# Infection Prevention & Control for the Hearing Healthcare Practice

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Starkey

# Housekeeping


***I am speaking now.  Can you hear me?***

If you are having technical difficulties, please stay logged on and call Audiology Online at 1-800-753-2160.

# Housekeeping


- This session is available for 1 hour / .1 CEU
- Must stay logged on for the full session
- Must successfully complete a short quiz

# Objectives

- After this course learners will be able to define the concept of Infection Control in hearing healthcare.
- After this course learners will be able to identify the standard routes of transmission of infection in the hearing healthcare environment.
- After this course learners will be able to identify the role the external ear canal and cerumen play in the transmission of infectious disease.


INFECTION

# What is Infection Control?

‘.....conscious management of the clinical environment for purposes of minimizing or eliminating the potential spread of disease’

Bankaitis & Kemp, 2003, 2004

# Why is Infection Control important for the Hearing Healthcare Professional?

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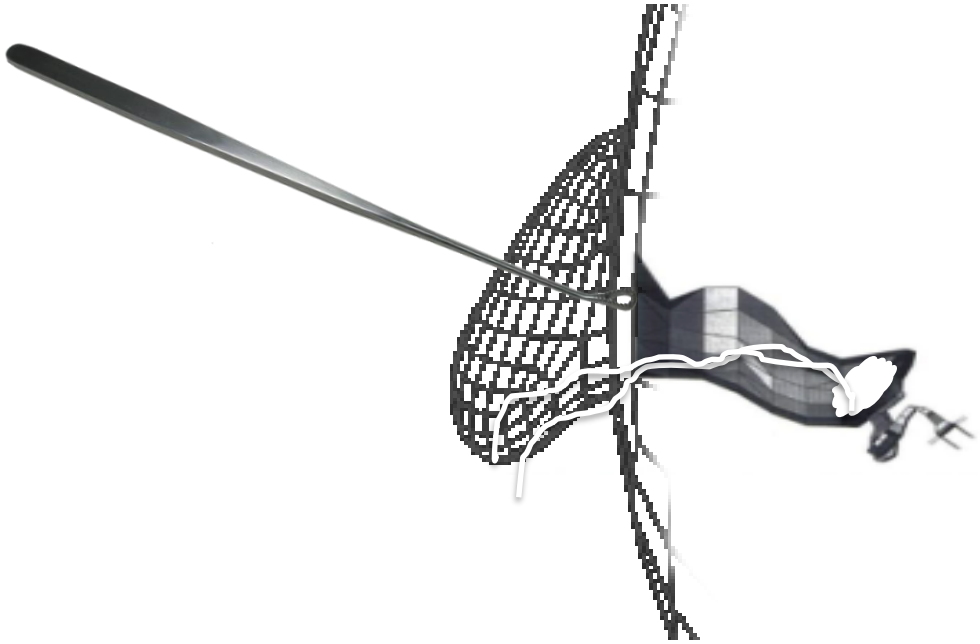
# Nature of Dispensing and Clinical Practice

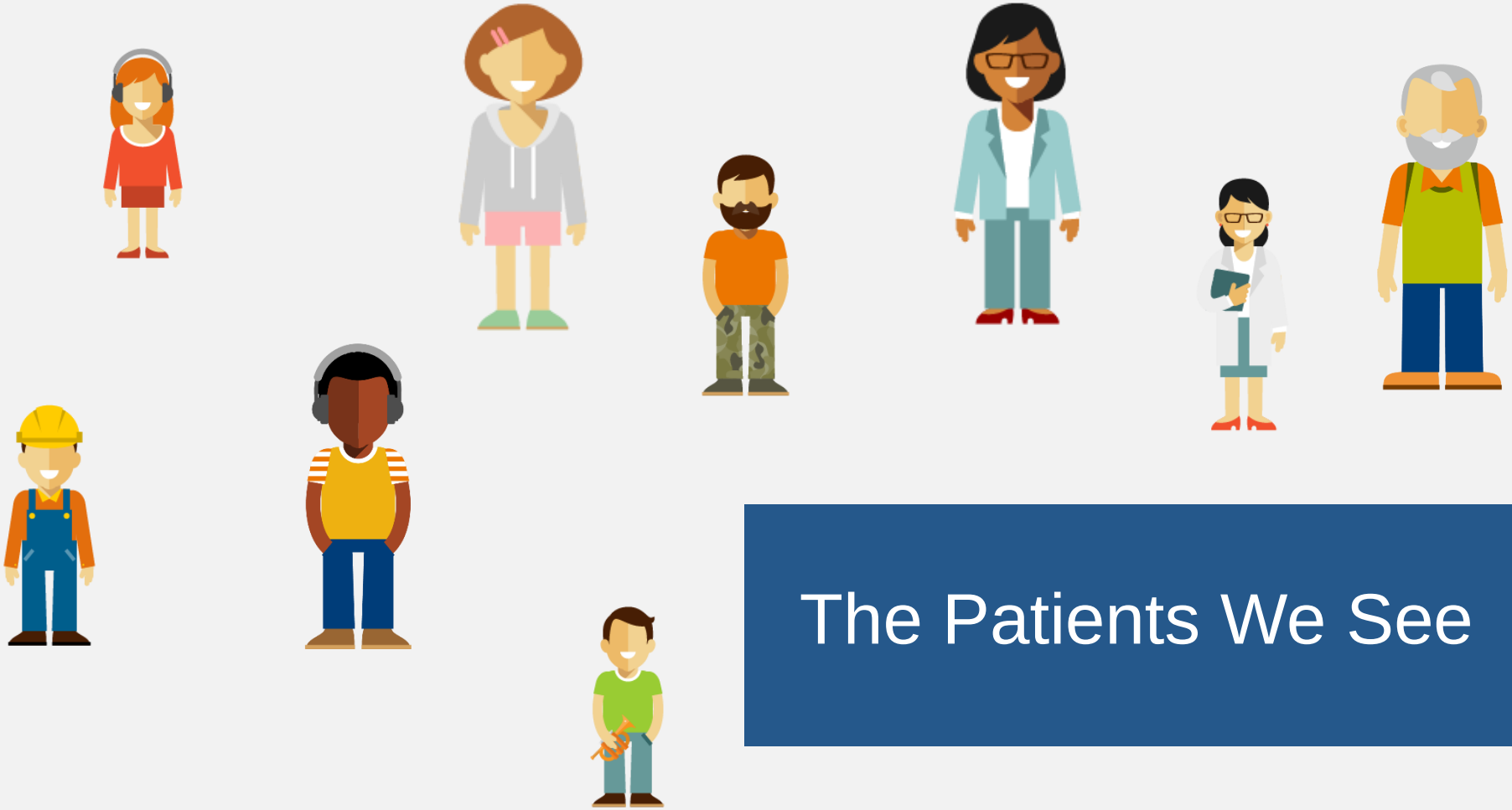
# The Objects We Touch

# The Tools of the Trade

# The Procedures We Perform



# The Devices We Fit



# The Patients We See

# Infection Control & The Elderly

Contributing Factors:

- Impaired immune function
- Anatomic changes
- Functional changes
- Degree of exposure to infection

# How did Infection Control become such an important topic?

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# Diseases without Borders


A
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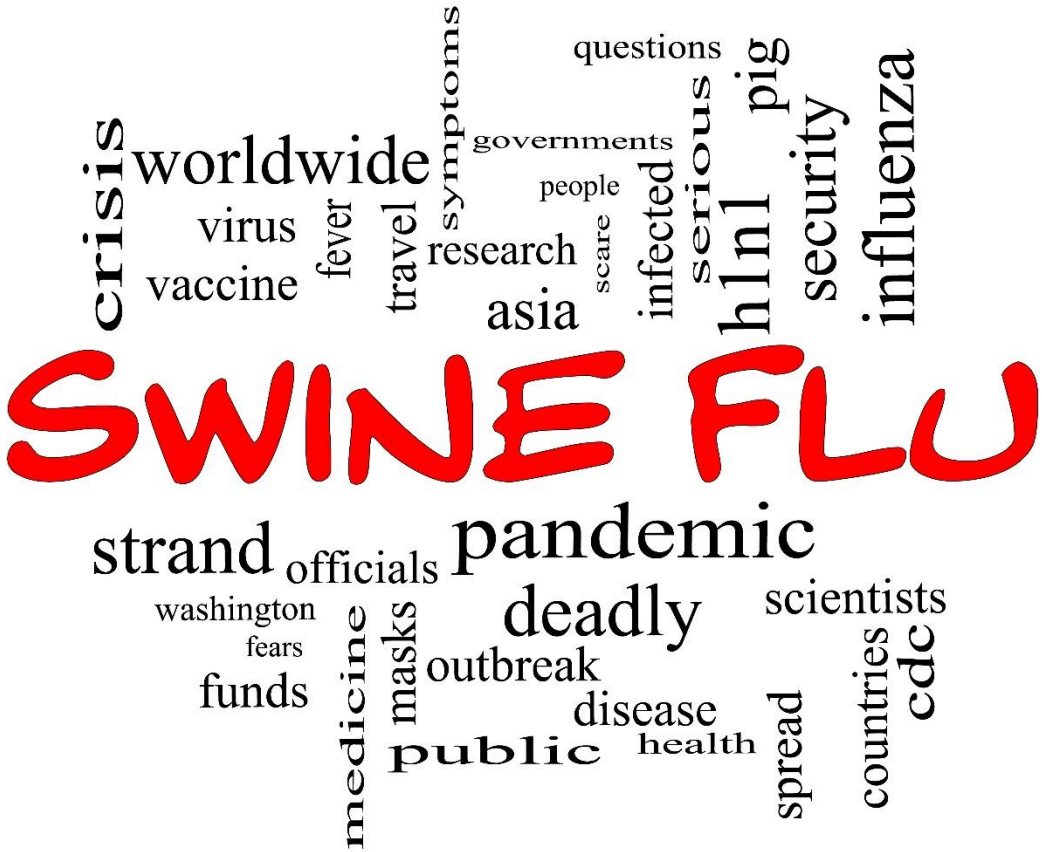
SWINE FLU
crisis
worldwide
virus
vaccine
fever
travel
symptoms
research
asia
governments
people
scare
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infected
serious
h1n1
pig
security
influenza
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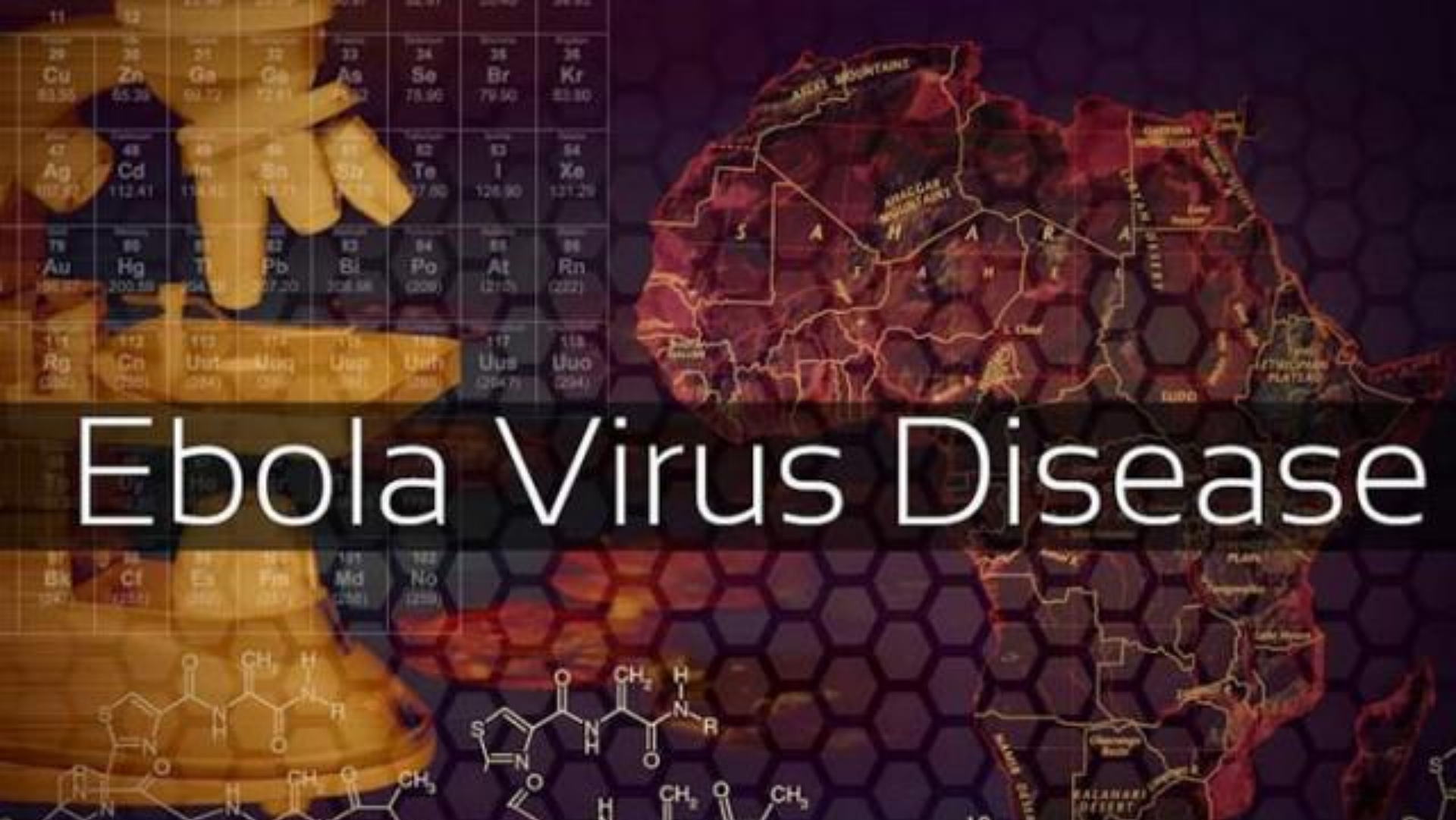
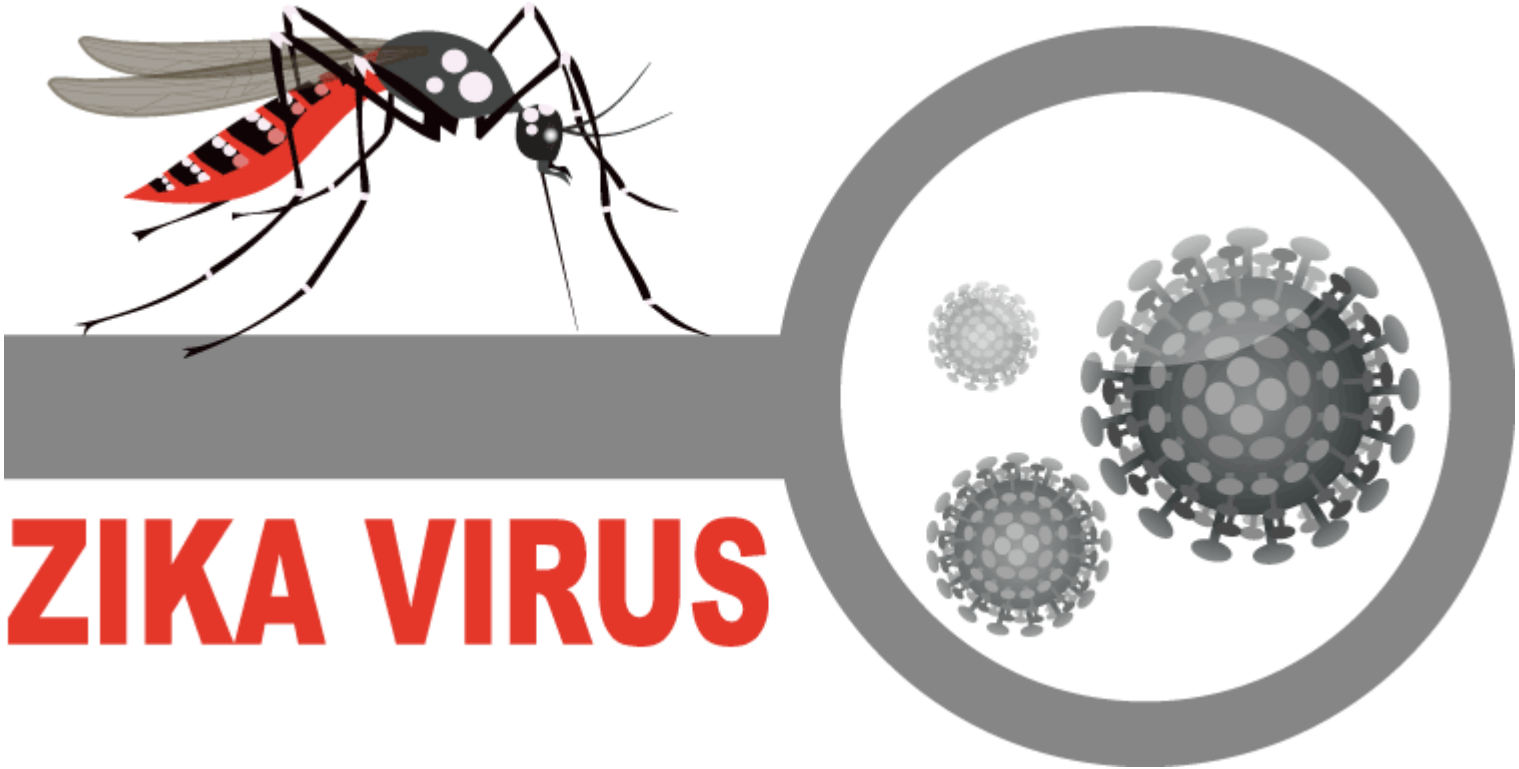

Ebola Virus Disease


ZIKA VIRUS

# First cases of *Candida auris* reported in United States

Drug-resistant fungal infection can spread in healthcare settings

## Press Release

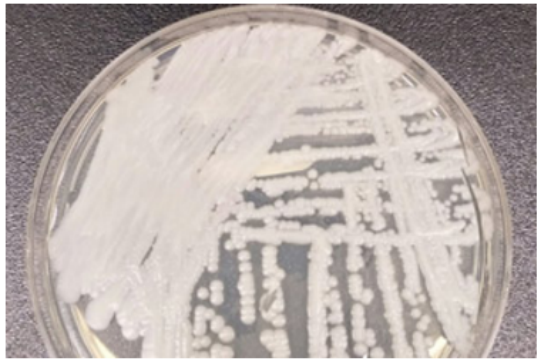
Embargoed Until: Friday, November 4, 2016, 11:00 a.m. ET

**Contact:** Media Relations

(404) 639-3286

Thirteen cases of *Candida auris (C. auris)*, a serious and sometimes fatal fungal infection that is emerging globally, have been identified in the United States, according to the Centers for Disease Control and Prevention (CDC). Seven of the cases occurred between May 2013 and August 2016 and are described today in CDC's Morbidity and Mortality Weekly Report (MMWR) . The other six cases were identified after the period covered by the report and are still under investigation.

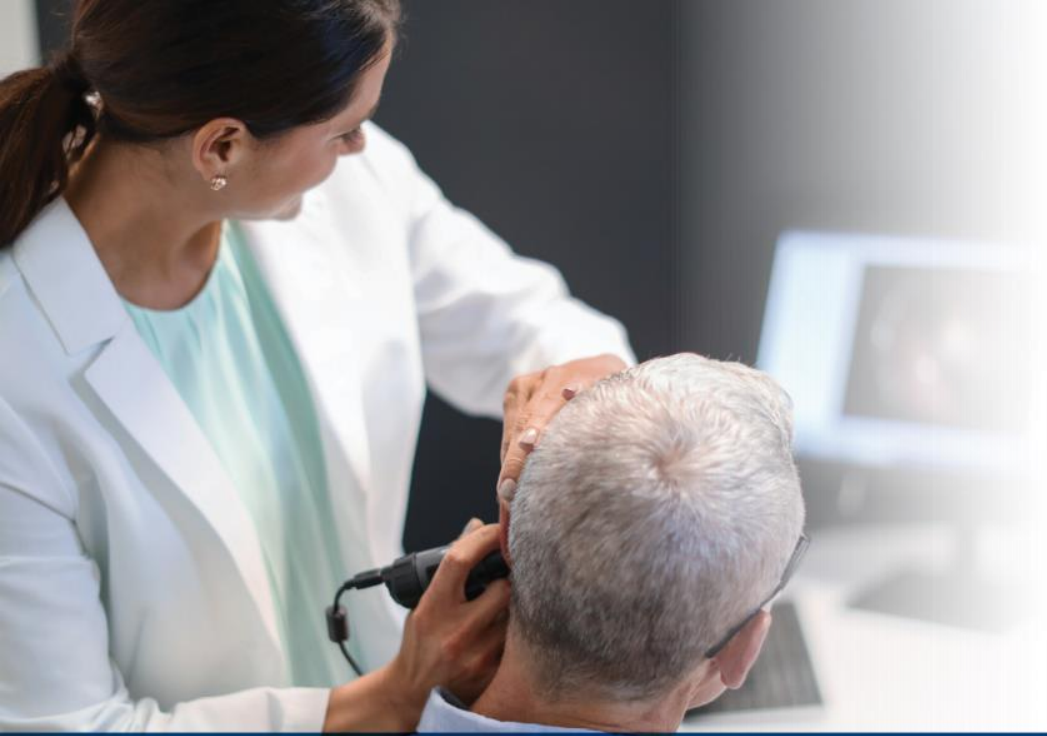
The report is the first to describe U.S. cases *of C. auris* infection. *C. auris* is often resistant to antifungal drugs and tends to occur in hospitalized patients. In June 2016, CDC issued a clinical alert describing the global emergence of *C. auris* and requesting that laboratories report *C. auris* cases and send patient samples to state and local health departments and CDC. Since then, CDC has been investigating reports of *C. auris* with several state and local health departments. The agency expects to continue to investigate possible cases as awareness of the emerging infection increases.



A strain of *Candida auris* cultured in a petri dish at CDC.

*Photo Credit: Shawn Lockhart, CDC*

"We need to act now to better understand, contain and stop the spread of this drug-resistant fungus," said CDC Director Tom Frieden, M.D., M.P.H. "This is



# How are Infections Spread?

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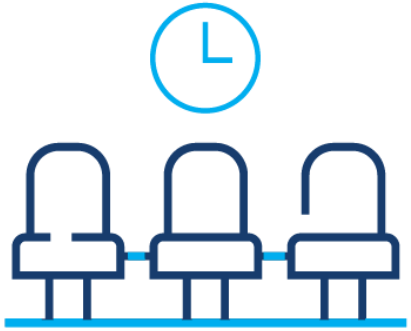
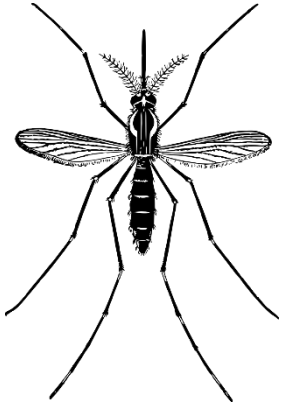
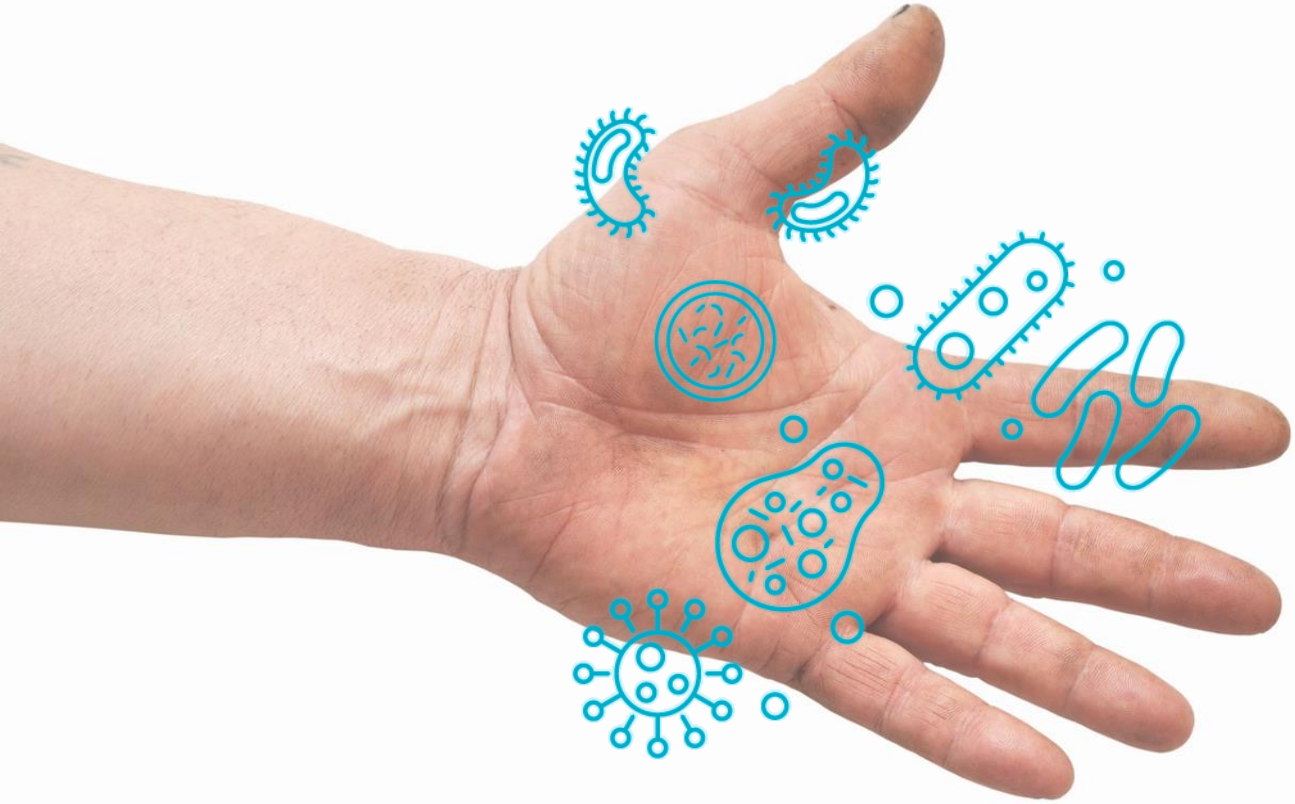
# Modes of Transmission







Direct Contact
without intervening persons, barriers or conditions

## Indirect Contact

Infectious microbes transferred from a secondary surface

## Droplet Transmission

Transmission through particles expelled via coughing and sneezing that land on a surface

## Vehicle Transmission

Through contaminated food, water or bodily substances such as cerumen

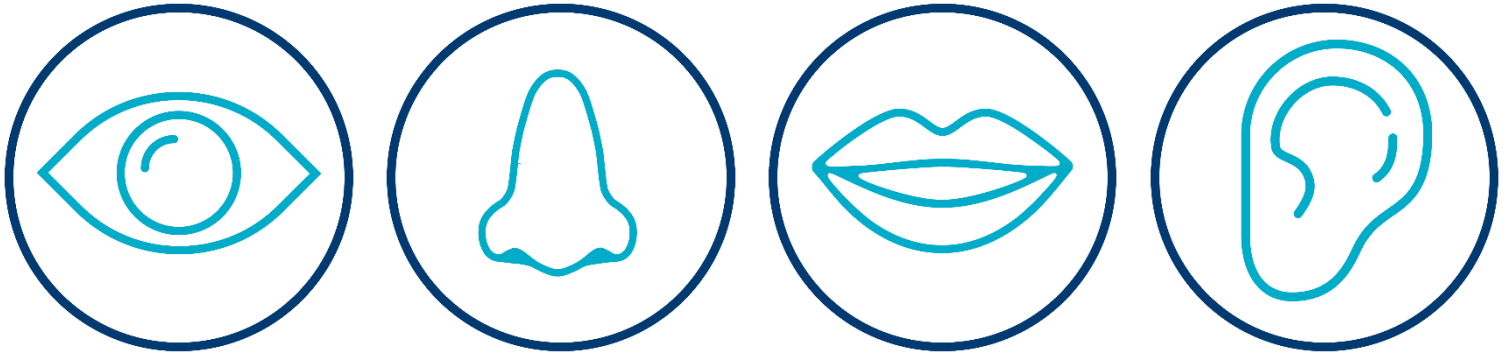
## Airborne Transmission

Through the air via droplets or particles

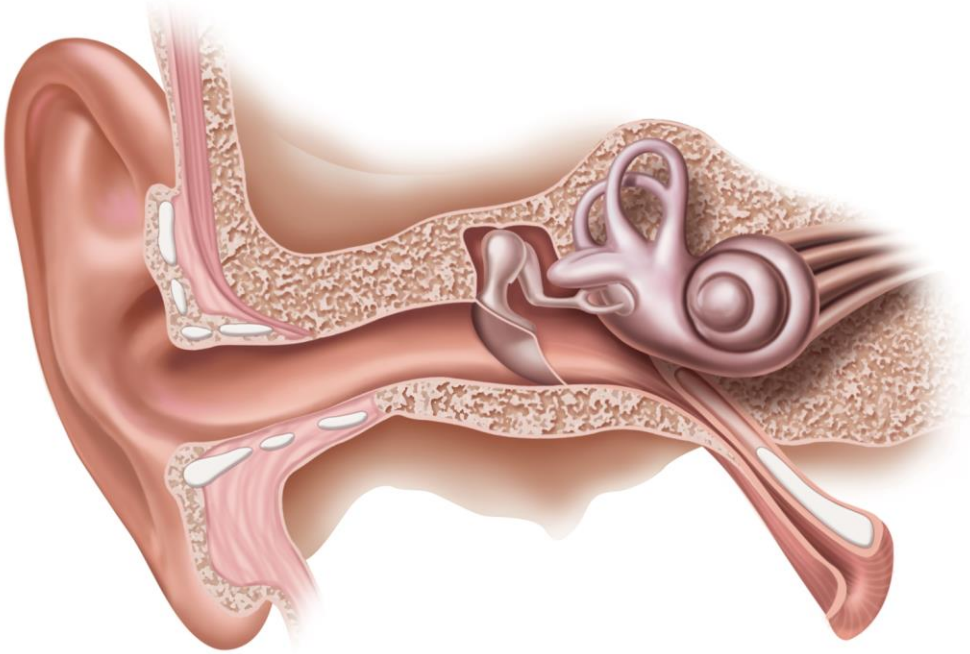

## Vectorborne Transmission

Insects or animals transfer pathogenic agents

# Routes of Transmission

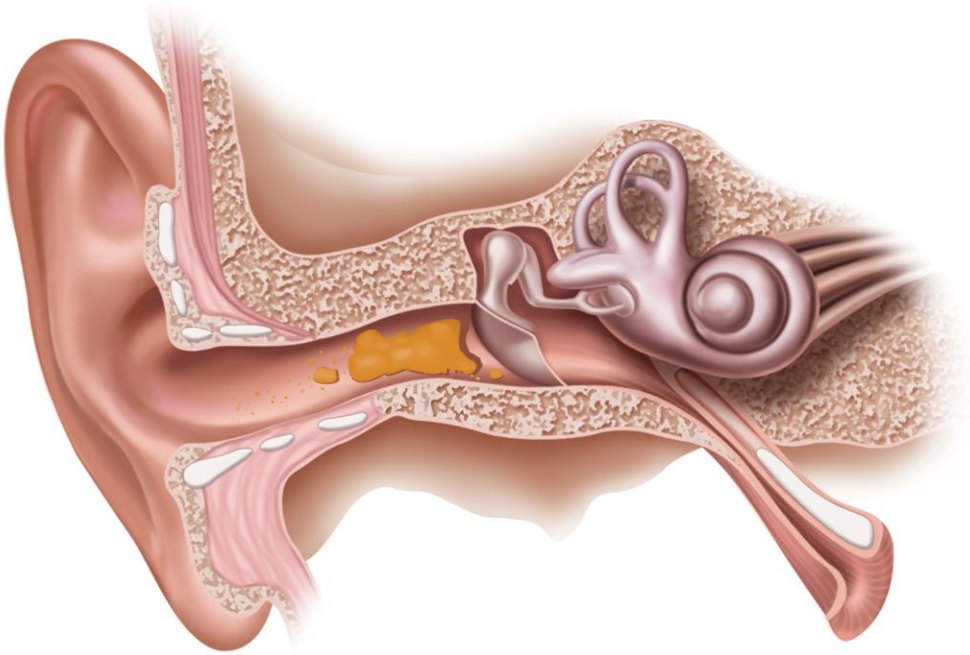


# The External Auditory Canal



The External Ear Canal is more prone to infection than any other skin surface.
- Jahn & Hawke (1992)

# Cerumen or Ear Wax



Should be treated as an infectious substance because the hearing professional cannot make a determination of the content just by visual inspection.

# Opportunistic Infection

**Ubiquitous Organisms**

Infect an immunocompromised system

# Who’s at Risk?

- Elderly
- Diabetes
  - Type I
  - Type II
- Hepatitis
  - Hepatitis B
- SARS (Severe Acute Respiratory Syndrome)
- Tuberculosis
- AIDS

# The role Hearing Aids play……

# “Is there something growing on my hearing aid?”

| Common Opportunistic Infection | Hearing Disorder or Disease |
|---|---|
| Mycobacterium | Otitis Media, Otitis Externa, Polyps |
| Staphylococcus Aureus | Otitis Media |
| Pseudomonas | Otitis Externa |

# Infectious Microbes found on Hearing Aids

| Recovered Microbe | Associated infections or diseases |
|---|---|
| Aspergillus flavus | Infection of tissues, mucosal surfaces and otitis |
| Candida parapsilosis | chronic mucocutaneous candidiasis |
| Coag negative staphylococcus | furuncles, boils, bacteremia, endocarditis, pneumonia, osteomyelitis |
| Enterococcus | urinary tract infections |
| Pseudomonas aeruginosa | chronic otitis media, otitis externa, malignant otitis externa |

*Bankaitis (2002) Hearing Aid Related Infection Control

# So how do we protect ourselves (and others)?

# Universal Precautions

- PERSONAL PROTECTIVE EQUIPMENT
- HAND HYGIENE
- CLEAN/DISINFECT SURFACES
- STERILIZE CRITICAL INSTRUMENTS
- APPROPRIATE WASTE DISPOSAL

# PERSONAL PROTECTIVE EQUIPMENT

**Glasses**

**Masks**

**Gowns**

# Gloves should be worn when:

- Open wounds or visible blood is present
- Cleaning or disinfecting instruments contaminated with bodily substances
- Submersion or removal of instruments into or from cold sterilant
- Contamination with potentially infectious materials (including cerumen) is likely


Properly fit glove


Improperly fit glove

## Hand Washing must occur when:

- Patient Appointments
- Glove Removal
- Cleaning Instruments
- As Needed

J Am Acad Audiol 10: 151–159 (1999)

# Current Trends and Future Needs for Practices in Audiologic Infection Control

Amyn M. Amlani*

**Abstract**

A 5-page questionnaire on infection control was randomly distributed to 640 audiologists in the United States. Of these, data analysis is reported on 311. The purpose of the study was to determine (a) the extent of Universal Precautions within the professional setting, (b) the practitioner's personal protective measures, (c) if audiologists were familiar with nomenclature related to infection control, and (d) what future educational directives should be taken. Results indicated that one-half of the respondents' professional settings have not implemented Universal Precautions. Data analysis further suggests that audiologists are apathetic in both personal hygiene and infection control techniques that are applied to instrumentation/equipment. In addition, approximately three-quarters of the respondents reported that they were able to correctly distinguish between infection control terminology. Results suggest that distinctions can be made adequately at least 50 percent of the time, but that terms such as cleaning and disinfecting are not well understood. Future directives suggest that audiologists need more infection control education with the possibility of making such education a mandatory prerequisite for state licensure and/or professional certification, as well as the need to incorporate infection control into the educational curriculum of future audiology students.

# And the survey says…

- Amlani 1999

Number of audiologists who wash hands after each patient:

26%

Number of audiologists who wash hands after visiting the restroom:

50%

# And the survey says…

- BURCO 2008

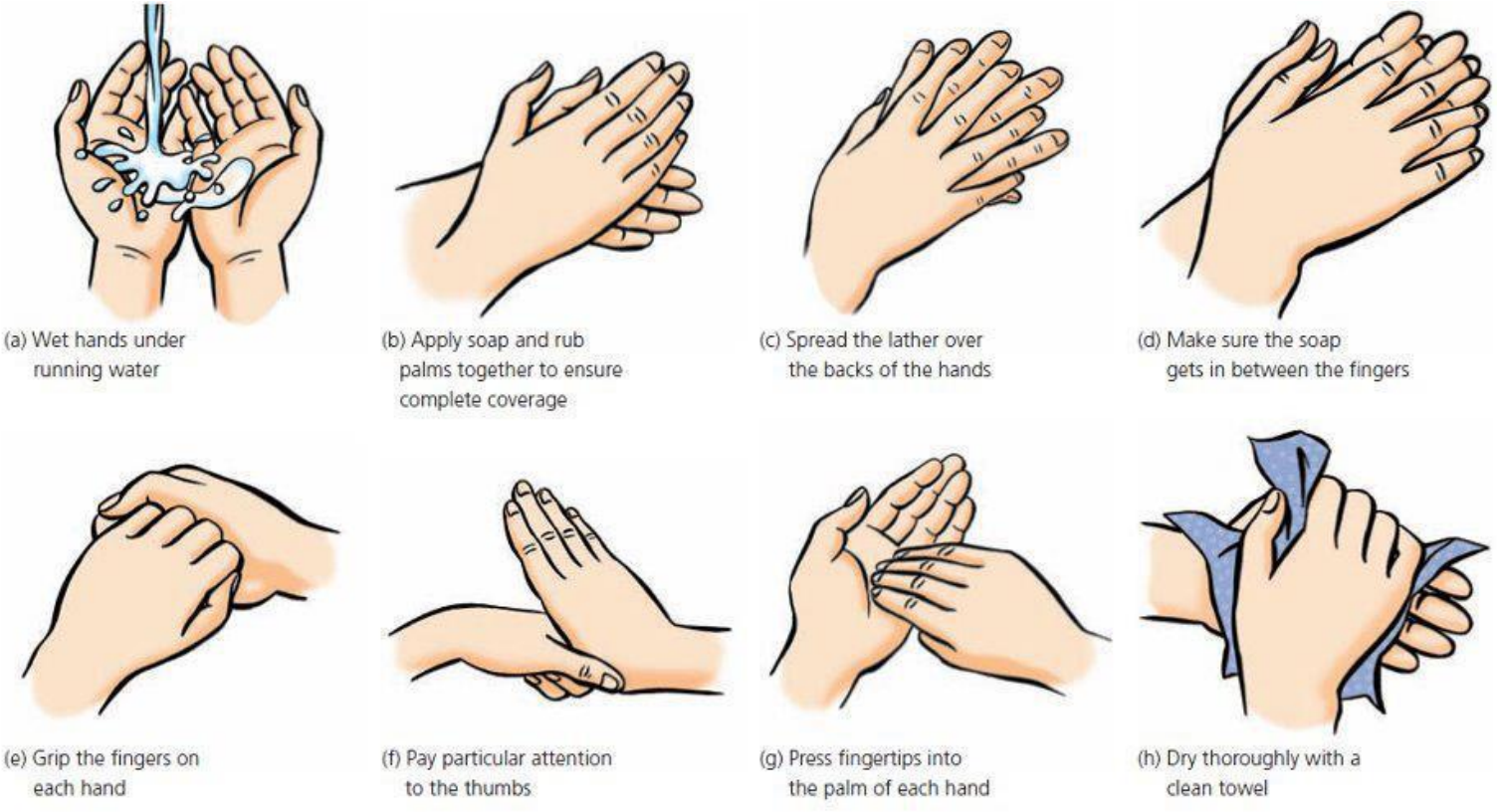
Number of audiologists who wash hands after each patient:

82%

Number of audiologists who wash hands after visiting the restroom:

87%

# Clean Hands Guard Against Infection



(a) Wet hands under running water

(b) Apply soap and rub palms together to ensure complete coverage

(c) Spread the lather over the backs of the hands

(d) Make sure the soap gets in between the fingers

(e) Grip the fingers on each hand

(f) Pay particular attention to the thumbs

(g) Press fingertips into the palm of each hand

(h) Dry thoroughly with a clean towel

# No Rinse Alternatives

- Squeeze appropriate amount of “no rinse” into the palm
- Rub hands together, rubbing in between fingers as well
- Continue to rub until the solution dries, do not use a towel to dry hands when using a no rinse product.

FDA News Release

# FDA issues final rule on safety and effectiveness of antibacterial soaps

*Rule removes triclosan and triclocarban from over-the-counter antibacterial hand and body washes*

This final rule applies to consumer antiseptic wash products containing one or more of 19 specific active ingredients, including the most commonly used ingredients – triclosan and triclocarban. These products are intended for use with water, and are rinsed off after use. This rule does not affect consumer hand "sanitizers" or wipes, or antibacterial products used in health care settings.

"Consumers may think antibacterial washes are more effective at preventing the spread of germs, but we have no scientific evidence that they are any better than plain soap and water," said Janet Woodcock, M.D., director of the FDA's Center for Drug Evaluation and Research (CDER). "In fact, some data suggests that antibacterial ingredients may do more harm than good over the long-term."

# CLEAN/DISINFECT SURFACES

# Cleaning & Disinfecting

## Cleaning

Removal of gross contamination from contaminated instruments and areas without necessarily killing the germs

## Disinfection

Kills a percentage of the germs
EPA Approved hospital grade disinfectant

## Sterilization

Involves killing 100% of the germs, including endospores

# And the survey says……

AMLANI 1999

Could professionals define the difference between cleaning, disinfecting and sterilizing?

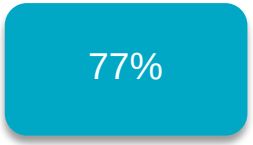
Said yes,
but were incorrect.

74%

# And the survey says…….

- Burco 2008

Could professionals define the difference between cleaning, disinfecting and sterilizing?




Said yes, were correct

# Disinfectants


## Hospital Grade

- Liquid
- Spray
- Towelette

## “Non-critical” items

- Headphones
- Earmolds
- Instruments and surfaces that are not contaminated with blood, ear drainage, cerumen or bodily fluids

# STERILIZE CRITICAL INSTRUMENTS

## Sterilization Options

- Autoclave
- Cold Sterilization

# APPROPRIATE WASTE DISPOSAL

## Infectious Waste In The Work Environment

In case of significant amount of blood –
dispose of in a separate package with care taken to prevent cleaning staff from having casual contact with these materials

# Engineering and Work Controls

## ENGINEERING CONTROLS:

Procedures that isolate or remove bloodborne pathogen hazards from the workplace.

- *Storage of re-usable instruments that will be sterilized at the end of the day*
- *Specific room for sterilization procedures*
- *Labeling area as hazardous*

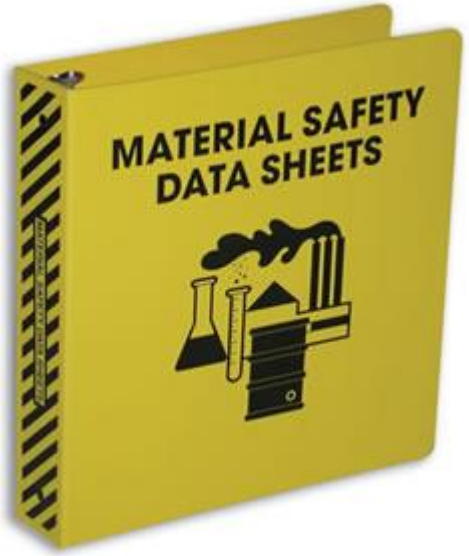
## WORK CONTROLS:

Profession specific procedures performed to reduce the risk of cross contamination

- *Wearing appropriate barriers like gloves*
- *Altering the matter in which procedures are performed such as cerumen management to reduce risk*

# Material Safety Data Sheets

MSDS:  informational label that outlines hazards associated with the use of chemical products found in our work environment



# Who Regulates Infection Control?


Written Infection Control plan required

# What should an infection control plan look like?

# Written Infection Control Plan Requirements

1. Employee Exposure Classification
2. Hepatitis B (HBV) Vaccination Plan and Records of Vaccination
3. Annual Training Plan and Records
4. Plan for Accidents and Accidental Exposure Follow-up
5. Implementation Protocols
6. Post Exposure Plans and Records

# Employee Exposure Classification

| Category | Employees |
|---|---|
| 1 | Clinical Audiologists |
| 2 | Clinical Audiologists, Dispensing Audiologists, Hearing Instrument Specialists, Student Intern, Clinical Supervisor, Patient Care Coordinator |
| 3 | Administrative Staff |


Category 1 & 2 are required to practice infection control procedures

# What is Hepatitis B (HBV)

- The most common form of Hepatitis
- 1 in 20 persons in US exposed
- Health care workers routinely exposed

# HBV Vaccination and Records

- All category 1 & 2 employees are to be offered the HBV vaccination at no charge.
- Employer will maintain records for duration of employment plus 30 years

# Training Plan & Records


- Initial Training: within 90 days of employment
- Annual Training: reinforcements and updates
- Records: maintained for each employee

# Implementation Protocols

## OSHA Requirement

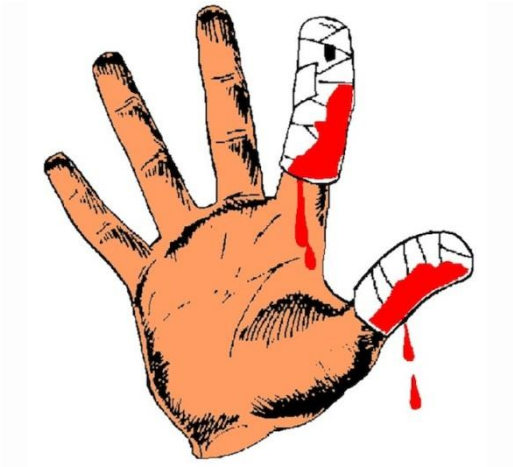
Development of protocol in case of exposure

*Would staff know what to do?*

# Post-Exposure Plan and Records

If exposure occurs, follow-up  required

- Confirm transfer of disease has/has not occurred
- If needed, begin treatment
- Confirm treatment outcome



# Post-Exposure Plan and Records

Records of  exposure need to be kept

- Circumstances
- Route of exposure
- Treatment
- Outcome of treatment

# Implementation of Infection Control Plan

- All staff understands and can implement
  - Clinical Staff
  - Administrative Staff
- Achieved through proper training, cleaning, disinfecting and sterilizing

# Infection Control-Dispensing

- Earmold Impression Procedures
- Dispensing Hearing Aids
- Accepting/Receiving Aids or Molds from Patients
- Hearing Aid Listening Check
- Electroacoustic Analysis
- Real-ear measurements
- Modification

# Is an Infection Control Plan necessary?

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# “What if We Don’t Have a Plan?”

# Best Practices in the Dispensing Office

- Wash hands before/after patient contact
- Clean tools/earphones after each use
- Use storage device to accept hearing aids from patient and transfer them about the office
- Use Personal Protective Equipment when handling/modifying hearing instruments

# Best Practices-Dispensing Hearing Aids

- Don gloves before handling new hearing aids
- Prior to dispensing, clean with disinfectant towelette
- Don gloves prior to educating patients on insertion/removal
- Disinfect horizontal surfaces used during dispensing


Plan
Do
Check
Action


# Thank you

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