Infection Control: Buffs and Grinding Stones used During Hearing Instrument Modification

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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.[1,2] 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[3]

Differentiation of Terms:

Cleaning refers to procedures in which gross contamination is removed from surfaces or objects without killing germs.[1,2] 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.[1,2] 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.[1,2] When microbes are challenged, they revert to the more resistant life form called a spore. 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

Dremel Buffs and Stones - 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. ***By definition, buffs and stones are not considered critical instruments since they are designed to be used to modify hearing instruments that have been removed from the ear.*** Nevertheless, there is a unique infection control concern related to these specific items since these specific articles of equipment are porous and cannot be properly degermed. It is critical for clinicians to first clean and then disinfect specific items that they intend to buff or to modify using a stone. Hearing instruments should be cleaned and then disinfected prior to using a buffing wheel or stone. Furthermore, the hearing instrument should be cleaned and disinfected after being buffed or modified as it remains unclear as to the potential microbial contamination of buffs and/or stones over a period of time.

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* (2nd edition). St. Louis, MO: Auban, Inc.
3. CDC. (1987). Recommendations for prevention of HIV transmission in healthcare settings. *MMWR*, 36(2s).