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# INFECTION CONTROL: PRINCIPLES & PRACTICES



## OUTLINE

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REGULATIONS FOR  
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# LEARNING OBJECTIVES

After completing this chapter, you will be able to:

## LO1

List the 16 categories of information required on Safety Data Sheets.

## LO2

Understand laws and rules and the differences between them.

## LO3

List the types and classifications of bacteria.

## LO4

Define bloodborne pathogens and explain how they are transmitted.

## LO5

Explain the differences between cleaning, disinfecting, and sterilizing.

## LO6

List the types of disinfectants and the steps to using them properly.

## LO7

Define Standard Precautions.

## LO8

List your responsibilities as a salon professional.



There is much confusion within the beauty industry about the proper use of the terms *sanitation*, which is nothing more than garbage removal (think of what your city's department of sanitation does), and *cleaning*, as well as *sanitizing*, *disinfecting*, and *sterilizing*. In an effort to clarify these critical terms, Milady opted to consistently use *cleaning*, instead of using *cleaning* in one sentence and *sanitizing* (or *sanitation*) in another sentence.

It is noteworthy that many professionals in the healthcare and scientific communities (of disease prevention and epidemiology) and associations, such as The Association for Professionals in Infection Control and Epidemiology, generally do not use the terms interchangeably either. Instead, it is more common for infection control professionals to use the terms *cleaning*, *disinfecting*, and *sterilizing*. Infection control professionals consider *sanitation* a layperson's term or a product marketing term (as in *hand sanitizers*).

The term *clean* is defined: A mechanical process (scrubbing) using soap and water or detergent and water to remove all visible dirt, debris, and many disease-causing germs. Cleaning also removes invisible debris that interferes with disinfection. Cleaning is what cosmetologists are required to do before disinfecting.

The term **sanitizing** is defined: A chemical process for reducing the number of disease-causing germs on cleaned surfaces to a safe level.

The term *disinfection* is defined: A chemical process that uses specific products to destroy harmful organisms on environmental surfaces.

Consider this scenario: You are a new employee of a salon that offers hair and nail services. At the end of the day, the salon manager asks you to help clean and disinfect the counters, workstations, tools, implements, and pedicure equipment. Your manager also tells you to enter the cleaning and disinfection information in the salon's logbook. You know how important it is to follow the proper cleaning and disinfection procedures in the salon. This chapter will give you the principles and practices you need to complete those tasks.

## why study INFECTION CONTROL: PRINCIPLES AND PRACTICES?

**Cosmetologists should study and have a thorough understanding of infection control principles and practices because:**

- > To be a knowledgeable, successful, and responsible professional in the field of cosmetology, you are required to understand the types of illness causing pathogens you may encounter in the salon.
- > Understanding the basics of cleaning and disinfecting and following federal and state rules will safeguard you and your clients.
- > Understanding the cleaning and disinfecting products that you use and how to use them will help keep you, your clients, and your salon environment protected from potential pathogens and their modes of transmission.

- > Understanding and practicing proper infection control within federal, state and local laws/rules will safeguard your business from costly citations for safety violations.
- > Respecting the chemicals used in cleaning and disinfecting by reading labels and following manufacturer's instructions is necessary to reduce the risks involved with using any chemical.

# Meet the Current Regulations for Health and Safety

Many different federal and state agencies regulate the practice of cosmetology. Federal agencies set guidelines for the manufacturing, sale, and use of equipment and chemical ingredients. These guidelines also provide for monitoring of safety in the workplace and place limits on the types of services you can perform in the salon. State agencies regulate licensing, enforcement, and your conduct when you are working in the salon.

## Federal Agencies

### **Occupational Safety and Health Administration (OSHA)**

The Occupational Safety and Health Administration (OSHA) was created as part of the U.S. Department of Labor (DOL) to regulate and enforce safety and health standards to protect employees in the workplace. Regulating employee exposure to potentially toxic substances and informing employees about the possible hazards of materials used in the workplace are key points of the Occupational Safety and Health Act of 1970. This regulation created the Hazard Communication Standard (HCS), which requires that chemical manufacturers and importers assess and communicate the potential hazards associated with their products. The Material Safety Data Sheet (MSDS) was a result of the HCS. In 2012, along with representatives from most nations who participate in the United Nations, OSHA agreed to comply with the Globally Harmonized System of Classification and Labeling of Chemicals System (GHS). This initiative was designed to create label standards to be used around the globe and includes the use of specific pictograms to indicate possible safety concerns, as well as adoption of a 16 category, standard format SDS (Safety Data Sheet) to replace the MSDS. The HCS in 1983 gave workers the “right to know,” but the new GHS gives workers the “right to understand.”

The standards set by OSHA are important to the cosmetology industry because of the products used in salons. OSHA standards address issues relating to the handling, mixing, storing, and disposing of products; general safety in the workplace; and your right to know about any potentially hazardous ingredients contained in the products you use and how to avoid these hazards. Employees should view OSHA as an agency designed to ensure a safe workplace for all U.S. workers.

### WEB RESOURCES



You can find an EPA-approved list of disinfectants by going to the EPA's website at [epa.gov](http://epa.gov) and entering a search on the homepage for EPA-registered disinfectants. Disinfectants are not listed as “hospital grade,” but instead are listed based on the pathogens they are effective against. Products on list D meet the criteria of most states for “hospital grade” and products on list E meet the criteria for tuberculocidal in those states where that is required.



### DID YOU KNOW?

The term *hospital grade* is not a term used by the EPA. The EPA does not grade disinfectants; a product is either approved by the EPA for use as a hospital disinfectant or it is not.

After reading the next few sections, you will be able to:

- LO 1** List the 16 categories of information required on Safety Data Sheets.

### **Safety Data Sheet (SDS) Replaces Material Safety Data Sheet (MSDS)**

As of June 2015, both federal and state laws require that manufacturers supply a **Safety Data Sheet (SDS)** (previously known as **Material Safety Data Sheet**) for all chemical products manufactured and sold. The SDS contains 16 categories of information and all SDS sheets will be organized identically. The categories are:



1. **Identification:** product identifier; manufacturer or distributor with contact information (including emergency phone number); recommended use of product and restrictions on use
2. **Hazard identification:** all hazards of using the chemical
3. **Composition/Information on ingredients:** includes information on chemical ingredients
4. **First-aid measures:** includes important symptoms/effects—acute and delayed; required treatment
5. **Fire-fighting measures:** lists suitable extinguishing techniques, equipment; chemical hazards from fire
6. **Accidental release measures:** lists emergency procedures, protective equipment; proper methods of containment and clean-up
7. **Handling and storage:** lists precautions for safe handling and storage, including incompatibilities
8. **Exposure controls/personal protection:** lists OSHA's Permissible Exposure Limits (PEL); Personal Protective Equipment (PPE)
9. **Physical and chemical properties:** lists the chemical's characteristics
10. **Stability and reactivity:** lists chemical stability and possibility of hazardous reactions
11. **Toxicology information:** includes routes of exposure, related symptoms, acute and chronic effects
12. **Ecological information:** includes effects on wastewater and environment
13. **Disposal consideration:** includes proper disposal and disposal restrictions
14. **Transport information:** includes restrictions on transportation
15. **Regulatory information:** lists agencies responsible for regulation of product
16. **Revision date:** lists original date of document and any revision

**Source:** Adapted from United States Department of Labor. (n.d.) OSHA QuickCard – Hazard Communication Safety Data Sheets. Retrieved from [www.OSHA.gov](http://www.OSHA.gov).

In addition, pictograms that are internationally recognized will be used to ensure that information is being communicated in easily recognizable formats (figure 5-1). When necessary, the SDS can be sent to a medical facility so that a doctor can better assess and treat the patient. OSHA and state regulatory agencies require that SDSs be kept available in the salon for all products. Both OSHA and state board inspectors can issue fines to salons for not having SDSs available.

Federal and state laws require salons to obtain SDSs from the chemical product manufacturers and/or distributors for each professional product that is used. SDSs often can be downloaded from the product manufacturer's or the distributor's website. Not having SDSs available poses a health risk to anyone exposed to hazardous materials and violates federal and state regulations. All employees must read the information included on each SDS and verify that they have read it by adding their signatures to a sign-off sheet for the product. These sign-off sheets must be available to state and federal inspectors upon request.

### Environmental Protection Agency (EPA)

The Environmental Protection Agency (EPA) registers all types of disinfectants sold and used in the United States. **Disinfectants** (dis-in-FEK-tents) are chemical products that destroy most bacteria (excluding spores), fungi, and viruses on surfaces.

**DID YOU KNOW?** Cosmetologists can put themselves and their clients at risk unless stringent infection control guidelines are performed every day. A case in point was the spread of a bacterium called **Mycobacterium fortuitum** (MY-koh-bak-TIR-ee-um for-TOO-i-tum), a microscopic germ that normally exists in tap water in small numbers. Until an incident occurred, health officials considered the germ to be completely harmless and not **infectious** (in-FEK-shus), caused by or capable of being transmitted by infection.










<p><b>Health Hazard</b></p>  <ul style="list-style-type: none"> <li>• Carcinogen</li> <li>• Mutagenicity</li> <li>• Reproductive Toxicity</li> <li>• Respiratory Sensitizer</li> <li>• Target Organ Toxicity</li> <li>• Aspiration Toxicity</li> </ul>	<p><b>Flame</b></p>  <ul style="list-style-type: none"> <li>• Flammables</li> <li>• Pyrophorics</li> <li>• Self-Heating</li> <li>• Emits Flammable Gas</li> <li>• Self-Reactives</li> <li>• Organic Peroxides</li> </ul>	<p><b>Exclamation Mark</b></p>  <ul style="list-style-type: none"> <li>• Irritant (skin and eye)</li> <li>• Skin Sensitizer</li> <li>• Acute Toxicity (harmful)</li> <li>• Narcotic Effects</li> <li>• Respiratory Tract Irritant</li> <li>• Hazardous to Ozone Layer (non-mandatory)</li> </ul>
<p><b>Gas Cylinder</b></p>  <ul style="list-style-type: none"> <li>• Gases Under Pressure</li> </ul>	<p><b>Corrosion</b></p>  <ul style="list-style-type: none"> <li>• Skin Corrosion/ Burns</li> <li>• Eye Damage</li> <li>• Corrosive to Metals</li> </ul>	<p><b>Exploding Bomb</b></p>  <ul style="list-style-type: none"> <li>• Explosives</li> <li>• Self-Reactives</li> <li>• Organic Peroxides</li> </ul>
<p><b>Flame Over Circle</b></p>  <ul style="list-style-type: none"> <li>• Oxidizers</li> </ul>	<p><b>Environment (Non-Mandatory)</b></p>  <ul style="list-style-type: none"> <li>• Aquatic Toxicity</li> </ul>	<p><b>Skull and Crossbones</b></p>  <ul style="list-style-type: none"> <li>• Acute Toxicity (fatal or toxic)</li> </ul>

figure 5-1  
Pictograms used on SDSs



### CAUTION

Disinfectants must be registered with the EPA. Look for an EPA registration number on the label.

- **Hospital disinfectants** (HOS-pih-tal dis-in-FEK-tents) are designated by the EPA as being effective enough to be used in a hospital setting. They can be used on any nonporous surface in the salon. **Nonporous** (nahn-POHW-rus) means that an item is made or constructed of a material that has no pores or openings and cannot absorb liquids. Hospital disinfectants control the spread of **disease** (dih-ZEEZ), an abnormal condition of all or part of the body, or its systems or organs, which makes the body incapable of carrying on normal function. The most commonly used products in this group are quaternary ammonium compounds, commonly known as “quats.” They are products made of quaternary ammonium cations and are designed for disinfection on non porous surfaces. They are appropriate for use in non-critical (non-invasive) environments, and are effective against most pathogens of concern in the salon environment.
- **Tuberculocidal disinfectants** (tuh-bur-kyoo-LOH-sy-dahl dis-in-FEK-tents) are proven to kill the bacteria that cause **tuberculosis** (tuh-bur-kyoo-LOH-sus) in addition to the pathogens destroyed through use of hospital disinfectants. Tuberculosis is a disease caused by bacteria that are transmitted through coughing or sneezing, and is not transmitted on surfaces. Tuberculocidal disinfectants are one kind of hospital disinfectants. The fact that tuberculocidal disinfectants are effective against this additional pathogen does not mean that you should automatically reach for them. Some of these products can be harmful to salon tools and equipment, and they may require special methods of disposal. Check the rules of your state to be sure that the product you choose complies with state requirements. Most pathogens of concern in the salon are adequately destroyed by standard EPA registered disinfectants and do not require tuberculocidal disinfectants.

It is against federal law to use any disinfecting product contrary to its labeling. Before a manufacturer can sell a product for disinfecting surfaces, tools, implements, or equipment, they must obtain an EPA registration number that certifies that the disinfectant, when used correctly, will be effective against the pathogens listed on the label. For example, pedicure tub disinfectants must be approved for that specific use or the manufacturer will be breaking federal law by marketing them for disinfecting pedicure tubs. This also means that if you do not follow the label instructions for mixing, contact time, and the type of surface the disinfecting product can be used on, you are not complying with federal law. If there were an injury-related lawsuit, you could be held responsible.

## State Regulatory Agencies

State regulatory agencies exist to protect salon professionals and their clients' health and safety while they receive salon services. State regulatory agencies include licensing agencies, state boards of cosmetology, commissions, and health departments. Regulatory agencies require that everyone working in a salon or spa follow specific procedures. Enforcement of the rules through inspections and investigations of consumer complaints is also part of an agency's responsibility. An agency can issue penalties against both the salon owner and the cosmetologist. Penalties vary



### HERE'S A TIP

**Remember:** Salon professionals are not allowed to treat or recommend treatments for infections, diseases, or abnormal conditions. Clients with such problems should be referred to their physicians.

and include warnings, fines, probation, and suspension or revocation of licenses. It is vital that you understand and follow the laws and rules of your state at all times. Your salon's reputation, your license, and everyone's safety depend on it.

After reading the next section, you will be able to:

**LO2** Understand laws and rules and the differences between them.

## Laws and Rules—What Is the Difference?

Laws are written by both federal and state legislatures that determine the scope of practice (what each license allows the holder to do) and that establish guidelines for regulatory agencies to make rules. Laws are also called statutes.

Rules and regulations are more specific than laws. Rules are written by the regulatory agency or the state board, and they determine how the law must be applied. Rules establish specific standards of conduct and can be changed or updated frequently. Cosmetologists must be aware of any changes or updates to the rules and regulations, and they must comply with them.

# Understand the Principles of Infection

Being a salon professional is fun and rewarding, but it is also a great responsibility. One careless action could cause injury or **infection** (in-FEK-shun), the invasion of body tissues by disease-causing pathogens. If your actions result in an injury or infection, you could lose your license or ruin the salon's reputation. Fortunately, preventing the spread of infection is easy when you know proper procedures and follow them at all times. Prevention begins and ends with *you*.

## Infection Control

**Infection control** refers to the methods used to eliminate or reduce the transmission of infectious organisms. Cosmetologists must understand and remember the following four types of microorganisms:

- Bacteria
- Viruses
- Fungi
- Parasites

Under certain conditions, many of these organisms can cause infectious disease. An **infectious disease** (in-FEK-shus dih-ZEEZ) is caused by pathogenic (harmful) organisms that enter the body. An infectious disease may be spread from one person to another person.





In this chapter, you will learn how to properly clean and disinfect the tools and equipment you use in the salon so they are safe for you and your clients. To **clean** (cleaning) is a mechanical process (scrubbing) using soap and water or detergent and water to remove all visible dirt, debris, and many disease-causing germs from tools, implements, and equipment. The process of **disinfection** (dis-in-FEK-shun) is a chemical process that destroys most, but not necessarily all, harmful organisms on environmental surfaces. The pathogens of concern in the cosmetology industry are effectively destroyed by the disinfection process, which is required in all states.

Cleaning and disinfecting procedures are designed to prevent the spread of infection and disease. Disinfectants used in salons must be **bactericidal** (back-teer-uh-SYD-ul), capable of destroying bacteria; **virucidal** (vy-ru-SYD-ul), capable of destroying viruses; and **fungicidal** (fun-jih-SYD-ul), capable of destroying fungi. Be sure to mix and use these disinfectants according to the instructions on the labels so they are safe and effective.

Infection can be transmitted through contaminated salon tools and equipment if the proper disinfection steps are not taken after every service. You have a professional and legal obligation to protect clients from harm by using proper infection control procedures. If clients are infected or harmed because you perform infection control procedures incorrectly, you may be found legally responsible for their injuries or infections.

*After reading the next few sections, you will be able to:*

**LO 3** List the types and classifications of bacteria.

## Bacteria

**Bacteria** (bak-TEER-ee-ah) (singular: bacterium [back-TEER-ee-um]), are one-celled microorganisms that have both plant and animal characteristics. A **microorganism** (my-kroh-OR-gah-niz-um) is any organism of microscopic or submicroscopic size. Some bacteria are harmful and some are harmless. Bacteria can exist almost anywhere: on skin, in water, in the air, in decayed matter, on environmental surfaces, in body secretions, on clothing, or under the free edge of nails. Bacteria are so small they can only be seen with a microscope.

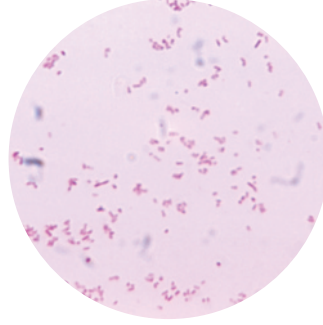
### **Types of Bacteria**

There are thousands of different kinds of bacteria that fall into two primary types: pathogenic and nonpathogenic.

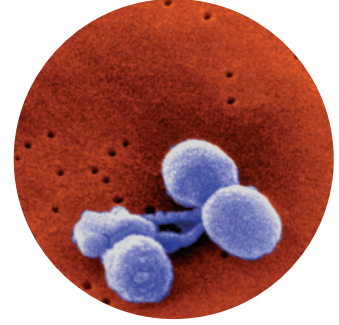
Most bacteria are **nonpathogenic** (non-path-uh-JEN-ik); in other words, they are harmless organisms that may perform useful functions. They are safe to come in contact with since they do not cause disease or harm. For example, nonpathogenic bacteria are used to make yogurt, cheese, and some medicines. In the human body, nonpathogenic bacteria help the body break down food and protect against infection and stimulate the immune system.



Janice Haney Carr/Public Health Image Library

figure 5-2  
Cocci

Gilda Jones/CDC/Public Health Image Library

figure 5-3  
Staphylococci

Januce Carr/CDC/Public Health Image Library (PHIL)

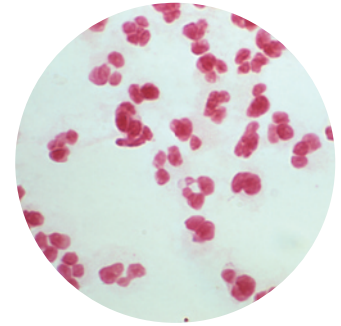
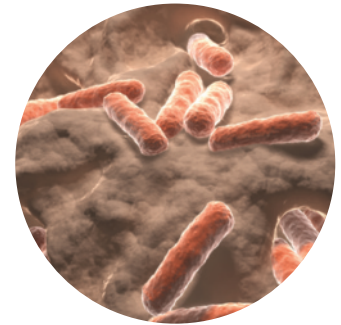
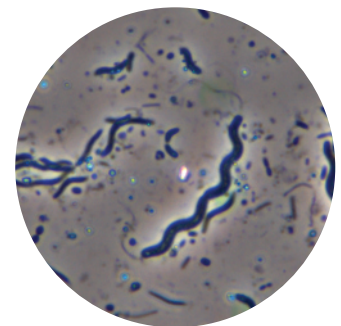
figure 5-4  
Streptococci

**Pathogenic** (path-uh-JEN-ik) bacteria are harmful microorganisms that can cause disease or infection in humans when they invade the body. Salons and schools must maintain strict standards for cleaning and disinfecting at all times to prevent the spread of pathogenic microorganisms. It is crucial that cosmetologists learn proper infection control practices while in school to ensure that you understand the importance of following them throughout your career. **Table 5-1**, Causes of Disease, presents terms and definitions related to pathogens.

### Classifications of Pathogenic Bacteria

Bacteria have distinct shapes that help to identify them. Pathogenic bacteria are classified as described below:

- **Cocci** (KOK-sy) are round-shaped bacteria that appear singly (alone) or in groups (**figure 5-2**).
- **Staphylococci** (staf-uh-loh-KOK-sy) are pus-forming bacteria that grow in clusters like bunches of grapes. They cause abscesses, pustules, and boils (**figure 5-3**). Some types of staphylococci (or staph, as many call it) may not cause infections in healthy humans, and others may be deadly.
- **Streptococci** (strep-toh-KOK-sy) are pus-forming bacteria arranged in curved lines resembling a string of beads. They cause infections such as strep throat and blood poisoning (**figure 5-4**).
- **Diplococci** (dip-lo-KOK-sy) are spherical bacteria that grow in pairs and cause diseases such as pneumonia (**figure 5-5**).
- **Bacilli** (bah-SIL-ee) (singular: bacillus) are short, rod-shaped bacteria. They are the most common bacteria and produce diseases such as tetanus (lockjaw), typhoid fever, tuberculosis, and diphtheria (**figure 5-6**).
- **Spirilla** (spy-RIL-ah) are spiral or corkscrew-shaped bacteria. They are subdivided into subgroups, such as syphilis, a sexually transmitted disease (STD), and Lyme disease (**figure 5-7**).

figure 5-5  
Diplococcifigure 5-6  
Bacillifigure 5-7  
Spirilla

### Movement of Bacteria

Different bacteria move in different ways; **motility** (MOH-til-eh-tee) is the term used to describe self-movement. Cocci rarely demonstrate motility and are generally transmitted in the air, in dust, or within the substance in which they settle. Bacilli and spirilla are both capable of movement and use

table 5-1

## CAUSES OF DISEASE

Term	Definition
Bacteria	One-celled microorganisms having both plant and animal characteristics. Some are harmful and some are harmless.
<b>Direct Transmission</b>	Transmission of blood or body fluids through touching (including shaking hands), kissing, coughing, sneezing, and talking.
Fungi	Singular: fungus; single-cell organisms that grow in irregular masses that include molds, mildews, and yeasts.
<b>Indirect Transmission</b>	Transmission of blood or body fluids through contact with an intermediate contaminated object, such as a razor, extractor, nipper, or an environmental surface.
Infection	Invasion of body tissues by disease-causing pathogens.
Germs	Nonscientific synonym for disease-producing organisms.
Microorganism	Any organism of microscopic to submicroscopic size.
Pathogens	Harmful microorganisms that enter the body and can cause disease.
Parasites	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.
Toxins	Various poisonous substances produced by some microorganisms (bacteria and viruses).
Virus	A submicroscopic particle that infects and resides in cells of biological organisms.

slender, hair-like extensions called **flagella** (fluh-JEL-uh) for locomotion (moving about). You may also hear people refer to **cilia** (SIL-ee-uh) in reference to cell movement, but they are much shorter than flagella and require many more to create movement. Both flagella and cilia move cells, but they have a different motion. Flagella move in a snake-like motion while cilia move in a rowing-like motion.

### **Bacterial Growth and Reproduction**

When seen under a microscope, bacteria look like tiny bags. They generally consist of an outer cell wall that contains liquid called protoplasm. Bacterial cells grow and reproduce. The life cycle of bacteria consists of two distinct phases: the active stage and the inactive or spore-forming stage.

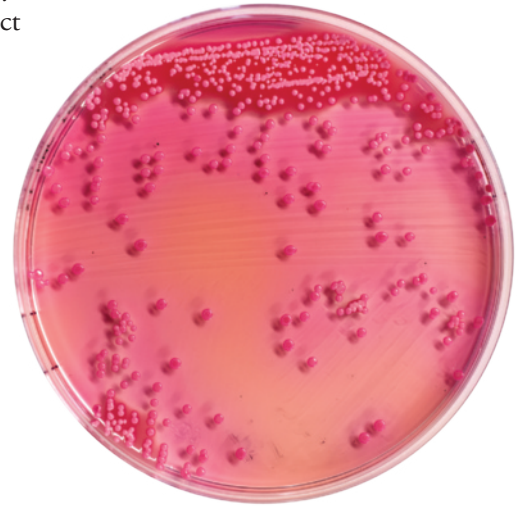
**Active stage.** During the active stage, bacteria grow and reproduce. Bacteria multiply best in warm, dark, damp, or dirty places. When conditions are favorable, bacteria grow and reproduce. When they reach their largest size, they divide into two new cells. This division is called **binary fission** (BY-nayr-ee FISH-un). The cells that are formed are called daughter cells and are produced every 20 to 60 minutes, depending on the

bacteria. The infectious pathogen *Staphylococcus aureus* undergoes cell division every 27 to 30 minutes. When conditions become unfavorable and difficult for them to thrive, bacteria either die or become inactive.

**Inactive or spore-forming stage.** The stage where a bacteria that is capable of forming a spore to protect itself does so to withstand an environment incompatible with its existence. **Bacterial spore** is the ability of certain types of bacteria to form a hard keratin coating that will protect it until the environment is more favorable.

Certain bacteria, such as the bacteria that cause tetanus and botulism, among others, can coat themselves with wax-like outer shells during unfavorable conditions. This makes them able to withstand long periods of famine, dryness, and unsuitable temperatures. In this stage, spores can be blown about and are not harmed by conditions such as extreme heat or cold. Bacterial spores can only be destroyed through sterilization or bleach disinfecting wipes designated as sporocidal. However, none of these spore-forming bacteria are known to present an infectious risk in the salon environment.

When favorable conditions are restored, the spores change into the active form and begin to grow and reproduce.



### **Bacterial Infections**

There can be no bacterial infection without the presence of pathogenic bacteria. Therefore, if pathogenic bacteria are eliminated, clients cannot become infected. You may have a client who has **inflammation** (in-fluh-MAY-shun), a condition in which the body reacts to injury, irritation, or infection. An inflammation may be characterized by redness, heat, pain, and swelling. **Pus** is a fluid containing white blood cells, bacteria, and dead cells, and is the byproduct of the infectious process. The presence of pus can be a sign of a bacterial infection. A **local infection**, such as a pimple or abscess, is confined to a particular part of the body and appears as a lesion containing pus. A **systemic infection** is an infection where the pathogen has distributed throughout the body or a system of the body rather than staying in one body area or organ. Staphylococci are among the most common bacteria that affect humans and are commonly found in our environment, including on our bodies, although most strains do not make us ill. Staph bacteria can be picked up on doorknobs, countertops, and other surfaces, but in the salon they are more frequently spread through skin-to-skin contact (such as shaking hands) or through the use of unclean tools or implements. Although lawsuits are rare considering the number of services performed in a salon, every year many salons are sued for allegedly causing staph infections.

Some types of infectious staph bacteria are highly resistant to conventional treatments due to incorrect doses or choice of antibiotic. An example is the staph infection called **methicillin-resistant Staphylococcus aureus (MRSA)** (mETH-eh-sill-en-ree-ZIST-ent Staf-uh-loh-KOK-us oR-ee-us). Historically, MRSA occurred most frequently among persons with weakened immune systems or among people who had undergone medical procedures. Today, it has become more common in otherwise healthy people. Clients may bring this organism into the salon where it can infect others. Some people carry the bacteria and are not even aware they are

harboring a dangerous pathogen. MRSA initially appears as a skin infection, presenting as a pimple, rash, or boil (or cluster of boils) that can be difficult to cure. Without proper treatment, the infection becomes systemic and can have devastating consequences that can result in death. Because of these highly resistant bacterial strains, it is important to clean and disinfect all tools and implements used in the salon. You owe it to yourself and your clients! Also, do not perform services if the client's skin, scalp, neck, hands, or feet show visible signs of abrasion or infection. Cosmetologists are only allowed to work on healthy hair, skin, and nails.

When a disease spreads from one person to another person, it is said to be a **contagious disease** (kon-TAY-jus dih-ZEEZ), also known as *communicable disease* (kuh-MYOO-nih-kuh-bul dih-ZEEZ). Some of the more common contagious diseases that prevent a salon professional from servicing a client are the common cold, ringworm, conjunctivitis (pinkeye), viral infections, and natural nail, toe, or foot infections. The most common way these infections spread is through dirty hands, especially under the fingernails and in the webs between the fingers. Be sure to always wash your hands after using the restroom and before eating. Contagious diseases can also be spread by contaminated implements, cuts, infected nails, open sores, pus, mouth and nasal discharge, shared drinking cups, telephone receivers, and towels. Uncovered coughing or sneezing and spitting in public also spread germs. **Table 5-2**, Terms Related to Disease, lists terms and definitions that are important for a general understanding of disease.

## Viruses

A **virus** (VY-rus) (plural: viruses) is a submicroscopic particle that infects and resides in the cells of a biological organism. Viruses are so small that they can only be seen under the most sophisticated and powerful microscopes. They cause common colds and other respiratory and gastrointestinal (digestive tract) infections. Some of the viruses that plague humans are measles, mumps, chicken pox, smallpox, rabies, yellow fever, hepatitis, polio, influenza, and HIV (which causes AIDS).

One difference between viruses and bacteria is that a virus can live and reproduce only by taking over other cells and becoming part of them, while bacteria can live and reproduce on their own. Also, bacterial infections can usually be treated with specific antibiotics, but viruses are not affected by antibiotics. In fact, viruses are hard to kill without harming the body's own cells in the process. When available, vaccinations prevent viruses from growing in the body. There are many vaccines available for viruses, but not all viruses have vaccines. There are vaccines available for hepatitis B and varicella (the virus that causes shingles), and you should strongly consider receiving these vaccines, as well as those for the seasonal flu and pneumonia. Discuss with your healthcare provider all of the immunizations to consider.

## Biofilm

Researchers are learning that biofilms play a large role in disease and infection. **Biofilms** are colonies of microorganisms that adhere to environmental surfaces, as well as the human body. They secrete a sticky,

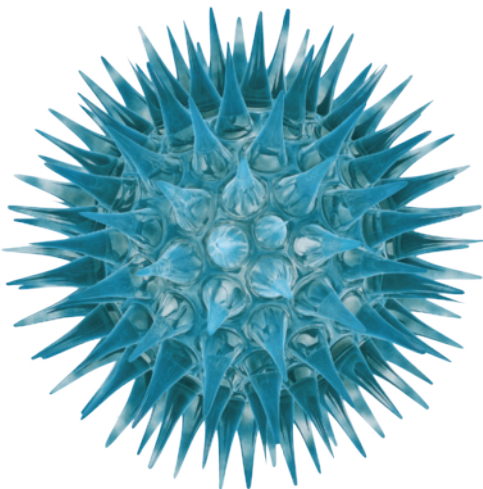


table 5-2

## TERMS RELATED TO DISEASE

Term	Definition
Allergy	Reaction due to extreme sensitivity to certain foods, chemicals, or other normally harmless substances.
Contagious Disease	Also known as <i>communicable disease</i> ; a disease that is spread from one person to another person. Some of the more contagious diseases are the common cold, ringworm, conjunctivitis (pinkeye), viral infections, and natural nail or toe and foot infections.
<b>Contamination</b>	The presence, or the reasonably anticipated presence, of blood or other potentially infectious materials on an item's surface or visible debris or residues such as dust, hair, and skin.
Decontamination	The removal of blood or other potentially infectious materials on an item's surface and the removal of visible debris or residue such as dust, hair, and skin.
<b>Diagnosis</b> (dy-ag-NOH-sis)	Determination of the nature of a disease from its symptoms and/or diagnostic tests. Federal regulations prohibit salon professionals from performing a diagnosis.
Disease	An abnormal condition of all or part of the body or its systems or organs that makes the body incapable of carrying on normal function.
Exposure Incident	Contact with non-intact (broken) skin, blood, body fluid, or other potentially infectious materials that are the result of the performance of an employee's duties.
Infectious Disease	Disease caused by pathogenic (harmful) microorganisms that enter the body. An infectious disease may be spread from one person to another person.
Inflammation	Condition in which the body reacts to injury, irritation, or infection. An inflammation is characterized by redness, heat, pain, and swelling.
<b>Occupational Disease</b>	Illnesses resulting from conditions associated with employment, such as prolonged and repeated overexposure to certain products or ingredients.
<b>Parasitic Disease</b>	Disease caused by parasites, such as lice and mites.
<b>Pathogenic Disease</b>	Disease produced by organisms, including bacteria, viruses, fungi, and parasites.
Systemic Disease	Disease that affects the body as a whole, often due to under-functioning or over-functioning internal glands or organs. This disease is carried through the blood stream or the lymphatic system.

protective coating that cements them together and is hard to penetrate. It grows into a complex structure, with many different kinds of microbes. The sticky matrix substance holds communities together, making them very hard to pierce with antiseptics, antimicrobials, and disinfection. It keeps the body in a chronic inflammatory state that is painful and inhibits healing.

Biofilms are usually not visible and must grow very large to be seen with the eyes. Dental plaque is an example of a visible human biofilm. Because biofilms are hard to detect, their presence and effects seem to be underestimated. Biofilm colonies are one of the most significant scientific discoveries of the past few decades. We have much more to learn. Conscientiously using infection control precautions, including standard precautions, cleaning, disinfection, and sterilization, are the best methods of prevention at the present time.

After reading the next few sections, you will be able to:

**LO 4** Define bloodborne pathogens and explain how they are transmitted.

## Bloodborne Pathogens

Disease-causing microorganisms that are carried in the body by blood or body fluids, such as hepatitis and HIV, are called **bloodborne pathogens**. In the salon, the spread of bloodborne pathogens is possible through haircutting, chemical burns, shaving, nipping, clipping, facial treatments, waxing, tweezing, or whenever the skin is broken. Use great care to avoid cutting or damaging clients' skin during any type of service.

Cutting living skin is considered outside the scope of the cosmetologist's licensed and approved practices. Federal law allows only qualified medical professionals to cut living skin, since this is considered a medical procedure. This means that cosmetologists are not allowed to trim or cut the skin around the nail plate. Cutting hardened tissue and removing a callus are both considered medical procedures. Even if the client insists, cosmetologists may not intentionally cut any living skin for any reason.



### DID YOU KNOW?

An example of a common viral infection often seen in salons is the **human papilloma virus** (HYOO-mun pap-uh-LOW-ma VY-rus) (abbreviated HPV), a virus that causes warts in humans, but is also the cause of cervical cancer in women. When the virus infects the bottom of the foot and resembles small black dots, usually in clustered groups, it is called plantar warts. However, when it is present in the "bikini" region, it can have no symptoms or can present as genital warts. HPV is highly contagious, difficult to kill, and can be passed in pedicure bowls, wax pots, and from dirty implements. If the client shows signs of HPV infection, do not perform a pedicure service; however, many people have no visible symptoms making infection control for EVERY client even more important!

### Hepatitis

**Hepatitis** (hep-uh-TY-tus) is a bloodborne virus that causes disease and can damage the liver. In general, it is difficult to contract hepatitis. Unlike HIV, hepatitis can live on a surface outside the body for long periods of time. For this reason, it is vital that all surfaces that contact a client are thoroughly cleaned and disinfected.

There are three types of hepatitis that are of concern in the salon: hepatitis A, hepatitis B, and hepatitis C. Hepatitis B is the most difficult to kill on a surface, so check the label of the disinfectant you use to be sure that the product is effective against hepatitis B. Hepatitis B and C are spread from person to person through blood and, less often, through other body fluids, such as semen and vaginal secretions.

### HIV/AIDS

**Human immunodeficiency virus (HIV)** (HYOO-mun ih-MYOO-noh-di-FISH-en-see VY-rus) is the virus that causes **acquired immune deficiency syndrome (AIDS)** (uh-KWY-erd ih-MYOON di-FISH-en-see sin-droh-m). AIDS is a disease that breaks down the body's immune system. HIV is spread from person to person through blood and, less often, through other body fluids, such as semen and vaginal secretions. A person can be infected with HIV for many years without having symptoms, but testing can determine whether a person is infected within six months after exposure to the virus. Sometimes people who are HIV-positive have never been tested and do not know they have the potential to infect other people.

The HIV virus is spread mainly through the sharing of needles by intravenous (IV) drug users and by unprotected sexual contact. Less commonly, HIV is spread through accidents with needles in healthcare settings. It is not spread by holding hands, hugging, kissing, sharing food,

or using household items such as a telephone or toilet seats. There are no documented cases that indicate the virus can be spread by food handlers, insects, or casual contact during hair, skin, nail, and pedicure salon services.

If you accidentally cut a client, the tool will be contaminated with whatever might be in the client's blood, including HIV. You cannot continue to use the implement without cleaning and disinfecting it. Continuing to use a contaminated implement without cleaning and disinfecting it puts you and others in the salon at risk of infection.

## Fungi

**Fungi** (FUN-jī) (singular: fungus [FUN-gus]) are single-cell organisms that grow in irregular masses that include molds, mildews, and yeasts. They can cause contagious diseases such as ringworm. **Mildew** (MIL-doo), another fungus, affects plants or grows on inanimate objects but does not cause human infections in the salon.

There are several frequently encountered fungal infections resulting from hair services that look similar and are often confused for each other.

**Folliculitis barbae** (fah-lik-yuh-LY-tis BAR-bee), also known as *pseudofolliculitis barbae* is an inflammation of hair follicles caused by a bacterial infection often caused by *Staphylococcus aureus*. Outside of healthcare, this is often referred to as *barbers itch* or *hot tub folliculitis*.

**Tinea barbae** (TIN-ee-uh BAR-bee) is a superficial fungal infection caused by a variety of dermatophytes that commonly affects the skin. It is primarily limited to the bearded areas of the face and neck or around the scalp. This infection occurs almost exclusively in older adolescent and adult males. A person with tinea barbae may have deep, inflamed or non-inflamed patches of skin on the face or the nape of the neck.

Tinea barbae is similar to **tinea capitis** (TIN-ee-uh KAP-ih-tis), a fungal infection of the scalp characterized by red papules, or spots, at the opening of hair follicles. For more information on tinea capitis, see Chapter 11, Properties of the Hair and Scalp.

Hair stylists must clean and disinfect clipper blades to avoid spreading scalp and skin infections. The risk of spreading skin and scalp infections can be reduced by first removing all visible hair and debris from clippers. This can be done effectively and quickly by using compressed air; then the nonelectrical parts can be cleaned and disinfected properly. Always refer to the manufacturer's directions for proper cleaning and disinfecting methods and recommendations.

Nail infections can be spread by using dirty implements or by not properly preparing the surface of the natural nail before enhancement products are applied. Nail infections can occur on both hands and feet. Fungal infections are much more common on the feet than on the hands, but bacterial infections commonly occur on both hands and feet. The most frequently encountered infection on the foot resulting from nail services is **tinea pedis** (TIN-ee-uh PED-us), a ringworm fungus of the foot. Both bacterial and fungal infections can be spread to an infected client's other nails or to other salon clients unless everything that touches clients is either properly cleaned and disinfected before reuse or is thrown away after use (figure 5-8).

## DID YOU KNOW?

Pathogenic bacteria, viruses, or fungi can enter the body through:

- skin: broken or inflamed skin, such as a cut or a scratch. They also can enter through a bruise (weakened tissue) or a rash. Intact skin is an effective barrier to infection.
- mouth: contaminated water, food, fingers, or objects.
- nose: inhaling infectious dust or droplets from a cough or sneeze.
- eye or ears: organisms that reside in water are commonly transmitted this way when swimming.
- genitals: unprotected sex.

The body prevents and controls infections with:

- healthy, uncompromised skin—the body's first line of defense.
- body secretions such as perspiration and digestive juices.
- white blood cells that destroy bacteria.
- antitoxins that counteract the **toxins**, various poisonous substances produced by some microorganisms (bacteria and viruses).



figure 5-8  
Nail Fungus





figure 5-9  
Head Lice

## Parasites

**Parasites** are organisms that grow, feed, and shelter on or in another organism (referred to as a host), while contributing nothing to the survival of that organism. They must have a host to survive. Parasites can live on or inside of humans and animals. They also can be found in food, on plants and trees, and in water. Humans can acquire internal parasites by eating fish or meat that has not been properly cooked. External parasites that affect humans on or in the skin include ticks, fleas, and mites.

Head lice are a type of parasite responsible for contagious diseases and conditions (figure 5-9). One condition caused by an infestation of head lice is called pediculosis capitis (puh-dik-yuh-LOH-sis KAP-ih-tus). **Scabies** (SKAY-beez) is also a contagious skin disease and is caused by the itch mite, which burrows under the skin. Contagious diseases and conditions caused by parasites should only be treated by a doctor. Contaminated countertops, tools, and equipment should be thoroughly cleaned and then disinfected with an EPA-registered disinfectant for the time recommended by the manufacturer or with a bleach solution for 10 minutes.

## Immunity

**Immunity** is the ability of the body to destroy, resist, and recognize infection. Immunity against disease can be either natural or acquired and is a sign of good health. **Natural immunity** is partly inherited and partly developed through healthy living. **Acquired immunity** is immunity that the body develops after overcoming a disease, through inoculation (such as flu vaccinations), or through exposure to natural allergens such as pollen, cat dander, and ragweed.

*After reading the next few sections, you will be able to:*

**LO5** Explain the differences between cleaning, disinfecting, and sterilizing.

# Prevent the Spread of Disease

Proper infection control can prevent the spread of disease caused by exposure to potentially infectious materials on an item's surface. Infection control also will prevent exposure to blood and visible debris or residue such as dust, hair, and skin.

Proper infection control requires two steps: cleaning and then disinfecting with an appropriate EPA-registered disinfectant. When these two steps are followed correctly, virtually all pathogens of concern in the salon can be effectively eliminated.

**Sterilization** (stayr-ih-luh-ZAY-shun), which is the process that destroys all microbial life, can be incorporated but it very rarely mandated.

Effective sterilization typically requires the use of an autoclave to complete—this piece of equipment incorporates heat and pressure. For sterilization to be effective, items must be cleaned prior and the autoclave must be tested and maintained per the manufacturer’s specifications. The Centers for Disease Control and Prevention (CDC) requires that autoclaves be tested weekly to ensure they are properly sterilizing implements. The accepted method is called a spore test. Commercial sealed packages containing test organisms are subjected to a typical sterilization cycle and then sent to a contract laboratory that specializes in autoclave performance testing.

**Decontamination** (dee-kuhn-tam-ih-NAY-shun) is the removal of blood and all other potentially infectious materials on an item’s surface, and the removal of visible debris or residue such as dust, hair, and skin.

**DID YOU KNOW?**  
Autoclaves penetrate contaminated instruments better than liquid disinfectants and offer complete destruction of all bacterial, viral, and fungal contamination.

## Cleaning

As stated, infection control has two steps: cleaning and then disinfecting.

Remember that when you clean, you must remove all visible dirt and debris from tools, implements, and equipment by washing with liquid soap and warm water, and by using a clean and disinfected nail brush to scrub any grooved or hinged portions of the item.

A surface is properly cleaned when the number of contaminants on the surface is greatly reduced. In turn, this reduces the risk of infection. The vast majority of contaminants and pathogens can be removed from the surfaces of tools and implements through proper cleaning. This is why cleaning is an important part of disinfecting tools and equipment. A surface must be properly cleaned before it can be properly disinfected. Using a disinfectant without cleaning first is like using mouthwash without brushing your teeth—it just does not work properly!

Cleaned surfaces can still harbor small amounts of pathogens, but the presence of fewer pathogens means infections are less likely to be spread. Putting antiseptics on your skin or washing your hands with soap and water will drastically lower the number of pathogens on your hands. However, it does not clean them properly. The proper cleaning of the hands requires rubbing hands together and using liquid soap, warm running water, a nail brush, and a clean towel. (See Procedure 5-4, Proper Hand Washing.) Do not underestimate the importance of proper cleaning and hand washing. They are the most powerful and important ways to prevent the spread of infection.

There are three ways to clean your tools or implements:

1. Washing with soap and warm water, and then scrubbing them with a clean and properly disinfected nail brush.
2. Using an ultrasonic unit.
3. Using a cleaning solvent (e.g., on metal bits for electric files).

## Disinfection

The second step of infection control is disinfection. Remember that disinfection is the process that eliminates most, but not necessarily all, microorganisms on nonporous surfaces. This process is not effective against bacterial spores. In the salon setting, disinfection is extremely effective in





## DID YOU KNOW?

While some clients who have impaired immune systems will share that information with you, many will not—either because they do not know it is important, or they do not know that they have a compromised immune system. These people are at very high risk of infection if they come into contact with pathogens in the salon. Keeping in mind that you won't always know who these people are, it is important to practice proper infection control practices before servicing every client! One example is a diabetic whose immune system does not work effectively and also has

impaired healing. Most Type 2 diabetics are diabetic for 7 years prior to being diagnosed, which means that even if you ask, they will say “no” because they have not yet been diagnosed! Another example is clients on medication for things like asthma, rheumatoid arthritis, and fibromyalgia—these medications are designed to dull the immune system such that it makes these clients particularly susceptible to infection. Remember, you don't know everyone who sits in your chair, so treat everyone as though they deserve the best in disinfection!



## CAUTION

Read labels carefully! Manufacturers take great care to develop safe and highly effective products. However, when used improperly, many otherwise safe products can be dangerous. If you do not follow proper guidelines and instructions, any professional salon product can be dangerous. As with all products, disinfectants must be used exactly as the label instructs.

controlling microorganisms on surfaces such as shears, nippers, and other multiuse tools and equipment (multiuse and single-use tools are discussed later in this chapter). Any disinfectant used in the salon should carry an EPA-registration number and the label should clearly state the specific organisms the solution is effective in killing when used according to the label instructions.

Remember that disinfectants are products that destroy most bacteria, fungi, and viruses (but not spores) on surfaces. Disinfectants are not for use on human skin, hair, or nails. Never use disinfectants as hand cleaners since this can cause skin irritation and **allergy** (AL-ur-jee), a reaction due to sensitivity to certain foods, chemicals, or other normally harmless substances. All disinfectants clearly state on the label that you should avoid skin contact. Do not put your fingers directly into any disinfecting solution. Disinfectants can be harmful if absorbed through the skin. If you mix a disinfectant in a container that is not labeled by the manufacturer, the container must be properly labeled with the contents and the date it was mixed. All concentrated disinfectants must be diluted exactly as instructed by the manufacturer on the container's label.

## Choosing a Disinfectant

You must read and follow the manufacturer's instructions whenever you are using a disinfectant. Mixing ratios (dilution) and **contact time** (the amount of visibly moist time required to be effective against pathogens listed on product label) are very important and can vary widely based on the manufacturer and delivery method. For example, most concentrates have a 10 minute contact time, whereas some wipes have a 2 minute contact time. Not all disinfectants have the same concentration, so be sure to mix the correct proportions according to the instructions on the label. If the label does not have the word concentrate on it, the product is already mixed and must be used directly from the container and must not be diluted. All EPA-registered disinfectants will specify a contact time in their directions for use. Disinfectants must have **efficacy** (ef-ih-KUH-see) claims on the label. Efficacy is the ability to produce an effect. As applied to disinfectant claims, efficacy means the effectiveness with which a disinfecting solution kills microorganisms when used according to the label instructions.

Salons and cosmetologists must be aware of the types of disinfectants that are on the market and any new products that become available.



## CAUTION

Improper mixing of disinfectants—to be weaker or more concentrated than the manufacturer's instructions—can dramatically reduce their effectiveness. Always add the disinfectant concentrate to the water when mixing and always follow the manufacturer's instructions for proper dilution.

Safety glasses and gloves should be worn to avoid accidental contact with eyes and skin.



## DID YOU KNOW?

The EPA has approved a new disinfectant that can be used in the salon and is available in a spray and an immersion form, as well as wipes.

- Accelerated hydrogen peroxide (AHP). This disinfectant is based on stabilized hydrogen peroxide. AHP disinfectant needs to be changed only every 14 days and is nontoxic to the skin and the environment. There is an AHP formula that is available for disinfecting pedicure tubs.

Read the labels of all types of disinfectants closely. Choose the one that is most appropriate for its intended use and is the safest for you and your clients.

Salons pose a lower infection risk when compared to hospitals. For this reason, hospitals must meet much stricter infection control standards. Even though salons pose a lower risk of spreading certain types of infections, it is still very important to clean and then disinfect all tools, implements, surfaces, and equipment correctly before using on any client.

## Proper Use of Disinfectants

Implements must be thoroughly cleaned of all visible matter or residue before being placed in disinfectant solution. This is because residue will interfere with the disinfectant and prevent proper disinfection. Properly cleaned implements and tools, free from all visible debris, must be completely immersed in disinfectant solution. Complete immersion means there is enough liquid in the container to cover all surfaces of the item being disinfected, including the handles, for 10 minutes or for the time recommended by the manufacturer (figure 5-10).

### Disinfectant Tips

- Use only on pre-cleaned, hard, nonporous surfaces—not on single-use abrasive files or buffers.
- Always wear gloves and safety glasses when handling disinfectant solutions.
- Always dilute products according to the instructions on the product label.
- An item must remain submerged in the disinfectant for 10 minutes unless the product label specifies differently.
- To disinfect large surfaces such as tabletops, carefully apply the disinfectant onto the pre-cleaned surface, or use a disinfectant spray and allow it to remain wet for 10 minutes, unless the product label specifies differently.
- If the product label or your state rules require, “complete immersion,” the entire implement must be completely immersed in the solution.
- Change the disinfectant according to the instructions on the label. If the liquid is not changed as instructed, it will no longer be effective and may begin to promote the growth of microbes.
- Proper disinfection of a whirlpool, pipeless or air-jet pedicure spa requires that the disinfecting solution circulate for 10 minutes, unless the product label specifies otherwise.



## DID YOU KNOW?

All disinfectants, including bleach, are inactivated (made less effective) in the presence of many substances, including oils, lotions, creams, hair, skin, nail dust, and nail filings. It is critical to use soap or a detergent first to thoroughly clean the equipment and remove all debris. Never mix detergents with the disinfectants and always use in a well-ventilated area.



**figure 5-10**  
Completely immerse tools in disinfectant.

After reading the next few sections, you will be able to:

**LO6** List the types of disinfectants and the steps to using them properly.



#### DID YOU KNOW?

Not all household bleaches are effective as disinfectants. To be effective, the bleach must have an EPA-registration number and contain at least 5 percent sodium hypochlorite and be diluted properly to a 10 percent solution—9 parts water to 1 part bleach.

## Types of Disinfectants

Disinfectants are not all the same. Some are appropriate for use in the salon and some are not. You should be aware of the different types of disinfectants and the ones that are recommended for salon use.

### **Disinfectants Appropriate for Salon Use**

**Quaternary ammonium compounds** (KWAT-ur-nayr-ree uh-MOH-neeum KAHM-powndz), also known as *quats* (KWATZ), are disinfectants that are very effective when used properly in the salon. The most advanced type of these formulations is called multiple quats. Multiple quats contain sophisticated blends of quats that work together to dramatically increase the effectiveness of these disinfectants. Quat solutions usually disinfect implements in 10 minutes. These formulas may contain anti-rust ingredients. They should be removed from the solution after the specified period, rinsed (if required), dried, and stored in a clean, covered container.

**Phenolic disinfectants** (fi-NOH-lik dis-in-FEK-tents) are powerful disinfectants, known as tuberculocidal. They are a form of formaldehyde, have a very high pH, and can damage the skin and eyes. Phenolic disinfectants can be harmful to the environment if put down the drain. They have been used reliably over the years to disinfect salon tools; however, they do have drawbacks. Phenol can damage plastic and rubber and can cause certain metals to rust. Phenolic disinfectants should never be used to disinfect pedicure tubs or equipment (unless required by state rules). Extra care should be taken to avoid skin contact with phenolic disinfectants. Phenolics are known carcinogens, and as such should only be used in states where required.

### **Bleach**

Household bleach, 5.25 percent **sodium hypochlorite** (SOH-dee-um hy-puh-KLOR-ite), is an effective disinfectant and has been used extensively as a disinfectant in the salon for large surface areas such as countertops and floors. Using too much bleach can damage some metals and plastics, so be sure to read the label for safe use. Bleach can be corrosive to metals and plastics and can cause skin irritation and eye damage. Bleach should not be used to disinfect salon and spa tools and implements such as shears, combs, and brushes.

To mix a bleach solution, always follow the manufacturer's directions. Store the bleach solution away from heat and light. A fresh bleach solution should be mixed every 24 hours or when the solution has been contaminated. After mixing the bleach solution, date the container to ensure that the solution is not saved from one day to the next, but disposed of daily similar to other disinfectants. Bleach can be irritating to the lungs, so be careful about inhaling the fumes.

## Disinfectant Safety

Disinfectants are pesticides (a type of poison) and can cause serious skin and eye damage. Some disinfectants appear clear while others, especially phenolic disinfectants, are a little cloudy. Always use caution when handling disinfectants and follow the safety tips below.

### Safety Tips for Disinfectants

#### Always

- Keep an SDS on hand for the disinfectant(s) you use.
- Wear gloves and safety glasses when mixing disinfectants (**figure 5-11**).
- Avoid skin and eye contact.
- Add disinfectant to water when diluting (rather than adding water to a disinfectant) to prevent foaming, which can result in an incorrect mixing ratio.
- Use tongs, gloves, or a draining basket to remove implements from disinfectants.
- Keep disinfectants out of reach of children.
- Carefully measure and use disinfectant products according to label instructions.
- Follow the manufacturer's instructions for mixing, using, and disposing of disinfectants.
- Carefully follow the manufacturer's directions for when to replace the disinfectant solution in order to ensure the healthiest conditions for you and your client. Replace the disinfectant solution every day—more often if the solution becomes soiled or contaminated.

#### Never

- Let quats, phenols, bleach, or any other disinfectant come in contact with your skin. If you do get disinfectants on your skin, immediately wash the area with liquid soap and warm water. Then rinse the area and dry the area thoroughly.
- Place any disinfectant or other product in an unmarked container. All containers should be labeled (**figure 5-12**).

Jars or containers used to disinfect implements are often incorrectly called wet sanitizers. Disinfectant containers must be covered, but not airtight. Remember to clean the container every day and to wear gloves when you do. Always follow the manufacturer's label instructions for disinfecting products.

## Disinfect or Dispose?

How can you tell which items in the salon can be disinfected and reused? There are two types of items used in salons: multiuse (reusable) items, and single-use (disposable) items.

- **Multiuse**, also known as *reusable*, items can be cleaned, disinfected, and used on more than one person even if the item is exposed to blood or body fluid. These items must have a hard, nonporous surface.



**figure 5-11**  
Wear gloves and safety glasses while handling disinfectants.

Thoroughly pre-clean. Completely immerse brushes, combs, scissors, clipper blades, razors, tweezers, manicure implements, and other non-porous instruments for 10 minutes (or as required by local authorities). Wipe dry before use. Fresh solution should be prepared daily or more often when the solution becomes diluted or soiled.

**\*For Complete Instructions For Hepatitis B Virus (HBV) and Human Immunodeficiency Virus (HIV-1) DISINFECTION.**  
Refer To Enclosed Hang Tag.

**Statement of Practical Treatment:**  
In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. For eye contacts, call a physician. If swallowed, drink egg whites, gelatin solution or if these are not available, drink large quantities of water. Avoid alcohol. Call a physician immediately.

**Note to Physician:** Probable mucosal damage may contraindicate the use of gastric lavage.

**Note:** Avoid shipping or storing below freezing. If product freezes, thaw at room temperature and shake gently to remix components.

**figure 5-12**  
All containers should be labeled.

## CAUTION

Ultraviolet (UV) sanitizers are useful storage containers, but they do not disinfect or sterilize.



figure 5-13

Carefully pour disinfectant into the water when preparing disinfectant solution.

## CAUTION

Electric sterilizers, bead sterilizers, and baby sterilizers cannot be used to disinfect or sterilize implements. These devices can spread infectious diseases and should never be used in salons. Also, UV light units will not disinfect or sterilize implements. State rules require that you use liquid disinfecting solutions! Autoclaves are effective sterilizers. If you decide to use an autoclave, be sure that you know how to operate it properly.

Examples of multiuse items are nippers, shears, combs, metal pushers, rollers, and permanent wave rods.

- **Single-use**, also known as *disposable*, items cannot be used more than once. These items are **porous**, items made or constructed of a material that has pores or openings and cannot be properly cleaned so that all visible residue is removed—such as pumice stones used for pedicures—or they are damaged or contaminated by cleaning and disinfecting. Examples of single-use items are wooden sticks, cotton balls, sponges, gauze, tissues, paper towels, nail files, and buffers. Single-use items must be thrown out after each use.

## Keep a Logbook

Salons should always follow manufacturers' recommended schedules for cleaning and disinfecting tools and implements, disinfecting foot spas and basins, scheduling regular service visits for equipment, maintenance, and replacing parts when needed. Although your state may not require you to keep a logbook of all equipment usage, cleaning, disinfecting, testing, and maintenance, it may be advisable to keep one. Showing your logbook to clients provides them with peace of mind and confidence in your ability to protect them from infection and disease.

## Disinfecting Nonelectrical Tools and Implements

State rules require that all multiuse tools and implements must be cleaned and disinfected before and after every service—even when they are used on the same person. Mix all disinfectants according to the manufacturer's directions, always adding the disinfectant to the water, not the water to the disinfectant (figure 5-13).

### P 5-1 Cleaning and Disinfecting Nonelectrical Tools and Implements

See page 97

## Disinfecting Electrical Tools and Equipment

Hair clippers, electrotherapy tools, nail drills, and other types of electrical equipment have parts that cannot be immersed in liquid. These items should be cleaned and disinfected using an EPA-registered disinfectant designed for use on these devices. Follow the procedures recommended by the disinfectant manufacturer for preparing the solution and follow the item's manufacturer directions for cleaning and disinfecting the device.

## Disinfecting Work Surfaces

Before beginning every client service, all work surfaces must be cleaned and disinfected. Be sure to clean and disinfect tables, styling stations, shampoo sinks, chairs, arm rests, and any other surface that a customer's skin may have touched (figure 5-14). Clean doorknobs and handles daily to reduce transferring germs to your hands.

## Cleaning Towels, Linens, and Capes

Clean towels, linens, and capes must be used for each client. After a towel, linen, or cape has been used on a client, it must not be used again



## DID YOU KNOW?

Unless your workstation is equipped with a sink, you should never attempt to clean or disinfect any used tool or implement at your workstation. Proper cleaning and disinfecting requires the use of clean, warm running water; a scrub brush, and liquid soap for cleaning; and disinfectant solution for disinfecting. Tools and implements must also be completely rinsed after being disinfected and then dried and kept in a dry, covered container until use. Ideally there would be a designated area in the salon that is used to clean and disinfect tools and implements.



**figure 5-14**  
Clean and disinfect styling stations regularly.

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until it has been properly laundered. To clean towels, linens, and capes, launder according to the directions on the item's label. Be sure that towels, linens, and capes are thoroughly dried. Items that are not dry may grow mildew and bacteria. Store soiled linens and towels in covered or closed containers, away from clean linens and towels, even if your state regulatory agency does not require that you do so. Whenever possible, use disposable towels, especially in restrooms. Do not allow capes that are used for cutting, shampooing, and chemical services to touch the client's skin. Use disposable neck strips or towels. If a cape accidentally touches skin, do not use the cape again until it has been laundered.

## Disinfecting Foot Spas and Pedicure Equipment

All equipment that contains water for pedicures (including whirlpool spas, pipeless units, foot baths, basins, tubs, sinks, and bowls) must be cleaned and disinfected after every pedicure, and the information must be entered into a logbook. Inspectors may issue fines if there is no logbook. Some state regulatory agencies allow single-use tub liners in pedicure equipment. Check with your state agency. If single-use liners are allowed in your state, be sure that you clean and disinfect all surfaces of the equipment that are not covered by the liner after every client.

### Which Foot Spa Do I Have?

Many salons will refer to any of their pedicure chairs that circulate water as whirlpool spas, however this is a misconception. There are three types of foot spas that circulate water: whirlpool, air jet, and pipeless.

1. The *whirlpool foot spa* creates a massaging effect by re-circulating water through built in pipes and jets, similar to a Jacuzzi tub, and is often referred to as a piped foot spa. The whirlpool or piped foot spa has come under scrutiny because disease-causing microorganisms tend to grow inside the pipes despite the disinfecting process and therefore has been slowly discontinued in the industry.
2. The *air jet basin* uses a blower to force air through small holes in an air channel, creating an overall bubbling massage. Water does not circulate through these air channels.
3. The new standard in the industry is the *pipeless foot spa*. The pipeless foot spa uses impellers, the rotating blade of a pump, to circulate water. This type of foot spa is easily cleaned and disinfected.

All three foot spas have similar cleaning and disinfecting procedures.



### CAUTION

Products and equipment that have the word *sanitizer* on the label are merely cleaners. They do not disinfect. Items must be properly cleaned and disinfected after every use before using them on another client.



### CAUTION

Some states require that all procedures for cleaning and disinfecting tools, implements, and equipment must be recorded in a salon logbook. Check with your state's regulatory agency to determine whether you are required to do so. It is a good practice to complete a logbook, even if not required, as it shows clients you are serious about protecting their health.



- The fourth type of foot spa is a *non-whirlpool foot basin* or *tub*. This type of tub does not circulate water. It can be connected to running water and a drain or be portable. If it is a portable tub, you will clean and disinfect it at the dispensary sink.

**P 5-2** Cleaning and Disinfecting Whirlpool, Air-Jet, and Pipeless Foot Spas *See page 99*

**P 5-3** Cleaning and Disinfecting Basic Foot Basins or Tubs *See page 103*

## Soaps and Detergents

**Chelating soaps** (CHE-layt-ing SOHPS), also known as *chelating detergents*, work to break down stubborn films and remove the residue of pedicure products such as scrubs, salts, and masks. The chelating agents in these soaps work in all types of water, are low-sudsing, and are specially formulated to work in areas with hard tap water. Hard tap water reduces the effectiveness of cleaners and disinfectants. If your area has hard water, ask your local distributor for pedicure soaps that are effective in hard water. This information will be stated on the product's label.

## Additives, Powders, and Tablets

There is no additive, powder, or tablet that eliminates the need for you to clean and disinfect. Products of this type cannot be used instead of EPA-registered liquid disinfectant solutions. You cannot replace proper cleaning and disinfection with a shortcut. Water sanitizers do not properly clean or disinfect equipment. They are designed for Jacuzzis and hydrotherapy tubs where no oils, lotions, or other enhancements are used. Therefore, water sanitizers do not work well in a salon environment. Never rely solely on water sanitizers to protect your clients from infection. Products that contain chloramine T, for example, are not effective disinfectants for equipment. These products only treat the water and have limited value in the salon. They do not replace proper cleaning and disinfection. Remember: There are no shortcuts!

## Dispensary

The dispensary must be kept clean and orderly, with the contents of all containers clearly marked. Always store products according to the manufacturer's instructions and away from heat and out of direct sunlight. Keep the SDSs for all products used in the salon in a convenient, central location for the employees.

## Hand Washing

Properly washing your hands is one of the most important actions you can take to prevent spreading germs from one person to another. Proper hand washing removes germs from the folds and grooves of the skin and from under the free edge of the nail plate by lifting and rinsing germs and contaminants from the surface.

You should wash your hands thoroughly before and after each service. Follow the hand washing procedure in this chapter. And, if you perform

### DID YOU KNOW?

Most pedicure spas hold five gallons of water; check with the manufacturer and be sure that you use the correct amount of disinfectant. Also, be sure that you are using a disinfectant that is appropriate for the pedicure spa.

Remember:

1 gallon = 128 ounces

5 gallons = 640 ounces

If you are working with a pedicure spa that holds five gallons of water, you will have to measure the correct amount of water needed to cover the jets and then add the correct amount of disinfectant.

nail services, your client should first wash his or her hands using a clean and disinfected nail brush before the service begins.

Antimicrobial and antibacterial soaps can dry the skin, and medical studies suggest that they are no more effective than regular soaps or detergents. The true benefit of hand washing comes from the friction created by the soap bubbles that can “pull” pathogens off the skin surface. Repeated hand washing can also dry the skin, so using a moisturizing hand lotion after washing is a good practice. Be sure the hand lotion is in a pump container, not a jar.

**P 5-4** Proper Hand Washing *See page 104*

Avoid using very hot water to wash your hands. Remember: You must wash your hands thoroughly before and after each service, so do all you can to reduce any irritation that may occur.

## Waterless Hand Sanitizers

**Antiseptics** (ant-ih-SEP-tiks) are chemical germicides formulated for use on skin and are registered and regulated by the Food and Drug Administration (FDA). Antiseptics generally contain a high volume of alcohol, and these products are intended to reduce the numbers of microbes and slow growth on the skin. Neither type of antiseptic can clean the hands of dirt and debris; this can only be accomplished with liquid soap, a soft-bristle brush, and water. Use hand sanitizers only after properly cleaning your hands, or when hand washing is not an option. Never use an antiseptic to disinfect instruments or other surfaces. They are ineffective for that purpose.

*After reading the next few sections, you will be able to:*

**LO 7** Define Standard Precautions.

**CAUTION**  
When washing hands, use liquid soaps in pump containers. Bar soaps can grow bacteria.



# Follow Standard Precautions to Protect You and Your Clients

**Standard Precautions** are guidelines published by the Centers for Disease Control and Prevention (CDC) that require the employer and employee to assume that all human blood and body fluids are potentially infectious. Because it may not be possible to identify clients with infectious diseases, strict infection control practices should be used with all clients. In most instances, clients who are infected with the hepatitis B virus or other bloodborne pathogens are **asymptomatic**, which means that they show no symptoms or signs of infection. Bloodborne pathogens are more difficult to kill than germs that live outside the body.



#### DID YOU KNOW?

Gloves are available in latex, vinyl, and nitrile materials. It is known that some individuals are allergic to latex and that latex gloves many times shred into pieces when used to apply some lotions. For that reason, many believe nitrile gloves are the best choice for nail services. They do sometimes shred with extended use of polish remover and, if so, will need to be replaced. They come in boxes of 100 and are available at beauty and medical supply stores.

Occupational Health and Safety Administration and CDC set safety standards and precautions that protect employees in situations when they could be exposed to bloodborne pathogens. Precautions include proper hand washing, wearing gloves, and properly handling and disposing of sharp instruments and any other items that may have been contaminated by blood or other body fluids. It is important that specific procedures are followed if blood or body fluid is present.

## Personal Protective Equipment (PPE)

Many chemicals used in the salon will bear labels that require the use of personal protective equipment such as gloves and safety glasses when working with their products. However, some equipment, such as gloves, offer protection from exposure to pathogens and should be worn whenever practical.

### Gloves

The Occupational Safety and Health Act defines PPEs as “specialized clothing or equipment worn by an employee for protection against a hazard.” The hazards this particular standard refers to are bloodborne pathogens, such as hepatitis and HIV.

Standard Precautions include guidelines for the use of gloves, masks, and eyewear when contact with blood or body secretions containing blood or blood elements is a possibility. The Standard Precautions standard within OSHA reads: “Standard Precautions shall be observed to prevent occupational exposure to blood or other potentially infectious materials. Occupational exposure includes any reasonably anticipated skin, eye, mucous membrane, or potential contact with blood or other potentially infectious materials that may result from the performance of an employee’s duties.” It does not say “only wear gloves when there is exposure to a large amount of blood.” Cosmetologists must prevent their occupational exposure to any amount of blood, no matter how miniscule, through the use of gloves, masks, and eye protection.

Gloves are single-use equipment; a new set is used for every client, and sometimes must be changed during the service, according to the protocol. Removal of gloves is performed by inverting the cuffs, pulling them off inside out, and then disposing of them into the trash (**figure 5-15**). The glove taken off first is held in the hand with a glove still on it and then that glove with the cuff inverted is pulled over the first glove inside out (**figure 5-16**). The first glove is then inside the second one, which has the service side now on the inside against the other glove, and they are disposed of together.

If a manicure and pedicure are being performed on the same client, a new set is to be worn for each service. If the services require moving from one place of service to another several times, several sets of gloves will need to be used. The technician is to perform hand washing after removing each set of gloves and before putting on a new set when two services are being performed together, or use antimicrobial gel cleanser between sets of gloves during the same appointment.



#### CAUTION

Since cosmetologists work with an array of sharp implements and tools, cutting yourself is a very real possibility. If you do suffer a cut and blood is present, you must follow the steps for an exposure incident outlined in this chapter for your safety and the safety of your client.



**figure 5-15**  
Remove gloves by inverting the cuffs, pulling them off inside out.



**figure 5-16**  
The glove with the cuff inverted is pulled over the first glove inside out and are disposed of together.

**CAUTION**

Taking the time to conduct a thorough hair and scalp analysis will enable you to determine whether a client has any open wounds or abrasions. If the client does have an open wound or abrasion, do not perform services of any kind for the client.

## An Exposure Incident: Contact with Blood or Body Fluid

You should never perform a service on any client who comes into the salon with an open wound or an abrasion. Sometimes accidents happen while a service is being performed in the salon, however.

An **exposure incident** is contact with nonintact (broken) skin, blood, body fluid, or other potentially infectious materials that is the result of the performance of an employee's duties. Should you or the client suffer a cut or abrasion that bleeds during a service, follow the steps outlined in Procedure 5-5.

**P 5-5** Handling an Exposure Incident *See page 105*

**DID YOU KNOW?**

- It is your professional and legal responsibility to follow state and federal laws and rules.
- You must keep your license current and notify the licensing agency if you move or change your name.
- You must check your state's website weekly for any changes or updates to rules and regulations.

*After reading the next few sections, you will be able to:*

**LO 8** List your responsibilities as a salon professional.

# List Your Professional Responsibilities

You have many responsibilities as a salon professional, but none is more important than protecting your clients' health and safety. Never take shortcuts for cleaning and disinfecting. You cannot afford to skip steps or save money when it comes to safety.

Infection control practices should be a part of the normal routine for you and your coworkers so that the salon and staff project a steadfast professional image. The following are some simple guidelines that will keep the salon looking its best.



- Keep floors and workstations dust-free. Sweep hair off the floor after every client. Mop floors and vacuum carpets every day.
- Control dust, hair, and other debris.
- Keep trash in a covered waste receptacle to reduce chemical odors and fires.
- Clean fans, ventilation systems, and humidifiers at least once each week.
- Keep all work areas well-lit.
- Clean and disinfect restroom surfaces, including door handles.
- Provide toilet tissue, paper towels, liquid soap, properly disinfected soft-bristle nail brushes, and a container for used brushes in the restroom.
- Never place food in the same refrigerator used to store salon products.
- Prohibit eating, drinking, and smoking in areas where services are performed or where product mixing occurs (e.g., back bar area). Consider having a smoke-free salon. Even when you do not smoke in the service areas, the odor can flow into those areas.
- Empty waste receptacles regularly throughout the day.
- Make sure all containers are properly marked and properly stored.
- Never place any tools or implements in your mouth or pockets.
- Properly clean and disinfect all multiuse tools before reusing them.
- Store clean and disinfected tools in a clean, covered container. Clean drawers may be used for storage if only clean items are stored in the drawers. Always isolate used implements away from disinfected implements.
- Avoid touching your face, mouth, or eye areas during services.
- Clean and disinfect all work surfaces after every client.
- Have clean, disposable paper towels for each client.
- Always properly wash your hands before and after each service.
- Use clean linens and disposable towels on clients. Keep soiled linens separate from clean linens. Use single-use neck strips or clean towels to avoid skin contact with shampoo capes and cutting or chemical protection gowns. If a cape touches the client's skin, do not reuse that cape until it is properly laundered.
- Never provide a nail service to clients who have not properly washed their hands and carefully scrubbed under the free edge of their nails with a disinfected nail brush.
- Use effective exhaust systems in the salon. This will help ensure proper air quality in the salon.

# CLEANING AND DISINFECTING NONELECTRICAL TOOLS AND IMPLEMENTS



Nonelectrical tools and implements include items such as combs, brushes, clips, hairpins, metal pushers, makeup brushes (synthetic only), tweezers, and nail clippers.

## IMPLEMENTS & MATERIALS

You will need all of the following implements, materials, and supplies:

- |  |  |   |                                 |
|--|--|---|---------------------------------|
| <input type="checkbox"/> Covered storage container | <input type="checkbox"/> Disposable gloves   | <input type="checkbox"/> Safety glasses | <input type="checkbox"/> Tongs  |
| <input type="checkbox"/> Disinfectant container    | <input type="checkbox"/> Liquid disinfectant | <input type="checkbox"/> Scrub brush    | <input type="checkbox"/> Towels |
| <input type="checkbox"/> Liquid soap               | <input type="checkbox"/> Timer               |   |                                 |

## PROCEDURE

1 It is important to wear safety glasses and gloves while disinfecting nonelectrical tools and implements to protect your eyes from unintentional splashes of disinfectant and to prevent possible contamination of the implements by your hands as well as to protect your hands from the powerful chemicals in the disinfectant solution.



2 Rinse all implements with warm running water, and then scrub them thoroughly with soap or detergent, a properly disinfected nail brush, and warm water. Brush grooved items, if necessary, and open hinged implements to scrub the revealed area.



3 Rinse away all traces of soap from the implements with warm running water. The presence of soap in most disinfectants will cause them to become inactive. Soap is most easily rinsed off in warm, not hot, water. Hotter water is not more effective.



4 Dry implements thoroughly with a clean or disposable towel, or allow them to air dry on a clean towel. Your implements are now properly cleaned and ready to be disinfected.



5 If the disinfection solution is visibly dirty, or if the solution has been contaminated, it must be replaced. Completely immerse cleaned implements in an appropriate disinfection container holding an EPA-registered disinfectant for the required time (at least 10 minutes or according to the manufacturer's instructions). Set a timer. Remember to open hinged implements before immersing them in the disinfectant.



6 After the required disinfection time has passed, remove tools and implements from the disinfection solution with tongs or gloved hands, rinse the tools and implements well in warm running water, and pat them dry.



7 Store dry, disinfected tools and implements in a clean, covered container until needed.



8 Remove gloves and thoroughly wash your hands with warm running water and liquid soap. Rinse and dry hands with a clean fabric or disposable towel.

# CLEANING AND DISINFECTING WHIRLPOOL, AIR-JET, AND PIPELESS FOOT SPAS

## IMPLEMENTS & MATERIALS

You will need all of the following implements, materials, and supplies:

- Chelating detergent
- Disposable gloves
- Liquid soap
- Scrub brush
- Cleaning logbook
- EPA-registered hospital liquid disinfectant
- Paper towels
- Timer
- Safety glasses

## PROCEDURE

After every client:



**1** Put on gloves and safety glasses.



**2** Drain all water from the pedicure basin if it has not already been drained.



**3** Remove the covers from the impellers and any other removable components according to the manufacturer's instructions. Most parts simply twist off.



**4** Thoroughly scrub all removable components, the impellers, and the areas behind each with liquid soap; a clean, disinfected brush; and clean, warm water to remove all visible residue. For whirlpool and air jet basins, this step is done at the end of each day.



5 Rinse and replace the properly cleaned screen and other removable parts.



6 Scrub all visible residue from the inside walls of the basin with a clean, disinfected brush; liquid soap; and clean, warm water. Brushes must be cleaned and disinfected after each use; otherwise, they can transfer pathogens to other foot spas.



8 Refill the basin with clean, warm water. If the basin has jets, be sure to put enough water in to cover the jets.



7 Rinse the basin with clean, warm water and drain.

9 Measure the correct amount (read the product label for mixing instructions) of the EPA-registered hospital disinfectant, and add it to the water in the basin.



10 Circulate the disinfectant through the basin for 10 minutes or the length of time indicated on the product label. Set the timer to keep track of the time.



11 Clean and disinfect all external parts and surfaces.



12 Drain; rinse with clean, warm water; and wipe the pedicure basin dry with a clean paper towel.



13 Record the disinfection information into the salon's logbook if required by state law or by salon policy.

In addition to the procedures performed after each client, you also need to circulate chelating detergent through the foot spas at the end of every day. Chelating soaps break down stubborn films and help remove pedicure product residues. Follow these steps:



1 Put on gloves and safety glasses.



2 If your equipment includes removable parts, remove the screen and any other removable parts. (A screwdriver may be necessary.)



3 Clean the screen and other removable parts and the areas behind them with a clean, disinfected brush, liquid soap, and water to remove all visible residue. Replace the properly cleaned screen and other removable parts.

4 Fill the basin with warm water and chelating detergent (cleansers designed for use in hard water). *Important note: Please check whether chelating detergent is required for your type of the foot spa by your state or the manufacturer.*

5 Circulate the chelating detergent through the system for 5 to 10 minutes, following the manufacturer's instructions. If excessive foaming occurs, discontinue circulation and let it soak for the remainder of the time as instructed.



6 Drain the soapy solution, and rinse the basin with clean water.



7 Refill the basin with clean water. Measure the correct amount (as indicated in the mixing instructions on the label) of the EPA-registered disinfectant and add it to the water in the basin. Circulate the disinfectant through the basin for 10 minutes or the length of time indicated on the disinfectant label. Set a timer to keep track of the time.



8 Drain, rinse with clean water, and wipe dry with a clean paper towel. Allow the basin to dry completely, unless you are performing the once-each-week disinfectant steps. Refer to those steps for additional information.



9 Record the disinfection information into the salon's logbook if required by state law or by salon policy.

In addition to the procedures performed after each client and at the end of each day, these steps are performed at least once each week:



1 After your end-of-day cleaning procedure, *do not* drain the disinfectant solution. Turn the unit off and leave the disinfecting solution in the unit overnight. In the morning, put on gloves and safety glasses.



2 Drain all water from the basin and rinse the basin with clean water.



3 Refill the basin with clean water and flush the system.



4 Record the disinfectant information into the salon's logbook if required by state law or by salon policy.



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# CLEANING AND DISINFECTING BASIC FOOT BASINS OR TUBS

This procedure will demonstrate how to properly clean and disinfect non-whirlpool foot basins or tubs (also includes footbaths, sinks, and bowls). This type of tub does not circulate water. It can be connected to running water and a drain or be portable. If it is a portable tub, you will clean and disinfect it at the dispensary sink.

Any equipment that holds water for pedicures must be cleaned and disinfected after every pedicure.

## IMPLEMENTS & MATERIALS

You will need all of the following implements, materials, and supplies:

- Cleaning logbook
- EPA-registered hospital liquid disinfectant
- Paper towels
- Safety glasses
- Scrub brush
- Timer
- Disposable gloves
- Liquid soap

## PROCEDURE

- 1 Put on gloves and safety glasses. Drain all water from the foot basin or tub.
- 2 Scrub all inside surfaces of the foot basin or tub to remove all visible residue with a clean, disinfected brush, liquid soap, and clean water.
- 3 Rinse the basin or tub with clean water and drain.



- 4 Refill the basin with clean water. Measure the correct amount of the EPA-registered hospital disinfectant (as indicated in mixing instructions on the label) and add it to the water in the basin. Set the timer, and leave this disinfectant solution in the basin for 10 minutes or the time recommended by the manufacturer.



- 5 Drain, rinse with clean water, and wipe dry with a clean paper towel.
- 6 Record the disinfection information into the salon's logbook if required by state law or by salon policy.

At the end of every day, perform the same procedure steps as after each client.

# PROPER HAND WASHING

Hand washing is one of the most important procedures in your infection control efforts and is required in every state before beginning any service.

## IMPLEMENTS & MATERIALS

You will need all of the following implements, materials, and supplies:

- Disposable paper towels
- Liquid soap in a pump container
- Nail brush

## PROCEDURE



- 1 Turn the water on. The water should be warm, not hot. Wet your hands, and pump soap from a pump container onto the palm of your hand. Vigorously rub your hands together until a lather forms. Wash past your wrists. Continue for a minimum of 20 seconds.



- 2 Wet and pump soap on a clean, disinfected nail brush. Brush your nails horizontally back and forth under the free edges. Change the direction of the brush to vertical and move the brush up and down along the nail folds of the fingernails. The process for brushing both hands should take about 60 seconds total. Rinse hands in running warm water.



- 3 Use a clean cloth or a paper towel for drying your hands according to the salon policies or state rules/regulations.



- 4 After drying your hands, use the towel to turn off the water and open the washroom door, and then dispose of the towel. Touching a doorknob with your bare fingers can re-contaminate your hands.

# HANDLING AN EXPOSURE INCIDENT

## IMPLEMENTS & MATERIALS

You will need all of the following implements, materials, and supplies:

- Antiseptic
- Bandages
- Biohazard sticker (optional depending on local/state laws)
- Cotton
- Disposable gloves
- Disposable paper towels
- EPA-registered hospital disinfectant
- Liquid soap
- Plastic bag
- Sharps box (optional depending on local/state laws)

## PROCEDURE

Should you accidentally cut yourself, calmly take the following steps:



**1** First, stop the service. Inform your client of what has happened and let the client know you are taking care of your cut, and the service will be interrupted for a couple of minutes. If the nature of your cut is severe, ask a salon employee to assist with the exposure incident.



**2** If receiving assistance, have the salon employee put on gloves. When appropriate, wash the injury with soap and water. Apply slight pressure to the wound with cotton to stop the bleeding, and then cleanse the area with an antiseptic.



3 Apply an adhesive bandage to completely cover the wound.



4 Now that your cut is properly cleaned and covered, put on gloves. Return to the service area, and remove any implements that may have been contaminated, placing them in your container for “dirty” items. If surfaces were contaminated, spray or wipe with approved disinfectant and allow to sit for the contact time listed on the product label.



5 Discard all single-use, contaminated objects such as wipes, cotton balls, and your gloves in a plastic bag. Place the plastic bag in a closed trash container with a liner bag. Deposit sharp disposables in a sharps box. Dispose of trash items and sharps containers as required by state/local law. Information on these laws may be found on your local cosmetology board website or through the OSHA website.

6 Now that all disinfecting is complete, put on a new pair of gloves before you return to the service. Remember to dry any surfaces sprayed with disinfectant, and always use new implements to replace those that were contaminated.



7 After the service has completed, thoroughly clean and disinfect all tools and implements used during the service. Completely immerse tools and implements in an EPA-registered hospital disinfectant solution for 10 minutes. See a physician if any signs of redness, swelling, pain, or irritation develop in the wounded area.

## REVIEW QUESTIONS

- 1 What is the primary purpose of regulatory agencies?
- 2 What is an SDS? Where can you get these?
- 3 List the four types of microorganisms that are pertinent to cosmetology.
- 4 What is a contagious disease?
- 5 Is HIV a risk in the salon? Why or why not?
- 6 What is the difference between cleaning, disinfecting, and sterilizing?
- 7 What is complete immersion?
- 8 List at least six safety tips to follow when using disinfectants.
- 9 How do you know if an item can be disinfected?
- 10 Can porous items be disinfected?
- 11 What are Standard Precautions?
- 12 What is an exposure incident?
- 13 Describe the procedure for handling an exposure incident in the salon.
- 14 List the steps for cleaning and disinfecting whirlpool, air-jet, and pipeless foot spas after each client.

## STUDY TOOLS

- **Reinforce what you just learned:** Complete the activities and exercises in your Theory or Practical Workbook, or your Study Guide.
- **Expand your knowledge:** Search for websites about the topics in this chapter and make a list of additional resources.
- **Study and prepare for your quiz:** Take the chapter test in your Exam Review or your Milady U: Online Licensing Prep.
- **Re-Test your knowledge:** Take the Chapter 5 Quizzes!
- **Learn even more:** Look up in a dictionary or search the internet for the definitions of any additional terms you want to learn about.

## CHAPTER GLOSSARY

<b>acquired immune deficiency syndrome (AIDS)</b> uh-KWY-erd ih-MYOON di-FISH-en-see sin-drohM	p. 82	A disease that breaks down the body's immune system. AIDS is caused by the human immunodeficiency virus (HIV).
<b>acquired immunity</b>	p. 84	Immunity that the body develops after overcoming a disease, through inoculation (such as flu vaccinations) or through exposure to natural allergens such as pollen, cat dander, and ragweed.
<b>allergy</b> AL-ur-jee	p. 86	Reaction due to extreme sensitivity to certain foods, chemicals, or other normally harmless substances.
<b>antiseptics</b> ant-ih-SEP-tiks	p. 93	Chemical germicide formulated for use on skin; registered and regulated by the Food and Drug Administration (FDA).
<b>asymptomatic</b>	p. 93	Showing no symptoms or signs of infection.
<b>bacilli</b> bah-SIL-ee	p. 77	Singular: bacillus. Short, rod-shaped bacteria. They are the most common bacteria and produce diseases such as tetanus (lockjaw), typhoid fever, tuberculosis, and diphtheria.



<b>bacteria</b> bak-TEER-ee-ah	p. 76	One-celled microorganisms that have both plant and animal characteristics. Some are harmful; some are harmless.
<b>bacterial spores</b>	p. 79	Bacteria capable of producing a protective coating that allows them to withstand very harsh environments, and shed the coating when conditions become more favorable.
<b>bactericidal</b> back-teer-uh-SYD-ul	p. 76	Capable of destroying bacteria.
<b>binary fission</b> BY-nayr-ee FISH-un	p. 78	The division of bacteria cells into two new cells called daughter cells.
<b>biofilms</b>	p. 80	Colonies of bacteria that adhere together and adhere to environmental surfaces.
<b>bloodborne pathogens</b>	p. 82	Disease-causing microorganisms carried in the body by blood or body fluids, such as hepatitis and HIV.
<b>chelating soaps</b> CHE-layt-ing SOHPS	p. 92	Also known as <i>chelating detergents</i> ; they break down stubborn films and remove the residue of pedicure products such as scrubs, salts, and masks.
<b>clean (cleaning)</b>	p. 76	A mechanical process (scrubbing) using soap and water or detergent and water to remove all visible dirt, debris, and many disease-causing germs. Cleaning also removes invisible debris that interfere with disinfection. Cleaning is what cosmetologists are required to do before disinfecting.
<b>cocci</b> KOK-sy	p. 77	Round-shaped bacteria that appear singly (alone) or in groups. The three types of cocci are staphylococci, streptococci, and diplococci.
<b>contagious disease</b> kon-TAY-jus dih-ZEEZ	p. 80	Also known as <i>communicable disease</i> ; disease that is spread from one person to another person. Some of the more contagious diseases are the common cold, ringworm, conjunctivitis (pinkeye), viral infections, and natural nail or toe and foot infections.
<b>contamination</b> kuhn-tam-ih-NAY-shun	p. 81	The presence, or the reasonably anticipated presence, of blood or other potentially infectious materials on an item's surface or visible debris or residues such as dust, hair, and skin.
<b>decontamination</b> dee-kuhn-tam-ih-NAY-shun	p. 85	The removal of blood and all other potentially infectious materials on an item's surface, and the removal of visible debris or residue such as dust, hair, and skin.
<b>diagnosis</b> dy-ag-NOH-sis	p. 81	Determination of the nature of a disease from its symptoms and/or diagnostic tests. Federal regulations prohibit salon professionals from performing a diagnosis.
<b>diplococci</b> dip-lo-KOK-sy	p. 77	Spherical bacteria that grow in pairs and cause diseases such as pneumonia.
<b>direct transmission</b>	p. 78	Transmission of blood or body fluids through touching (including shaking hands), kissing, coughing, sneezing, and talking.
<b>disease</b> dih-ZEEZ	p. 74	An abnormal condition of all or part of the body, or its systems or organs, which makes the body incapable of carrying on normal function.
<b>disinfectants</b> dis-in-FEK-tents	p. 73	Chemical products approved by the EPA designed to destroy most bacteria (excluding spores), fungi, and viruses on surfaces.
<b>disinfection (disinfecting)</b> dis-in-FEK-shun	p. 76	A chemical process that destroys most, but not necessarily all, harmful organisms on environmental surfaces. The pathogens of concern in the cosmetology industry are effectively destroyed by the disinfection process, which is required in all states.

<b>efficacy</b> ef-ih-KUH-see	p. 86	The ability to produce an effect.
<b>exposure incident</b>	p. 95	Contact with non-intact (broken) skin, blood, body fluid, or other potentially infectious material that is the result of the performance of an employee's duties.
<b>flagella</b> fluh-JEL-uh	p. 78	Slender, hair-like extensions used by bacilli and spirilla for locomotion (moving about). May also be referred to as cilia.
<b>folliculitis barbae</b> fah-lik-yuh-LY-tis BAR-bee	p. 83	Synonym <i>tinea barbae</i> (TIN-ee-uh BAR-bee). Also known as <i>barbers itch</i> , inflammation of the hair follicles caused by a bacterial infection from ingrown hairs. The cause is typically from ingrown hairs due to shaving or other epilation methods.
<b>fungi</b> FUN-jl	p. 83	Single-cell organisms that grow in irregular masses that include molds, mildews, and yeasts; can produce contagious diseases such as ringworm.
<b>fungicidal</b> fun-jih-SYD-ul	p. 76	Capable of destroying fungi.
<b>hepatitis</b> hep-uh-TY-tus	p. 82	A bloodborne virus that causes disease and can damage the liver.
<b>hospital disinfectants</b> HOS-pih-tal dis-in-FEK-tents	p. 74	Disinfectants that are effective for cleaning blood and body fluids.
<b>Human Immunodeficiency Virus</b> HYOO-mun ih-MYOO-noh-di-FISH-en-see VY-rus	p. 82	Abbreviated HIV; virus that causes acquired immune deficiency syndrome (AIDS).
<b>human papilloma virus</b> HYOO-mun pap-uh-LOW-ma VY-rus	p. 82	Abbreviated HPV; a virus that causes warts in humans, but is also the cause of cervical cancer in women. When the virus infects the bottom of the foot and resembles small black dots, usually in clustered groups, it is also called plantar warts.
<b>immunity</b>	p. 84	The ability of the body to destroy and resist infection. Immunity against disease can be either natural or acquired, and is a sign of good health.
<b>indirect transmission</b>	p. 78	Transmission of blood or body fluids through contact with an intermediate contaminated object such as a razor, extractor, nipper, or an environmental surface.
<b>infection</b> in-FEK-shun	p. 75	The invasion of body tissues by disease-causing pathogens.
<b>infection control</b>	p. 75	Are the methods used to eliminate or reduce the transmission of infectious organisms.
<b>infectious</b> in-FEK-shus	p. 73	Caused by or capable of being transmitted by infection.
<b>infectious disease</b> in-FEK-shus dih-ZEEZ	p. 75	Disease caused by pathogenic (harmful) microorganisms that enter the body. An infectious disease may be spread from one person to another person.
<b>inflammation</b> in-fluh-MAY-shun	p. 79	A condition in which the body reacts to injury, irritation, or infection; characterized by redness, heat, pain, and swelling.
<b>local infection</b>	p. 79	An infection, such as a pimple or abscess, that is confined to a particular part of the body and appears as a lesion containing pus.
<b>Material Safety Data Sheet</b>	p. 72	Abbreviated MSDS; replaced by <i>Safety Data Sheet</i> ; information compiled by the manufacturer about product safety, including the names of hazardous ingredients, safe handling and use procedures, precautions to reduce the risk of accidental harm or overexposure, and flammability warnings.

<b>methicillin-resistant Staphylococcus aureus</b> METH-eh-sill-en-ree-ZIST-ent staf-uh-loh-KOK-us OR-ee-us	p. 79	Abbreviated MRSA; a type of infectious bacteria that is highly resistant to conventional treatments due to incorrect doses or choice of antibiotic.
<b>microorganism</b> my-kroh-OR-gah-niz-um	p. 76	Any organism of microscopic or submicroscopic size.
<b>mildew</b> MIL-doo	p. 83	A type of fungus that affects plants or grows on inanimate objects, but does not cause human infections in the salon.
<b>motility</b> MOH-til-eh-tee	p. 77	Self-movement.
<b>multiuse items</b>	p. 89	Also known as <i>reusable items</i> ; items that can be cleaned, disinfected, and used on more than one person, even if the item is accidentally exposed to blood or body fluid.
<b>Mycobacterium fortuitum</b> MY-koh-bak-TIR-ee-um for-TOO-i-tum	p. 73	A microscopic germ that normally exists in tap water in small numbers.
<b>natural immunity</b>	p. 84	Immunity that is partly inherited and partly developed through healthy living.
<b>nonpathogenic</b> non-path-uh-JEN-ik	p. 76	Harmless microorganisms that may perform useful functions and are safe to come in contact with since they do not cause disease or harm.
<b>nonporous</b> nahn-POHW-rus	p. 74	An item that is made or constructed of a material that has no pores or openings and cannot absorb liquids.
<b>occupational disease</b>	p. 81	Illness resulting from conditions associated with employment, such as prolonged and repeated overexposure to certain products or ingredients.
<b>parasites</b>	p. 84	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.
<b>parasitic disease</b>	p. 81	Disease caused by parasites, such as lice and mites.
<b>pathogenic</b> path-uh-JEN-ik	p. 77	Harmful microorganisms that can cause disease or infection in humans when they invade the body.
<b>pathogenic disease</b>	p. 81	Disease produced by organisms, including bacteria, viruses, fungi, and parasites.
<b>phenolic disinfectants</b> fi-NOH-lik dis-in-FEK-tents	p. 88	Powerful tuberculocidal disinfectants. They are a form of formaldehyde, have a very high pH, and can damage the skin and eyes.
<b>porous</b> POHW-rus	p. 90	Made or constructed of a material that has pores or openings. Porous items are absorbent.
<b>pus</b>	p. 79	A fluid created by infection.
<b>quaternary ammonium compounds</b> KWAT-ur-nayr-ree uh-MOH-neeum KAHM-powndz	p. 88	Commonly known as “quats”; are products made of quaternary ammonium cations and are designed for disinfection on nonporous surfaces. They are appropriate for use in non-critical (non-invasive) environments and are effective against most pathogens of concern in the salon environment.
<b>Safety Data Sheet</b>	p. 72	Abbreviated SDS; required by law for all products sold. SDSs include safety information about products compiled by the manufacturer, including hazardous ingredients, safe use and handling procedures, proper disposal guidelines, precautions to reduce the risk of accidental harm or overexposure, and more.
<b>sanitizing</b>	p. 70	A chemical process for reducing the number of disease-causing germs on cleaned surfaces to a safe level.

<b>scabies</b> SKAY-beez	p. 84	A contagious skin disease that is caused by the itch mite, which burrows under the skin.
<b>single-use items</b>	p. 90	Also known as <i>disposable items</i> ; items that cannot be used more than once. These items cannot be properly cleaned so that all visible residue is removed—such as pumice stones used for pedicures—or they are damaged or contaminated by cleaning and disinfecting.
<b>sodium hypochlorite</b> SOH-dee-um hy-puh-KLOR-ite	p. 88	Common household bleach; an effective disinfectant for the salon.
<b>spirilla</b> spy-RIL-ah	p. 77	Spiral or corkscrew-shaped bacteria that cause diseases such as syphilis and Lyme disease.
<b>Standard Precautions</b>	p. 93	Abbreviated SP; precautions such as wearing personal protective equipment to prevent skin and mucous membranes where contact with a client's blood, body fluids, secretions (except sweat), excretions, non-intact skin, and mucous membranes is likely. Workers must assume that all blood and body fluids are potential sources of infection, regardless of the perceived risk.
<b>staphylococci</b> staf-uh-loh-KOK-sy	p. 77	Pus-forming bacteria that grow in clusters like a bunch of grapes. They cause abscesses, pustules, and boils.
<b>sterilization</b> stayr-ih-luh-ZAY-shun	p. 84	The process that completely destroys all microbial life, including spores.
<b>streptococci</b> strep-toh-KOK-sy	p. 77	Pus-forming bacteria arranged in curved lines resembling a string of beads. They cause infections such as strep throat and blood poisoning.
<b>systemic infection</b>	p. 79	Infection that affects the body as a whole, often due to under-functioning or over-functioning of internal glands or organs. This disease is carried through the blood stream or the lymphatic system.
<b>tinea barbae</b> TIN-ee-uh BAR-bee	p. 83	A superficial fungal infection caused by a variety of dermatophytes that commonly affects the skin. It is primarily limited to the bearded areas of the face and neck or around the scalp. A person with this condition may have deep, inflamed or non-inflamed patches of skin on the face or the nape of the neck.
<b>tinea capitis</b> TIN-ee-uh KAP-ih-tis	p. 83	A fungal infection of the scalp characterized by red papules, or spots, at the opening of the hair follicles.
<b>tinea pedis</b> TIN-ee-uh PED-us	p. 83	A ringworm fungus of the foot.
<b>toxins</b> TAHK-sinz	p. 83	Various poisonous substances produced by some microorganisms (bacteria and viruses).
<b>tuberculocidal disinfectants</b> tuh-bur-kyoo-LOH-sy-dahl dis-in-FEK-tents	p. 74	Disinfectants that kill the bacteria that causes tuberculosis.
<b>tuberculosis</b> tuh-bur-kyoo-LOH-sus	p. 74	A disease caused by bacteria that are transmitted through coughing or sneezing.
<b>virucidal</b> vy-ru-SYD-ul	p. 76	Capable of destroying viruses.
<b>virus</b> VY-rus	p. 80	A parasitic submicroscopic particle that infects and resides in cells of biological organisms.