Disinfection/Infection Control Update for the Optometric Office
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Lecture objectives

- Realize the importance of your role as a member of a healthcare team and the necessity of clinical hygiene and infection control within that role
- Become familiar with the healthcare associated infections and other diseases that it is important to protect yourself and your patients against, and what methods can be used to do so
- Understand the theory and components of standard precautions
- Become familiar with the recommended guidelines for disinfection based on classification of patient care items and how to utilize these methods effectively

How can WE potentially be exposed to infection in the office?
What about our patients?

HIV/AIDS

- Human Immunodeficiency Virus (HIV) destroys CD4+ T cells and can lead to Acquired Immune Deficiency Syndrome (AIDS)
- Patients with HIV/AIDS often have weakened immune systems
- Transmission: blood particles via needle stick, blood splash, blood residue in eye/mouth/nose
- No evidence to date that HIV can be contracted through tears, contact lenses, or routine patient contact (Centers for Disease Control)

Hepatitis B

- Liver disease caused by HBV which can result in lifelong infection, scarring (cirrhosis), liver cancer, liver failure, and death
- Transmission: fluid with blood via needle stick, blood residue in eyes/mouth/nose
  - The virus can survive up to 7 days outside the body
- Each year ~8700 healthcare workers contract HBV
- Prevention: vaccination – series of 3 for all healthcare workers

Standard Precautions

- Formerly known as Universal Precautions
- Assume ALL patients and their bodily fluids carry disease
- HIV, HBV, HCV, adenovirus, herpes virus, staph/MRSA, tuberculosis
- No evidence to date that HIV, HBV, HCV transmission has resulted from optometric care

Rates of Persons Aged 18-64 Years Living with a Diagnosis of HIV Infection, Year-End 2008—United States (CDC)
Hepatitis C

- Most common chronic bloodborne infection in the United States
- Liver disease caused by HCV which can result in scarring (cirrhosis), liver cancer, liver failure, and death
- Transmission: fluid with blood via needle stick, blood residue in eyes/mouth/nose
  - Studies have shown that the concentration of Hepatitis C virus in human tear fluid is independent of the severity of hepatitis infection

Governing Bodies and Influential Organizations in Infection Control

- Centers for Disease Control and Prevention (CDC)
  - www.cdc.gov
  - Provides recommendations to prevent transmission of disease within healthcare practices
- Occupational Safety and Hazard Administration (OSHA)
  - www.osha.gov
  - Created in 1970 to “send every worker home whole and healthy everyday”
  - Must post notice to inform employees; employees can file complaint about hazardous work area
  - OSHA can come unannounced to visit and inspect!
  - Be prepared to show Hazard Communication Plan and Exposure Control Plan

**WAYS TO PREVENT INFECTION**

- Hand washing
  - Before and after each patient exposure and procedure
  - and...at other appropriate times
Personal Protective Equipment

• Barrier precautions are required when coming into contact with blood or other potentially infectious materials (does not include tears, except when stained with blood)

• Safety glasses, face shields, masks, gowns necessary when risk of splashing, splattering, spraying of blood or bodily fluids or potential for airborne infection

Disposal of hazardous waste

Centers for Disease Control and Prevention


• Update from 1985

• 138 pages (1035 references)

• 2 pages specifically dedicated to tonometers

INSTRUMENT DISINFECTION AND STERILIZATION


<table>
<thead>
<tr>
<th>Body Contact</th>
<th>Disinfection Requirement</th>
<th>FDA Device Class</th>
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<tr>
<td>Sterile body cavity or blood present</td>
<td>Sterilization</td>
<td>Critical</td>
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<tr>
<td>Mucous membrane or non-intact skin</td>
<td>High level</td>
<td>Semi-critical</td>
</tr>
<tr>
<td>Intact skin</td>
<td>Low level</td>
<td>Non-critical</td>
</tr>
</tbody>
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Disinfection based on Spaulding Classification

• Any instrument used for procedures on sterile tissue or those that come in contact with blood

• Minimum of 15 minutes at 121°C

Sterilization
High-level disinfection

- Step 1: wash instrument with mild soap or cleaner and water to remove debris, then dry well
- Step 2: immerse in high-level disinfectant
  - 10 minute soak in 3% H2O2
  - 15 minute soak in 1:10 bleach dilution
  - 20 minute soak in 2% glutaraldehyde
- Step 3: rinse well with saline, allow to air dry

I know what you’re thinking.....

MANUFACTURERS RECOMMENDATIONS...

- Clean probe
- High level disinfection with soak in 3% H2O2 or 1:10 bleach
- Do not leave in solution for > 1 hour!
- Rinse thoroughly
- Dry and store

Alcohol prep pads (70% isopropyl alcohol) is FDA-approved for low-level disinfection only
- Not effective against Hepatitis
- Repeated mechanical swiping can cause “tension rips”

Tonewash

- Tonometer tips automatically
- 10 minute soak in 70% isopropyl alcohol
- 20 minute soak in 2% glutaraldehyde
- 20 minute soak in 3% H2O2
- Rinse well with saline, allow to air dry
- Dry and store
What are the alternatives?

Tonosafe™ Disposable tonometer prisms

- Convenient method of reducing the risk of cross infection
- 100/box with 5 prism holders
- $1.27 per prism


- Accurate - calibrated to Goldmann standards
  - 652 eyes (IOP range of 3-34 mmHg)
  - IOP measurements by Tonosafe disposable prisms correlate closely with Goldmann measurements, with similar repeated measurement variability to GAT.

Contact lenses

- Apply/remove only after proper hand-washing
- All non-disposable trial lenses must be disinfected after each patient use, using one of the following CDC-recommended procedures:
  - Gas-permeable lenses: Digitally clean with GP cleaner, sterile saline rinse, H2O2 disinfection, sterile saline rinse, store in a dry container
  - Soft contact lenses: H2O2, heat disinfection

Fundus contact lenses / Goniolenses

- Clean lens with mild soap & water
- High level disinfection with 20 minute soak in 2% glutaraldehyde
  - Position lens on side
  - Rinse well, dry
- Once disinfected, store in a closed case/container and clean prior to use with mild soap & water
Disinfection horror stories....

EXAM ROOM MAINTENANCE
AND GENERAL OFFICE
INFECTION CONTROL

• Keep equipment covered when not in use
• Regularly disinfect exam rooms
  • Equipment
  • Exam chair
  • Countertops
  • Doorknobs
• Properly dispose of trash/waste
• Clean keyboards/touch screens regularly with disinfecting cloths

Exam room maintenance

• Refrain from touching hair/face after washing your hands
• Do not lay any disinfected equipment on a non-sterile surface (use a clean tissue or paper towel if necessary)
  • Occluder
  • Disinfected instruments
  • Cotton-tipped applicators
  • Bottle caps
• Make sure dropper tip never touches the patient’s eye
• Make sure drops are not expired

Be aware!

• To care for all patients
• To be knowledgeable about effective techniques to prevent disease transmission
• To adopt universal infection control precautions as a routine aspect of daily patient care

It’s YOUR responsibility...