SASLHA

South African Speech-Language-Hearing Association

Guidelines:
Infection Control

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Guidelines for Speech-Language Therapists and Audiologists regarding Infection Control

Introduction

Worldwide, infection control aimed at reducing or eliminating the spreading and contracting of diseases and infection, is receiving an increasing amount of attention. With research (Sarma & Ahmed, 2010) showing that healthcare-associated infections in developing countries (like South Africa) can exceed 25% compared to developed countries, it is clear that infection control is an issue of considerable importance in the health professions arena of South Africa. In the South African context, within all clinical working environments, infection control is of considerable concern to Speech-Language Therapists and Audiologists (SLT/As) and the people with whom they work.

An increasing familiarity with infectious diseases such as AIDS, tuberculosis and hepatitis B has spawned a growing concern about cross-infection within the healthcare community, including speech and hearing professionals. The result is an increasing number of regulatory bodies--particularly the Infection Control/Occupational Safety and Health Administrations--enacting regulations with guidelines on how to reduce the risks of exposure to potentially harmful, contagious diseases.

Measures to control infection transmission between healthcare professionals and patients have received particular attention and centre on reducing the transmission of and exposure to all infectious diseases, from the common cold and canker sores to tuberculosis and hepatitis B.

Infection Control can be defined as an organized effort to manage one's environment in order to minimize exposure to micro-organisms which may make you or your patients ill (Kemp & Roeser 1998).

Objectives of Infection Control

1. To decrease the incidence of acquired infection
2. To safeguard patients from harm
3. To maintain quality and efficacy of care and services
4. To decrease the exposure of practitioners and patients to infection
5. To ensure cost effectiveness
6. To ensure and maintain ethical and hygienic standards for professionals

Key concepts and definitions

Cleaning: The gross contamination is removed but germs are not necessarily killed.

Critical instruments: Instruments and materials that may have had contact with blood, mucus or cerumen. Includes instruments such as curettes used in cerumen removal, impedance probe tips, repair or cleaning tools and otoscopic specula. These instruments and materials should be sterilized after use when visibly contaminated with blood, mucus or cerumen.

Disinfection: The germs are killed. The various levels of disinfection depend on how many and which germs are killed.

Medical waste: Human tissue, bodily fluids, as well as materials, objects, and/or anything else which may have been or could have been exposed to human tissue or bodily fluids.

Non-critical instruments: Instruments and materials that are not contaminated by blood or other infectious substances. These include earmoulds, ITE/CIC hearing instruments, headphones, specula, plastic toys, etc. and can be cleaned by disinfectants.

Sharps: Any used or unused sharp objects, including needles and scalpels.

Sterilization: 100% of the vegetative micro-organisms and endospores are killed (Bankaitis & Kemp, 2005). Sterilization is accomplished physically with heat and pressure in an autoclave, with ethylene oxide gas in a gas chamber, or chemically with two percent glutaraldehyde.

Relevant legislation

- The South African National Constitution of 1996 (Section 7) affords everyone a right to live in an environment that is not harmful to his/her health or well-being.

- Occupational Health and Safety Act, No 85 of 1993 Section 8(1) obliges an employer to provide as far as is reasonably practicable, a safe working environment.

- Section 13 of the same Act imposes a duty on every employer as far as is reasonably practicable, to cause every employee to be made conversant with the hazards to his health and safety attached to his/her work and the precautionary measures to be taken with respect to those hazards.

- The Environmental Conservation Act No. 73 of 1989 in terms of which all wastes containing Hazardous Biological Agents that can cause exposure to disease can only be disposed on sites specifically designed for this purpose.

- Hazardous Biological Agents Regulations, promulgated under section 43 of the Occupational Health and Safety Act, No. 85 of 1993, regulates the exposure of employees to hazardous biological agents.

Contexts of practice

- Universal precautions must be used for all patients, at all times, in all contexts.
- Practitioners need to ascertain the regulations applying to their context of work, the policies, surveillance procedures, monitoring procedures, and training opportunities with regard to infection control.
- Infection control measures may differ from context to context, but must be practiced by all practitioners regardless of where they practice.
- Practitioners need to bear in mind that patients in hospitals and clinics are generally more vulnerable to infection, as they often have other existing health impairments and/or are on treatments affecting their health.
- Practitioners working in crèches, pre-schools and schools need to be aware and prepared for the potential of infection from children with diarrhea and/or vomiting.

Areas of special attention for Audiologists

***With regard to infection control, audiologists should pay special attention when working with the following*:**

earwax	earmoulds
hearing aids	impression material
headphones	probes & speculums
response buttons	instrumentation used during cerumen management
nubs	otoscopes
electrodes	scrubbing material

Areas of special attention for Speech-Language Therapists

***With regard to infection control, SLTs should pay special attention to the following areas*:**

- Feeding and dysphagia assessment and intervention
- Oral peripheral examinations
- Tongue thrust management
- Suck, swallow, breathe exercises and materials
- Articulation, voice and laryngectomy assessment and intervention

Role and responsibility

Preventing Disease transmission

Most bodily fluids like blood and mucus (ear drainage) are considered infectious substances and must be treated as such. Cerumen, however, is not unless it contains a bodily fluid such as blood or mucus. Due to the appearance and viscosity of cerumen it makes it difficult to determine whether blood or mucus are present and it is recommended that cerumen always be handled as if it were contaminated.

The ear provides a warm, moist environment that is an ideal breeding ground for all types of bacterial life. Bacteria and fungi normally live in the ear and cause no problems but if the environment in the ear changes, for example, if moisture is increased for a prolonged period the microbial life in the ear may flourish and overwhelm the resistance of the host and cause infection.

Fungi such as Aspergillus niger, which appears as black, fuzzy growth, or Candida albicans (yeast) can cause a fungal otitis externa; bacterial infections of the ear also are common. These fungal and bacterial colonies can easily be spread from one patient to another as practitioners handle in-the-ear hearing instruments and earmolds before they have been disinfected, when they fail to wash hands between patients or when an instrument that touches the patient's ear is not disinfected before reuse.

A recent study found that otoscope specula are a common source or contamination and a potential mode of disease transmission. In this study, 32 percent of otoscope specula

collected from physicians' offices were contaminated with potential pathogens such as Pseudomonas aeruginosa or Staphylococcus aureus.

In hearing instrument wearers infections can be difficult to clear up because the microbial colony may live on the appliance only to be replanted every time the hearing instrument is worn.

It is important for patients to disinfect their hearing instruments every night, particularly if fungal or bacterial growth is suspected. A foul odour coming from the ear is a good indicator of fungal or bacterial growth.

Controlling disease exposure

The infectious process depends on the virulence (inherent ability of the germ to break down host's defenses), titer (number) of microbes and the resistance of the host. Clinicians can do little to alter the virulence of the microbes or the resistance of the host. The variable that clinicians can effectively change is the number of microbes in the work place – on personnel, equipment, instruments and other areas of patient or personnel contact.

Environmental infection control requires that speech and hearing professionals clean, disinfect and sometimes sterilize items or surfaces that are reused.

Cleaning means that the gross contamination is removed but germs are not necessarily killed.

Disinfection means that the germs are killed. The various levels of disinfection depend on how many and which germs are killed.

Sterilization means that 100 percent of the vegetative micro-organisms and endospores are killed. Sterilization is accomplished physically with heat and pressure in an autoclave, with ethylene oxide gas in a gas chamber, or chemically with two percent glutaraldehyde.

An autoclave is the preferred method of sterilization, but is impractical in speech therapy and audiology because most implements needing sterilization will melt. Consequently,

cold sterilization with two percent glutaraldehyde is more practical in the speech therapy and audiology setting. Glutaraldehyde can be safely used on plastic, silicone, rubber, glass and metal. The disadvantages of glutaraldehyde are that it must be handled carefully, the fumes can be irritating and instruments require 10 hours to sterilize. These can be overcome by wearing gloves and eye protection, using the solution only in a covered tray and by allowing instruments to soak overnight.

A practical and commercially easily obtainable alternative means of sterilisation is Milton's sterilising fluid, an aqueous solution of sodium hypochlorite and 16.5% sodium chloride.[4] The Milton Fluid that is available to buy is a strength of 2% sodium hypochlorite.

Tasks

The practitioner should:

- Practice routine preventative measures
- Avoid direct contact with mucus, bodily fluids, exposed human tissue, blood, used cleaning swabs, and wet/soiled linen/furniture.
- Avoid any direct contact with any spills or splashes
- Cover broken skin or sores properly
- Educate colleagues, family members and significant others about precautions and infection control measures
- Have knowledge of relevant infection control procedures, including: accident plans and follow-up, training, vaccination, record keeping, waste management, protective clothing and barriers, sterilization, disinfectants and cleaning
- Practice self-protection and environmental protection without compromising patient care or professionalism.

With regard to self protection, practitioners are advised to arrange for immunisation against hepatitis B, TB, and influenza. Tetanus boosters are also suggested.

Protective barriers

Gloves provide excellent protection from patient contact and are a simple, inexpensive way to reduce cross-contamination. Disposable latex gloves are the least expensive, but vinyl gloves are available for those allergic to latex. For patients with draining ears or in

the presence of blood, sores or lesions on the ear, gloves should be worn as a prophylactic measure. Always dispose of gloves after each use.
Masks and eye protection are warranted when working on a grinding wheel not only to protect against airborne bacteria but airborne grinding material. Masks should be worn when treating patients with tuberculosis.

Immunizations

Immunization is the most effective method of protecting against disease. Audiologists should discuss their immune status with their healthcare provider with interest in vaccines for tetanus, tuberculosis and hepatitis B.

Waste management

Most waste from audiology practices is not dangerous and therefore special handling is not required. On occasion, audiologists can encounter materials contaminated with a significant amount of blood or other bodily fluid that can pose a risk. In such instances, audiologists must follow OSHA's guidelines using impermeable bags marked with the biohazard symbol.
As the profession of audiology grows and practitioners take on more responsibility, developing preventive infection control strategies designed to protect themselves, their co-workers and patients are of great importance. Such efforts will elevate the image of the profession, improve patient care by reducing the spread of disease and protect professionals from regulatory and legal problems.

Minimum requirements to perform the tasks

(facility, equipment, information technology, infrastructure)

Summary of infection control considerations

- Obtain a complete medical history, for each patient, including disease history and current treatments.
- Thoroughly examine the face, scalp, pinna and ear canal for any lesions, open wounds or the presence of blood or other bodily fluid, fresh or dried.
- Wash hands before and after seeing each patient, after handling earmoulds, impressions or hearing instruments.
- Wear gloves whenever there is a possibility of contacting fresh or dried bodily fluids.
- Obtain immunizations for communicable diseases.

- Clean and disinfect surface areas, toys, earphones, specula and "noncritical" instruments prior to re-use.
- Clean and **sterilize** "critical" instruments in an autoclave or two percent glutaraldehyde.
- Be prepared for treating patients with communicable diseases; have masks available for treatment of patients with TB or other air-borne infectious diseases; plan an approach for cleaning up and disposing of accidental spills of bodily fluids such as nose bleeds or incontinence.
- Separate and segregate waste properly: medical waste should be kept separate from other waste and disposed of adequately.
- Used sharps (needles, scalpel blades, etc.) must be stored in appropriate sharps boxes and disposed of appropriately.

Other relevant issues

Disease	Agent	Potential Transmission	Incubation Period	Potential Outcome
AIDS	Virus	Blood-to-blood contact	8 years/average	Death
Chicken pox	Virus	Blood, saliva or mucus	10-21 days	Conjunctivitis, shingles,encephalitis
Common cold	Virus	Blood, saliva or mucus	48-72 hours	Temporary disability
Cytomegalovirus	Virus	Blood, saliva or mucus	2-8 weeks	Birth defects, death
Hepatitis A	Virus	Oral, fecal	2-7 weeks	Disability, liver damage
Hepatitis B	Virus	Blood, saliva or mucus	6 weeks-6 months	Chronic carrier, chronic disability, death
Hepatitis C	Virus	Blood transfusion	6 weeks	Death
Herpes simplex-1,6	Virus	Blood, saliva or mucus	2-12 days	Discomfort, herpetic onjunctivitus or herpetic whitlow
Herpes zoster(shingles)	Virus	Blood, saliva or mucus	6-10 weeks	Disability
Infectious mononucleosis	Virus	Blood, saliva or mucus	4-7 weeks	Temporary disability
Infectious meningitus	Virus/ Bacteria	Blood, saliva or mucus	2-10 days	Disability, death
Influenza	Virus	Saliva, mucus, respiratory droplets	1-3 days	Temporary disability, death
Legionellosis	Bacteria	Respiratory droplets	2-10 days	Temporary disability, death
German Measels (Rubeola)	Virus	Saliva, mucus	9-11 days	Congenital defects, temporary disability, encephalitis
Mumps	Virus	Respiratory droplets	14-25 days	Temporary disability, sterility (men)

Otitis externa	Bacteria/ Fungus	Blood, saliva or mucus	1-2 days	Itching, pain, swelling
Pediculosis(head lice)	Lice	Combs, hats, headphones	Eggs hatch 7-10 days	Temporary discomfort, itching
Pneumonia	Virus/ Bacteria	Blood, respiratory droplets	Varies with organism	Temporary disability, itching
Staphylococcus infection	Bacteria	Saliva, mucus, staph colony	4-10 days	Skin lesions, death
Streptococcus infection	Bacteria	Saliva, blood, mucus, respiratory droplets	1-3 days	Heart and kidney problems, death
Tuberculosis	Bacteria	Respiratory droplets, saliva	Up to 6 months	Disability, death

(Kemp & Roeser, 1995)

Resources (internet links, documents)

- South African National Infection Control Policy

- US Occupational Safety and Health Administration's Guidelines on Infection Control *(Found in `Infection Control for the Professions of Audiology and Speech Language Pathology', ASHA)*

Key references

- Bankaitis, A.U. & Kemp, R. J. (2005). *Infection Control in the Audiology Clinic* (2nd edition). St. Louis, MO: Auban, Inc.
- Kemp, R.J. & Roeser, R.J. (1998). Infection Control for Audiologists. In: A.E. Bankaitis, (Ed.), *Seminars in Hearing*, 19(2): pp. 195-204.
- Overend A, Hall WW and Godwin PGR: Does ear wax lose its pathogens on your auriscope overnight? Brit Med J 305:1571-3, December 19, 1992.
- Sarma, J.B. & Ahmed, G.U. Infection control with limited resources: Why and how to make it possible. Indian Journal of Medical Microbiology, (2010) 28(1): 11-6.
- [1]http://www.kznhealth.gov.za/infection/nationalpolicy.pdf (South African National Infection Control Policy, KZN Department of Health)
- [2]http://search.ebscohost.com/login.aspx?direct=true&db=f5h&AN=9511060966&site=ehost-live&scope=site (Kemp, R. J. & Roeser, R. J. Controlling risk of exposure to infectious diseases.)

- [3]http://www.doh.gov.za/docs/factsheets/guidelines/infection/part1.pdf (Practical guidelines for infection control in health care facilities, WHO, 2003).

- [4]http://www.milton-tm.com/frequently_asked_questions.html#1
