

## **Infection Control: Ear Light Probe Tips used for Inserting Ear Dams**

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### **Background Information:**

Infection control refers to the conscious management of the environment for purposes of minimizing or eliminating the potential spread of disease.<sup>1,2</sup> In response to the AIDS epidemic, during the mid to late 1980's, the Centers for Disease Control and Prevention (CDC) issued a number of recommendations and guidelines for minimizing cross-infection of bloodborne diseases to healthcare workers. These guidelines were based on the principle that every patient is assumed to be a potential carrier of and/or susceptible host for an infectious disease. Eventually, these pronouncements were officially formalized into the Universal Blood and Bloodborne Pathogen Precautions. More commonly referred to as universal precautions, the general pronouncements are as follows:

1. Appropriate personal barriers (gloves, masks, eye protection, gowns) must be worn when performing procedures that may expose personnel to infectious agents
2. Hands must be washed before and after every patient contact and after glove removal
3. Touch and splash surfaces must be pre-cleaned and disinfected
4. Critical instruments must be sterilized
5. Infectious waste must be disposed of appropriately

CDC 1987<sup>3</sup>

### **Differentiation of Terms:**

Cleaning refers to procedures in which gross contamination is removed from surfaces or objects without killing germs.<sup>1,2</sup> It does not necessarily involve any level of germ killing but cleaning is an important prerequisite for other processes in which killing germs remains an objective. Cleaning must occur prior to disinfection or sterilization as the effectiveness of these procedures may be compromised without it.

Disinfection refers to a process in which germs are killed.<sup>1,2</sup> The term encompasses a wide range of germ killing. Levels of disinfection vary according to how many and what specific germs are killed. Household disinfectants kill a limited number of germs commonly found in the household. In contrast, hospital-grade disinfectants are much stronger and kill a larger number and variety of germs. As such, hospital-grade disinfectants should be incorporated in infection control protocols implemented in patient care settings, including clinics, hospitals, or private practice facilities where audiology services are provided.

Sterilization involves killing 100% of vegetative microorganisms, including associated endospores.<sup>1,2</sup> When microbes are challenged, they revert to the more resistant life form called a spore.<sup>3</sup> Sterilants, by definition, must neutralize and destroy spores because if the spore is not killed, it may become vegetative again and cause disease. Whereas disinfection may kill some germs, sterilization, by definition, kills all germs and associated endospores each and every time.

Cleaning:	removal of gross contamination
Disinfecting:	killing a percentage of germs
Sterilization:	killing 100% of germs including endospores

### **Ear Light Probe Tips - Preferred Infection Control Recommendations:**

According to the CDC, critical instruments must be sterilized. Critical instruments refer to those instruments or objects introduced directly into the bloodstream (e.g., needles), non-invasive instruments that come in contact with intact mucous membranes or bodily substances (e.g., blood, saliva, mucous discharge, pus), or instruments that can potentially penetrate the skin from use or misuse. Non-critical

items are those instruments or objects that either do not ordinarily touch the patient or touch only the externally intact skin. ***Ear light probe tips used for inserting ear dams into the ear canal are most likely considered non-critical instruments and must be cleaned and then disinfected prior to re-use.*** NOTE: in the event of gross misuse whereby the probe tip penetrates the ear canal and/or if ear light probe is visibly contaminated with blood it is to be disposed of.

#### **Disinfection of Ear Light Probe Tips used with the Pen Light:**

- Following the use of probe tip, detach from pen light being careful not to handle or touch the contaminated portion; **NOTE: if the ear light probe tip is visibly contaminated with cerumen and/or blood, it must either be disposed of or cleaned and then sterilized prior to reuse.**
- Clean the probe tip surface by wiping its surface completely using either a paper towel, disinfectant towelette, or Kleenex
- Dispose of paper towel, disinfectant towelette or Kleenex into the regular trash
- Disinfect the probe tip surface by wiping its surface complete using a fresh disinfectant towelette or spray the surface of the entire probe tip with disinfectant spray and then wipe the surface with a paper towel.

#### **Sterilization challenges inherent to Ear Light Probe Tips as a function of VA approved sterilants:**

The use of heat pressurization via an autoclave may not be used on Ear Light Probe Tips since these items are comprised of plastic and will melt during the procedure. ***From this perspective, some sterilization centers may erroneously refer to these products as disposable. The ear light probe tips are not one-time use products; they are intended to be reused with multiple patients.*** In the event gas sterilization is an available, this option is considered suitable. Typically, this process involves the use of Ethylene Oxide although there may be other alternative gases used.

#### **Alternative Sterilization Procedures:**

In the absence of gas sterilization, the only other alternative is to sterilize instruments via cold sterilization. There are only two EPA-approved liquid chemicals that may be used for sterilization. Glutaraldehyde solutions in concentrations of 2% or higher (i.e. brand name products such as Wavicide, Cidex) or 7.5% or higher levels of hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) (i.e. brand name products such as Sporox) are the only chemicals approved by the EPA for cold sterilization. It is the current understanding of Oaktree Products, Inc. that the V.A. system has not approved the use of glutaraldehyde-based sterilants, permitting the use of only those sterilants containing 7.5% or higher levels of H<sub>2</sub>O<sub>2</sub>.

#### **Sterilizing Ear Light Probe Tips used with the Pen Light:**

- Following the use of probe tip, detach from pen light being careful not to handle or touch the contaminated portion; place in the designated container for later cleaning and sterilization.
- Immediately after the last appointment of the day, designated covered containers holding contaminated ear-light probe tips are to be brought to the hazard area by designated personnel. Designated personnel must wear gloves while transporting the closed containers.
- While wearing gloves, clean the surfaces of wax loops with a paper towel or disinfectant towelette. The same towel or towelette may be used to clean all instruments.
- Once the instruments are cleaned, with gloved hands carefully place the ear light probe tip in the appropriate tray containing sterilant.
- Cover the tray and allow instruments to soak according to manufacturer's directions.
- Remove gloves and wash hands according to designated procedures.

**Retrieval of probes**

- After sterilization is complete, put on a fresh pair of gloves.
- Remove ear light probe tips from the solution
- Rinse instruments in a sink designated as a cleaning sink.
- Allow instruments to air dry
- Return instruments to their appropriate location(s) for reuse.
- Sterilant solution should be changed according to manufacturer's instructions or sooner if the solution becomes visibly soiled.

For more information, contact A.U. Bankaitis or Robert Kemp of Oaktree Products.

**References:**

1. Bankaitis, A.U. and Kemp, R.J. (2003). *Infection Control in the Hearing Aid Clinic*. Boulder, CO: Auban.
2. Bankaitis, A.U. & Kemp, R. J. (2005). *Infection Control in the Audiology Clinic* (2<sup>nd</sup> edition). St. Louis, MO: Auban, Inc.
3. CDC. (1987). Recommendations for prevention of HIV transmission in healthcare settings. *MMWR*, 36(2s).