoring should be done weekly!
- If using mail-in service keep results
- Positive results mean sterilization failed
- Negative results mean sterilization occurred / passed

Chemical Sterilants (Glutaraldehyde / Chlorine Dioxide)

- Not for surface disinfecting
- Use for heat-labile materials
- Cannot bag instruments
- Read manufacturer’s directions. Example: 6-10 hours uninterrupted immersion
- Shelf life: time product may be safely stored
- Use life: life expectancy of solution once activated but not introduced with contaminated items - getting ready to use
- Reuse life: amount of time a solution can be used and reused
- Keep covered - toxicity from fumes
- Once cycle is completed, rinse items with sterile water
- Severe skin irritations and cuticles may discolor
- Corrosive

Hazard Communication Program

- Written and reviewed at least annually
- Plans in place for safe handling of chemicals
- Maintain a written list of products with hazardous chemicals (chemical inventory) and keep it updated
- SDS – location must be known by all– update
- Ensure products are labeled
- Staff training on handling and how to respond to exposures or spills and when new employee is hired and when new chemical product is introduced
Below is a sampling of questions that will be reviewed during the course.

**OSHA / Category of Workers**

- What does OSHA stand for?
- Who does OSHA protect?
- Is OSHA a federal, state, or local agency?
- Can states replace OSHA regulations with their own requirements?
- How often must you receive training in Infection Control in Dentistry...OSHA updates?
- How long are training records kept for?
- Category of Workers... for dentists and assistants?
  - For lab techs and front desk?
- Define Standard Precautions

**HBV**

- Is Hepatitis B bacterial or viral?
- Is HBV bloodborne or airborne?
- What organ does HBV affect?
- HBV inoculation series - Adults?
- To confirm HBV immunity, should you have your blood drawn 2 months after the last injection. True or False
- Does HBV inoculation protect you against HDV?
- Within how many days of employment does the employer have to offer you the vaccine?
- Where are HBV injections given?
- Is it safe for pregnant women?
- What does AntiHBs+ mean?
- What does HBsAg-positive mean?
- HBV inoculation series for infants? 0-2-6 to 18 months or 0-6-18 months
- What is the smallest microorganism (single-cell)?

**HCV**

- Is Hepatitis C bacterial or viral?
- Is HCV bloodborne or airborne?
- What organ does HCV affect?
- Is there a vaccination for protection against HCV?
- Which Hepatitis is the greatest risk to HCW?
- How is HCV most often spread?
HIV / AIDS

- Is it HIV / AIDS bacterial or viral?
- How is HIV transmitted?
- What do you do with the instruments used on a HIV patient? (throw away – clean and sterilize – sterilize twice)
- What percent of dental workers become infected with HIV after a needlestick?
- What agency protects patient rights?

Mycobacterium Tuberculosis

- Is TB bloodborne or airborne?
- What organ does TB affect?
- What tests are available to confirm TB infection?
- How often should HCW get tested for TB?
- Is the risk factor in a dental office high, medium, or low?
- How is TB treated?
- When may an employee being treated for TB return to work?
- Is TB bacterial or viral?

Other Diseases

- Are tetanus and syphilis bacterial or viral?
- What causes Creutzfeldt-Jakob Disease?
- Legionnaires disease is found in ____________.
- Oral candidiasis is seen in the mouth as__________.
- How is HAV transmitted?
- You have conjunctivitis. When may you return to work?
- How is Herpes transmitted?
- Where is Herpes Whitlow found? ______
  Labialis?
  Conjunctivitis? ______
  Gingivostomatitis?
- If you had Chicken Pox (Varicella) you may get__________________.
- When you received your annual Flu shot, did the nurse ask if you were allergic to ________?
- What is the latent period?

Modes of Transmission

- A needlestick is an example of ______transmission. Herpes? ___ TB? ___
- Which mode describes:
  Transfer of microorganisms from a contaminated intermediate object? ___
  Heavy particles that travel a short distance and settle? ______
  Are light, suspended in the air, and travel far distances? ______
Personal Protective Equipment

- PPE is comprised of ...
- List 3 criteria for gowns.
- Masks provide protection from ____________________.
- How often are masks changed? If damp?
- What item does ANSI approve?
- How often should protective eyewear be cleaned?
- How long may fingernails extend beyond the fingertips?
- Are gloves pulled up over the cuffed gown or is the gown cuff pulled over the glove?
- What is wicking?
- Are you required to purchase PPE?

Engineering Control - Sharps Container

- What level should a sharps container be filled to?
- What label should be on the sharps container?
- Describe the criteria for a sharps container.
- What items are put into the sharps container?
- Where should the sharps container be located?

Eyewash Stations, Ultrasonic Cleaners

- Water temperature water is used to rinse eyes? For how long?
- Where should the eyewash station be located?
- What is the function of the ultrasonic cleaner?
- Should the basket fit snugly (touch the sides) of the ultrasonic?
- How often should you change the ultrasonic solution?
- What test is performed to check the efficiency of the ultrasonic cleaner?
- Why is it necessary to keep the ultrasonic cleaner covered?
- What is the function of the holding tank?
- What would you use for manual scrubbing?

Work Practice Controls

- Define work practice controls?
- Are they behavior-based?
- Which are examples of work practice controls? One-Handed scoop method for recapping? Not bending or breaking needles? Using an instrument for retraction instead of fingers? Placing sharps in container ASAP? Sharps container?
Hand Hygiene

- Are soaps bacteriostatic or bactercidal?
- How do you refill a soap dispenser?
- What method of hand hygiene is used when hands are visibly soiled?
  - Not visibly soiled?
- How long are hands washed for?
- What temperature water is used for washing and rinsing hands?
- What is the maximum size for alcohol based handrubs? 1 or 2 liters?
- What is the minimum amount of alcohol required for alcohol based handrubs in HC settings?

Prior to Sterilization / Preparation and Packaging

- How are instruments transported?
- How are hinged items packaged for sterilization?
- What is the function of an indicator?
- Where is the indicator located?
- If the indicator cannot be visibly seen from the outside of the package, what must you do?

Sterilization - Autoclave

- Define sterilization.
- What would be your first choice...heat or room temp sterilants?
- What is another name for the autoclave?
- What type of water is used with an autoclave?
- What is the first step in running the autoclave?
- What is a disadvantage of using an autoclave?
- What agency approves autoclaves?
- Can an autoclave be used to sterilize liquids?
- What is the best way to place the instrument bags in an autoclave?
  - Glass or metal canisters?
- What would you do if one instrument in the sterilized bag has dried blood on it?

Sterilization – Chemical Vapor, Dry Heat, Ethylene Oxide

- What are 2 advantages of Chemical Vapor?
- You would most likely see Chemical Vapor used in what specialty?
- What specialty would most likely use Dry Heat?
- Dry Heat is best for _________ _________ instruments and burs.
- Would you see Ethylene Oxide used chairside in a dental practice?
Biological Monitoring

• How often must Biological Monitoring be done?
• Is the control strip or test strip sent thru the sterilizer?
• What does a positive spore test mean?
• What if the in-office test vial is cloudy or changes color?
• What could cause a positive result?
• What is the #1 reason for sterilization failure?

Chemical Sterilants

• When are they used?
• Would you ever use this high-level disinfectant for surface disinfection?
• Why should these chemicals be covered?
• What is use life?
• How long must instruments be submerged for?
• After cycle, what would you rinse instruments with?

Disinfection

• Define disinfection
• What is the benchmark for intermediate level disinfectants?
• What agency approves disinfectants?
• What are the ratios for Sodium Hypochlorite?
• Iodophors may ______________surfaces.
• Phenolics leave a ___________________________ on surfaces.
• Alcohol is not recommended. Why?
• If you mix sodium hypochlorite with quaternary ammonium (quats), what adverse reaction occurs?

Disinfection / Barriers

• What does cleaning do?
• What neutralizes disinfectants?
• What is the protocol for sprays? For wipes?
• How do you protect digital sensors from contamination?
  Phosphor plates?
• Would a paper towel make an acceptable barrier?
Disinfection / Lab Procedures

- What are the steps for disinfecting impressions?
- What are the regulations for shipping contaminated impressions?
- What is done with the ragwheel after each use? The pumice?

Hazard Communication...Think Chemicals

- Number of sections in SDS?  Accessibility?  Shows expiration date?
- Who is responsible for keeping SDSs?
- Does the plan need to be written?
- How often are you required to have training?
- How long does the manufacturer have to notify you of chemical changes in the product?
- Can you keep food and dental products in the same refrigerator – just placed on different shelves?
- Who is responsible for labeling a secondary container?

Sterilization — Monitoring

How is the sterilization process monitored? Sterilization procedures should be monitored through a combination of mechanical, chemical, and biological techniques designed to evaluate the sterilizing conditions and the procedure's effectiveness.

Mechanical techniques for monitoring sterilization include assessing the cycle time, temperature, and pressure of sterilization equipment by observing the gauges or displays on the sterilizer. Some tabletop sterilizers have recording devices that print out these parameters. Correct readings do not ensure sterilization, but incorrect readings could be the first indication that a problem has occurred with the sterilization cycle.

Chemical indicators, internal and external, use sensitive chemicals to assess physical conditions such as temperature during the sterilization process. Chemical indicators such as heat sensitive tape change color rapidly when a given parameter is reached. An internal chemical indicator should be placed in every sterilization package to ensure the sterilization agent has penetrated the packaging material and actually reached the instruments inside. An external indicator should be used when the internal indicator cannot be seen from outside the package. Single-parameter internal indicators provide information on only one sterilization parameter and are available for steam, dry heat, and unsaturated chemical vapor. Multiparameter internal indicators measure 2–3 parameters and can provide a more reliable indication that sterilization conditions have been met. Multiparameter internal indicators are only available for steam sterilizers (i.e., autoclaves). Refer to manufacturer instructions for proper use and placement of chemical indicators.

Indicator test results are shown immediately after the sterilization cycle is complete and could provide an early indication of a problem and where the problem occurred in the process. If the internal or external indicator suggests inadequate processing, the item that has been processed should not be used. Because chemical indicators do not prove sterilization has been achieved, a biological indicator (i.e., spore test) is required.
Biological indicators (BIs) are the most accepted means of monitoring the sterilization process because they directly determine whether the most resistant microorganisms (e.g., *Geobacillus* or *Bacillus* species) are present rather than merely determine whether the physical and chemical conditions necessary for sterilization are met. Because spores used in BIs are more resistant and present in greater numbers than are the common microbial contaminants found on patient care equipment, an inactivated BI indicates that other potential pathogens in the load have also been killed.

How often should I perform biological monitoring (BI) (spore testing)? Correct functioning of sterilization cycles should be verified for each sterilizer by the periodic (at least weekly) use of BIs. Users should follow the manufacturer's directions concerning the appropriate placement of the BI in the sterilizer. A control BI (not processed through the sterilizer) from the same lot as the test indicator should be incubated with the test BI. The control BI should yield positive results for bacterial growth. In addition to conducting routine biological monitoring, equipment users should perform biological monitoring:

- Whenever a new type of packaging material or tray is used.
- After training new sterilization personnel.
- After a sterilizer has been repaired.
- After any change in the sterilizer loading procedures.

If sterilizing an implantable device, should users perform biological monitoring (spore testing) more frequently? Any load containing implantable devices should be monitored. Ideally, implantable items should not be used until the results of tests are known to be negative. As previously noted, the manufacturer's directions concerning the appropriate placement of the biologic indicator (BI) in the sterilizer must be followed. A control BI (not processed through the sterilizer) from the same lot as the test indicator should be incubated in the same manner as the test BI. The control biological indicator should yield positive results for bacterial growth.

What should I do if a spore test result is positive? If the mechanical (e.g., time, temperature, pressure) and chemical (internal or external) indicators suggest that the sterilizer is functioning properly, a single positive spore test result probably does not indicate sterilizer malfunction. Items other than implantable items do not necessarily need to be recalled; however, sterilizer operators should repeat the spore test immediately using the same cycle that produced the positive BI. The sterilizer should be removed from service and sterilization operating procedures reviewed to determine whether operator error could be responsible.

If the result of the repeat spore test is negative and operating procedures were correct, then the sterilizer can be returned to service. If the repeat spore test result is positive, do not use the sterilizer until it has been inspected or repaired and rechallenged with BI tests in three consecutive empty-chamber sterilization cycles. When possible, items from suspect loads dating back to the last negative BI should be recalled, rewrapped, and resterilized. Results of biological monitoring and sterilization monitoring reports should be recorded.