

GUIDELINES FOR THE CLEANING OF EQUIPMENT AND ACCESSORIES USED IN THE BEAUTY INDUSTRY

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Abstract

In the current scenario caused by Coronavirus Disease 2019 (COVID-19) pandemic, biosafety practices in the cleaning of surfaces, equipment and accessories used in aesthetic care are essential to ensure the health of professionals and clients who attend the health, beauty, and wellness segments. In view of the importance of preserving and preparing the work environment for safe attendance, issues related to procedures, materials and processes for cleaning, disinfecting and sterilizing equipment and accessories used in aesthetic environments according to the degree of criticality have been elucidated.

Keywords: biosafety practices; disinfection; sterilization; beauty industry

Introduction

The cleaning of surfaces, equipment and accessories used in beauty treatments is essential to ensure the health of the professionals and customers of these establishments. The cleaning, disinfection, and sterilization of materials is meant to decontaminate and interrupt the transmission of microorganisms that cause infections. In the current scenario caused by the Coronavirus Disease 2019 (COVID-19) pandemic, biosafety practices have become even more essential to maintain the operation of establishments in the health, beauty, and wellness segments.

This chapter will seek to shed light on important issues related to the cleaning, disinfection, and sterilization of equipment and accessories used in environments of the beauty industry, taking into account their preservation and the preparation of the work environment for safe care. As such, the utensils, equipment and sanitizers needed for these processes will be listed, as will the objects to be decontaminated according to their degree of criticality.

1. Cleaning, Disinfection and Sterilization

The equipment and utensils used in the beauty industry may be sources for the spread of microorganisms if they are not subjected to a cleaning and disinfection/sterilization process after use. The places where these objects are processed, just as the professionals who perform the cleaning, disinfection and sterilization procedures, could also become vehicles of contamination if they do not have the proper training (BRASIL, 1994). According to the Brazilian regulatory standard 32 (*Norma Regulamentadora 32, NR32*), which addresses the health and safety of workers in healthcare services, the professionals responsible for cleaning in healthcare services should therefore be trained in advance and keep up to date

regarding personal hygiene, the risks involved in the process, signage, product labeling, the proper use of personal and collective protection equipment, and conduct in emergency situations (BRASIL 2005).

The cleaning of materials is the first step to be taken before disinfection and/or sterilization in order to ensure that the following procedures are effective in eliminating the agents that cause infection. It consists of removing organic matter (blood, body secretions, fat, etc.) from the materials through mechanical friction with soap and water using cloths, sponges, or brushes, and then rinsing them in clean, running water. The drying of the materials and surfaces also requires care to avoid further contamination, and can be done with clean, dry cloths (BRASIL, 1994).

The most commonly used products for cleaning are soaps made from alkaline salts of fatty acids associated or not with other surfactants, which produce a saponification reaction to remove the dirt (BRASIL, 2010). If this cleaning is not properly performed, the organic matter present on the objects may act as a barrier, preventing the elimination of pathogens through disinfection and/or sterilization (BRASIL, 1994).

When the surfaces have no organic matter, the Brazilian health surveillance agency (*Agência Nacional de Saúde*, ANVISA) recommends removing excess dust from the material with water and a disposable paper towel or washable cloth, followed by cleaning with soap or detergent, and then rinsing the surface with water and drying it. If the surface contains organic matter, the recommendation is to remove it with disposable paper before performing the steps described above (BRASIL, 2010). In the case of electrotherapy equipment, they should be turned off and disconnected from the power source, the procedures should follow the instructions of the manufacturer's manual, and the sanitizer should be chosen according to the type of material (plastic, glass, acrylic, etc.) in order to avoid risks to the professional and damage to the equipment.

The disinfection of surfaces and objects is the process of destroying microorganisms (except those with spores (more resistant)) through the application of chemical agents, after the cleaning of the materials. The following are some important pieces of information that must be taken into account by the professionals performing the disinfection of utensils: only products that are regulated by ANVISA should be used; products after their expiration date should not be used and products should not be mixed, using only one product at a time; the manufacturer's recommendations and labels of the product should always be followed to check the concentration, method of application, and time that the product needs to be in contact with the surface to be disinfected, among others (GOVERNMENT OF THE STATE OF MATO GROSSO DO SUL, 2020).

The total removal of microorganisms from utensils used in the beauty, health, and wellness services is carried out through the sterilization process, which can be either physical or chemical. Sterilization is a necessary procedure for equipment that is considered critical, and it is recommended for semi-critical ones. For heat-resistant critical materials, the indicated method for sterilization is steam, and for steam-sensitive materials there are chemical sterilization options. The choice of sterilization medium is essential to avoid damaging the items and/or compromising sterility, as is the sterilization time, which should follow the instructions specified by the manufacturer. In order for the material to be considered compatible with the sterilization method, it must be sterile and functional at the end of the process. The entire cleaning, decontamination, packaging, sterilization, transport, and storage process of sterile items is crucial to ensure the supply of sterile material for care (WHO, 2016).

2. Classification of the Materials Used in the Beauty Industry

The accessories used in healthcare services can be classified into critical, semi-critical, and non-critical items, and, depending on this classification, they will require different cleaning, disinfection, and

sterilization procedures. **Critical items** are all those invasive items that penetrate/perforate the skin and/or mucous membranes, reaching subepithelial tissues and the vascular system. They require sterilization to eliminate microorganisms, including their resistant forms. This sterilization is done by moist heat (autoclave) or other methods recognized by ANVISA or the Ministry of Health. **Semi-critical items** are those that come in contact with non-intact skin, with restricted reach of the skin layers or intact mucous membranes. These require high-level disinfection or sterilization. If these materials are resistant to high temperatures, the most recommended method is sterilization by autoclave, which ensures better quality in the fight against infectious agents. The **non-critical items**, on the other hand, are all those that come in contact with the patient's healthy skin, which acts as a barrier against most microorganisms. These instruments require low or medium-level cleaning and disinfection after use (BRASIL, 1994).

Table 1 lists some examples of critical, semi-critical and non-critical materials used in the beauty industry.

Table 1 - Classification of materials used in the beauty industry

	Critical Items		Semi-critical Items	Non-critical Items	
Description	When they come in contact with body fluids (penetrate skin and mucosa).		When they come in contact with non-intact skin and intact mucous membranes	When they come in contact with intact skin.	
Processing required	Cleaning, disinfection and sterilization	Individual use and disposable	Cleaning, high-level disinfection or sterilization	Cleaning, and low or medium level disinfection	Individual use and disposable
	<ul style="list-style-type: none"> - Nail pliers - Nail clippers - Metal manicure/pedicure sticks - Scissors - Comedone extractors - Electrodes/heads in contact with bodily secretions - Instruments used in podiatry - Tweezers 	<ul style="list-style-type: none"> - Needles - Razors - Blades - PPEs - Sheets - Pigment holder - Wooden manicure/pedicure sticks - Nail and toenail files 	<ul style="list-style-type: none"> - Make-up brushes and sponges - Electrodes in contact with mucous membranes 	<ul style="list-style-type: none"> - Towels - Bandages - Sheets - Hair bands - Reusable caps - Coveralls - Hair-cutting cap - Cuvettes - Spatulas - Combs - Brushes - Hair rollers - Silicone ear protector 	<ul style="list-style-type: none"> - Surgical cap - Surgical Glove - Surgical Mask - Surgical apron - Paper or disposable sheets - Wooden manicure/pedicure sticks

			<ul style="list-style-type: none"> - Caliper - Equipment console and electrode holder - Hose for connecting electrodes and equipment power cables - Plastic hair chemistry cap - Basin - Tray - Brushes for facial and body aesthetics and make-up - Make-up sponges - Electrodes/heads with no contact with bodily secretions - Bamboo - Massage roller - Pantala massage tool - Stretcher - Quick massage chair - Hairdressing chair 	
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Source: Developed by the author (2020)

All materials classified as non-critical or semi-critical that come in contact with bodily secretions, non-intact skin or mucous membranes during aesthetic care need special attention. If the material of these instruments is not thermosensitive, they should be sterilized. If they are thermosensitive, they should undergo a high-level disinfection process, following the recommended steps for the previous cleaning.

Personal protective goggles and face shields also require special care, as there may be contamination by microorganisms during care. Since these PPEs cannot undergo autoclave sterilization, high-level cleaning and disinfection is recommended after each service.

3. Products Used to Disinfect the Surfaces of Beauty Appliances and Utensils

Beauty, health and wellness establishments must make the necessary amount of equipment and materials available to meet demand and respect their required cleaning, disinfection and sterilization times, keeping them in the necessary operating and ergonomic conditions. The instruments used must be sanitized, disinfected or sterilized in accordance with their purpose and the applicable legislation, or following the specifications of the establishment's Operating Procedures Manual. All utensils that come into contact with blood or secretions must be discarded or sterilized (BRASIL, 2009). Table 2 contains suggestions of sanitizing products used for the disinfection of surfaces and equipment.

Table 2 - Commonly used sanitizers

Product	Characteristic	Mechanism of action	Concentrations of use	Directions for use	Advantages	Disadvantages
Ortho-phthalaldehyde (OPA).	Chemical agent used for high-level disinfection.	Antimicrobial.	Recommended at 0.55%.	The time required for high-level disinfection varies according to national manufacturing standards.	Excellent stability over a wide pH range (3-9). Fast action with excellent material compatibility. Almost imperceptible odor. Not carcinogenic, but its use is recommended for ventilated areas.	More expensive than glutaraldehyde. May cause eye irritation and skin stains. Must be disposed of according to local regulations. May require neutralization before disposal in the sewer.
Glutaraldehyde	Compound aldehyde and available as acid or alkaline solutions.	Antimicrobial.	For high-level disinfection, it is recommended at 2% at alkaline pH.	Immersion times vary between countries, but 10 minutes is the minimum for bactericidal activity, 20 minutes for tuberculocidal activity, and more than 3 hours for sporicidal activity.	Widely used to disinfect heat-sensitive items. Non-corrosive to metals and other materials. Can destroy all types of microorganisms (including sporulated bacteria and fungi, the tuberculosis bacillus and viruses).	Irritation and potential toxicity. Vapors can cause occupational asthma and contact dermatitis. Should be stored away from heat sources. Should be applied in a well-ventilated area.

Peracetic Acid.	Oxidizing agent that acts similarly to hydrogen peroxide.	It denatures proteins and alters the permeability of the cell wall.	Used in concentrations of 0.1% to 0.2% with a contact time of 5 to 15 minutes.	Solutions are available for manual immersion of items after cleaning. Automated machines using peracetic acid are available for chemical sterilization.	Wide range of antimicrobial activity (including spores). Fast acting. Does not produce toxic residues. Effective in the presence of organic matter. More effective than glutaraldehyde in penetrating organic matter, such as biofilms.	Corrosive to copper, brass, bronze, plain steel and galvanized iron, but these effects can be minimized by additives and pH correctors. May cause eye irritation, mucous membrane irritation, and skin damage.
Hydrogen Peroxide.	Oxidizing agent used for high-level disinfection.	Antimicrobial.	For high-level disinfection, concentrations of 6% to 7.5% are recommended for 30 minutes.	It is stable and has disinfectant action for inanimate surfaces.	Antimicrobial activity against a wide range of microorganisms, including Cryptosporidi. Has low toxicity and irritation. Odorless. Does not damage glass or plastic items.	Oxidizes metal items. May cause eye irritation.
Chlorine-based compounds (sodium	Aqueous solutions of sodium	Inhibits enzyme reactions, denatures	Concentrations from 0.1% to 0.5%.	Objects should not be submerged for more than 30	Fast acting. Low cost.	Corrosive to metal, damages plastic, rubber and similar components

hypochlorite, calcium hypochlorite, or sodium dichloroisocyanurate).	hypochlorite widely used as household bleach.	proteins, and inactivates nucleic acids.		minutes due to its corrosive activity.	Wide antimicrobial activity (including bacterial spores). Does not leave toxic residues. Effective against a wide variety of viruses and disinfectant of choice for environmental decontamination.	(on exposure > 30 minutes). Hypochlorites can cause eye, lung and mucous membrane irritation, especially if used in poorly ventilated areas.
Chlorine dioxide.	Oxidant and disinfectant.	Causes the interruption of nutrient transport through the cell wall. Reacts easily with the amino acids cysteine, tryptophan and tyrosine, but not with viral ribonucleic acid (RNA), but it inactivates viruses by altering the protein capsule.	From 0.5 to 50 mg/l.	High-level disinfection can be achieved in 5 minutes; however, 10 minutes are needed for sporicidal activity.	Can be applied to heat sensitive instruments. Wide range of antimicrobial activity.	May be harmful to some metals and plastics.

Alcohol.	Alcohol (ethanol or propanol).	Bactericidal /virucidal, acts by dissolving the cell membrane. Intermediate level of disinfection, this includes isopropyl alcohol and 70% ethyl alcohol.	Commonly used in concentrations of 60% to 70%.	Isopropyl alcohol is commonly used as an antiseptic on surfaces. Ethyl alcohol has better bactericidal than bacteriostatic activity and also acts on the tuberculosis bacillus, fungi, and viruses.	Antiseptic. Miscible with water. Wide range of antimicrobial activity including viruses and mycobacteria. Does not require rinsing after application.	Used to disinfect only physically clean surfaces or equipment. It is explosive. May cause eye, skin and mucous membrane irritation if used in large quantities. Must be used in a ventilated environment. If inhaled in large amounts, it can cause headache and drowsiness.
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Adapted from the WHO (2016).

4. Final Recommendations Regarding the Cleaning, Disinfection and Management of Beauty Accessories and Equipment in Coping with the COVID-19 Pandemic.

The cleaning and disinfection process of beauty equipment and accessories should be carried out with care, keeping in mind that any equipment that comes into contact or is close to the patient may be considered a risk of contamination. As such, it is essential to establish standard operating procedures for the decontamination of these materials, thus avoiding cross-infection (WHO, 2016).

The World Health Organization recommends the use of 70% ethyl alcohol to disinfect small areas, such as reusable equipment, and 0.5% sodium hypochlorite for the disinfection of exposed surfaces, always taking into account the manufacturer's characteristics and recommendations to avoid damage to the equipment (WHO, 2020b).

During the procedures, it is recommended that only the materials in use are left exposed, thus minimizing the risk of contamination, and to always perform proper hand hygiene between procedures. Attention should also be given to any surface that becomes soiled with secretions from respiratory problems or other body fluids; these surfaces will require cleaning with a solution containing 0.1% sodium hypochlorite by keeping this solution in contact for 10 minutes and then rinsing with water. The use of bleach should be avoided in equipment with buttons, for which alcohol 70% is indicated (WHO, 2020a).

Preferably, the material used for cleaning the equipment should be disposable, avoiding absorbent fabrics. When necessary, non-porous cleaning materials should be properly disinfected with a 0.5% sodium hypochlorite solution or according to the manufacturer's instructions (WHO, 2020a).

During care, a cloth towel should be used for each procedure performed to avoid contamination, regardless of whether it is the same client. All soiled towels should be isolated in a lidded container identified with a label. For the cleaning of the cloth material, it is recommended that they are washed with soap and water and immersed for 30 minutes in sodium hypochlorite. After drying, the fabrics should be ironed and stored in a clean, ventilated and dry environment, preferably packed in plastic bags individually (SEBRAE, 2016). The stretchers (massage, facial/body aesthetics and hair removal), pillows and chairs should have a waterproof and intact lining, preferably using disposable sheets (SANTA CATARINA, 2012).

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