Chapter 5

Infection Control: Principles and Practices
“What progress, you ask, have I made? I have begun to be a friend to myself.”

— Hecato, Greek Philosopher
Objectives

• Understand state laws and rules and the differences between them.

• List the types and classifications of bacteria.

• Define hepatitis and HIV and explain how they are transmitted.

• Explain the differences between cleaning, disinfecting, and sterilizing.
Objectives (continued)

• List the types of disinfectants and how they are used.
• Discuss universal precautions.
• List the responsibilities of a salon professional.
• Describe how to safely clean and disinfect salon tools and equipment.
OSHA

• Occupational Safety and Health Administration (OSHA)

• Material Safety Data Sheets (MSDS)
  – Product content
  – Associated hazards
  – Combustion levels
  – Storage requirements
Environmental Protection Agency

- EPA registration number
- Hospital disinfectants
- *Tuberculocidal disinfectants*
- Disinfectant myth
State Regulatory Agencies

• Protect consumers’ health, safety, and welfare
• Laws (statutes)
• Rules (regulations)
Principles of Infection

• Careless actions can cause injury or the invasion of body tissues by disease-causing pathogens.

• Prevention is key and it begins with you!
Potential Infectious Organisms

- Bacteria
- Fungi
- Viruses
- Parasites
Salon Disinfectants

- **Bactericidal** (destroy bacteria)
- **Fungicidal** (destroy fungi)
- **Virucidal** (destroy viruses)
Bacteria

- Minute, one-celled microorganisms
- Prominent in dust, dirt, refuse, and diseased tissue
- Can exist almost anywhere
- 1,500 rod-shaped bacteria will fit on the head of a pin.
Types of Bacteria

- Nonpathogenic – helpful or harmless
- Pathogenic – harmful and disease producing
## Causes of Disease

<table>
<thead>
<tr>
<th>TERM</th>
<th>DEFINITION</th>
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<tbody>
<tr>
<td><strong>BACTERIA</strong></td>
<td>One-celled microorganisms having both plant and animal characteristics. Some are harmful and some are harmless.</td>
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<tr>
<td><strong>DIRECT TRANSMISSION</strong></td>
<td>Transmission of blood or body fluids through touching (including shaking hands), kissing, coughing, sneezing, and talking.</td>
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<tr>
<td><strong>INDIRECT TRANSMISSION</strong></td>
<td>Transmission of blood or body fluids through contact with an intermediate contaminated object, such as a razor, extractor, nipper, or an environmental surface.</td>
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<tr>
<td><strong>INFECTION</strong></td>
<td>Invasion of body tissues by disease-causing pathogens.</td>
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<tr>
<td><strong>GERMS</strong></td>
<td>Nonscientific synonym for disease-producing organisms.</td>
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<tr>
<td><strong>MICROORGANISM</strong></td>
<td>Any organism of microscopic to submicroscopic size.</td>
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<tr>
<td><strong>PARASITES</strong></td>
<td>Organisms that grow, feed, and shelter on or in another organism (referred to as the host), while contributing nothing to the survival of that organism. Parasites must have a host to survive.</td>
</tr>
<tr>
<td><strong>TOXINS</strong></td>
<td>Various poisonous substances produced by some microorganisms (bacteria and viruses).</td>
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<tr>
<td><strong>VIRUS</strong></td>
<td>A parasitic submicroscopic particle that infects and resides in cells of biological organisms. A virus is capable of replication only through taking over the host cell's reproductive function.</td>
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Pathogenic Bacteria Classifications

- Cocci – round shaped
  - *Staphylococci* (grow in clusters)
  - *Streptococci* (grow in curved lines)
  - *Diplococci* (grow in pairs)

- Bacilli – rod shaped

- Spirilla – spiral or corkscrew shaped
Movement of Bacteria

- **Cocci** – rarely show motility (self-movement)
- Bacilli and Spirilla – use slender, hairlike extensions (flagella or cilia) for locomotion
Growth and Reproduction

• Active
  – Takes 20 to 60 minutes to reach full growth
  – Divides into two cells (binary fission)

• Inactive or spore forming
  – Resistant to adverse conditions
Bacterial Infections

- Staphylococci
  - Food poisoning
  - Toxic shock syndrome
  - MRSA

- Local infection

- Systemic infection or disease

- Contagious or communicable disease
Viruses

- Live by penetrating cells
- Resistant to antibiotics
- Prevented by vaccination
- **Human papilloma virus** (HPV)
Bloodborne Pathogens

- Hepatitis – inflammation of liver
- Hepatitis A
- Hepatitis B (HBV)
- Hepatitis C (HCV)
HIV/AIDS

- Passed through blood and body fluids
  - Unprotected sex, sharing of IV needles, accidents with needles, cuts and sores

- Methods that do not transmit the disease:
  - Hand holding, hugging, kissing, sharing food or household items

- Can be infected for many years without symptoms
Fungi

- Microscopic plant parasites that include molds, mildews, and yeasts
- Can be spread by contaminated implements or by not preparing nail plate before applying enhancements
- More common on feet than hands
• *Tinea barbae* (barber’s itch)
• *Tinea capitis* (fungal infection of scalp)
• *Tinea pedis* (ringworm fungus of the foot)
Parasites

- Grow, feed, and shelter on or in other living organisms
- Must have host to survive
- Found in food, plants, trees, water
- *Pediculus capitis* (head lice)
- Scabies (caused by itch mite)
How Pathogens Enter the Body

- Break in skin
- Mouth
- Nose
- Eyes or ears
- Unprotected sex
How Body Fights Infection

- Unbroken skin
- Body secretions
- White blood cells
- Antitoxins
Immunity

- Natural immunity – inborn ability
- Acquired immunity – developed after overcoming disease or through inoculation
Principles of Prevention

• Contamination (presence of potentially infectious materials)
  – Contaminate (make impure by contact)
  – Contaminant (substance that causes contamination)
Principles of Prevention (continued)

• Decontamination
  – Cleaning
    • Scrubbing with a brush
    • Using an ultrasonic unit
    • Using a solvent

• Disinfection
  – Method 1: cleaning and then disinfecting with an EPA-registered disinfectant
  – Method 2: cleaning and then sterilizing
Decontamination Method 1: Two Steps

• Step 1: Cleaning methods
  – Washing with soap, water, and a scrub brush
  – Using an ultrasonic unit
  – Using a cleaning solvent

• Step 2: Disinfection methods
  – EPA-registered disinfectants
  – Avoid skin contact!
Decontamination Method 2: Two Steps

• Step 1: Cleaning

• Step 2: Sterilizing using high-pressure steam autoclaves (steam penetrates the spore coats of spore-forming bacteria)
  – Dry heat (less effective and requires more time; not recommended in salons)
Choosing a Disinfectant

- Correct **efficacy** (effectiveness against bacteria)

- Hospital-level disinfectant.
  - Pseudomonacidal, bactericidal, fungicidal, and virucidal
Benefits of Sterilizing

• Most reliable means of infection control
• Increased client confidence.
Choosing a Disinfectant

• Correct efficacy

• Ideal disinfectant qualities
  – Bioburden effectiveness
  – Longer renewal time
  – Low cost
  – Nontoxic and nonirritating
  – Effectiveness strips
  – Readily available
Choosing a Disinfectant (continued)

• Hospital-level disinfectant
  – EPA-approved
  – Environmentally friendly
  – Odorless
  – Noncorrosive
Proper Use of Disinfectants

• Use on precleaned, nonporous surfaces.
• Dilute according to directions.
• Contact time per directions.
• Spray on contact time per directions.
• Spray can’t be used if immersion required.
• Use only as directed.
• Use only EPA-registered disinfectant in pedi-spa.
Types of Disinfectants

- Quats – nontoxic, odorless, fast-acting
- Phenolics – powerful tuberculocidal disinfectants (high pH and can damage skin, eyes, plastic, and rubber)
Types of Disinfectants (continued)

- Accelerated hydrogen peroxide (AHP) – long-lasting
- Bleach (5.25 percent sodium hypochlorite)
Fumigants

- Formalin tablets (paraformaldehyde)
- Glutaraldehyde (used to sterilize surgical instruments in hospitals – not safe for salon use)
Disinfectant Safety

• Keep Material Safety Data Sheets (MSDS) on hand.
• Wear gloves and safety glasses.
• Avoid skin and eye contact.
• Add disinfectant to water, not water to disinfectant.
• Use tongs, gloves, and draining basket.
• Keep away from children.
Disinfectant Safety (continued)

- Carefully measure products.
- Measure and use per instructions.
- Follow replacement instructions.
- Never allow disinfectant to come in contact with your skin.
- Never place in unmarked container.
Disinfect or Dispose

• Multi-use – reusable and can be cleaned
• Single-use – disposable items used only once
• Porous – constructed of absorbent material
• Logbook
Disinfection Procedures

- Towels and linens: Launder and store in closed container.
- Electrical tools and equipment
- Work surfaces: Wipe clean and then disinfect.
- Foot spas and pedicure equipment
Disinfection Procedures (continued)

- Detergents and soaps
- Additives, powders, and tablets
- Dispensary
Disinfection Procedures (continued)

• Single-use supplies (wooden sticks, cotton, gauze, wipes, porous files, paper towels, etc.)

• Proper hand washing (important action)

• Antibacterial soap (can dry skin; use lotion)
Universal Precautions

- Guidelines published by OSHA
- Assumption that all human blood and body fluids are infectious
- Asymptomatic – no symptoms or signs of infection
Exposure Incident Disinfection

- Stop service and put on gloves.
- Stop bleeding.
- Clean injured area.
- Apply antiseptic and/or liquid/spray styptic.
- Bandage cut.
- Clean and then disinfect workstation.
- Discard contaminated objects.
- Disinfect all tools in EPA-registered disinfectant.
- Remove gloves and wash hands.
- Refer to physician if needed.
• Keep floors clean.
• Control dust, hair, and debris.
• Keep trash contained.
• Clean fans, ventilation systems, and humidifiers weekly.
• Keep all work areas well lit.
• Clean and disinfect restroom surfaces.
• Supply restrooms.
Professional Salon Image (continued)

- No cooking or sleeping.
- Store food separate from products.
- Prohibit eating, drinking, and smoking.
- Empty waste receptacles.
- Mark containers.
- Place tools properly.
• Disinfect tools.
• Properly store tools.
• Don’t touch face or mouth.
• Clean and then disinfect work surfaces after each client.
• Use clean, disposable paper towels.
• Wash hands before/after each client.
• Use clean linens.
• Use exhaust systems.
Professional Responsibility

• Follow state/federal laws.
• Keep licenses current.
• Monitor state rule changes.
Disinfection Procedures

- Disinfecting nonelectrical tools and implements
- Disinfection of whirlpool foot spas and air-jet basins
  - Pipeless foot spas
  - Nonwhirlpool foot basins or tubs
- Proper hand washing
Summary and Review

• What is the primary purpose of regulatory agencies?

• What is an MSDS? Where can it be obtained?

• List four types of microorganisms pertinent to cosmetology.

• What is a contagious disease?
Summary and Review (continued)

• Is HIV a risk in the salon? Why or why not?

• What is the difference between cleaning, disinfecting, and sterilizing?

• What is complete immersion?

• List at least six safety tips to follow when using disinfectants.
• How do you know if an item can be disinfected?
• Can porous items be disinfected?
• What are universal precautions?
• What is an exposure incident?
Summary and Review (continued)

- Describe the procedure for handling an exposure incident in the salon.

- List the steps for cleaning and disinfecting whirlpool foot spas and air-jet basins after each client.
Congratulations!

You have completed one unit of study toward course completion.