10 Hour Continuing Education Course for Florida Cosmetology Professionals

Course #0501468

Approved Continuing Education for Cosmetology Professionals

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Table of Contents

Module 1: HIV / AIDS & Other Communicable Diseases

Introduction

This course covers defining HIV and AIDS, and Hepatitis, how they are transmitted, infection control and prevention, how the diseases are managed in the healthcare system, and attitudes and behaviors toward persons with HIV and AIDS.

What is HIV

HIV stands for human immunodeficiency virus. It is the virus that can lead to acquired immunodeficiency syndrome, or AIDS, if not treated. Unlike some other viruses, the human body can't get rid of HIV completely, even with treatment. So, once you get HIV, you have it for life.

HIV attacks the body's immune system, specifically the CD4 cells (T cells), which help the immune system fight off infections. Untreated, HIV reduces the number of CD4 cells (T cells) in the body, making the person more likely to get other infections or infection-related cancers. Over time, HIV can destroy so many of these cells that the body can't fight off infections and disease. These opportunistic infections or cancers take advantage of a very weak immune system and signal that the person has AIDS, the last stage of HIV infection.

No effective cure currently exists, but with proper medical care, HIV can be controlled. The medicine used to treat HIV is called antiretroviral therapy or ART.

If taken the right way, every day, this medicine can dramatically prolong the lives of many people infected with HIV, keep them healthy, and greatly lower their chance of infecting others.

In the United States, most people with HIV do not develop AIDS because effective ART stops the disease progression. People with HIV who are diagnosed early can have a life span that is about the same as someone like them who does not have HIV.

What is AIDS

AIDS is the most severe phase of HIV infection. People with AIDS have such badly damaged immune systems that they get an increasing number of severe illnesses, called opportunistic infections.

Is There a Cure for HIV

No effective cure currently exists for HIV. But with proper medical care, HIV can be controlled.

Transmission of HIV

You can get or transmit HIV only through specific activities. Most commonly, people get or transmit HIV through sexual behaviors and needle or syringe use.

Only certain body fluids—blood, semen, rectal fluids, vaginal fluids, and breast milk—from a person who has HIV can transmit HIV. These fluids must come in contact with a mucous membrane or damaged tissue or be directly injected into the bloodstream (from a needle or syringe) for transmission to occur. Mucous membranes are found inside the rectum, vagina, penis, and mouth.

In the United States, HIV is spread mainly by

- Having anal or vaginal sex with someone who has HIV without using a condom or taking medicines to prevent or treat HIV.
    - For the HIV-negative partner, receptive anal sex is the highest-risk sexual behavior, but you can also get HIV from insertive anal sex.
    - Either partner can get HIV through vaginal sex, though it is less risky for getting HIV than receptive anal sex.
- Sharing needles or syringes, rinse water, or other equipment used to prepare drugs for injection with someone who has HIV. HIV can live in a used needle up to 42 days depending on temperature and other factors.

Less commonly, HIV may be spread

- From mother to child during pregnancy, birth, or breastfeeding. Although the risk can be high if a mother is living with HIV and not taking medicine, recommendations to test all pregnant women for HIV and start HIV treatment immediately have lowered the number of babies who are born with HIV.
- By being stuck with an HIV-contaminated needle or other sharp object. This is a risk mainly for health care workers.

In extremely rare cases, HIV has been transmitted by

- Oral sex—putting the mouth on the penis, vagina, or anus. In general, there's little to no risk of getting HIV from oral sex. But transmission of HIV, though extremely rare, is theoretically possible from oral sex. To learn more about how to lower your risk, see CDC's Oral Sex and HIV Risk.
- Receiving blood transfusions, blood products, or organ/tissue transplants that are contaminated with HIV. This was more common in the early years of HIV, but now the risk is extremely small because of rigorous testing of the US blood supply and donated organs and tissues.
- Eating food that has been pre-chewed by an HIV-infected person. The contamination occurs when infected

blood from a caregiver's mouth mixes with food while chewing. The only known cases are among infants.

- Being bitten by a person with HIV. Each of the very small number of documented cases has involved severe trauma with extensive tissue damage and the presence of blood. There is no risk of transmission if the skin is not broken.
- Contact between broken skin, wounds, or mucous membranes and HIV-infected blood or blood-contaminated body fluids.
- Deep, open-mouth kissing if both partners have sores or bleeding gums and blood from the HIV-positive partner gets into the bloodstream of the HIV-negative partner. HIV is not spread through saliva.

Can You Get HIV from Casual Contact, Using a Public Space, or from a Mosquito Bite?

No. HIV is NOT transmitted:

- By hugging, shaking hands, sharing toilets, sharing dishes, or closed-mouth or "social" kissing with someone who is HIV-positive.
- Through saliva, tears, or sweat that is not mixed with the blood of an HIV-positive person.
- By mosquitoes, ticks or other blood-sucking insects.
- Through the air.

Stages and Symptoms of HIV Infection

The three stages of HIV infection are: (1) acute HIV infection, (2) clinical latency, and (3) AIDS (acquired immunodeficiency syndrome). The symptoms of HIV vary, depending on the individual and what stage of the disease you are in the early stage, the clinical latency stage, or AIDS (the late stage of HIV infection). Not all individuals will experience these symptoms.

Acute HIV Infection Stage

Within 2 to 4 weeks after infection, many, but not all, people develop flu-like symptoms, often described as "the worst flu ever." Symptoms can include fever, swollen glands, sore throat, rash, muscle and joint aches and pains, and headache. This is called "acute retroviral syndrome" (ARS) or "primary HIV infection," and it's the body's natural response to the HIV infection. People who think that they may have been infected recently and are in the acute stage of HIV infection should seek medical care right away. Starting treatment at this stage can have significant benefits to your health.

During the acute HIV infection stage, you are at very high risk of transmitting HIV to your sexual or needle-sharing partners because the levels of HIV in your blood stream are extremely high. For this reason, it is very important to take steps to reduce your risk of transmission.

Symptoms of Acute HIV Infection

During this early period of infection, large amounts of virus are being produced in your body. The virus uses CD4 cells to replicate and destroy them in the process. Because of this, your CD4 cells can fall rapidly. Eventually your immune response will begin to bring the level of virus in your body back down to a level called a viral set point, which is a relatively stable level of virus in your body. At this point, your CD4 count begins to increase, but it may not return to pre-infection levels.

About 40% to 90% of people have flu-like symptoms within 2-4 weeks after HIV infection. Flu like symptoms can include:

1. Fever
2. Chills
3. Rash
4. Night sweats
5. Muscle aches
6. Sore throat
7. Fatigue
8. Swollen lymph nodes
9. Mouth ulcers

Clinical Latency Stage

After the acute stage of HIV infection, the disease moves into a stage called the "clinical latency" stage. "Latency" means a period where a virus is living or developing in a person without producing symptoms.

During the clinical latency stage, the HIV virus continues to reproduce at very low levels, even if it cannot be detected with standard laboratory tests. If you take ART, you may live with clinical latency for decades and never progress to AIDS because treatment helps keep the virus in check.

Symptoms of Clinical Latency Stage

During the clinical latency stage, people who are infected with HIV experience no symptoms, or only mild ones.

People in this symptom-free stage are still able to transmit HIV to others. The risk of transmission is greatly reduced by HIV treatment.

AIDS Infection Stage

This is the stage of HIV infection that occurs when your immune system is badly damaged, and you become vulnerable to opportunistic infections. When the number of your CD4 cells falls below 200 cells per cubic millimeter of blood (200 cells/mm3), you are considered to have progressed to AIDS.

Without treatment, people who progress to AIDS typically survive about 3 years. Once you have a dangerous opportunistic illness, life-expectancy without treatment falls to about 1 year.

Symptoms of Clinical Latency Stage

The late stage of HIV infection symptoms can include:

1. Rapid weight loss
2. Recurring fever
3. Profuse night sweats
4. Extreme and unexplained tiredness
5. Prolonged swelling of the lymph glands in the armpits, groin, or neck
6. Diarrhea that lasts for more than a week
7. Sores of the mouth, anus, or genitals
8. Pneumonia
9. Red, brown, pink, or purplish blotches on or under the skin or inside the mouth, nose, or eyelids
10. Memory loss, depression, and other neurologic disorders
11. White spots on tongue
12. Dry, flaky skin

You cannot rely on symptoms to tell whether you have HIV.

Many of the severe symptoms and illnesses of HIV disease come from the opportunistic infections that occur because your body's immune system has been damaged.

People living with HIV may progress through these stages at different rates, depending on a variety of factors, including their genetic makeup, how healthy they were before they were infected, how much virus they were exposed to and its genetic characteristics, how soon after infection they are diagnosed and linked to care and treatment, whether they see their healthcare provider regularly and take their HIV medications as directed, and different health-related choices they make, such as decisions to eat a healthful diet, exercise, and not smoke.

You should not assume you have HIV just because you have any of these symptoms. Each of these symptoms can be caused by other illnesses. And some people who have HIV do not show any symptoms at all for 10 years or more.

The only way to know for sure if you have HIV is to get tested. Knowing your status is important because it helps you make healthy decisions to prevent getting or transmitting HIV.

Testing for HIV

If you get HIV, your body will usually begin to develop antibodies within 3 weeks to 12 weeks (21 to 84 days). The time between being exposed and developing antibodies is called the "window period."

There are newer HIV tests available that can tell whether you are HIV-positive early after exposure to the virus. One of

the newer tests looks for the virus itself, by testing for viral load (the amount of HIV in your blood) and a marker on the virus called p24 antigen. This test is much more sensitive. It can detect HIV within nine to 11 days after exposure. This type of test may be more expensive.

There are three types of tests available: nucleic acid tests (NAT), antigen/antibody tests, and antibody tests. HIV tests are typically performed on blood or oral fluid. They may also be performed on urine.

1. A **NAT** looks for the actual virus in the blood. The test can give either a positive/negative result or an amount of virus present in the blood (known as an HIV viral load test). This test is very expensive and not routinely used for screening individuals unless they recently had a high-risk exposure, or a possible exposure and they have early symptoms of HIV infection.

2. An **antigen/antibody test** looks for both HIV antibodies and antigens. Antibodies are produced by your immune system when you're exposed to bacteria or viruses like HIV. Antigens are foreign substances that cause your immune system to activate. If you have HIV, an antigen called p24 is produced even before antibodies develop. Antigen/antibody tests are recommended for testing done in labs and are now common in the United States. There is also a rapid antigen/antibody test available.
3. Most rapid tests and home tests are **antibody tests**. HIV antibody tests look for antibodies to HIV in your blood or oral fluid. In general, antibody tests that use blood from a vein can detect HIV sooner after infection than tests done with blood from a finger prick or with oral fluid.

   a. While most laboratories are now using antigen/antibody tests, **laboratory-based antibody screening tests** are still available. These tests require blood to be drawn from your vein into a tube and then that blood is sent to a laboratory for testing. The results may take several days to be available

   b. With a **rapid antibody screening test**, results are ready in 30 minutes or less. These tests are used in clinical and nonclinical settings, usually with blood from a finger prick or with oral fluid.

   c. The **oral fluid antibody self-test** provides fast results. You have to swab your own mouth to collect an oral fluid sample and use a kit to test it. Results are available in 20 minutes. The manufacturer provides confidential counseling and referral to follow-up testing sites. These tests are available for purchase in stores and online. They may be used at home, or they may be used for testing in some community and clinic testing programs.

   d. The **home collection kit** involves pricking your finger to collect a blood sample, sending the sample by mail to a licensed laboratory, and then calling in for results as

early as the next business day. This antibody test is anonymous. The manufacturer provides confidential counseling and referral to treatment.

If you use any type of antibody test and have a positive result, you will need to take a follow-up test to confirm your results. If your first test is a rapid home test and it's positive, you will be sent to a health care provider to get follow-up testing. If your first test is done in a testing lab and it's positive, the lab will conduct the follow-up testing, usually on the same blood sample as the first test.

Places to Get Tested for HIV

You can ask your health care provider for an HIV test. Many medical clinics, substance abuse programs, community health centers, and hospitals offer them too. You can also find a testing site near you by

- calling 1-800-CDC-INFO (232-4636),
- website: gettested.cdc.gov, or
- texting your ZIP code to KNOW IT (566948).

You can also buy a home testing kit at a pharmacy or online.

Who is at Risk for HIV?

HIV can affect anyone regardless of sexual orientation, race, ethnicity, gender or age. However, certain groups are at higher risk for HIV and merit special consideration because of particular risk factors.

Some groups of people in the United States are more likely to get HIV than others because of many factors, including the status of their sex partners, their risk behaviors, and where they live.

When you live in a community where many people have HIV infection, the chances of having sex or sharing needles or other injection equipment with someone who has HIV are higher.

You can use CDC's HIV, STD, hepatitis, and tuberculosis Atlas Plus to see the percentage of people with HIV ("prevalence") in different US communities. Within any community, the prevalence of HIV can vary among different populations.

Gay and bisexual men have the largest number of new diagnoses in the United States. Blacks/African Americans and Hispanics/Latinos are disproportionately affected by HIV compared to other racial and ethnic groups. Also, transgender women who have sex with men are among the groups at highest risk for HIV infection, and injection drug users remain at significant risk for getting HIV.

Risky behaviors, like having anal or vaginal sex without using a condom or taking medicines to prevent or treat HIV, and sharing needles or syringes play a big role in HIV transmission. Anal sex is the highest-risk sexual behavior.

Preventing HIV

It is very important to take steps to reduce the risks of acquiring HIV,

associated with the most common ways HIV is transmitted. These steps include:

- Knowing your HIV status. Getting tested at least once, but if you are at increased risk for HIV, you should get tested more than once a year.
- Use Condoms. Male and female condoms help to prevent the spread of HIV infection.
- Be Monogamous. Having sex with just one partner, after getting tested for Sexually Transmitted Infections (STI's).
- Limit your number of sexual partners.
- Do not use drugs.
- Do not share needles and use only sterilized needles.
- Seek medical attention right away after possible exposure to HIV blood or body fluids.
- All blood spills — including those that have already dried — should be cleaned and disinfected with a mixture of bleach and water (one-part household bleach to 10 parts water). Gloves should always be used when cleaning up any blood spills.
- The safest and most efficient way of preventing the spread of HIV disease is to use single-use items: Disposable razors and blades.
- Razor blades used for hair cutting should be changed after each client, and the blade should be disposed of into a sharp's container. The handle should be washed and dried after the blade has been removed; if contaminated, it also requires sterilization.

Treatment of HIV / AIDS

HIV treatment involves taking medicines that slow the progression of the virus in your body. HIV is a type of virus called a retrovirus, and the drugs used to treat it are called antiretrovirals (ARV). These drugs are always given in combination with other ARVs; this combination therapy is called antiretroviral therapy (ART). Many ART drugs have been used since the mid-1990s and are the reason why the annual number of deaths related to AIDS has dropped over the past two decades. If left untreated, HIV attacks your immune system and can allow different types of life-threatening infections and cancers to develop.

U.S. Department of Health and Human Services recommend that a person living with HIV begin antiretroviral therapy (ART) as soon as possible after diagnosis. Starting ART slows the progression of HIV and can keep you healthy for many years. There currently is no cure for HIV / AIDS

FDA-Approved HIV Medicines

- Nucleoside Reverse Transcriptase Inhibitors (NRTIs)
- Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTIs)
- Protease Inhibitors (PIs)
- Fusion Inhibitors

- CCR5 Antagonists
- Integrase Inhibitors
- Post-Attachment Inhibitors
- Pharmacokinetic Enhancers

Hepatitis

What is Hepatitis

Inflammation of the liver, usually from a viral infection. The most common hepatitis infections are hepatitis A, hepatitis B, and hepatitis C. Hepatitis may also be due to autoimmune disease, alcohol, medications, or toxic agents.

What is the difference between hepatitis A, hepatitis B, and hepatitis C?

Hepatitis A, Hepatitis B, and Hepatitis C are liver infections caused by three different viruses. Although each can cause similar symptoms, they are spread in different ways and can affect the liver differently. Hepatitis A is usually a short-term infection and does not become a long-term infection. Spreads by ingesting the virus from objects, food, or drinks contaminated by small, undetected amounts of stool from an infected person. Hepatitis B and hepatitis C can also begin as short-term infections but in some people, the virus remains in the body, and causes chronic, or lifelong, infection. There are vaccines to prevent hepatitis A and hepatitis B; however, there is no vaccine for hepatitis C

Hepatitis B Hepatitis B is a liver infection caused by the hepatitis B virus. Hepatitis B can range from a mild illness lasting a few weeks to a serious, lifelong illness.

cirrhosis or liver cancer. The virus can survive outside the body for up to 7 days. During that time the virus is still capable of causing infection.

- **Acute hepatitis B** is a short-term illness that occurs within the first 6 months after someone is exposed to the hepatitis B virus. An acute infection can range in severity from a mild illness with few or no symptoms to a serious condition requiring hospitalization. Some people, especially adults, are able to clear the virus without treatment. People who clear the virus become immune and cannot get infected with the hepatitis B virus again. Acute infection can — but does not always — lead to chronic infection.

- **Chronic hepatitis B** is a lifelong infection with the hepatitis B virus. Over time, chronic hepatitis B can cause serious health problems, including liver damage, cirrhosis, liver cancer, and even death.

Hepatitis B Transmission / Exposure

The hepatitis B virus is spread when blood, semen, or other body fluid infected with the hepatitis B virus enters the body of a person who is not infected. People can become infected with the virus from:

- Birth (spread from an infected mother to her baby during birth)
- Sex with an infected partner
- Sharing needles, syringes, or drug preparation equipment
- Sharing items such as toothbrushes, razors or medical equipment such as a glucose monitor with an infected person
- Direct contact with the blood or open sores of an infected person
- Exposure to blood from needle sticks or other sharp instruments of an infected person
- Hepatitis B virus is not spread through food or water, sharing eating utensils, breastfeeding, hugging, kissing, hand holding, coughing, or sneezing.

Who Is at Risk for Hepatitis B?

Although anyone can get hepatitis B, some people are at greater risk:

- Infants born to infected mothers
- People who inject drugs or share needles, syringes, or other drug equipment
- Sex partners of people with hepatitis B
- Men who have sexual contact with men
- People who live with a person who has hepatitis B
- Health care and public safety workers exposed to blood on the job
- Hemodialysis patients

Symptoms of Hepatitis B

If symptoms occur, they begin an average of 90 days (or 3 months) after exposure, but they can appear any time between 8 weeks and 5 months after exposure.

Symptoms of acute hepatitis B, if they appear, can include:

- Fever
- Fatigue
- Loss of appetite
- Nausea
- Vomiting
- Abdominal pain
- Dark urine
- Clay-colored bowel movements
- Joint pain
- Jaundice (yellow color in the skin or the eyes)

Prevention / Vaccination

The best way to prevent hepatitis B is by getting vaccinated. The hepatitis B vaccine

is safe and effective. Completing the series of shots is needed for full protection.

The hepatitis B vaccine stimulates your natural immune system to protect against the hepatitis B virus. After the vaccine is given, your body makes antibodies that protect you against the virus. An antibody is a substance found in the blood that is produced in response to a virus invading the body. These antibodies will fight off the infection if a person is exposed to the hepatitis B virus in the future.

Who should get vaccinated against hepatitis B?

Hepatitis B vaccination is recommended for:

- All infants
- All children and adolescents younger than 19 years of age who have not been vaccinated
- People at risk for infection by sexual exposure
- People whose sex partners have hepatitis B
    - Sexually active people who are not in a long-term, mutually monogamous relationship (for example, people with more than one sex partner during the previous 6 months)
    - People seeking evaluation or treatment for a sexually transmitted infection
    - Men who have sex with men
- People at risk for infection by exposure to blood
- People who share needles, syringes, or other drug preparation equipment
    - People who live with a person who has hepatitis B
    - Residents and staff of facilities for developmentally disabled people
    - Health care and public safety workers at risk for exposure to blood or blood-contaminated body fluids on the job
    - Hemodialysis patients and pre-dialysis, peritoneal dialysis, and home dialysis patients
    - People with diabetes aged 19–59 years; People with diabetes aged 60 or older should ask their health care professional.
- International travelers to countries where hepatitis B is common
- People with hepatitis C virus infection
- People with chronic liver disease
- People with HIV infection
- People who are in jail or prison
- All other people seeking protection from hepatitis B virus infection

Hepatitis C

Hepatitis C is a liver infection caused by the hepatitis C virus. Hepatitis C can range from a mild illness lasting a few weeks to a serious, lifelong illness. Hepatitis C is often described as "acute," meaning a new infection or "chronic," meaning lifelong infection.

- **Acute hepatitis C** occurs within the first 6 months after someone is exposed to the hepatitis C virus. Hepatitis C can be a short-term illness, but for most people, acute infection leads to chronic infection.
- **Chronic hepatitis C** can be a lifelong infection with the hepatitis C virus if left untreated. Left untreated, chronic hepatitis C can cause serious health problems, including liver damage, cirrhosis (scarring of the liver), liver cancer, and even death.

Hepatitis C Transmission / Exposure

Hepatitis C is usually spread when blood from a person infected with the hepatitis C virus enters the body of someone who is not infected. Today, most people become infected with the hepatitis C virus by sharing needles or other equipment to prepare or inject drugs. Before 1992, hepatitis C was also commonly spread through blood transfusions and organ transplants. After that, widespread screening of the blood supply in the United States virtually eliminated this source of infection.

People can become infected with the hepatitis C virus during such activities as:

- Sharing needles, syringes, or other equipment to prepare or inject drugs
- Needle stick injuries in health care settings
- Being born to a mother who has hepatitis C

Less commonly, a person can also get hepatitis C virus through

- Sharing personal care items that may have come in contact with another person's blood, such as razors or toothbrushes
- Having sexual contact with a person infected with the hepatitis C virus
- Getting a tattoo or body piercing in an unregulated setting

Hepatitis C virus is not spread by sharing eating utensils, breastfeeding, hugging, kissing, holding hands, coughing, or sneezing. It is also not spread through food or water.

Symptoms of Hepatitis C

If symptoms occur, they begin an average 2 weeks to 12 weeks after exposure,

Symptoms of acute hepatitis C, if they appear, can include:

- Fever
- Fatigue

- Loss of appetite
- Nausea
- Vomiting
- Abdominal pain
- Dark urine
- Clay-colored bowel movements
- Joint pain
- Jaundice (yellow color in the skin or the eyes)

Treatment

- There is not a recommended treatment for acute hepatitis C. People with acute hepatitis C virus infection should be followed by a doctor and only considered for treatment if their infection remains and becomes a chronic infection.
- There are several medications available to treat **chronic hepatitis C**. Hepatitis C treatments have gotten much better in recent years. Current treatments usually involve just 8-12 weeks of oral therapy (pills) and cure over 90% of people with few side effects.

How should blood spills be cleaned from surfaces to make sure that hepatitis B and C virus is gone?

- All blood spills — including those that have already dried — should be cleaned and disinfected with a mixture of bleach and water (one-part household bleach to 10 parts water). Gloves should always be used when cleaning up any blood spills. Even dried blood can be infectious.

Attitudes Towards HIV and AIDS and Appropriate Behavior

Today, an estimated 1.1 million people in the United States are living with HIV and many of them don't know it. While great progress has been made in preventing and treating HIV, the Centers for Disease Control and Prevention (CDC) knows there is still more work to be done to address the HIV epidemic.

Since HIV and Hepatitis is spread mainly through unprotected sexual intercourse, needle use / sharing, and passed from mother to child during childbirth, being in a salon setting, there is minimal risk, if any risk at all, for contracting these diseases.

As educated individuals it is our responsibility to set an example and even

promote the education of HIV / Hepatitis disease. We should take an appropriate professional attitude when interacting with someone who has a communicable disease and take the necessary precautions to safeguard ourselves and other people, without discrimination and fear, when in contact with blood or body fluids.

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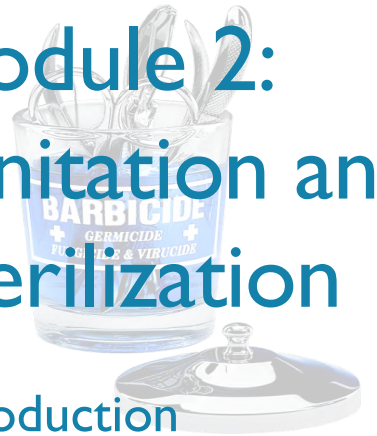
Module 2: Sanitation and Sterilization



Introduction

This module covers standard cleaning and disinfecting precautions, disinfectants and antiseptics, hand sanitation, tool disinfection, bacterial, viral, and fungal control, bloodborne pathogens control, and parasite infection and infestation control.

Standard cleaning and disinfecting precautions

Keeping a salon or place of business clean and free from germs not only ensures a great environment for clients but is essential as it minimizes chances of a possible spread of infection. There are two methods to clean or decontaminate. One, is to clean and disinfect and two, is to clean and sterilize. Many state regulatory agencies believe there is a lower risk of infection in salons than in medical facilities, where sterilizing is a major concern. Therefore, most salons are only concerned with cleaning and disinfecting.

Note: Some states have upgraded their infection control standards in salons that perform nail services to cleaning and sterilizing. When done properly, this results in the destruction of all microbes through heat and pressure in an autoclave.

A surface is properly cleaned when the number of contaminants on the surface is greatly reduced. In turn, this reduces the risk of spread of germs. The vast majority of contaminants and pathogens can be removed from the salon surfaces as well as tools through proper cleaning. Also, a surface must be properly cleaned before it can be properly disinfected.

Cleaning is the removal of foreign material (e.g., soil, and organic material)

from objects and is normally accomplished using water with detergents or enzymatic products. Thorough cleaning is required before high-level disinfection and sterilization because inorganic and organic materials that remain on the surfaces of salon implements and equipment interfere with the effectiveness of disinfection and sterilization.

Also, if soiled materials dry, the removal process becomes more difficult and the disinfection or sterilization process less effective or ineffective.

With manual cleaning, the two essential components are friction and soap/detergents and water. Friction (e.g., rubbing/scrubbing the soiled area with a brush) is an old and dependable method. Soap/detergents and water is used to remove soil and debris.

Disinfecting is the killing of a high percentage of germs or rendering them incapable of reproducing, by use of a chemical agent. Work surfaces, tools, implements, spa basins, etc. all require to be disinfected. Tools and implements can be completely immersed whereas large areas such as tabletops require the surface to remain wet with disinfectants for at least 10 minutes. The following highlights essential disinfecting tips.

Disinfectant Tips

- Use only on precleaned, 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 ten minutes unless the product label specifies differently.
- To disinfect large surfaces such as tabletops, carefully apply the disinfectant onto the precleaned surface and allow it to remain wet for ten minutes, unless the product label specifies differently.
- If the product label states, "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 pedicure spa requires that the disinfecting solution circulate for ten minutes, unless the product label specifies otherwise.

Disinfectants and Antiseptics

Disinfectants are a chemical that destroys vegetative forms of harmful microorganisms (such as bacteria and fungi) especially on inanimate objects but that may be less effective in destroying spores.

Disinfectants are strong chemical agents that inhibit or kill microorganisms

Antiseptics are a substance that inhibits the growth or action of microorganisms especially in or on living tissue.

Antiseptics are disinfecting agents with sufficiently low toxicity for host cells so can be used directly on skin, mucous membranes, or wounds

Disinfection

It is the application of chemicals to destroy most pathogenic organisms on inanimate surfaces, which can be accomplished by the application of chemical agents, use of physical agents (ionizing radiation) dry or moist heat, superheated steam (autoclave, 120° C). It prevents infection by reducing the number of potentially infective organisms either by killing, removing or diluting them.

Antisepsis

It is the use of chemicals to destroy most pathogenic organisms on animate surfaces. The ideal antiseptic has to have similar properties as an ideal disinfectant. But the primary importance for antiseptics is the selective toxicity which means toxicity to microorganisms but not to human cells. The degree of selectivity of the antiseptic agents can change depending on the tissues they contact.

Disinfectants

Many chemical disinfectants are used alone or in combinations. These include chlorine and chlorine compounds, and quaternary ammonium compounds. Commercial formulations based on these chemicals are considered unique products and must be registered with EPA or cleared by FDA. In most instances, a given product is designed for a specific purpose and is to be used in a certain manner. Therefore, users should read labels carefully to ensure the correct product is selected for the intended use and applied efficiently.

Disinfectants are not interchangeable, and incorrect concentrations and inappropriate disinfectants can result in excessive costs. Because occupational diseases have been associated with use of several disinfectants such as chlorine, precautions (e.g., gloves and proper ventilation) should be used to minimize exposure.

Properties of an ideal disinfectant

- Broad spectrum: should have a wide antimicrobial spectrum
- Fast acting: should produce a rapid kill
- Not affected by environmental factors: should be active in the presence of organic matter (e.g., blood, sputum, feces) and compatible with soaps, detergents, and other chemicals encountered in use
- Nontoxic: should not be harmful to the user or patron
- Surface compatibility: should not corrode instruments and metallic surfaces and should not cause the deterioration of cloth, rubber, plastics, and other materials

- Residual effect on treated surfaces: should leave an antimicrobial film on the treated surface
- Easy to use with clear label directions
- Odorless: should have a pleasant odor or no odor to facilitate its routine use
- Economical: should not be prohibitively high in cost
- Solubility: should be soluble in water
- Stability: should be stable in concentrate and use-dilution
- Cleaner: should have good cleaning properties
- Environmentally friendly: should not damage the environment on disposal

Types of Disinfectants

Chlorine and Chlorine Compounds

Hypochlorites, the most widely used of the chlorine disinfectants, are available as liquid (e.g., sodium hypochlorite) or solid (e.g., calcium hypochlorite). The most prevalent chlorine products in the United States are aqueous solutions of 5.25%–6.15% sodium hypochlorite, usually called household bleach. They have a broad spectrum of antimicrobial activity, do not leave toxic residues, are unaffected by water hardness, are inexpensive and fast acting, remove dried or fixed organisms and biofilms from surfaces, and have a low incidence of serious toxicity.

Quaternary Ammonium Compounds

Quaternary Ammonium Compounds (QACs) are a type of chemical that is used to kill bacteria, viruses, and mold. QACs are widely used as disinfectants. The quaternaries are good cleaning agents, but high-water hardness and materials such as cotton and gauze pads can make them less microbicidal because of insoluble precipitates or cotton and gauze pads absorb the active ingredients, respectively.

Types of Antiseptics

Alcohols

Ethyl alcohol (70%) and isopropyl alcohol are effective antiseptic agents. They reduce the number of bacteria 90% when applied to the skin.

Oxidizing Agents

Hydrogen peroxide is the most common of a number of oxidizing compounds that have been used as antiseptics. It is also effective in injured skin due to its bubbling effect. A 3% solution is effective.

Iodine

Tincture of iodine. Powerful antiseptic for intact skin but should avoid contact with any mucous membrane (eyes, nose, ear, etc.).

Hand Sanitation

We assume everyone knows how to wash their hands, but many workers don't realize how important hand washing and skin care can be in the prevention of

disease. Hand hygiene is the first line of defense and hand washing is generally considered the single most important procedure for preventing the spread of infection.

Hand Washing Technique

1. Turn on the warm water, wet your hands, and then pump soap from a pump container onto the palm of your hand. Rub your hands together, all over and vigorously, until a lather forms. Continue for a minimum of twenty seconds.
2. Choose a clean, disinfected nail brush. Wet the nail brush, pump soap on it, and 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 sixty seconds to finish. Rinse hands in running warm water.
3. Use a clean cloth or paper towel, according to the salon policies, for drying your hands.
4. After drying your hands, turn off the water with the towel and dispose of the towel.

Tool Disinfection

Keeping ourselves as well as our work environment clean goes without saying in preventing infection. But what about the tools we used. In most cases our tools and work instruments can pose a bigger threat as they a direct connection between multiple clients. In this case to properly address tool disinfection we can examine directly the Florida Administrative Code 61G5-20.002 Salon Requirements and the exact state requirements for disinfecting tools.

Note: Only specific sections of the 61G5-20.002 is listed, to review the full requirement including potential additions please use the following link.
https://www.flrules.org/gateway/ruleNo.asp?id=61G5-20.002

61G5-20.002 Salon Requirements.

(c) Disinfection: The use of a brush, comb or other article on more than one patron without being disinfected is prohibited. Each salon is required to have sufficient combs, brushes, and implements to allow for adequate disinfecting practices. Combs or other instruments shall not be carried in pockets.

(d) Disinfectants: All salons shall be equipped with and utilize disinfecting solutions with hospital level disinfectant or EPA approved disinfectant, sufficient to allow for disinfecting practices.

1. A wet disinfection container is any receptacle containing a disinfectant solution and large enough to allow for a complete immersion of the articles. A cover shall be provided.

2. Disinfecting methods which are effective and approved for salons: First, clean articles with soap and water, completely immerse in a chemical

solution that is hospital level or EPA approved disinfectant as follows:

a. Combs and brushes, remove hair first and immerse in hospital level or EPA approved disinfectant;

b. Metallic instrument, immerse in hospital level for EPA approved disinfectant;

c. Instruments with cutting edge, wipe with a hospital level or EPA approved disinfectant; or

d. Implements may be immersed in a hospital level or EPA approved disinfectant solution.

e. Shampoo bowls, facial beds, and neck rests, clean and disinfect between each use.

3. For purposes of this rule, a "hospital level disinfectant or EPA approved disinfectant" shall mean the following:

a. For all combs, brushes, metallic instruments, instruments with a cutting edge, and implements that have not come into contact with blood or body fluids, a disinfectant that indicates on its label that it has been registered with the EPA as a hospital grade bacterial, virucidal and fungicidal disinfectant;

b. For all combs, brushes, metallic instruments with a cutting edge, and implements that have come into contact with blood or body fluids, a disinfectant that indicates on its label that it has been registered with the EPA as a disinfectant, in accordance with 29 C.F.R. 1910.1030.

4. All disinfectants shall be mixed and used according to the manufacturer's directions.

(e) After cleaning and disinfecting, articles shall be stored in a clean, closed cabinet or container until used. Undisinfected articles such as pens, pencils, money, paper, mail, etc., shall not be kept in the same container or cabinet. For the purpose of recharging, rechargeable clippers may be stored in an area other than in a closed cabinet or container, provided such area is clean and provided the cutting edges of such clippers have been disinfected.

(f) Ultraviolet Irradiation may be used to store articles and instruments after they have been cleansed and disinfected.

(g) Pedicure Equipment Disinfection:

The following cleaning and disinfection procedures must be used for any pedicure equipment that holds water, including sinks, bowls, basins, pipe-less spas, and whirlpool spas:

1. After each client, all pedicure units must be cleaned with a low-foaming soap or detergent with water to remove all visible debris, then disinfected with an EPA registered hospital grade bactericidal, fungicidal, virucidal, and pseudomonacidal disinfectant used according to manufacturers' instructions for at least ten (10) minutes. If the pipe-free foot spa has a foot plate, it should be

removed and the area beneath it cleaned, rinsed, and wiped dry.

2. At the end of each day of use, the following procedures shall be used:

a. All filter screens in whirlpool pedicure spas or basins for all types of foot spas must be disinfected. All visible debris in the screen and the inlet must be removed and cleaned with a low-foaming soap or detergent and water. For pipe-free systems, the jet components or foot plate must be removed and cleaned, and any debris removed. The screen, jet, or foot plate must be completely immersed in an EPA registered, hospital grade bactericidal, fungicidal, virucidal, and pseudomonacidal disinfectant that is used according to manufacturer's instructions. The screen, jet, or foot plate must be replaced after disinfection is completed and the system is flushed with warm water and low-foaming soap for 5 minutes, rinsed, and drained.

b. After the above procedures are completed, the basin should be filled with clean water and the correct amount of EPA registered disinfectant. The solution must be circulated through foot spa system for 10 minutes and the unit then turned off. The solution should remain in the basin for at least 6 to 10 hours. Before using the equipment again, the basin system must be drained and flushed with clean water.

3. Once each week, subsequent to completing the required end-of-day cleaning procedures, the basin must be filled with a solution of water containing one teaspoon of 5.25% bleach for each gallon of water. The solution must be circulated through the spa system for 5 to 10 minutes and then the solution must sit in the basin for at least 6 hours. Before use, the system must be drained and flushed.

4. A record or logbook containing the dates and times of all pedicure cleaning and disinfection procedures must be documented and kept in the pedicure area by the salon and made available for review upon request by a consumer or a Department inspector.

Bacterial, Viral, and Fungal, Bloodborne Pathogens and Parasites

So, with cleaning and sanitizing what are we ultimately protecting ourselves and clients from? Communicable Diseases.

Communicable diseases can spread from person to person, or animal to person, through direct or indirect contact. They are diseases that are caused by pathogens. A pathogen is an infection causing agent (germ). Bacteria, viruses, fungus, and parasites can all be pathogens. The most common pathogens are bacteria and viruses.

Bacteria

Bacteria are one-celled microorganisms that are present everywhere in the world. Under microscopes, they actually look like balls, rods, or spirals. However, less than one percent of bacteria are actually harmful to humans. Most bacteria are beneficial in some way—they help digest food, destroy disease-causing cells, and provide the body with necessary vitamins. Bacteria are actually present in foods like yogurts and cheese. But certain bacteria can cause illness. These bacteria can often reproduce quickly within the body and give off toxins. These toxins have the potential to damage tissue and organs of humans. Some examples of harmful bacteria that can typically infect the human body include things like E. coli and Streptococcus.

Examples of Diseases Caused by Bacteria:

1. **Staph infection (including MRSA)**
   a. Staph infections are caused by staphylococcus bacteria, types of germs commonly found on the skin or in the nose of even healthy individuals. Most of the time, these bacteria cause no problems or result in relatively minor skin infections.
   b. But staph infections can turn deadly if the bacteria invade deeper into your body, entering your bloodstream, joints, bones, lungs or heart. A growing number of otherwise healthy people are developing life-threatening staph infections.
   c. Treatment usually involves antibiotics and drainage of the infected area. However, some staph infections no longer respond to common antibiotics.
   d. MRSA (Methicillin-Resistant Staphylococcus aureus) MRSA is a type of staph bacteria that does not react to certain antibiotics. It typically causes skin infections, but can also cause other infection, including pneumonia. MRSA does not usually but can lead to death. It is spread by skin-to-skin contact, touching a personal item that touched the infected person, or touching a surface that touched the infected person.
2. **Strep throat**
   a. Strep throat is a bacterial infection that can make your throat feel sore and scratchy. Strep throat accounts for only a small portion of sore throats.
   b. If untreated, strep throat can cause complications, such as kidney inflammation or rheumatic fever. Rheumatic fever can lead to painful and inflamed joints, a specific type of rash, or heart valve damage.
3. **Tuberculosis**
   a. Tuberculosis (TB) is a potentially serious infectious disease that mainly affects your lungs. The bacteria that cause tuberculosis are spread from one person to another through tiny droplets released into the air via coughs and sneezes.
   b. Many strains of tuberculosis resist the drugs most used to treat the disease. People with active tuberculosis must take several

types of medications for many months to eradicate the infection and prevent development of antibiotic resistance.

4. **Gastroenteritis**
   a. The most common way to develop viral gastroenteritis — often called stomach flu —is through contact with an infected person or by ingesting contaminated food or water. If you're otherwise healthy, you'll likely recover without complications. But for infants, older adults and people with compromised immune systems, viral gastroenteritis can be deadly.
   b. There's no effective treatment for viral gastroenteritis, so prevention is key. In addition to avoiding food and water that may be contaminated, thorough and frequent hand-washings are your best defense
5. **Impetigo**
   a. Is a common and highly contagious skin infection that mainly affects infants and children. Impetigo usually appears as red sores on the face, especially around a child's nose and mouth, and on hands and feet. The sores burst and develop honey-colored crusts.
6. **Bacterial meningitis**
   a. Meningitis is an inflammation of the membranes (meninges) surrounding your brain and spinal cord.
   b. The swelling from meningitis typically triggers symptoms such as headache, fever and a stiff neck.
   c. Most cases of meningitis in the United States are caused by a viral infection, but bacterial, parasitic and fungal infections are other causes. Some cases of meningitis improve without treatment in a few weeks. Others can be life-threatening and require emergency antibiotic treatment.

Virus

A microorganism that is smaller than a bacterium that cannot grow or reproduce apart from a living cell. A virus invades living cells and uses their chemical machinery to keep itself alive and to replicate itself. It may reproduce with fidelity or with errors (mutations); this ability to mutate is responsible for the ability of some viruses to change slightly in each infected person, making treatment difficult.

Examples of Diseases Caused by Virus:

1. Common cold
2. Flu
3. Polio
4. Hepatitis
5. Chicken pox
6. Shingles
7. Viral meningitis
8. Herpes simplex
9. HIV/AIDS

Fungus

A single-celled or multicellular organism. Fungi can be true pathogens that cause infections in healthy persons or they can be opportunistic pathogens that cause infections in immunocompromised persons. An example of a common fungus is the yeast organism which

causes thrush and diaper rash Fungi are also used for the development of antibiotics, antitoxins, and other drugs used to control various human diseases.

Examples of Diseases Caused by Fungus:

1. Yeast infection
2. Athlete's foot
3. Ringworm

Bloodborne Pathogens

A blood borne pathogen is a microorganism that is present in human blood and can cause disease in humans. These pathogens are spread through contact with infectious body fluids, such as blood, semen, or vaginal secretions. They are not spread by coughing, sneezing, or casual contact.

Bloodborne Pathogens That Cause Serious Disease

1. HIV (the virus that causes AIDS)
2. Hepatitis B
3. Hepatitis C

Parasites

A plant or an animal organism that lives in or on another and takes its nourishment from that other organism.

Examples of Diseases Caused by Parasites:

1. Lice
2. Scabies
3. Malaria

Chain of Infection

1. Causative agent- This is the disease-causing agent (bacteria, virus, fungus, parasite).
2. Reservoir- This is the initial infected person, where the causative agent lives.
3. Mode of escape- This is how the causative agent gets out of the reservoir. Sneezing or coughing are examples of mode of escape.
4. Mode of transfer- This is how a disease transfer after it has escaped (contaminated hands, polluted water or food, etc.)
5. Mode of entry- This is how the disease enters the new host (break in skin, mucus membrane, etc.)
6. Susceptible host- People, animals, insects, birds, plants

Methods of Disease Transmission

- Direct contact transmission: occurs when infected blood or body fluid from one person enters another person's body (blood splash to the eye).
- Indirect contact transmission: occurs when a person touches an object that contains the blood or body fluid of an infected person
- Droplet contact transmission: Occurs when droplets of fluid generated by coughing, sneezing, etc. come into contact with the eyes, nose, or mouth of another person. These droplets are relatively heavy and cannot stay suspended in the air for long.

- Airborne transmission: This is similar to droplet transmission. During airborne transmission, however, the particles that transmit disease are lighter, and capable of staying airborne for longer periods of time
- Oral-fecal transmission: Occurs when food, water, or an object contaminated by the feces of a human or an animal comes into contact with the mouth of another person.
- Vector transmission: Occurs when the bite of an animal, such as a mosquito, transmits disease.

Signs/Symptoms of Possible Communicable Disease:

1. Red or runny eyes
2. Sneezing/nasal discharge
3. Cough
4. Sores
5. Rash
6. Swelling or tenderness of glands, face, neck, or genital area
7. Fever
8. Nausea/vomiting
9. Headache/stiffness of neck
10. Diarrhea/abdominal pain
11. Sudden or drastic change of behavior

Infection and Infestation Control

These are the methods used to eliminate or reduce the transmission of the previous pathogens.

It's important to note there are three levels of control, and they are Sanitation, Disinfection and Sterilization.

Sanitation is the lowest level of infection control, but it is important to understand that though it may be the lowest it is not the least important. In the fight against pathogens it is probably the most important. If sanitation is not performed disinfection or sterilization cannot be achieved.

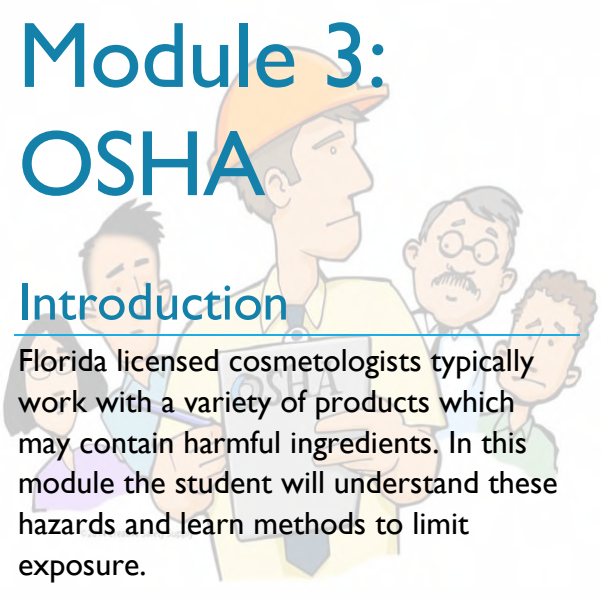
Sanitation allows for the physical removal of debris (i.e. hair from combs and clippers, dead cut skin from cuticle nippers and body fluids from comedome extractors) and is performed on items that are deemed non-critical. Non- critical; meaning that the item is used on unbroken skin. Sanitation is the first step in the process of protecting the professional and their clients from the unnecessary transmission of disease.

Next in line for defense against pathogens is disinfection. Disinfection is accomplished with the use of chemicals rendering most pathogens inert. However; it allows bacterial spores to survive which if not addressed can lead to contamination. In most salon settings and situations disinfection is the highest level of infection control necessary as the implements in use are typically semi critical.

When more effective measures are needed the highest level of infection control is implemented. Sterilization will kill everything. It does not discriminate as it does not recognize the difference between pathogenic agents and nonpathogenic agents. Also, it will destroy those bacterial spores that disinfection procedures leave behind. Sterilization practices can be labor intensive and costly and though not necessary for non- critical

or semi- critical it is reserved for critical items

Module 3: OSHA



Introduction

Florida licensed cosmetologists typically work with a variety of products which may contain harmful ingredients. In this module the student will understand these hazards and learn methods to limit exposure.

Hazards in Products

Products used in salons may have chemicals in them that can harm your health. Chemicals can get into your body if you:

- Breathe in vapors, dusts, or mists from the products;
- Get the product on your skin or in your eyes; or
- Swallow the product if it gets on your uncovered food, drink, or cigarettes.

Chemicals affect different people in different ways. How a chemical affects you also depends on how much of it you are exposed to. You can get sick right away, or you can get sick over time. Exposures can "add up," especially when many products are being used at the same time, when the products are used day after day, or when there is poor ventilation in the salon. If you use chemicals all day, every day, you are more likely to get sick than someone who uses the same chemicals once in a while. Follow the steps in this guide to help protect your health.

Hazardous Chemicals Found in Nail Salon Products

Nail products, such as polishes, strengtheners, removers, and artificial nail liquids, can contain many chemicals. Some of these chemicals are more harmful than others. Over time with repeated use or exposure to high concentrations, these chemicals could damage your body or cause an allergic reaction. Every person is different and not everyone who breathes in these chemicals or gets them on their skin will experience these effects now or in the future.

Some potentially hazardous chemicals, the types of products they can be found in, and how they can affect your body include:

- **Acetone** (nail polish remover): headaches; dizziness; and irritated eyes, skin, and throat.
- **Acetonitrile** (fingernail glue remover): irritated nose and throat; breathing problems; nausea; vomiting; weakness; and exhaustion.
- **Butyl acetate** (nail polish, nail polish remover): headaches and irritated eyes, skin, nose, mouth, and throat.
- **Dibutyl phthalate** (**DBP**) (nail polish): nausea and irritated eyes, skin, nose, mouth, and throat. Long-term exposures to high concentrations may cause other serious effects.

- **Ethyl acetate** (nail polish, nail polish remover, fingernail glue): irritated eyes, stomach, skin, nose, mouth, and throat; high concentrations can cause fainting.
- **Ethyl methacrylate** (**EMA**) (artificial nail liquid): asthma; irritated eyes, skin, nose, and mouth; difficulty concentrating. Exposures while pregnant may affect your child. • Formaldehyde (nail polish, nail hardener): difficulty breathing, including coughing, asthma-like attacks, and wheezing; allergic reactions; irritated eyes, skin, and throat. Formaldehyde can cause cancer.
- **Isopropyl acetate** (nail polish, nail polish remover): sleepiness, and irritated eyes, nose, and throat.
- **Methacrylic acid** (nail primer): skin burns and irritated eyes, skin, nose, mouth, and throat. At higher concentrations, this chemical can cause difficulty breathing.
- **Methyl methacrylate** (**MMA**) (artificial nail products,): asthma; irritated eyes, skin, nose, and mouth; difficulty concentrating; loss of smell. This product is completely prohibited in the state of Florida according to Section 477.0265(1)(g) of the Florida Statutes.
- **Quaternary ammonium compounds** (disinfectants): irritated skin and nose and may cause asthma.
- **Toluene** (nail polish, fingernail glue): dry or cracked skin; headaches, dizziness, and numbness; irritated eyes, nose, throat, and lungs; damage to liver and kidneys; and harm to unborn children during pregnancy.

Where to Get Information about the Chemicals Found in Nail Salon Products

You can get product information on packaging, or in printed materials delivered with the product such as its safety data sheet.

Product Labels

At minimum, professional-use nail salon products containing hazardous chemicals must provide the following information:

- The name and address of the product manufacturer or distributer;
- Something that explains the type and use of the product, such as a name, description, or illustration;
- Facts about the product, such as directions for safe use if a product could be unsafe if used incorrectly; and
- All necessary warning and caution statements.

Safety Data Sheets (often called "SDSs")

OSHA requires product manufacturers to provide salon owners with safety data sheets (SDSs)[1] for the products they buy that contain hazardous chemicals. Employers must make these SDSs available to you. Your employer must also train you so that you understand the chemicals' potential hazards and how to use the products safely. In general, an SDS must provide the following information:

- Hazardous ingredients in the product;
- How you can be exposed to the ingredients;
- Health and safety risks, you face when using the product; and
- Steps for safely using and storing the product, including what to do in emergencies.

This can help you compare the differences in hazards between products. Be aware that SDSs may not contain all the information needed to help protect you. For example, the manufacturer may state that you should wear "impervious gloves," but not specify the type.

Your Rights as a Worker

What is the difference between an Employee and an Independent Contractor for purposes of the Occupational Safety and Health Act?

- It doesn't matter how an individual is labeled by the salon owner. Instead, courts and agencies will look at a list of factors to determine whether you are an employee or an independent contractor.
- For example, if you: rent a station at a salon; purchase your own supplies and tools; have your own customers and set your own schedule and appointments; set your own rate and are paid by customers directly; and have your own business license, you may be more likely to be considered an independent contractor.
- However, if: the owner sets your work schedule; you are paid by the hour; the owner or receptionist makes the appointments for all the workers; you do not rent the space; the owner sets the rates paid by customers; and you use the owner's tools and equipment, you may be more likely to be considered an employee.

Why does it matter?

- Employers must provide protection against workplace hazards for their employees; independent contractors are responsible for their own occupational health and safety protection. Employees also have rights to a minimum wage, workers' compensation, and other benefits. Independent contractors do not.
- Just because a salon owner tells you that you are an independent contractor, it does not mean that you are one. Just because an owner gives you an IRS form 1099 instead of a W-2 does not mean that you are an independent contractor. Salons sometimes misclassify the employment status of their workers to bypass taking protective safety and health measures, and to also deny benefits. That is why it is important for you to know the difference between what constitutes an employee and an independent contractor. If you need help, you can contact OSHA at 1-800-321-OSHA (6742).

What are my rights as a worker?

You have the right to working conditions that do not put you at risk of serious harm. OSHA also provides you with the right to:

- Ask OSHA to inspect your workplace;
- Receive information and training about hazards, methods to prevent harm, and the OSHA standards that apply to your workplace. The training must be in a language you can understand;
- Get copies of test results done to find and measure hazards in your workplace;
- Review records of work-related injuries and illnesses;
- Get copies of your medical records;
- File a complaint asking OSHA to inspect your workplace if you believe there is a serious hazard or that your employer is not following the OSHA rules. When requested, OSHA will keep all identities confidential; and
- Use your rights under the law without retaliation or discrimination. Your employer cannot fire or punish you if you file a complaint.

For more information on workers' rights, employer responsibilities, and other OSHA

Resources on Chemical Exposures in Nail Salons

Nail Technicians' Health and Workplace Exposure Controls

- NIOSH Workplace Safety and Health Topics, http://www.cdc.gov/ niosh/topics/manicure/?s_cid=3ni7d2fb 08202011130am. *Lists research and publications helpful to preventing injuries and illnesses while working in nail salons.*

Controlling Chemical Hazards During the Application of Artificial Fingernails

- NIOSH (Publication No. 99-112), http://www.cdc.gov/ niosh/docs/99-112/. *Describes how workers can prevent some of the potentially harmful health effects of applying artificial fingernails. Tips on Worker Safety, Labor Occupational Health Program (LOHP) and California Healthy Nail Salon Collaborative, provides general tips for staying safe and healthy while working in nail salons (available in English, Vietnamese, Korean, and Nepali).*

Safety and Health Hazards in Nail Salons

- Florida OSHA Fact Sheet Plus, https://www.osha.gov/SLTC/nailsalons/ *Describes the potential hazards of chemicals used in nail salons and what workers and nail salon owners can do to minimize exposure.*

How to Be Safe at Work

- Website on Healthy Salon Practices. https://www.ohsu.edu/xd/research/centers-institutes/oregon-institute-occupational-health-sciences/outreach/Healthy-nail-salons.cfm *Gives tips on how to prevent overexposure to chemicals in nail salons, campaigns for safe cosmetics, a resource directory, and OSHA Safety and Health Topics.*

Summary of Data and Findings from Testing of a Limited Number of Nail Products

- California Environmental Protection Agency, Department of Toxic Substances Control, http://www.dtsc.ca.gov/PollutionPrevention/upload/NailSalon_Final.pdf. *Report assessing chemical composition of a limited assortment of nail salon products.*

Understanding the Toxic Trio: Protecting Yourself at Work

- California Healthy Nail Salon Collaborative, http://www.cahealthynailsalons.org/wp-content/uploads/2010/07/Toxic_Trio_EN_March2012.pdf. *This brochure shares tips on how to protect yourself from the Toxic Trio at work.*

Safe Nail Salon Training

- Boston Public Health Commission, http://www.bphc.org/programs/cib/environmentalhealth/environmentalhazards/safenailsalons/Forms Documents/2010 Safe Nail Salon Training-English.pptx. *English language training presentation that teaches nail salon owners and workers how to recognize workplace hazards, protect health, make improvements to eliminate hazards, and properly use and store hazardous chemicals (English) (Vietnamese).*

Safe Nail Salons: Keeping You and Your Customers Healthy

- Boston Public Health Commission, http://www.youtube.com/watch?v=PksAPhmm15M&feature=player_embedded. *Describes nail salon health and safety measures in video format (in Vietnamese with English subtitles).*

Healthy Practices for Nail Salons

- King County Local Hazardous Waste Management Program, http://www.lhwmp.org/home/health/nail-salons.aspx. *Displays methods for improving health and safety in nail salons.*

Will You Try These Ways to Protect Your Customers and Your Health?

- King County Local Hazardous Waste Management Program, Environmental Coalition of South Seattle, and Community Coalition for Environmental Justice, http://www.lhwmp.org/home/health/documents/Final_ENGweb.pdf. *Gives a brief overview of several measures to protect nail salon workers' health.*

California Health Nail Salon Collaborative

- http://www. cahealthynailsalons.org/. *The California Healthy Nail Salon Collaborative's mission is to improve the health, safety, and rights of the nail and beauty care workforce to achieve a healthier, more sustainable, and just industry. This website lists research and outreach publications related to its mission.*

Oregon Collaborative for Healthy Nail Salons

- Oregon Collaborative for Healthy Nail Salons, http://www. oregonhealthynailsalons.org/. *Provides information and outreach publications related to its mission of improving the workplace health of nail salon workers.*

Resources on How to Prevent Exposure to Biological Hazards

Bloodborne Pathogens Safety and Health Topics Page

- OSHA. http://www.osha.gov/SLTC/bloodbornepathogens. *Gives information on the hazards of bloodborne diseases and how to prevent infection.*

Bloodborne Infectious Diseases: HIV/AIDS, Hepatitis B, and Hepatitis C

- NIOSH Workplace Safety and Health Topics, http:// www.cdc.gov/niosh/topics/bbp/. *Gives information on specific bloodborne diseases and how to prevent exposure.*

Selected EPA-Registered Disinfectants

- EPA, http://www.cdc. gov/niosh/topics/bbp/. *Lists EPA-registered disinfectants that are effective against certain bloodborne diseases.*

OSHA Worker Resources

OSHA's Page for Workers

- http://www.osha.gov/workers.html. *Gives information on workers' rights.*

OSHA Regional and Area Offices

- http://www.osha.gov/html/ RAmap.html. *Gives contact information for OSHA Regional and Area Offices.*

OSHA-Approved State Plans

- http://www.osha.gov/dcsp/osp/ index.html. *Lists states with their own occupational safety and health programs, standards and policies.*

NIOSH Health Hazard Evaluation Program

Getting Help with Health Hazards

- The National Institute for Occupational Safety and Health (NIOSH) is a federal agency that conducts scientific and medical research on workers' safety and health. At no cost to employers or workers, NIOSH can help identify health hazards and recommend ways to reduce or eliminate those hazards in the workplace through its Health Hazard Evaluation (HHE) Program.
- Workers, union representatives and employers can request a NIOSH HHE. An HHE is often requested when there is a higher than expected rate of a disease or injury in a group of workers. These situations may be the result of an unknown cause, a new hazard, or a mixture of sources. To request a NIOSH Health Hazard Evaluation go to www.cdc.gov/niosh/hhe/request.html. To find out more about the Health Hazard Evaluation Program:
  - Call (513) 841-4382, or to talk to a staff member in Spanish, call (513) 841-4439; or
  - Send an email to HHERequestHelp@cdc.gov.

Module 4: Florida Workers Compensation System

Introduction

If you are employed or own a business in Florida, understanding the workers compensation system is essential to protecting yourself or your business in the unfortunate event of an injury.

This module is broken down into two sections, employee and the employer, detailing the rights & responsibilities of the both in the unfortunate event of an injury

EMPLOYEE SECTION

1. If you have an accident or are injured on the job you must:

- Tell your employer you have been injured, as soon as possible. The law requires that you report the accident or your knowledge of a job-related injury within 30 days of your knowledge of the accident or injury.

- When you do so, you must ask your employer what doctor you can see. You

must see a doctor authorized by your employer or the insurance company.

- Your employer may tell you to call the insurance company handling your claim; the name and phone number should be on the "Broken Arm" poster that should be posted at your workplace.

- If it is an emergency and your employer is not available to tell you where to go for treatment, go to the nearest emergency room and let your employer know as soon as possible what has happened.

Your employer is required by law to report your injury to the insurance company within 7 days of when you report your accident or injury. If they do not do this, and they do not give you a phone number for the insurance company to call, you can call the workers' compensation (WC) hotline for assistance at 1-800- 342-1741.

- After you or your employer report the injury to the insurance company, many companies will have an insurance claim adjuster call you within 24 hours to explain your rights and obligations.
    - If you receive a message and a number to call, you should call as soon as possible to find out what you need to do to get medical treatment.
- Within 3-5 business days after you or your employer report the accident, you should receive an informational brochure explaining your rights and obligations, and a Notification Letter explaining the services provided by the Employee Assistance Office of the Division of Workers' Compensation. These forms may be part of a packet which may include some or all of the following:
    - A copy of your accident report or "First Report of Injury or Illness," which you should read to make sure it is correct;
    - A fraud statement, which you must read, sign and return as soon as possible, or benefits may be temporarily withheld until you do so;
    - A release of medical records for you to sign and return; and
    - Medical mileage reimbursement forms that you should fill out, after seeking medical treatment, and send to your claim's adjuster for reimbursement.

2. When you see the doctor:

- Give the doctor a full description of the accident or how you were injured.

- Answer all questions the doctor might have about any past or current medical conditions or injuries.

- Discuss with the doctor if the injury is related to work or not.

- If related to work, find out if you can work or not.
    - If you are released to work but can't return to your same job, you should get instructions from the doctor on what work you can and cannot do.
    - Keep and attend all appointments with your doctor, or benefits may be suspended.
    -

3. After seeing the doctor:

- Speak with your employer as soon as you leave the doctor. Tell your employer how much your job means to you and explain to them what work the doctor said you can and cannot do.
  - If you are admitted to a hospital, call or have someone call your employer for you to explain what happened and where you are.
- Give your employer the doctor's note as soon as possible.
- Ask your employer if they have work for you to return to that does not require you to do things the doctor said you cannot do yet.
  - If yes, ask when you should report for work.
  - If not, make sure your employer has a way to contact you if appropriate work becomes available.
- Contact the insurance company and let them know what the doctor said about your injuries and work status.
- You should continue to stay in contact with your employer and the insurance company throughout your treatment and recovery.

4. Benefits you may receive:

- Money you may be entitled to:
  - **Indemnity Benefits**: If you are unable to work for more than 7 days, you should receive money to partly replace what you were not able to earn after your accident.

Example: Your average weekly wage:

$320 (Earnings before injury) X .80 = $256

Your weekly earning after injury: - $150

$106

$106 X .80 = $84.80

Weekly temporary partial disability benefit:

$84.80

Note: Your weekly benefit can never exceed the maximum compensation rate for the year in which your accident or illness occurred. For a table of the maximum compensation rates go to: http://www.myfloridacfo.com/division/WC/ insurer/bma_rates.htm

- **Temporary total disability**: If your doctor says you cannot work at all:
  - ❖ You should receive money equaling about 66 2/3% of your regular wages at the time you were hurt. Your benefit is paid to you beginning with the 8th day you lose time from work.
  - ❖ The first 7 days lost from work is only paid if you lose more than 21 days from work.
- ❖ If your injury is critical, you may receive 80% of your regular wages for up to 6 months after the accident.
- ❖ You can receive up to a total of 104 weeks of temporary total disability and/or temporary partial disability benefits.

- **Temporary partial disability**: If you can return to work, but you cannot earn the same wages you earned at the time you were hurt:
  - You will receive money equaling 80% of the difference between 80% of what you earned before your injury and what you are able to earn after your injury.

  You can receive up to a total of 104 weeks of temporary total disability and/or temporary partial disability.

- **Impairment benefits**: Once your doctor says you are at Maximum Medical Improvement, you are as good as he or she expects you to get. At this point your doctor should evaluate you for:
  - Possible permanent work restrictions and,
  - A permanent impairment rating. If you receive a permanent impairment rating, you will receive money based on that rating.

• **Medical treatment**: Your employer is responsible for providing medical treatment.

- Do not delay in getting a doctor's appointment from your employer or insurance company.
- Do not go on your own to your private doctor for treatment. The insurance company must authorize the doctor who is to treat you.
  - If you do not get a doctor's name from the insurance company, you should contact your adjuster and ask for a doctor.

• **Reemployment Services assistance you may receive**:

If you are unable to return to your job because of permanent work restrictions resulting from your on-the-job injury, you may obtain information or assistance from the Bureau of Employee Assistance and Ombudsman Office/Reemployment Services Section at the following website, by phone or by e-mail:

- http://www.myfloridacfo.com/division/WC/ employee/reemployment.htm
- Telephone: (800) 342-1741 - option 4
- Email: wcres@myfloridacfo.com

5. If you have a dispute with your insurance company:

• First, try to talk about the problem with your adjuster or their supervisor.

• If you still need assistance, contact the WC hotline at 1-800-342-1741.

• If the insurance company still will not agree to pay the benefits that you believe you are entitled to, you can file a Petition for Benefits with the Office of the Judges of Compensation Claims.

- You may wish to hire an attorney to represent you in this action.

6. Employee Workers' Compensation Criminal Violations:

The following are criminal violations of s. 440.105, F.S., that constitute a felony of the first, second or third degree depending on the monetary value of the fraud as provided in s. 775.082, s. 775.083, or s. 775.084, F.S.:

- Filing a false claim of on-the-job injuries or exaggerating injuries.
    - An injured employee or any party making a claim of an on-the-job injury will be required to provide his or her personal signature attesting that he or she has reviewed, understands, and acknowledges the following statement:

"Any person who, knowingly and with intent to injure, defraud, or deceive any employer or employee, insurance company, or self-insured program, files a statement of claim containing any false or misleading information commits insurance fraud, punishable as provided in s. 817.234."

    - If the injured employee or party refuses to sign the document, benefits or payments shall be suspended until such signature is obtained.

HOW TO GET MORE INFORMATION AND HELP WITH YOUR CLAIM:

1. Division of Workers' Compensation Employee Assistance and Ombudsman Office:

- The Employee Assistance and Ombudsman Office (EAO) will assist you at no cost with questions or concerns you may have about your workers' compensation claim.
- EAO works on your behalf to resolve issues with your workers' compensation claim.
- EAO offices are located around the state to assist you.
- Website: http://www.myfloridacfo.com/division/WC/employee/default.htm
- Phone (toll free): 1-800-342-1741

2. The Division of Workers' Compensation Website: www.myfloridacfo.com/WC

EMPLOYER SECTION

1. If you see an accident on the job or someone reports one:

- Contact your insurance company right away.
- Stay in contact with your employee and the adjuster until the injured worker is back on the job.

2. If the employee is released to work with restrictions:

- Get the doctor's list of restrictions from the injured worker or directly from the doctor's office, and
- Meet with the injured worker to see if work is available that he/she can do.
- If restricted work is available:

- Discuss with the injured worker:
  - Starting time and date,
  - What you can pay him/her based on new job duties, and
- Report the restricted work to the adjuster.

• Inform the adjuster:

- When the injured worker is scheduled to return to restricted work.
- If the injured worker will not be earning what he/she earned before:
  - Send the adjuster wage information on a weekly or bi-weekly basis to determine if temporary partial benefits are due.
- If the injured worker is unable to, due to restrictions, continue working, or
- If you can't give him/her restricted work any longer, or
- If the doctor releases him/her to regular work.

EMPLOYER REQUIREMENTS:

1. Posting Requirement:

• The "Broken Arm Poster" and the "Anti-Fraud Notice" should be posted in a conspicuous place and should identify the name of the insurance company providing coverage and where to call to report an accident or injury. Contact your insurance company to obtain the poster and the notice.

2. Recording Requirement:

• Record all workplace injuries and retain the records for at least 2.5 years.

3. Reporting Requirement:

• Report all workplace deaths to the Division within 24 hours of discovery.

- Call: 1-800-219-8953
- Fax: 1-850-413-1979
- Email: DFSFatalityreport@myfloridacfo.com

Note: This notification to the Division does not replace the claim administrator First report of Injury or Illness reporting requirement under 440.185(2), F.S.

• Report all job-related injuries to the insurance company within 7 days of discovery.

• Provide a copy of the injury report to the injured worker (Form DFS-F2-DWC-1).

• Report required wage information to the insurance company within 14 days of learning of an injury that will require the employee to miss work for more than 7 days or that results in a permanent impairment.

• If requesting the employee's authorization for release of social security benefit information, give the Form DFS-F2-DWC-14 to the employee, submit the Request for Social Security Disability Benefit Information to the Social Security Administration office

nearest to the employee's address, and send a copy of the completed form to the Division within 14 days of the request (Form DFS-F2- DWC-14).

WORKERS' COMPENSATION COVERAGE/ COMPLIANCE REQUIREMENTS FOR THE EMPLOYER:

Note: Chapter 440, F.S., establishes workers' compensation coverage requirements for employers.

1. Construction Industry: An employer in the construction industry who employs one or more part- or full-time employees must obtain workers' compensation coverage. Sole proprietors, partners, and corporate officers are considered employees. Members of a limited liability company are considered corporate officers. Corporate officers may elect to exempt themselves from the coverage requirements of Chapter 440.

A construction industry contractor, who subcontracts all or part of their work, must obtain proof of workers' compensation coverage or a Certificate of Election to be Exempt from all subcontractors, prior to work being done. If the sub-contractor is not covered or exempt, for purposes of workers' compensation coverage, the sub-contractor's employees shall become the statutory employees of the contractor. The contractor will be responsible to pay any workers' compensation benefits to the subcontractor and its employees.

2. Non-Construction Industry: An employer in the non-construction industry, who employs four or more part- or full-time employees, must obtain workers' compensation coverage. Corporate officers are considered employees, unless they elect to exempt themselves from the coverage requirements of Chapter 440. Sole proprietors and partners in the non-construction industry are not considered to be employees unless they elect to be employees. Members of a limited liability company will be considered as corporate officers and employees, unless they elect to exempt themselves from the coverage requirements of Chapter 440.

3. Agricultural Industry: Agricultural employers with six or more regular employees and/or 12 or more seasonal employees, who work for more than 30 days, must obtain workers' compensation liability coverage for those employees.

4. Out-of-State Employers: An out-of-state employer engaged in work in Florida must immediately notify their insurance carrier that it has employees working in Florida. A company that has employees working in Florida must have a Florida workers' compensation insurance policy or an endorsement must be added to the out-of-state policy that lists Florida in section 3.A. of the policy. A contractor working in Florida who contracts with an out-of-state subcontractor must obtain proof of a Florida workers' compensation policy or an endorsement to the out-of-state employer's policy that lists Florida in

section 3.A. of the policy, on the declaration page. Otherwise, the Florida contractor's policy must include the out-of-state subcontractor and their employees per Chapter 440.10 (1) (g), Florida Statutes.

- Extraterritorial Reciprocity: Out-of-state employers whose home jurisdiction has in its statute an "extraterritorial reciprocity" clause allowing temporary employees from another jurisdiction (including Florida) to work under the "home state's" workers' compensation policy is permitted to work in Florida using the workers' compensation policy from their "home state", as long as the work is temporary in nature. Temporary is defined as no more than 10 consecutive days with a maximum of 25 total days in a calendar year. [For a list of the current jurisdictions who have an extraterritorial reciprocity statute, contact the Division of Workers' Compensation at 850.413.1609].

OBTAINING REQUIRED COVERAGE:

1. Coverage Options: Contact a Florida-licensed insurance agent to obtain a workers' compensation policy. If the employer has applied for and been rejected by two non-affiliated workers' compensation insurers in the voluntary market, within the last sixty (60) days, they may contact the Florida Workers' Compensation Joint Underwriting Association (FWCJUA) at (941) 378-7400 or go to their website at www.fwcjua.com. The employer may also consider leasing employees from a Professional Employer Organization or PEO. In this circumstance, the PEO becomes the employer and provides workers' compensation coverage to each employee who is paid by the leasing PEO.

2. Accurate Employer Job Classification and Payroll: Since workers' compensation premiums are based on the information provided by the employer, it is important that accurate information such as what type of work is being performed (i.e. interior trim carpentry, roofing, restaurant, clerical, etc.) and estimated payroll for each job classification code is reported to the insurance company. If any changes occur in the job duties or services performed or the employer's payroll amount during the policy term, the employer must notify its insurance company.

3. Professional Employer Organization or Employee Leasing Company: If an employer enters into an employee leasing agreement with a licensed employee leasing company, the agreement entails workers' compensation coverage only for employees listed with the employee leasing company. The client company is responsible for workers' compensation coverage for all non-leased employees. The payroll for all employees must be paid through the leasing company. Any changes in job duties or status of an employee must be reported to the leasing company promptly.

4. Individual Self Insurers: Pursuant to chapter 440.38, F.S., an employer may become individually self-insured and secure the payment of workers' compensation by providing proof of

financial strength necessary to ensure timely payments of current and future claims. Authorization and regulation of individual self-insurers is through the Division. 5. Commercial Self-Insurance Funds: Pursuant to chapter 624.462, F.S., a group of persons may form a commercial self-insurance fund for purposes of pooling and spreading liabilities for any commercial and/or casualty insurance. Authorization and regulation of commercial self-insurance funds is through the Office of Insurance Regulation.

Module 5: Florida Board of Cosmetology Laws & Rules

Introduction

Florida licensed cosmetologists are required to practice under the laws and rules of Florida to ensure the health, safety and well-fare of the public. This module will overview the Florida laws & rules pertaining to practicing cosmetology, the board of cosmetology, prohibited conduct & penalties, and salon requirements.

Florida Statute 477 - Florida Cosmetology Act

Chapter 477 F.S., Cosmetology, is contained within Florida Statutes Title 32, Regulation of Professions and Occupations. It encompasses 477.011 through 477.31. These laws create and give power to the board of cosmetology as well as provide guidelines for regulating the industry. Please reference the following link to view the current statutes.

http://www.leg.state.fl.us/Statutes/index.cfm?App_mode=Display_Statute&URL=0400-0499/0477/0477ContentsIndex.html

Florida Administrative Code 61G5-20 Cosmetology Salon

Chapter 61G5-20 F.A.C., Cosmetology Salon, encompasses 61G5-20.001 through 61G5-20.010. These board of cosmetology rules govern salon requirements and operations. Please reference the following link to view the current rules.

https://www.flrules.org/gateway/ChapterHome.asp?Chapter=61G5-20

Florida Administrative Code 61-6 DBPR Biennial Licensing

Chapter 61-6 F.A.C., Department of Business and Professional Regulation (DBPR) Biennial Licensing, encompasses 61-6.001 through 61-6.043. These DBPR rules govern licensing renewal, licensing

status and audits. Please reference the following link to view the current rules.

https://www.flrules.org/gateway/ChapterHome.asp?Chapter=61-6

Module 6: Chemical Makeup of Hair, Skin, & Nails

Introduction

This module explains the anatomy makeup of Hair, Skin, Nails and its function. This course will also cover pH, what it is and how it works in its relation to skin, nails, hair, and products. Overview of disorders of the skin, hair and nails.

Anatomy of Skin

The skin is a vital organ that covers the entire outside of the body, forming a protective barrier against pathogens and injuries from the environment. The skin is the body's largest organ; covering the entire outside of the body, it is about 2 mm thick and weighs approximately six pounds. It shields the body against heat, light, injury, and infection. The skin also helps regulate body temperature, gathers sensory information from the environment, stores water, fat, and vitamin D, and plays a role in the immune system protecting us from disease.

The color, thickness and texture of skin vary over the body. There are two general types of skin; thin and hairy, which is more prevalent on the body, and thick and hairless, which is found on parts of the body that are used heavily and endure a large amount of friction, like the palms of the hands or the soles of the feet.

Basically, the skin is comprised of two layers that cover a third fatty layer. These three layers differ in function, thickness, and strength. The outer layer is called the **epidermis**; it is a tough protective layer that contains the melanin-producing melanocytes. The second layer (located under the epidermis) is called the **dermis**; it contains nerve endings, sweat glands, oil glands, and hair follicles. Under these two skin layers is a fatty layer of subcutaneous tissue, known as the **subcutis** or hypodermis. The skin contains many specialized cells and structures:

- **Basket Cells**
  Basket cells surround the base of hair follicles and can sense pressure. They are evaluated when assessing overall nerve health and condition.
- **Blood Vessels**
  Blood vessels carry nutrients and oxygen-rich blood to the cells that make up the layers of skin and carry away waste products.
- **Hair Erector Muscle (Arrector Pili Muscle)**
  The arrector pili muscle is a tiny

muscle connected to each hair follicle and the skin. When it contracts it causes the hair to stand erect, and a "goose bump" forms on the skin.

- **Hair Follicle**
  The hair follicle is a tube-shaped sheath that surrounds the part of the hair that is under the skin and nourishes the hair. It is located in the epidermis and the dermis.
- **Hair Shaft**
  The hair shaft is the part of the hair that is above the skin.
- **Langerhans Cells**
  These cells attach themselves to antigens that invade damaged skin and alert the immune system to their presence.
- **Melanocyte**
  A melanocyte is a cell that produces melanin and is located in the basal layer of the epidermis.
- **Merkel Cells**
  Merkel cells are tactile cells of neuroectodermal origin located in the basal layer of the epidermis.
- **Pacinian Corpuscle**
  A pacinian corpuscle is a nerve receptor located in the subcutaneous fatty tissue that responds to pressure and vibration.
- **Sebaceous Gland**
  Sebaceous glands are small, sack-shaped glands which release an oily substance onto the hair follicle that coats and protects the hair shaft from becoming brittle. These glands are located in the dermis.
- **Sensory Nerves**
  The epidermis is innervated with sensory nerves. These nerves sense and transmit heat, pain, and other noxious sensations. When they are not functioning properly sensations such as numbness, pins-and-needles, pain, tingling, or burning may be felt. When evaluating a skin biopsy, total number, contiguity, diameter, branching, swelling, and overall health of the sensory nerves are assessed.
- **Stratum Corneum**
  The stratum corneum is outermost layer of the epidermis and is comprised of dead skin cells. It protects the living cells beneath it by providing a tough barrier between the environment and the lower layers of the skin. The stratum corneum is useful for diagnosis because in some conditions it will become thinner than normal.
- **Sweat Gland (Sudoriferous Gland)**
  These glands are located in the epidermis and produce moisture (sweat) that is secreted through tiny ducts onto the surface of the skin (stratum corneum). When sweat evaporates, skin temperature is lowered.

The Epidermis

The epidermis is the outermost layer of the skin and protects the body from the environment. The thickness of the epidermis varies in different types of skin; it is only .05 mm thick on the eyelids and is 1.5 mm thick on the palms and the soles of the feet. The epidermis contains the melanocytes (the cells in which melanoma develops), the Langerhans' cells (involved in the immune system in the skin), Merkel cells and sensory nerves. The epidermis layer itself is made up of five sublayers that work together to continually rebuild the surface of the skin.

Five Sublayers of Epidermis

Basal Layer

The **basal layer** is the innermost layer of the epidermis, and contains small round cells called basal cells. The basal cells continually divide, and new cells constantly push older ones up toward the surface of the skin, where they are eventually shed. The basal cell layer is constantly producing new cells.

The basal cell layer contains cells called melanocytes. **Melanocytes** produce the skin coloring or pigment known as melanin, which gives skin its tan or brown color and helps protect the deeper layers of the skin from the harmful effects of the sun. Sun exposure causes melanocytes to increase production of melanin in order to protect the skin from damaging ultraviolet rays, producing a suntan. Patches of melanin in the skin cause birthmarks, freckles and age spots. Melanoma develops when melanocytes undergo malignant transformation.

Squamous Layer

The **squamous cell layer** is located above the basal layer and is also known as the stratum spinosum or "spiny layer" due to the fact that the cells are held together with spiny projections. Within this layer are the basal cells that have been pushed upward, however these maturing cells are now called squamous cells, or keratinocytes. **Keratinocytes** produce keratin, a tough, protective protein that makes up the majority of the structure of the skin, hair, and nails.

The squamous cell layer is the thickest layer of the epidermis and is involved in the transfer of certain substances in and out of the body. The squamous cell layer also contains cells called Langerhans cells. These cells attach themselves to antigens that invade damaged skin and alert the immune system to their presence.

Stratum Granulosum and Stratum Lucidum

The keratinocytes from the squamous layer are then pushed up through two thin epidermal layers called the stratum granulosum and the stratum lucidum. As these cells move further towards the surface of the skin, they get bigger and flatter and adhere together, and then eventually become dehydrated and die. This process results in the cells fusing together into layers of tough, durable material, which continue to migrate up to the surface of the skin.

Stratum Corneum

The stratum corneum is the outermost layer of the epidermis and is made up of 10 to 30 thin layers of continually shedding, dead keratinocytes. The stratum corneum is also known as the "horny layer," because its cells are toughened like an animal's horn. As the outermost cells age and wear down, they are replaced by new layers of strong, long-wearing cells. The stratum corneum is sloughed off continually as new cells take its place, but this shedding process slows down with age. Complete cell turnover occurs every 28 to 30 days in young adults, while the same process takes 45 to 50 days in elderly adults.

The Dermis

The dermis is located beneath the epidermis and is the thickest of the three layers of the skin (1.5 to 4 mm thick), making up approximately 90 percent of the thickness of the skin. The main functions of the dermis are to regulate temperature and to supply the epidermis with nutrient-saturated blood. Much of the body's water supply is stored within the dermis. This layer contains most of the skins' specialized cells and structures, including:

- **Blood Vessels**
  The blood vessels supply nutrients and oxygen to the skin and take away cell waste and cell products. The blood vessels also transport the vitamin D produced in the skin back to the rest of the body.
- **Lymph Vessels**
  The lymph vessels bathe the tissues of the skin with lymph, a milky substance that contains the infection-fighting cells of the immune system. These cells work to destroy any infection or invading organisms as the lymph circulates to the lymph nodes.
- **Hair Follicles**
  The hair follicle is a tube-shaped sheath that surrounds the part of the hair that is under the skin and nourishes the hair.
- **Sweat Glands**
  The average person has about 3 million sweat glands. Sweat glands are classified according to two types:
  1. Apocrine glands are specialized sweat glands that can be found only in the armpits and pubic region. These glands secrete a milky sweat that encourages the growth of the bacteria responsible for body odor.
  2. Eccrine glands are the true sweat glands. Found over the entire body, these glands regulate body temperature by bringing water via the pores to the surface of the skin, where it evaporates and reduces skin temperature. These glands can produce up to two liters of sweat an hour, however, they secrete mostly water, which doesn't encourage the growth of odor-producing bacteria.
- **Sebaceous glands**
  Sebaceous, or oil, glands, are attached to hair follicles and can be found everywhere on the body except for the palms of the hands and the soles of the feet. These glands secrete oil that helps keep the skin smooth and supple. The oil also helps keep skin waterproof and protects against an overgrowth of bacteria and fungi on the skin.
- **Nerve Endings**
  The dermis layer also contains pain and touch receptors that transmit sensations of pain, itch, pressure and information regarding temperature to the brain for interpretation. If necessary, shivering (involuntary contraction and relaxation of muscles) is triggered, generating body heat.
- **Collagen and Elastin**
  The dermis is held together by a protein called collagen, made by fibroblasts. Fibroblasts are skin cells that give the skin its strength and resilience. Collagen is a tough, insoluble protein found throughout the body in the connective tissues that hold muscles and organs in place. In the skin, collagen supports the epidermis, lending it its durability. Elastin, a similar protein, is the substance that allows the skin to spring back into place when stretched and

keeps the skin flexible. The dermis layer is made up of two sublayers.

Papillary Layer

The upper, papillary layer contains a thin arrangement of collagen fibers. The papillary layer supplies nutrients to select layers of the epidermis and regulates temperature. Both of these functions are accomplished with a thin, extensive vascular system that operates similarly to other vascular systems in the body. Constriction and expansion control the amount of blood that flows through the skin and dictate whether body heat is dispelled when the skin is hot or conserved when it is cold.

Reticular Layer

The lower, reticular layer is thicker and made of thick collagen fibers that are arranged in parallel to the surface of the skin. The reticular layer is denser than the papillary dermis, and it strengthens the skin, providing structure and elasticity. It also supports other components of the skin, such as hair follicles, sweat glands, and sebaceous glands.

The Subcutis

The subcutis is the innermost layer of the skin and consists of a network of fat and collagen cells. The subcutis is also known as the hypodermis or subcutaneous layer, and functions as both an insulator, conserving the body's heat, and as a shock-absorber, protecting the inner organs. It also stores fat as an energy reserve for the body. The blood vessels, nerves, lymph vessels, and hair follicles also cross through this layer. The thickness of the subcutis layer varies throughout the body and from person to person.

Anatomy of Hair

Hair is actually a modified type of skin which is a slender threadlike cylinder of impacted protein and keratinized cells that is an outgrowth of the epidermis layer.

Hair grows everywhere on the human body except the palms of the hands, soles of the feet, and lips. There are approximately 5 million hair follicles on the body with 100,000 on the scalp. The scalp has the greatest density of hair follicles with roughly 300 to 500 hairs per square centimeter.

The hair on our heads keep us warm by preserving heat. The hair in our nose, around our eyes and in our ears protects these sensitive areas of the body from dust and other small particles. Our eyebrows and eyelashes protect our eyes by decreasing the amount of light and particles that go into them. The fine hair that covers our bodies provides warmth and protects our skin.

Human hair consists of the **hair shaft**, which projects from the skin's surface, and the **root**, a soft thickened bulb at the base of the hair embedded in the skin. The root ends in the **hair bulb**. The hair bulb sits in a sac-like pit in the skin called the **follicle**, from which the hair grows.

At the bottom of the follicle is the **papilla**, where hair growth actually takes place. The papilla contains an artery that nourishes the root of the hair. As

cells multiply and produce keratin to harden the structure, they are pushed up the follicle and through the skin's surface as a shaft of hair.

Each hair has three layers: the **medulla** at the center, which is soft; the **cortex**, which surrounds the medulla and is the main part of the hair; and the **cuticle**, the hard-outer layer that protects the shaft.

Hair grows by forming new cells at the base of the root. These cells multiply to form a rod of tissue in the skin. The rods of cells move upward through the skin as new cells form beneath them. As they move up, they are cut off from their supply of nourishment and start to form a hard protein called keratin in a process called **keratinization**. As this process occurs, the hair cells die. The dead cells and keratin form the shaft of the hair.

Each hair grows about ¼ inch (about 6 millimeters) every month and keeps on growing for up to 6 years. The hair then falls out and another grows in its place. The length of a person's hair depends on the length of the growing phase of the follicle. Follicles are active for 2 to 6 years; they rest for about 3 months after that a person becomes bald if the scalp follicles become inactive and no longer produce new hair. Thick hair grows out of large follicles; narrow follicles produce thin hair.

The color of a person's hair is determined by the amount and distribution of melanin in the cortex of each hair (the same melanin that's found in the epidermis). Hair also contains a yellow-red pigment; people who have blonde or red hair have only a small amount of melanin in their hair. Hair becomes gray when people age because pigment no longer forms.

The **hair root** is located below the surface of the epidermis and is composed of five main parts.

- **Follicle**
- **Arrector Pili**
- **Sebaceous Glands**
- **Bulb**
- **Papilla**

The **follicle** encompasses the hair root and determines texture and curl formation.

The **sebaceous gland** provides the follicle with natural oils or sebum which adds luster and pliability to the hair and scalp.

The **hair bulb** is located at the very bottom of the hair root which fits over and covers the papilla.

The **papilla** is a small root area at the base of the hair that is filled with an ample supply of rich blood and nerves and nourishes the hair and stimulates growth and regeneration.

The **arrector pili** is an involuntary muscle attached to the underside of the follicle. The muscle is sensitive to fear or cold which causes it to contract, causing “goosebumps”.

The **hair shaft**, also known as the stem of the hair, consists of three main layers which project above the epidermis.

- **Cuticle**
- **Cortex**

- **Medulla**

The **cuticle** is the transparent outer-most layer of the hair shaft, which consists of flattened keratin cells and amino acids that protects and seals the inner structure of the hair and creates shiny, smooth, silky feeling.

The **cortex** is the middle layer of the hair shaft which is the thickest part of the shaft and is filled with melanin, keratin, protein cells, and micro fibrils that gives hair its color, length, strength, resilience, and moisture content.

The **medulla** also referred to as the pith or marrow of the hair, is the innermost core of the shaft. Composed of round sponge-like baggy cells. This layer is normally seen in thick or course hair. The medulla can be non-existent in very thin and light or blond-colored hair. The medulla's appearance can be typed as continuous, fragmental, solid, or absent.

Hair Growth

Each day, we lose 50 to 80 strands of hair. New strands of hair, which have an average life cycle of 2 to 7 years, replace those that we lose daily. Each hair follicle produces a new hair, which then grows in successive cycles before falling out. 90% of our hair is in a permanent growth phase, whereas 10 % is in an expelling phase. The life cycle of a hair is divided into three phases.

Phases of normal **hair growth**:

- **Anagen**
- **Catagen**
- **Telogen**

Anagen is the active growing phase when the bulb is moving up through the follicle and new hair is being produced. This phase can last from 1 to 7 years. During this phase, the hair bulb, which is located at the bottom of the follicle, is regenerated and then produces a hair fiber. Our hair grows approximately 1cm per month.

Catagen is the transition or resting phase after years of growing when the hair cells stop reproducing and the hair begins to lose moisture and separates from the papilla. This phase can last up to 2 to 3 weeks. This is the end of the hair production phase; the follicle retracts from the surface of the scalp and stops growing.

Telogen is the shedding or resting phase when the bulb is totally separate from the root and new hair cells divide and multiply creating a new hair shaft. The hair is no longer growing but remains attached to its follicle for approximately 3 months. After a 3-month period, the hair starts to fall out when we wash or brush it.

Hair Characteristics

Hair can vary in shape, length, diameter, texture, and color.

There are two general **characteristics** of hair differences.

- **Type**
- **Texture**

Physical proprieties of hair depend mostly on its geometry.

Hair types are classified into four variations or geometrical shape.

- **Straight** - round
- **Wavy** - oval to round
- **Curly** - almost flat
- **Kinky or Coiled** - flat and spiraled

Hair texture is the measurement and curl configuration of a hair fiber resulting from three characteristics.

- **Diameter**
- **Porosity**
- **Elasticity**

Diameter refers to the size of the individual strands of hair and degree of coarseness or fineness.

- **Course hair** - largest in diameter
- **Fine hair** - smallest in diameter

Porosity is the hair's ability to absorb moisture through the cuticle into the cortex. The degree of porosity is directly related to the condition of the cuticle. Without cuticular damage, the hair shaft is relatively impermeable to water and other substances. With changes caused by permanent waves, coloring, temperature or pH changes, the cuticle can be rendered more vulnerable permitting penetration and damage to the cortex. With repeated injury, the cuticle can be rendered permanently damaged allowing moisture to escape and making the hair dry, brittle, and exhibit split ends.

- **Low porosity** - referred to as Hydrophobic. (resistant to penetration of water)
- **High porosity** - referred to as Hydrophilic. (ability to absorb water)

Elasticity is the hair's ability to stretch and return to its original size and shape without breaking. When dry, the hair thread may stretch 20-30% of its length; and, in contact with water, this may reach up to 50%. In contact with ammonia it becomes more elastic. Chemical and physical treatments, sun exposition and use of electric dryers and heated plates affect this propriety

- **Normal elasticity** - springy and lustrous
- **Dry hair** - stretches only 1/5th its length
- **Wet hair** - stretches up to 50% of its length

Regions

There are four bone structures on the cranium which results in the variation of hair texture.

- **Occipital**
- **Parietal**
- **Frontal**
- **Temporal**

Occipital is the bone that forms the back of the cranium indenting above the nape. Hair in the occipital region is tighter in its coil configuration in addition to being dryer, more brittle and easier to break.

Parietal is the two bones that form the sides and top of the cranium. Hair in the

parietal region has a great variety of diverse textures.

Frontal is the bone that forms the forehead. Hair in the parietal region has a great variety of diverse textures.

Temporal is the two bones located on either side of the head directly above the ears. Hair in the temporal region displays a soft or fine coil, is less brittle, and the spiral pattern may vary from a very tight to loose or medium to large corkscrew pattern.

Chemical Composition of Hair

Hair is comprised of many contributing factors. Proteins, raw elements, amino acids and bonds work together in forming hair fiber. The dominant contributor in the composition of hair is protein, accounting for 91 percent of hair fiber.

18 amino acids can be found in the hair, such as proline, threonine, leucine and arginine. Keratin is particularly rich in cysteine (a type of sulfurated amino acid)

Amino Acids in the hair fiber is made up of 45% Carbon, 28% Oxygen, 15% Nitrogen, 7% Hydrogen and 5% Sulfur. Hair also contains water of about 12-15% and traces of mineral elements such as calcium, cadmium, chromium, copper, zinc, iron and silicon.

The hair contains 3% lipid components. They are produced in the hair bulb from sterols, fatty acids and ceramides. Present essentially in the intercellular cement of the cortex and the cuticle, they provide the hair with a certain impermeability and ensure the cohesion of the hair fiber.

Sebum lipid comes for the sebaceous gland. Sebum is formed from mature sebaceous cells which have burst open and it mainly contains lipids (triglycerides, waxes, squalene, esterified cholesterol and free cholesterol). The most abundant triglycerides undergo partial hydrolysis by the bacteria that inhabit the scalp, *Propionibacterium acnes* and *Propionibacterium granulosum*.

The lipid mixture which forms this film on the surface of the skin lubricates the hair and thus preserves the suppleness and shine of the hair. Being hormone dependent, the sebum can be produced in excess and the hair becomes greasy and heavy. On the other hand, if too little is secreted, the hair becomes dry, dull and damaged.

Nail Anatomy

The nail unit is the largest and a rather complex skin appendage. It is located on the dorsal aspect of the tips of fingers and toes and has important protective and sensory functions. Fingernails grow from the matrix. The nails are composed largely of keratin. As new cells grow in the matrix, the older cells are pushed out, compacted and take on the familiar flattened, hardened form of the fingernail.

The average growth rate for nails is 0.1 mm each day. The exact rate of nail growth depends on numerous factors including the age and sex of the individual and the time of year. Fingernails generally

grow faster in young people, in males, and in the summer. Fingernails grow faster than toenails and the fingernails on the right hand of a right-handed person grow faster than those on their left hand, and vice versa.

Components of the nail:

Matrix: forms the nail plate. Contains nerves and blood and lymph vessels that produce nail cells. Damage to the matrix can be irreversible. Be sure to avoid excessive pressure when pushing back the cuticle and aggressive use of hand or e-files when working in this area.

Proximal Nail Fold: is a fold of skin that forms a protective barrier to keep bacteria and infection from reaching the matrix.

Eponychium: represents the undersurface of the proximal nail fold which is responsible for the formation of the cuticle. This area should never be cut, but moisturized.

Cuticle: is the layer of translucent skin that is shed from the underside of the proximal nail fold as the nail grows. This skin emerges from beneath the eponychium attached to the nail plate. Since this tissue is dead, most of it can be safely cut or filed off.

Nail Bed: firmly attaches the plate to the distal phalanx. The nail bed is the skin underneath the nail plate. It contains blood vessels that supply nutrients to the fingertip.

Nail Plate: is the hard, keratin coating on the fingertip

Hyponychium: forms a natural barrier at the physiological point of separation of the nail from the bed. It forms the seal between the nail plate and the nail bed where the free edge begins. This area is very vascular and sensitive, avoid aggressively cleaning under the free edge with implements. Not only is this painful and will bleed a lot if the skin is cut, but damaging the hyponychium can cause onycholysis, or the lifting of the nail plate from the nail bed, leaving the area susceptible to infections and fungus.

Lunula: The lunula is the visible portion of the distal nail matrix that extends beyond the proximal nail fold. It is white, half-moon-shaped at the base of the nail and gets its color from the nuclei of living nail cells transitioning from the matrix.

Perionychium: is the skin surrounding the nail and is prone to hang nails. Keep this area moisturized.

What is pH

pH is short for 'potential to free hydrogen ions' and is a measure of how acidic, alkaline, or neutral an aqueous solution. Pure water is neutral, but when chemicals are mixed with water, the mixture can become either acidic or basic.

An acid is a substance that can give up a hydrogen ion (H+); a base is a substance that can accept H+. The more acidic the solution the greater hydrogen ion concentration and the lower the pH value.

The substance that absorbs the ions is either a weak acid, which takes up hydroxyl ions, or a weak base, which takes up hydrogen ions.

The pH Scale

The pH scale ranges from (0.0-14.0). A pH of 7.0 is considered neutral. Anything below 7 is considered acidic and anything above 7.0, alkaline. The pH of the skin and hair is slightly more acidic and should sit at around (4.5 - 5.5).

Maintaining the correct pH value of the hair, nails, and skin is essential for the overall health of body. A pH of 7 is chemically neutral. Hair care and skin care products with a pH value in between 3 and 6 are considered beneficial to maintain healthy skin and hair.

pH Value and How It Relates to The Cosmetology Industry

The correct combination of chemicals can make the difference between healthy skin, nails, and hair or damaged skin, nails, or hair. When using chemicals on the hair or skin, the pH value should be taken into consideration, since strong acidic products or over alkalizing products can damage the hair and skin.

A hair and skin analysis can be performed prior to treating a client and can be an important element of the client consultation, knowing the condition of the hair, skin, and scalp can help you create the best care plan for your client.

Skin

Your skin is naturally protected by a thin layer called the acid mantle made up of a combination of healthy bacteria flora and the secretion of healthy lipids and natural oils. The natural acidity of skin also helps with inhibiting the growth of harmful bacteria. This mantle protects the skin against irritants, harmful bacteria and trans epidermal water loss.

If the skin is alkaline it becomes dry and has less antibacterial defense.

Harsh cleansers with high pH value can wash away this acid mantle, making your skin oilier as the skin tries to protect and rebalance itself. The surface of skin also becomes drier as harsh products dehydrate moisture levels. Surface water loss exacerbates clogged and congested skins as the excess oil trying to escape through the pores becomes trapped by the tightening surface cells.

Skin that is affected by mild acids can slightly strengthen the skin and assist it to detoxify, causing minimal disruption and keeping the skin in balance. Someone with a skin disorder such as acne or aging skin will need a special care plan to treat these disorders. There is not one universal cleanser to treat everyone, each skin type will need a specific cleanser and moisturizer.

Hair

This is also true when using shampoos and chemical products on the hair.

Another way to minimize hair damage that may result from shampooing is to prevent the hair shaft from alkalization. Most detergents have an alkaline pH, which causes hair shaft swelling. This swelling loosens the protective cuticle predisposing the hair shaft to damage. Hair shaft swelling can be prevented by 'pH balancing' the shampoo by the addition of an acidic substance, such as glycolic acid.

Shampoos formulated at a neutral pH are most important for chemically treated hair, from either permanent dyeing or permanent waving.

Nail

Healthy nails are usually smooth and consistent in color. Nails can be dry or oily. When they are oily, the polish will not last very long and begin to peel and chip away. Certain pH balancing primers can be used before applying polish to help manicures last longer.

The methods used to prepare nails for decoration and all methods of removing the applied preparations, damage the healthy nail plates. The most common changes are brittleness and nail splitting. Nail polish remover causes less damage than acetone, and the use of a nail drill machine and nail file causes the greatest destruction of nail plates. The biggest effect on the pH change of the nail was due to gel polish hybrid, gel nail, and acrylic nail powder, causing the pH value of nail plates to rise above 6.0. Nail polish itself does not change the pH level of the nail but maintains a 5.5 to 5.8 level, close to the natural pH level of the nail.

Regular handwashing or use of hand sanitizer can dry out the skin and nail bed quickly, moisturize hands and cuticles after washing.

Summary

Our skin, hair, and nails main function is to protect the human body. Their second function is purely ornamental. As we decorate our skin, hair and nails we must always take measures to protect its main function, keeping the body safe. While we manipulate and interrupt the pH balance to achieve desired decoration, we must have a good foundation of knowledge of how the chemistry of products and the physiology of our bodies interact.

Module 7: Environmental Laws – FDA Authority over Cosmetics

Introduction

The law does not require cosmetic products and ingredients, other than color additives, to have U.S. Food & Drug Administration (FDA) approval before they go on the market, but there are laws

and regulations that apply to cosmetics on the market in interstate commerce. In this module we will discuss the laws pertaining to cosmetics and the regulations cosmetic including organic cosmetics are required to adhere to

The two most important laws pertaining to cosmetics marketed in the United States are the Federal Food, Drug, and Cosmetic Act (FD&C Act) and the Fair Packaging and Labeling Act (FPLA). FDA regulates cosmetics under the authority of these laws.

In the United States, federal laws are enacted by Congress. In order to make the laws work on a day-to-day level, Congress authorizes certain government agencies. such as FDA, to create regulations. A change in FDA's legal authority over cosmetics would require Congress to change the law.

What kinds of products are "cosmetics" under the law?

The FD&C Act defines cosmetics by their intended use, as "articles intended to be rubbed, poured, sprinkled, or sprayed on, introduced into, or otherwise applied to the human body...for cleansing, beautifying, promoting attractiveness, or altering the appearance" (FD&C Act, sec. 201(i)). Among the products included in this definition are skin moisturizers, perfumes, lipsticks, fingernail polishes, eye and facial makeup, cleansing shampoos, permanent waves, hair colors, and deodorants, as well as any substance intended for use as a component of a cosmetic product. It does not include soap.

But, if the product is intended for a therapeutic use, such as treating or preventing disease, or to affect the structure or function of the body, it's a drug (FD&C Act, 201(g)), or in some cases a medical device (FD&C Act, 201(h)), even if it affects the appearance. Other "personal care products" may be regulated as dietary supplements or as consumer products.

What does the law say about the safety and labeling of cosmetics?

The FD&C Act prohibits the marketing of **adulterated** or **misbranded** cosmeti cs in interstate commerce.

"Adulteration" refers to violations involving product composition--whether they result from ingredients, contaminants, processing, packaging, or shipping and handling. Under the FD&C Act, a cosmetic is **adulterated** if--

- "it bears or contains any poisonous or deleterious substance which may render it injurious to users under the conditions of use prescribed in the labeling thereof, or under conditions of use as are customary and usual" (with an exception made for coal-tar hair dyes);
- "it consists in whole or in part of any filthy, putrid, or decomposed substance";
- "it has been prepared, packed, or held under insanitary conditions whereby it may have become contaminated with filth, or

whereby it may have been rendered injurious to health";
- "its container is composed, in whole or in part, of any poisonous or deleterious substance which may render the contents injurious to health"; or
- except for coal-tar hair dyes, "it is, or it bears or contains, a color additive which is unsafe within the meaning of section 721(a)" of the FD&C Act. (FD&C Act, sec. 601)

"Misbranding" refers to violations involving improperly labeled or deceptively packaged products. Under the FD&C Act, a cosmetic is **misbranded** if--

- "its labeling is false or misleading in any particular";
- its label does not include all required information. (An exemption may apply to cosmetics that are to be processed, labeled, or repacked at an establishment other than where they were originally processed or packed; see Title 21, Code of Federal Regulations, section 701.9.)
- the required information is not adequately prominent and conspicuous;
- "its container is so made, formed, or filled as to be misleading";
- it is a color additive, other than a hair dye, that does not conform to applicable regulations issued under section 721 of the FD&C Act; and
- "its packaging or labeling is in violation of an applicable regulation issued pursuant to section 3 or 4 of the Poison Prevention Packaging Act of 1970." (FD&C Act, sec. 602)

Under the FD&C Act, a product also may be misbranded due to failure to provide material facts. This means, for example, any directions for safe use and warning statements needed to ensure a product's safe use.

In addition, under the authority of the FPLA, FDA requires a list of ingredients for cosmetics marketed on a retail basis to consumers (Title 21, Code of Federal Regulations (CFR), section 701.3). Cosmetics that fail to comply with the FPLA are considered misbranded under the FD&C Act. (FPLA, section 1456) This requirement does not apply to cosmetics distributed solely for professional use, institutional use (such as in schools or the workplace), or as free samples or hotel amenities.

FDA can take action against cosmetics on the market that are in violation of these laws, as well as companies and individuals who market such products.

Does FDA approve cosmetics before they go on the market?

FDA's legal authority over cosmetics is different from our authority over other products they regulate, such as drugs, biologics, and medical devices. Under the law, cosmetic products and ingredients do not need FDA premarket approval, with the exception of color additives. However, FDA can pursue enforcement action against products on the market that are

not in compliance with the law, or against firms or individuals who violate the law.

In general, except for color additives and those ingredients that are prohibited or restricted by regulation, a manufacturer may use any ingredient in the formulation of a cosmetic, provided that--

- the ingredient and the finished cosmetic are safe under labeled or customary conditions of use,
- the product is properly labeled, and
- the use of the ingredient does not otherwise cause the cosmetic to be adulterated or misbranded under the laws that FDA enforces.

Who is responsible for substantiating the safety of cosmetics?

Companies and individuals who manufacture or market cosmetics have a legal responsibility to ensure the safety of their products. Neither the law nor FDA regulations require specific tests to demonstrate the safety of individual products or ingredients. The law also does not require cosmetic companies to share their safety information with FDA.

FDA has consistently advised manufacturers to use whatever testing is necessary to ensure the safety of their products and ingredients. Firms may substantiate safety in a number of ways. FDA has stated that "the safety of a product can be adequately substantiated through (a) reliance on already available toxicological test data on individual ingredients and on product formulations that are similar in composition to the particular cosmetic, and (b) performance of any additional toxicological and other tests that are appropriate in light of such existing data and information."

In addition, regulations prohibit or restrict the use of several ingredients in cosmetic products and require warning statements on the labels of certain types of cosmetics.

Can FDA order the recall of a hazardous cosmetic from the market?

Recalls of cosmetics are voluntary actions taken by manufacturers or distributors to remove from the marketplace products that represent a hazard or gross deception, or that are somehow defective (21 CFR 7.40(a). FDA is not authorized to order recalls of cosmetics, but they do monitor companies that conduct a product recall and may request a product recall if the firm is not willing to remove dangerous products from the market without FDA's written request.

What actions can FDA take against companies or individuals who market adulterated or misbranded cosmetics?

FDA may take regulatory action if they have reliable information indicating that a cosmetic is adulterated or misbranded. For example, FDA can pursue action

through the Department of Justice in the federal court system to remove adulterated and misbranded cosmetics from the market. To prevent further shipment of an adulterated or misbranded product, FDA may request a federal district court to issue a restraining order against the manufacturer or distributor of the violative cosmetic. Cosmetics that are not in compliance with the law may be subject to seizure. "Seizure" means that the government takes possession of property from someone who has violated the law or is suspected of doing so. FDA also may initiate criminal action against a person violating the law.

In addition, FDA works closely with U.S. Customs and Border Protection to monitor imports. Under section 801(a) of the FD&C Act, imported cosmetics are subject to review by FDA at the time of entry through U.S. Customs. Products that do not comply with FDA laws and regulations are subject to refusal of admission into the United States. They must be brought into compliance (if possible), destroyed, or re-exported. FDA does not inspect every shipment of cosmetics that comes into this country, but imported cosmetics are still subject to the laws the FDA enforce, even if they are not inspected upon entry.

FDA takes regulatory action based upon agency priorities, consistent with public health concerns and available resources.

Can FDA inspect cosmetics manufacturers?

FDA can and does inspect cosmetic manufacturing facilities to assure cosmetic product safety and determine whether cosmetics are adulterated or misbranded under the FD&C Act or FPLA.

Does FDA test cosmetics or recommend testing labs?

Although FD&C Act does not subject cosmetics to premarket approval by FDA, they do collect samples for examination and analysis as part of cosmetic facility inspections, import inspections, and follow-up to complaints of adverse events associated with their use. FDA may also conduct research on cosmetic products and ingredients to address safety concerns.

FDA does not function as a private testing laboratory, and in order to avoid even the perception of conflict of interest, they do not recommend private laboratories to consumers or manufacturers for sample analysis.

Do cosmetics firms need to register with FDA or get an FDA license to operate?

Under the law, manufacturers are not required to register their cosmetic establishments or file their product formulations with FDA, and no registration number is required to import cosmetics into the United States.

However, they encourage cosmetic firms to participate in FDA's Voluntary Cosmetic Registration Program (VCRP) using the online registration system. Cosmetic manufacturers, distributors, and packers can file information on their products that are currently being marketed to consumers in the United States and register their manufacturing and/or packaging facility locations in the VCRP database.

Organics

Does FDA have a definition for the term "organic"?

No. FDA regulates cosmetics under the authority of the Federal Food, Drug, and Cosmetic Act (FD&C Act) and the Fair Packaging and Labeling Act (FPLA). The term "organic" is not defined in either of these laws or the regulations that FDA enforces under their authority.

How is the term "organic" regulated?

The Agricultural Marketing Service of the U.S. Department of Agriculture (USDA) oversees the National Organic Program (NOP). The NOP regulations include a definition of "organic" and provide for certification that agricultural ingredients have been produced under conditions that would meet the definition. They also include labeling standards based on the percentage of organic ingredients in a product. "

If a cosmetic is labeled "organic" according to the USDA, is it still subject to the laws and regulations enforced by FDA?

Yes. The USDA requirements for the use of the term "organic" are separate from the laws and regulations that FDA enforces for cosmetics. Cosmetic products labeled with organic claims must comply with both USDA regulations for the organic claim and FDA regulations for labeling and safety requirements for cosmetics.

Are cosmetics made with "organic" ingredients safer for consumers than those made with ingredients from other sources?

No. An ingredient's source does not determine its safety. For example, many plants, whether or not they are organically grown, contain substances that may be toxic or allergenic. Under the FD&C Act, all cosmetic products and ingredients are subject to the same safety requirement: They must be safe for consumers under labeled or customary conditions of use (FD&C Act, section 601(a). Companies and individuals who market cosmetics have a legal responsibility to ensure that their products and ingredients are safe for the intended use.

Module 8: Chemicals in Hair Color and Your Body

Chemicals in Hair Color and Your Body

How can chemicals in hair color get into your body?

Skin and Eye Contact

- Some chemicals may harm your skin directly and/or be absorbed into your bloodstream.
- You may splash chemicals into your eyes.
- You may accidentally touch your eyes with chemicals on your hands.
- Chemical vapors in the air may get into your eyes.

Breathing

You may breathe in chemical vapors through your nose or mouth.

Swallowing

Chemicals on your hands or in the air may contaminate your food or drink.

How can chemicals in hair color affect your body?

Different chemicals affect your body in different ways, depending on the *amount* of the chemical in the product, how *harmful* it is, the *length of time* you are exposed, and other factors. Not every person has the same reaction to a chemical. Some people experience health effects when they work with a product, others never do. Health problems that may be caused by chemicals in hair color include:

- **Central nervous system effects:** Headache, dizziness, nausea, drowsiness, restlessness.
- **Allergies:** Stuffy or runny nose, sneezing, asthma, dermatitis. Sometimes chemicals from other products, such as thioglycolates in perm solutions or relaxers, can make you more likely to have an allergic reaction to chemicals in hair colorings.
- **Skin irritation and dermatitis:** Redness, itching, skin rash, or dry skin that cracks and flakes — most common on the hands and arms.
- **Lead poisoning:** Some hair coloring products contain lead. If you are exposed to a large amount of lead, you may be at risk of lead poisoning. Symptoms include muscle weakness, leg cramps, numbness, depression, and brain damage. This is not a common health problem.
- **Eye irritation, eye damage, and blindness:** Redness, burning, watering, itching, loss of sight.
- **Nose and throat irritation:** Runny nose, scratchy throat, burning, itching.

- **Lung irritation:** Breathing difficulty, shortness of breath, coughing, swelling of lung tissue.
- **Burns:** Chemicals in some hair colorings can cause burns if they get on your skin or in your eyes.
- **Cancer:** Coal tar dyes, used in some permanent hair colorings, have been shown to cause cancer if you work with them over a long period of time. This is not a common health problem.

What Are Coal Tar Dyes?

Coal tar dyes are artificial coloring agents made by combining various aromatic hydrocarbons like toluene, xylene, benzene, which are obtained from the distillation of bituminous coal. Coal tars are also made from petroleum distillates. Coal tar is a brown or black liquid of extremely high viscosity. Coal tar is among the by-products when coal is carbonized to make coke or gasified to make coal gas.

These dyes are used in foods, over the counter and prescription drugs, textiles, cosmetics, and personal care products like hair dyes, shampoos, and deodorants. Coal tars are also used therapeutically in products said to control dandruff, eczema, psoriasis, seborrheic dermatitis, and other skin disorders, as well as being used to kill and repel head lice. When used as a medication in the U.S., coal tar preparations are considered over-the-counter drug pharmaceuticals and are subject to regulation by the USFDA.

Coal tar-derived colors are used extensively in cosmetics, generally identified by a five-digit Color Index (C.I.) number. The U.S. color name may also be listed ("FD&C" or "D&C" followed by a color name and number). P-phenylenediamine is a particular coal tar dye used in many hair dyes. Darker hair dyes tend to contain more phenylenediamine than lighter colors. P-phenylenediamine has been linked to tumors in laboratory tests conducted by the U.S. National Cancer Institute.

Hair dye manufacturers must label any product containing coal tar hair dyes with a warning that the product may cause skin reactions in certain allergic individuals.

There's also evidence that artificial colors increase hyperactivity, ADHD and learning difficulties in children. Other studies have implicated coal tars in lung and skin cancers (though a direct relationship remains unproved). According to the International Agency for Research on Cancer, preparations that include more than five percent of crude coal tar are Group 1 carcinogens.

California requires OTC coal tar shampoos, lotions and creams that contain more than 0.5 percent coal tar to be labeled with cancer warnings. Coal tar causes increased sensitivity to sunlight, so skin treated with topical coal tar preparations should be protected from sunlight. The residue from the distillation of high-temperature coal tar, primarily a complex mixture of three or more membered condensed ring aromatic hydrocarbons, was listed on 28 October 2008 as a substance of very

high concern by the European Chemicals Agency.

Coal tars are also known as naphtha, high solvent naphtha, naphtha distillate, benzoin B70, or petroleum benzoin.

How can you protect yourself from chemical hazards?

When you work around chemicals in hair colorings, it is important to take steps to protect your health.

Avoid harmful chemicals

Don't use products that contain coal tar dyes or lead acetate.

Use hair coloring products that are less harmful, like henna or another vegetable coloring.

For any product used, read the label and Safety Data Sheet to know what is in the product and its health effects.

Use safe work practices

- Alternate between using vegetable colorings and semi-permanent colors.
- Keep containers closed when you're not using them, so the product doesn't spill or get into the air.
- Check that all containers of chemicals are properly labeled of their contents.
- Don't eat or drink in your work area as your food or drink may get contaminated.
- Wash your hands after working with chemicals, even if you wore gloves.

Ventilate the room

- Always work in a well-ventilated area. If there's no ventilation system, open windows and doors to bring in fresh air from outside.

Use protective equipment

- Wear gloves designed to protect your skin from the particular chemicals you're using.
- Wear safety goggles when mixing chemicals to protect your eyes from splashes.

Know your rights as a worker

- Employers must provide workers with Safety Data Sheets if requested.
- Employers must train workers on the hazards of the chemicals they are working with and how to protect themselves from the hazards.

Report any health problems

- Speak up if you are experiencing symptoms of health effects so your employer can help alleviate the problem and let other employees know.
- Seek advice from your doctor on how serious your issues are and how they should be handled. You have the right to report health hazards to Cal/OSHA by filing a complaint.

Chemical Hair Straighteners: The Side Effects and The Safety

Chemical hair straightening becomes popular for managing frizzy hair. Keratin in hair care products can penetrate the cortex of the hair fiber improving the mechanical properties of damaged fibers and promote a surface coating that prevents or decreases water diffusion through the hair fibers. This may have beneficial effects on the hair structure; however, the side effects and safety of this treatment have not yet been completely evaluated.

If you or anyone in your salon uses hair straightening products, here is some important information for you to consider. A group of keratin hair straightening products may contain formaldehyde.

Exposure to formaldehyde can cause irritation of the eyes, nose, throat, and skin. People with asthma or other respiratory diseases may be more sensitive than others to the effects of breathing formaldehyde. Formaldehyde is classified as a known human carcinogen (cancer - causing chemical). Formaldehyde exposure in some occupations has been linked

to cancer of the nasal passages and upper throat. The amount of formaldehyde exposure you get depends upon the product, your technique as a stylist, and ventilation in the salon.

There are more than 150 hair straightening products on the market, and we do not know how many others may contain formaldehyde. You can't count on the label. Some products were labeled "formaldehyde free," "organic" or "natural," but were found to contain formaldehyde when tested. OSHA requires manufacturers of products that contain or release formaldehyde to include information about formaldehyde and its hazards on the label and in the SDS.

How Would I Know if the Product Could Expose Me to Formaldehyde?

Remember that there are many products on the market, and most have not been tested, so we do not know how many others may also contain formaldehyde. Read the product label and SDS to determine if they list any of these chemicals; **methylene glycol**, **formalin, methylene oxide, paraform, formic aldehyde, methanal, oxomethane, oxymethylene, or CAS Number 50-00-0.**

All of these are names for or treated as formaldehyde under OSHA's formaldehyde standard. There are also chemicals, such as **timonacic acid** (also called **thiazolidine carboxylic acid**), that can release formaldehyde under certain conditions, such as those present during the hair smoothing treatment process.

How are you exposed to formaldehyde?

You can breathe in formaldehyde when the product container is opened, when the product is applied to a client's hair, or when the product is heated on the client's hair with high temperature blow dryers and flat irons. You can be exposed when it is being used on other clients in the salon. Salon workers may continue to be exposed multiple times, as they perform each treatment or each time a treatment is performed in the salon.

Who tested these hair straightening products?

OSHA (health and safety program), Health Canada and the European Directorate-General of Health and Consumer Affairs did the testing and found formaldehyde in most of the products they tested. They also conducted air tests during application of one of the products in two salons and found that formaldehyde had been released into the air.

What kind of chemical is formaldehyde?

At room temperature, formaldehyde is a colorless, flammable gas that has a distinct, pungent smell. It is also known as methanal, methylene oxide, oxymethyline, methylaldehyde, and oxomethane. When mixed with water, it may be referred to as methylene glycol or formalin (formalin is another name for embalming fluid). You may see one of these names on a product label, but you may not.

What actions are being taken to deal with this concern?

- The New York State Department of Health is monitoring the situation and so are other states, about their experiences with these products.
- Through the OSHA formaldehyde fact sheet, OSHA is taking the precautionary steps of alerting salon workers and consumers about the hazards. At this time, OSHA knows of 51 companies that market a total of 156 products.
- The FDA (U.S. Food and Drug Administration – responsible for regulating cosmetic products) is gathering reports from consumers and salon professionals about eye irritation, breathing problems and headaches.
- The National Institute for Occupational Safety and Health (NIOSH) at the Centers for Disease Control and Prevention also has published resources on formaldehyde on its website.
- The Attorney General of the State of California filed a lawsuit against a California-based manufacturer of one of these products, alleging that the manufacturer failed to warn users about the presence of formaldehyde as required by California regulations.
- The European Directorate-General of Health and Consumer Affairs banned the sale of some products and recalled others.

Consumers and salon professionals are urged to report adverse experiences to FDA in either of the following ways:

1. Report to the nearest FDA district office. The Phone number for the **FL** State Complaint Coordinator. 866-337-6272.
2. Report online to FDA's MedWatch adverse event reporting system at https://www.accessdata.fda.gov/scripts/medwatch/. You also may call Med-watch at **(800) 332-1088** to request a reporting form by mail.
3. You may also wish to contact the regional office of the federal Occupational Health and Safety Administration (OSHA):
4. **Fort Lauderdale Area Office**
   1000 South Pine Island Road
   Suite 100
   Ft. Lauderdale,
   FL 33324
   (954)424-0242
   (954)424-3073 FAX
5. **Jacksonville Area Office**
   Ribault Building, Suite 227
   1851 Executive Center Drive
   Jacksonville, Florida 32207
   (904) 232-2895
   (904) 232-1294 FAX
6. **Tampa Area Office**
   5807 Breckenridge Parkway, Suite A
   Tampa, Florida 33610-4249
   (813) 626-1177
   (813) 626-7015 FAX

What is Botox for Hair

When you think of wrinkles, you may think of onabotulinumtoxin A (Botox), a common prescription medication that some people use to smooth wrinkles. But what about Botox for your hair?

Hair on your head loses fullness and elasticity as it ages, just like your skin. New hair products market themselves as Botox for hair because they're supposed to help fill the hair, make it smooth, and reduce frizz.

Does Botox for Hair Really Contain Botox?

Botox for hair doesn't actually contain the ingredient of botulinum toxin, which is the main ingredient of Botox. Instead, it's a name based on how the product works. Just like Botox works by relaxing the muscles and smoothing skin, "hair Botox" works by filling in individual fibers of hair to help give it fullness and make it smooth.

How Does Hair Botox Work?

Hair Botox is actually a deep conditioning treatment that coats hair fibers with a filler, such as keratin. The treatment fills in any broken or thin areas on each hair strand to make hair appear fuller and more lustrous.

The ingredients differ depending on the product. A salon company uses an ingredient called Intra-Cylane to fill hair strands with flexible, soft fibers. That helps create the appearance of fuller, smoother hair. Another popular product, claims to use a patented mix of:

- caviar oil
- BONT-L peptide
- vitamin B-5
- E vitamins

- collagen complex, which makes up the "Botox" part of the treatment

Who Can Use Botox for Hair?

You can use Botox for hair if you have:

- split ends
- very fine hair, lacking volume or luster
- damaged hair
- frizzy hair
- hair that you want straightened

In general, hair Botox is considered safe for any type of hair.

What Happens During Application?

Botox for your hair doesn't use injections of any kind. Instead, it's a conditioning agent that's applied directly to your strands of hair. You can go to a hair salon to have the treatment or purchase the products to apply at home.

The treatment begins with a shampoo to open your hair cuticles and prepare the strands for conditioning. The hair Botox is then applied to the strands by massaging the product on from root to tips. The treatment is left on wet hair for a period of time, usually between 20–90 minutes.

Some stylists may choose to rinse out the product before drying and straightening your hair with a flat iron. Other stylists may leave the product on your hair while they dry and straighten your hair to help the product more fully penetrate your hair strands.

You'll see the results of the Botox hair treatment immediate upon your hair drying.

Hair Botox vs Keratin Treatment

Both straighten your hair, and both leave your hair smooth, shiny, and frizz-free. They both infuse important ingredients that repair damaged hair. Because they are lasting straightening treatments, they both save you time in the morning, eliminating the daily use of hot straightening tools.

Here's where they differ: keratin treatments use a chemical process, and hair Botox is a deep conditioning treatment.

Keratin treatments fill in the porosity of your hair, as overly-porous hair causes tangles, frizz, and breakage, your hair is made up of keratin, so the treatment is putting the protein back into the hair, which is often lost due to age and chemical services. Keratin treatments are chemical treatments that often contain formaldehyde. You risk possible formaldehyde exposure.

Hair Botox is free of formaldehyde and other harsh chemicals and acts as a deep conditioning treatment which restores the damaged hair by turning it healthy and shiny. Hair Botox also helps with scalp conditions, such as dandruff and psoriasis. Unlike relaxing treatments, this product can give you straight silky hair without breaking their bonds. It contains a rich formula that shoots nutrients into the

damaged cortex of the shaft cuticles and restores hair from inside out.