



Approved Provider

*CE Activity provided by:*

**National Coalition of Estheticians,  
Manufacturers/Distributors & Associations (NCEA)**

## MEDICAL ESTHETICS

### INSTRUCTIONS

1. To reinforce your learning and retain the information, highlight or underline the answers to each of the (30) Study Objectives.
2. Take the Three (3) Self-Assessment Tests, and then attach the tests to the CE Registration Form. Total test scores must be 75% or higher in order to obtain your CE Certificate.
3. Complete the CE Registration (Section A) and Course Evaluation (Section B).
4. Section C - Enclose a check or money order payable to NCEA:  
**NCEA Member Price: \$34.95**                      *Non Member Price: \$54.95*
5. Mail completed CE Registration Form, payment, & three tests to:  
NCEA CE Program, 484 Spring Avenue, Ridgewood, NJ 07450-4624.

### GENERAL PURPOSE STATEMENT

To provide the skin care professional with a review of Medical Esthetics. The COA has approved this activity for 3 CEs and is good through July 1st, 2015.

### LEARNING OBJECTIVES

After completing this interactive medical esthetics CE activity, the skin care professional will be able to:

1. Evaluate the role of the esthetician in medical esthetics and formulate a job description.
2. Describe medical esthetic procedures for cosmetic and medical indications.
3. Understand scope of practice and increased responsibilities in a medical setting.
4. Summarize the differences of working in a spa vs. a medical esthetics practice.

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## MEDICAL ESTHETICS

### Section A – CE Registration:

**PRINT CLEARLY (Illegible forms will not be processed)**

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_ + \_\_\_\_\_

Tel: \_\_\_\_\_ Fax: \_\_\_\_\_

Email: \_\_\_\_\_

\*Delivery Method used to send CE Certificate

Are you NCEA Certified? \_\_\_Yes\_\_\_No If yes, NCEA Certified# \_\_\_\_\_

License# \_\_\_\_\_ State of Issue \_\_\_\_\_

Type of License:

Esthetician \_\_\_ Cosmetologist \_\_\_ Teacher \_\_\_ Medical Professional \_\_\_

Other \_\_\_ Please specify: \_\_\_\_\_

### Section B – Course Evaluation:

1. Did this CE activity's learning objective relate to its general purpose? \_\_\_Yes \_\_\_No

2. Was the interactive format an effective way to present this material? \_\_\_Yes \_\_\_No

3. Was the content relevant to your skin care practice? \_\_\_Yes \_\_\_No

4. What type of setting do you currently work in? \_\_\_\_\_

5. How long in minutes did it take you to read the article \_\_\_\_\_, study the material \_\_\_\_\_, and take the self-assessment tests \_\_\_\_\_?

6. Suggestions for future topics \_\_\_\_\_

### Section C – Payments and Discounts:

**The fee for this CE Activity for NCEA Members: 34.95 Non Members: \$54.95**  
(Check or money order payable to NCEA)

\*We offer special discounts for 6 or more CE Activities that are for institutional use..

Call (201) 670-4100 Ext 5, for visit [www.NCEA.tv](http://www.NCEA.tv) more information.

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# Medical Esthetics

*“Sally called me today to ask me what it’s like working in a medical setting. She was telling me a little bit about a position in a medical practice, but she needed to get some more information on what was expected of her,” said Joan. “What type of practice it is?” asked Loraine.*

*“She didn’t know..., she was just so excited about the prospect of working with a physician, I don’t even think she asked what the position paid!” exclaimed Joan.*

*“Well, she really needs to find out more...like what her job description will entail, and if all her time is going to be spent seeing patients, or if she will have administrative tasks also...”  
“And does she even know if her license allows her to do these types of services? Several state regulatory boards do not recognize the esthetician license if the facility is not licensed by the same board,” said Joan.*

*Sally needs to understand that working in a medical practice or medical spa is different than working in a traditional salon or spa—and that she shouldn’t think that she can call herself a licensed medical esthetician (because there is no such license currently). She also needs to consider if she is cut out for this type of work, because it is different,” said Loraine.*

*“What should I advise her to do? I know that Sally really wants this job,” asked Joan.*

*“Well, she graduated from school only a couple of months ago right? So she doesn’t even*

*have enough skin experience to meet the NCEA certification candidate application requirements. But, she could negotiate with the physician to include continuing education and getting NCEA Certified as part of her training. There is no profession like medical that understands the importance of continuing education. Once she finds out about the type of practice, she should join a professional organization that has annual meetings and opportunities for her to network with other like-minded individuals. Going to spa shows is okay, but she really needs to advance her career and most of the medical skin care associations offer CEs as part of the program they offer,” said Loraine.*

*Once she is NCEA Certified, then she can start to do some reading on books that are specifically in this area such as:*

*Steven H. Dayan, MD, FACS & Terri A. Wojak  
Mastering Medical Esthetics  
[www.trueuniversityesthetics.com](http://www.trueuniversityesthetics.com)*

*Pamela Hill (Several books)  
[www.pamelahillinstitute.com](http://www.pamelahillinstitute.com)*

*Susanne S. Warfield (Several books)  
[www.pcijournal.com](http://www.pcijournal.com)*

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## Overview of Medical Esthetic Career Opportunities

Today's esthetician enjoys a broad range of career options upon graduation and obtaining their licensure, if required. Some of these careers include working in makeup for the film or television or stage; cosmetic and equipment companies offer numerous opportunities; sales and management positions, to trainer and educator positions. The traditional choice might be in a salon or spa setting, medical speciality practice, wellness or medical spa setting. To determine exactly what "medical esthetics" means, we will first examine the licensure requirement. Simply put—there is none. Currently there is not a "medical esthetician," "paramedical esthetician" or "clinical esthetician" license anywhere in the United States.

Highly motivated estheticians have sought advanced education and have helped to define the emerging role of the esthetician in a medical office. These estheticians have become an increasingly important and recognized adjunct to the physician.

Among the cosmetic services available today, the largest increase has been in nonsurgical procedures, such as microdermabrasion and chemical peels. This clearly indicates the increased value of an esthetician to the medical profession. This demand has resulted in a larger number of physicians offering cosmetic treatments, treatments before and after surgery, and a wide array of skin care products. Estheticians not only help with skin therapy before and after surgery, but they also play a less-celebrated, although crucial role in managing their patients' comfort and well-being.

### **Use of Esthetician Titles**

*It is the position of the NCEA that:*

- 1. Estheticians represent themselves according to their licensed title, as designated by their state licensing board or regulatory agency.*

## **Study Objectives**

Highlight/underline the answers to the following questions as you read:

1. What crucial role does an esthetician play in a medical setting?
2. What is an important factor in deciding to work in a medical setting?
3. What may determine the use of patient vs client terminology?
4. What is the purpose of developing a job description?
5. What administrative duties might you expect to do?
6. Who has the ultimate authority on care of the patient?
7. To treat acne effectively, what must the physician/esthetician do?
8. What syndrome can lead to acne?

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**2. Estheticians must not promote themselves or allow any employer to market them otherwise.**

One of the most important factors in deciding whether to work in a medical setting is: Do you like it? Specifically, are you comfortable dealing with patients that have had surgical procedures or medical problems on a daily basis? Not that the medical setting you're likely to choose will bring you into contact with a great deal of blood and disease, but your "clients" will all be "patients" and all of them will have a medical or esthetic concern. The use of the terminology—"client" or "patient" may also be confusing. As more physicians turn to self-pay cosmetic services to cover overheads, the use of the term "client" is growing. The thought process being that the self-pay "patient" needs to be treated differently. The philosophy of the practice or setting will determine the usage of patient vs client.

While working in a dermatology or plastic surgery practice, there will still be serious medical issues, or pre and post-op surgical care. Some plastic surgeons perform reconstructive surgery to repair the trauma of accidents or the disfigurement of diseases such as cancer, burn survivors or genetic defects. And dermatologists treat skin cancer various, sometimes disfiguring rashes and infections as well as various diseases that affect the skin.

If you cannot stand the sight of blood or if you find illness or disfigurement overwhelming, then you probably should consider an esthetician career path other than a clinical setting. On the other hand,

most of us can get used to the sights and the situations that are likely to come up in dermatology or plastic surgery, and if you enjoy helping others and if you appreciate the privilege of working intimately with people who depend on you, the rewards of working as an esthetician in a medical setting can be tremendous.

One area that hasn't been touched on at all is the medical spa environment.

### **Definition of a Medical Spa**

*It is the position of the NCEA that:*

*A medical spa is a facility that during all hours of business shall operate under the on-site supervision of a licensed health care professional operating within their scope of practice, with a staff that operates within their scope of practice as defined by their individual licensing board if licensure is required. The facility may offer traditional, complimentary, and alternative health practices and treatments in a spa-like setting.*

Working in this type of facility may take you in several different directions. This depends on the philosophy of the owner, services rendered, supervising physician or corporate vision of what a medical spa is. Be sure to fully explore the different types of medical spas and services. Don't assume that all medical spas are the same, offer the same types of services, or have the same philosophy.

### **Formulating Your Job Description**

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The job description of an esthetician in a medical setting will vary greatly, and thoroughly exploring your position and what is expected of you with your employer is essential.

The purpose of doing this is three-fold: first, it will clarify the position to yourself; second, it will help you communicate it to others; and finally, you'll use it as the basis for fulfilling the position.

A detailed list of your duties and responsibilities, such as the direct work you'll do with clients/patients, your role in a marketing, educating, and the administrative work you'll do (yes, there is always paperwork).

### **Dermatology, Plastic Surgery or Medical Spas**

If you are serious about considering a career in medical esthetics, there are several paths open to you. While a number of medical specialties can use the services of an esthetician, the choice may come down to dermatology, plastic surgery related sub-specialties, or a medical spa. These are the areas that deal most directly with appearance, and offer the greatest number of opportunities for the esthetician.

#### ***Dermatology***

Dermatologists are physicians who specialize in diseases of the skin, in treating diseases, injuries and conditions that affect the skin, hair, and nails. Their training consists of a minimum of four years of college, four years of medical school, generally a year of internship in general medicine and two to four years of

specialty residency in dermatology. After completing their residency, dermatologists are eligible to take their boards. Some dermatologists go on to subspecialize. They may specialize in cosmetic dermatology, dermatologic surgery or in micrographic surgery or MOHS, which is a technique for skin cancer treatment.

#### ***Plastic Surgery***

Plastic surgery is another medical specialty most likely to use the services of an esthetician. The word "*plastic*" comes from the Greek word that means to mold. Plastic surgery literally molds, or remolds, the human body. There are two basic forms of plastic surgery: cosmetic and reconstructive/restorative.

Surgery is considered strictly cosmetic when it is performed solely for aesthetic purposes, to make the patient look better. Among the more frequently performed cosmetic procedures are rhytidectomy (facelifts), rhinoplasty (nose surgery), chin surgery, eyelid surgery (blepharoplasty) and breast augmentation or reduction. While this kind of surgery may not be deemed medically necessary, it may be very necessary for patients general well being. In fact, the psychological dimensions of cosmetic surgery are sometimes almost as important as the physical ones; the payoff of this kind of surgery in terms of enhanced self-confidence, socially and professionally, can be tremendous. Estheticians are particularly sensitive to the role that physical appearance can play in a persons life.

Reconstructive surgery, of course, is quite different, although often the object is

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similar. Burn survivors, trauma patients, patients who have had major cancer surgery, and patients born with deformities often need reconstructive surgery to restore functions that have been lost or to allow normal function that was absent at birth. Quite frequently, however, the surgery also serves to restore a “normal” or near “normal” appearance. While many plastic surgeons perform both kinds of surgery, others specialize in one or the other. For the esthetician, the choice may come down to the kinds of patients you enjoy working with. Patients requiring reconstructive surgery have emotional needs that can be quite different from those of the patient who has elective cosmetic surgery. For the reconstructive surgery patient, esthetics may play a secondary role to the primary purpose for their surgery, usually the restoration or preservation of function.

Preoperative skin care, helping the skin heal postoperatively, and using makeup to minimize the cosmetic effects of the surgery play a vital role in restoring patients’ confidence and well-being. And not everyone is comfortable dealing with people in pain or discomfort on a daily basis.

On the other hand, reconstructive surgery can literally transform people’s lives, and being a part of that kind of work can be extremely fulfilling. For certain reconstructive procedures, the esthetic aspects can be absolutely central. Surgery for burn survivors and abused women, for instance, can go far towards restoring the damaged tissue and the contours that may have been lost, but it is rare that the appearance of the skin can be completely

restored by surgery alone.

The skilled use of makeup and a skin care regimen can frequently do what no surgical procedure can accomplish by restoring the appearance to what it was before the accident.

### ***Client/Patient Services***

This section of the job description will outline the services you’ll perform, including both the treatments you’ll offer and the skin care education you’ll help provide. Don’t be exhaustive. Simply list the type of services that you you will be expected to perform. This is where having a clear understanding of your scope of practice will be highlighted.

#### ***Note:***

***As a NCEA Certified Professional you must maintain your license as issued by your state regulatory board (or regulatory board of your province). The NCEA Certification does not authorize or qualify a NCEA Certified Professional to exceed the scope of licensure granted in the state/province in which you practice.***

### ***Client/Patient Evaluation and Education***

You are a skin care expert and you can assume that you’ll play an important role in educating patients on proper skin care techniques, sun protection, home care etc. The esthetician in a plastic surgeon's practice will typically advise the patient in the weeks before surgery about what cosmetics to use, sun-avoidance and how to get the skin and underlying tissues in the best possible shape. The doctor may also delegate to the esthetician

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responsibility for educating the patient about the pre-operative skin care which, may include oral and topical medication application.

In a dermatology practice, the esthetician may be responsible for obtaining the patient's skin care history, including a complete list of the products and any other topicals the patient used. Follow up on the medical treatments as prescribed by the physician. Because estheticians working in a medical practice may spend more time with patients than the physician, the esthetician is particularly well positioned and qualified to question the patient about their skin care concerns.

In all settings—spa or medical—the history should also include information about past services, oral and topical medications, history of past procedures such as chemical exfoliations etc, and past cosmetic surgeries. Knowing what the physician or your employer expects of you, is an extremely important part of your job description.

### ***Home-Care Instruction and Patient Followup***

As an esthetician you know that home-care is in an integral part of any treatment success, and providing thorough instruction to the client is particularly important. Estheticians working in medical practices can also expect to learn special techniques for cleansing the skin, how-to recognize pre and post-operative complications, and will have to learn about medications specific to the physician specialty. You may need specific product and equipment training, and also to learn the protocols of the facility that you end of working in. When discussing use of technologies and products,

be sure to review your state license scope of practice and the NCEA Code of Ethics of the profession. Do not perform procedures or use devices, unless you have satisfied your ethical obligations and have assured coverage through your liability carrier.

### ***Administrative Responsibilities***

Although it will be the most rewarding part of your day, not all of your time will be spent with patients. You'll also undertake a certain amount of administrative responsibilities, although precisely what these will be will depend on the nature and size of the type of facility. Large medical practices or spas may have a full-time manager, receptionist or even a patient coordinator who may take on some of these responsibilities.

Administrative duties can be divided into two categories: general administration and administrative tasks related specifically to the services that you provide. General administrative tasks may be to help out when necessary in routine functions such as scheduling, answering phones, and perhaps filling in for the receptionist on occasion. The administrative tasks relate solely to your esthetic services such as maintaining proper patient charts including: Health Insurance Portability and Accountability Act (HIPAA) forms, informed consent and signed release forms, client care and recommended homecare forms. These specific duties can carry heavy penalty for non-compliance at the state and federal level.

The medical setting does carry more responsibility and training of protocols, due to the nature of the setting. Ten days after hiring, you should receive the

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necessary training and education in order to be in compliance.

There are various ways you can achieve independence in a medical practice and the relationship you could have working with a physician. Always remember: it is the physician who has the ultimate authority in the care of the patient. The types of procedures that would be performed in a medical practice by the esthetician vary widely. However, there is a distinct difference between a treatment performed in a medical practice as opposed to a salon or spa environment.

Working in a dermatology practice you are dealing with diseases of the skin such as acne, atopic dermatitis, psoriasis, etc. In the plastic surgery practice you are dealing with the pre and postoperative care of the patient. These can include lymphatic drainage, wound care, and advising the physician on the psychological status of the patient in regards to the outcome of the surgery. The esthetician may also have the opportunity to work with trauma patients or burn survivors which can be very fulfilling work in helping to reduce the anxiety caused by the incident. The use of esthetic treatments in a medical practice can go a long way in restoring the elasticity of damaged tissue and thorough the skillful use of makeup help to restore the self image of the patient.

### Acne Treatments in a Medical Setting

No matter what age it occurs, there is never a good time for an acne breakout. Too often, patients want an immediate appointment at the medical office, or they call by phone to find out what actions they

can take to get rid of or decrease the breakout.

To treat acne effectively, the esthetician and physician must work together and minimize the underlying causes. Clients should be on a stable skin care regimen that maintains a good balance of oil and hydration levels so that breakouts do not occur. However, this regimen may change depending on the weather, the season, and for some women, the point in their menstrual cycle.

Women can have naturally occurring high levels of testosterone or a condition called polycystic ovary syndrome; both can lead to increased bouts of acne. Polycystic ovarian syndrome is a condition characterized by the accumulation of numerous cysts (fluid-filled sacs) on the ovaries associated with high levels of male hormone, chronic anovulation (absent ovulation), and other metabolic disturbances. One of the most important characteristics of polycystic ovary syndrome is hyperandrogenism, the excessive production of male hormones (androgens), particularly testosterone, by the ovaries. This accounts for the male hair-growth patterns and acne in women with polycystic ovary syndrome.

Androgen production can be reduced or blunted by taking hormone modulators. Many women notice that their acne breakouts are less severe when they are taking birth control pills. This is because birth control pills cause testosterone levels to drop. These male hormones are responsible for the development of the male reproductive system and secondary male sexual characteristics such as voice

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### Self Assessment Test 1

1. To treat acne effectively, patients should be on a skin care regimen that:
  - a) Removes all oil from the skin
  - b) Does not include a sunscreen
  - c) Maintains a balance of oil and hydration
  - d) None of the above
2. Androgen production can be reduced by taking \_\_\_\_\_.
3. HIPAA stands for the \_\_\_\_\_.
4. A patient's skin care history may include: (check all that apply)
  - a) Oral and topical medications
  - b) Past surgeries
  - c) Relationship status
  - d) Skin care products
5. Helping the skin heal postoperatively, and using makeup to minimize cosmetic effects of the surgery play a vital role in restoring patients' \_\_\_\_\_ and \_\_\_\_\_.
6. Dermatologists specialize in diseases of the:
  - a) Skin, hands and feet
  - b) Skin, hair and nails
  - c) Skin, bones and nails
  - d) Skin, lymph and bones
7. Many women notice their acne breakouts are less severe when taking birth control pills. True or False?
8. The largest increase in nonsurgical procedures have been in:
  - a) Rhytidectomies
  - b) Laser and light therapies
  - c) Microdermabrasion and chemical peels
  - d) Acne and Atopic Dermatitis

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depth and facial hair. Testosterone is normally produced by the testes in large quantities in men, but it also occurs normally in smaller quantities in women. A side effect of testosterone production in both sexes is that it increases oil production and the frequency of acne breakouts.

Spirolactone is an effective treatment for polycystic ovary syndrome. Spirolactone is a diuretic, which means that it increases the amount of urine passed, causing the body to lose water and salt. It helps treat medical conditions, such as heart, liver, or kidney disease. And it also (sometimes quite effectively) blocks the release of excess hormones like testosterone. However, patients must take spironolactone regularly, because if they stop therapy, the hormone production goes back up. In this sense, spironolactone is not a cure, only a temporary relief. Also, spironolactone can negatively affect a male fetus, and therefore cannot be given to pregnant women or women thinking of becoming pregnant. For patients on spironolactone, it is also important that they are followed closely by a physician, so that blood pressure and potassium levels (which are affected by the drug) can be monitored.

### ***Light-Based Therapies for Acne***

Laser light in the red to blue spectrum may be effective at killing the bacteria that causes acne by decreasing the inflammation associated with acne. The laser works not by heat but by activating a protein that is released by the bacteria *P. acnes* to become a killer protein. The protein then destroys the bacteria and the surrounding inflamed acne cells. Injury is limited to only the acne lesions, and the normal skin is not affected. Lasers alone, or lasers used in combination with a topically applied solution (called photodynamic therapy), have proven highly successful and soon may be the treatment of choice for the control of moderate to severe acne.

### ***Photodynamic Therapy***

Photodynamic therapy (PDT) is combination of a topically applied drug called aminolevulinic acid (ALA) plus laser light therapy. The ALA is applied to the

## **Study Objectives**

Highlight/underline the answers to the following questions as you read:

9. What does spironolactone treat?
10. How does red light work on acne?
11. What is PDT?
12. What ethics define "Scope of Practice?"
13. Why should AKs be watched closely?
14. List four OTC lightening agents.
15. What four agents can be used to treat melasma?
16. Why should laser treatment of pigmentation be alternated?
17. What medications have been used to treat rosacea?
18. Which laser has been effective in treating hemoglobin?
19. What esthetic treatments cause excessive heat to be generated?

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## NCEA Code of Ethics

1.29.08 Revision

### ***Client Relationships***

Estheticians\* will serve the best interests of their clients at all times and will provide the highest quality service possible.

Estheticians will maintain client confidentiality, keep treatment and documentation records, and provide clear, honest communication.

Estheticians will provide clients with clear and realistic goals and outcomes and will not make false claims regarding the potential benefits of the techniques rendered or products recommended.

Estheticians will adhere to the scope of practice of their profession and refer clients to the appropriate qualified health practitioner when indicated.

### ***Scope of Practice***

Estheticians will offer services only within the scope of practice as defined by the state within which they operate, if required, and in adherence with appropriate federal laws and regulations.

Estheticians will not utilize any technique/procedure for which they have not had adequate training and shall represent their education, training, qualifications and abilities honestly.

Estheticians will strictly adhere to all usage instructions and guidelines provided by product and equipment manufacturers, provided those guidelines and instructions are within the scope of practice as defined by the state, if required.

Estheticians will follow, at minimum, infection control practices as defined by their state regulatory agency, Centers for Disease Control & Prevention (CDC) and Occupational Safety & Health Administration (OSHA).

### ***Professionalism***

Estheticians will commit themselves to ongoing education and to provide clients and the public with the most accurate information possible.

Estheticians will dress in attire consistent with professional practice and adhere to the Code of Conduct of their governing board.

*\*For the purpose of the NCEA Code of Ethics, the use of the term "Esthetician" applies to all licensed skin care professionals as defined by their state law.*

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### Sample Job Description

**Position:** Esthetician

**Requirements:** Esthetician will maintain state-issued licensure (if required) and NCEA Certified credential during employment, and adhere to the NCEA Code of Ethics.

**Responsibilities:**

1. Coordinates patient care with the physician, including but not limited to the use of oral and topical medications, pre-and postoperative care, and various patient compliance concerns.
2. Provides new patients with complimentary consultations regarding skin care services.
3. Serves as a liaison with the patient coordinator during the pre- and postoperative phase of patient surgery / treatment to ensure understanding of the outcome.
4. Maintain treatment rooms and workstations in compliance with OSHA standards, specifically the Bloodborne Pathogen Act, Hazards Communication Standard, American National Standards Institute (ANSI) and Federal Laser Product Performance Standard (FLPPS) for laser hazard safety.
5. Seek advice of physician on treatment protocols and advise physician of patient noncompliance.
6. Maintains and insure HIPAA compliance and current patient records detailing treatment procedures, products, medications and education information.
7. Maintains equipment or proper operations, including cleaning and maintenance schedules are manufacturer, state and federal requirements.
8. Overview and updates office personnel telephone procedure on handling scheduling, confirming appointments, wait listing and cancellation policies and patient followup (when required).
9. Participates and attends in-service programs and staff meetings.
10. Assists with orientation and training of new office personnel, including but not limited to product educations, sales procedures, skin care services, and another related protocols.
11. Coordinates any correspondence/brochures to patients regarding their skin care treatments, product usage, and home care instructions.
12. Tracks outside referral sources and send thank you letters and/or post-consultation letters if referred by another physician or facility
13. Maintains inventory system for professional and retail products.
14. Orders and stocks medical supplies/sundries as needed for maintaining treatment room and retail shelves.

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patient's face and allowed to sit for up to eight hours, after which the remaining acid is gently removed. Immediately following the treatment, the esthetician's role is to advise the patient that for the next 48 hours sun avoidance is mandatory.

Patients are told to wear a hat and commit to staying in an area with no sunlight or fluorescent lights. If the patient is exposed to light, the reaction becomes much more severe and they could have an unexpected week or two of additional downtime.

### Treatments for Pigmentation

Actinic Keratoses (AKs) are also known as solar keratoses that are precancerous lesions. These raised lesions are usually pink or brown and often have a white scale on the top. They are rough to the touch and the size is usually between 2-6 mm. They are usually present in areas of excessive sun exposure, such as the face, neck, scalp and hands. Since these are precancerous lesions, the patient, the esthetician and the physician should all watch these lesions closely to be aware of any changes in color, shape and size. Physicians may treat AKs by cutting them out or freezing them with liquid nitrogen which makes them slough off. There are topical agents containing 5-fluorouracil, which will cause the lesion to become red and inflamed and then fall off. Photodynamic therapy can also be used to photo sensitize actinic keratoses before using a light source to burn them off.

Solar lentigines, also known as old age spots or liver spots, appear as flat, oval, evenly pigmented macules in areas of chronic sun exposure. Solar lentigines are among the most common benign lesions of

the skin. The most commonly affected areas are the backs of the hands, shoulders, back, and face.

Solar lentigines are made up of collections of highly active melanocytes (cells that cause pigmentation) producing dense melanin pigment in their associated keratinocytes. The features of solar lentigines are mostly limited to the epidermis, and although there is a great deal of melanization of the epidermis, the number of melanocytes does not change with skin color. A solar lentigo is focus of highly active melanocytes that results in an area of hyperpigmentation. No treatment is necessary for solar lentigines. However, if cosmetic removal is desired, treatments for solar lentigines include topical agents such as a freezing with liquid nitrogen, applying hydroquinone for bleaching, laser treatments and chemical peels. Multiple applications of liquid nitrogen using short freeze times are used to avoid the chances of hypopigmentation in the area.

### **Melasma**

Melasma (also known as chloasma when present in pregnant women) is a tan or dark facial skin discoloration, usually located on the sides of the face, forehead and chin. Although it can affect anyone, melasma is particularly common in pregnant women, and those who are taking oral contraceptives or on hormone replacement therapy. It is also prevalent in men and women of Native American descent (on the forearms) and in men and women of German/Russian Jewish descent (on the face).

Ultraviolet exposure stimulates an

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increase in the levels of melanin present in melasma. Melasma may be a permanent condition, but it may go away after pregnancy or with the discontinued use of hormone therapy. Pigment lightening agents are limited and work better in conjunction with in-office treatments. Laser treatments are not always the best option for treatment.

Use of prescription strength (4% & higher) hydroquinone can result in lightening of the solar lentigines as well as melasma, but the results usually take from six to eight weeks. The concentration and duration of therapy are usually limited by the adverse effects, which consist of irritation, depigmentation, and ochronosis. (bluish-black discoloration of tissue) Patients should only use hydroquinone for eight weeks at a time and then take eight weeks off, repeating the process until the desired outcome is reached.

There are many skin-lightening agents in skin care preparations available to patients over-the-counter (OTC), such as kojic acid, licorice root, bearberry extract, hydroquinone (less than 4%) and azelaic acid. These agents have been shown to produce some improvements, but they work best when paired with in-office treatments to enhance the results.

Other topical products such as tretinoin or other vitamin A products, have shown favorable results in lightening facial solar lentigines.

Phenol and trichloroacetic acid peels (TCA) 25%-35% have been used to treat hyperpigmentation. However, the adverse effects may include post-inflammatory pigmentation, (PIH), hypopigmentation, scarring, persistent erythema, and with phenol, cardiac arrhythmias (irregular

heartbeats). This is why the use of progressive exfoliation treatments as opposed to aggressive peeling treatments are more commonly used today. These treatments take time, and clients require multiple treatments along with the skin-lightening agents to obtain results.

For more-sensitive skin types and Fitzpatrick skin types IV through VI, lactic acid peels of 30% to 40% are commonly used at 2-week intervals for a series of approximately 6 to 10 treatments.

For lower Fitzpatrick skin types (skin types I-III), who can tolerate a stronger treatment, the Jessner's peel is recommended. Jessner's peels should be spaced 4 weeks apart owing to the longer healing time, with a series of 3 to 4 treatments recommended.

If the patient is sensitive to chemical exfoliation treatments, microdermabrasion may be used, although the results are not significant.

Laser treatments for pigmentation are done in the office and can be completed in minutes with minimal discomfort to the client. Patients who are Fitzpatrick I to III can expect the best outcome, because the skin tone is lighter in color, pigmented lesions starkly contrast to those fair skin types. In the event that a fair-skinned patient has a suntan, these patients should be counseled to return after their tan dissipates.

Skin types IV, and occasionally V, can be treated, however, they are at increased risk of epidermal injury. The skin pigment in these skin types compete with the pigment in solar lentigines, absorbing a significant amount of the laser energy. Therefore, darker-skinned patients are treated more conservatively and often require multiple treatments. However, they can expect a

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modest and cosmetically satisfactory improvement.

Skin preparation is not necessary other than removing all topical preparations. Use of a parallel cooling device may be helpful in darker-skinned patients by providing added protection to the epidermis.

Immediately after laser treatments, the pigmented area may appear ash-like, with a circumferential area of redness. Patients must avoid makeup for six to twelve hours after the treatment and should not expose the area to the sun. Rarely, a blister may form; however, this is more likely in a darker-skin or tan-skin patient. Should a blister form, patients are instructed to not puncture it. If it ruptures, then a topical antibiotic ointment is recommended. Permanent hyper- or hypo-pigmentation, and permanent scarring are possible, but rarely encountered.

Most patients feel comfortable returning to their routine schedule within a few hours. Over the subsequent week, the lesion transiently becomes darker and ultimately fades. Occasionally, the lesion will slough off in the second week.

Subsequent treatments are spaced two to four weeks apart and are necessary to further fade the lesion. Most people are satisfied after three treatments. Results continue to improve over the next three months.

The esthetician's role is important in the treatment of pigmentation because combination treatments seem to be most effective. Laser treatments can be alternated with chemical peels or microdermabrasion at two week intervals. This is especially beneficial because with laser treatments, the pigment most often gets darker before it lightens; a superficial peel or microdermabrasion can speed up the

process of sloughing off the excess pigment on the epidermis. Recommending skin care products is of the utmost importance when treating pigmentation. The client can actually make their pigmentation worse if they are not using a proper sunscreen. The use of skin lightening agents can enhance the results.

## Rosacea

The word rosacea is derived from the Latin word *rosaceus*, meaning "rosy." Rosacea is a chronic disorder of the pilosebaceous unit (consisting of the hair shaft, the hair follicle, the sebaceous gland and the erector pili muscle), characterized by vascular dilation of the central face, including the nose, cheeks, eyelids, and forehead. Because there is currently no cure, the goal of current therapies is to control the symptoms. Thirteen million Americans and over 45 million people worldwide are affected by rosacea.

The initial therapy should consist of client education, emphasizing the use of sunscreens and mild cleansers and the importance of avoiding irritants. The use of sunscreens is particularly important to help prevent further damage to the skin. Physical sunscreens, tend to be the best choice. Rosacea patients are extremely sensitive to topical agents and many chemical sunscreens can be irritating. Zinc or titanium oxide are typically the broad-spectrum sunscreens of choice, and Zinc is also anti-inflammatory. Sunscreen can be paired with a gentle cleanser that contains no fragrance. Also, for those with rosacea, only mineral-based makeup should be worn because of its anti-inflammatory and sun-protective qualities.

If basic home care and trigger avoidance

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is not enough, topical antibiotics are the first choice to relieve the inflammatory lesions of rosacea. Topical metronidazole can be used with or without oral antibiotics to decrease the lesion counts by as much as 60%. Azelaic acid, sulfacetamide, clindamycin, erythromycin and benzoyl peroxide have been used with varying amounts of success.

These agents should be used for at least four to six weeks before assessing the results.

When symptoms of rosacea persist, a stronger topical treatment, such as tretinoin cream, can be used. Patients need to build up tolerance to tretinoin, since it can cause slight irritation at first because of its chemical exfoliating properties. Treatment with this medication starts with applying it at bedtime two to three times per week until the skin becomes accustomed to it, and then increasing the frequency to nightly.

If the disease is resistant or if symptoms of nodular rosacea or ocular symptoms occur, oral antibiotics in combination with tretinoin can be used. Oral antibiotics that have shown to be useful are tetracycline, erythromycin and minocycline. These are medications commonly used to treat acne.

Lasers have been used with great success in rosacea. Intense pulsed light has also been used with success to treat the redness associated with rosacea. These lasers have filters that bracket the visible light spectrum, so the emitted light energy is absorbed superficially in the epidermis and dermis. The KTP laser is a beam generated by a neodymium:YAG laser which is directed through a potassium titanyl phosphate crystal to produce a beam in the green visible spectrum; used

for photoablation and photocoagulation. The KTP laser is particularly effective at treating rosacea because of its ability to attract to hemoglobin.

When treating rosacea with lasers, individual red lesions are often treated first with a small diameter hand piece. The laser is then passed over the affected area three times in a "painting" motion with a larger diameter hand piece on a lower energy setting. This method of treatment is intended to even out redness and blend in the skin tones. Patients may appear slightly red or flushed after treatment, but the formation of purpura (a purplish discoloration) is uncommon. An ice pack is given to cool the area, and the redness usually resolves within a couple hours. Blister formation and permanent scarring are rare and avoidable with proper patient selection and low-energy laser settings. Most patients feel comfortable returning to regularly scheduled activities that day. Improvement from flushing, pain, and the deep redness of rosacea can be expected within a week. To attain stable control of the rosacea, most patients prefer a series of three treatments. This seems to provide a plateau in symptoms for several months in most patients, after which time patients may return for maintenance treatment.

The most important role the esthetician has in treating these patients is to educate them on how to control their symptoms.

Skin care treatments may be done on these patients, but they must be done with extreme caution. Many esthetic treatments stimulate circulation and increase skin temperature, which is the last thing a rosacea patient needs. For this reason, steaming, facial massaging, use of

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## Self Assessment Test 2

1. Laser light in which spectrum may be effective at killing *p.acnes*?
  - a) Red to Yellow
  - b) Blue to Violet
  - c) Red to Blue
  - d) Orange to Yellow
2. Photodynamic therapy can be used to photosensitize actinic keratoses.  
True or False?
3. When treating melasma, more sensitive skin types and Fitzpatrick Skin Types IV - VI should be treated with:
  - a) Jessner's peels
  - b) Glycolic peels
  - c) Salicylic peels
  - d) Lactic peels
4. The patients who can expect the best outcome with laser treatments of melasma are:
  - a) Fitzpatrick types I through III
  - b) Fitzpatrick types IV through VI
  - c) Fair skin with a suntan
  - d) None of the above
5. The most effective approach an esthetician can use for hyperpigmentation is to use a \_\_\_\_\_ of treatments.
6. A cooling device may be helpful to:
  - a) Freeze the skin prior to laser
  - b) Protect the epidermis from overheating
  - c) Dry up acne lesions
  - d) Protect the dermis from heating
7. Blister formation and permanent scarring are rarely \_\_\_\_\_ after laser treatment of pigmentation.

ultrasound, radio frequency and other treatment modalities that will cause excessive heat in the skin, should be avoided. Simple exfoliation treatments like a lactic acid for drier skin types or a salicylic exfoliation for those that have the presence of breakouts, may be used. These treatments tend to help calm down rosacea breakouts.

Severe cases of rosacea and those with inflammation should only be treated by a physician, unless there are direct instructions by the physician for the esthetician. However, to rid the skin of red undertones, laser treatments are required.

### Lasers & Light Therapy

The word laser is an acronym for Light Amplified Stimulated Emission of Radiation. Light that we see with the naked eye is called visible light, which is a combination of multiple colors that are blended together. Visible light is most evident when looking at a rainbow. Here, each component of the visible light is seen as one of the individual primary colors, red, orange, yellow, green, blue, indigo, and violet. Each color in the visible light spectrum has a corresponding wavelength, from 400 nanometers nm (violet) to 700 nm (red).

Intense Pulsed Light (IPL) is a light therapy device that targets several wavelengths across the electromagnetic spectrum. Lasers emit collimated and coherent light, meaning it is a single wavelength of light that is focused and directed. Incoherent light is scattered. For example, if you were to shine a flashlight at a wall, the entire area would light up. This is because the light that comes from a flashlight is composed of multiple wavelengths that are not collimated or coherent.

Lasers and IPL devices can improve superficial brown spots and red discolorations. When the darkly pigmented cells of the skin absorb the laser light, energy is released in the form of heat, which causes destruction of the cell. In the case of spider veins or broken capillaries, the energy is absorbed by the red blood cells and the heat is transferred

*For more information regarding lasers and light therapy:*

- NCEA's 42-Hour Laser Light Curriculum Outline
- Recertification Section - Lasers and Light Therapy

*Available from [www.ncea.tv](http://www.ncea.tv)*

## Study Objectives

Highlight/underline the answers to the following questions as you read:

20. What does LASER stand for?
21. What is a difference between laser and IPL devices?
22. Why is a patient's natural skin color important?
23. What protective equipment must be worn?
24. What is a "controlled burn"?
25. Which laser targets water in the skin?
26. What post-op role does the esthetician have in ablative laser treatments?
27. How does the fractionated laser work?
28. Which laser causes rapid epithelization within 24 hours?
29. What is micro-resurfacing?
30. What does it take to have a fulfilling career in medical esthetics?

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to the wall of the blood vessel, which is then destroyed. In both of these methods, little energy is dissipated to the surrounding tissue, and therefore the skin surface remains unharmed because the energy emitted is attracted to color within the skin.

### ***Protocols for Laser & Light Therapy***

#### **Pretreatment**

During the pretreatment evaluation, it is important to consider the patient's natural skin color. In general, a greater contrast between the patient's base skin color and the existing discoloration will yield a better result.

For example, a patient with a fair complexion will generally have a better result and fewer complications than someone with a darker complexion. This is because someone with a darker complexion, the light being absorbed by the melanin within area being treated will also have a higher risk of be absorbed by the melanin in the surrounding tissue. Patients must not tan or use self-tanning creams before treatment.

Immediately pretreatment, all makeup and moisturizers must be removed from the face. A topical anesthetic is generally not needed and is best avoided because it may affect the efficacy of the laser/ IPL treatment.

#### **Treatment Process**

All individuals in the room must wear protective goggles throughout the procedure; as inadvertent exposure of the eyes to the laser beam can cause complications including blindness. After the

skin has been cleansed of all makeup and debris, a topical water-based gel is applied. This facilitates movement of the hand piece and may have some cooling effects. Devices may also be used to pump cool air against the skin to cool the skin during the treatment.

It is important to protect the outermost layers of the skin, because as the energy or fluence increases, so does the depth of the laser beam. Some laser energy will be scattered as it penetrates the superficial skin, and it will be absorbed by superficial competing chromophores in the top layer of the skin (epidermis) and living tissue of the skin (superficial dermis). This absorption results in heat, and it is crucial that these structures are protected so that they are not damaged.

When treating red blood vessels or telangiectasias, near complete resolution is often expected. Most patients are thrilled to see the red blood vessel that they have been covering with makeup for the last ten years suddenly gone; however, it can take more than one treatment for the vessel to improve.

As a rule of thumb, patients should expect three treatments, each separated by four to six weeks, to achieve a desired result. It is rare for a telangiectatic vessel to remain beyond a series of treatments, although on occasion, this may occur. If this does occur, the vessel can be directly cauterized or injected with a sclerosing agent, which reacts with the walls of the vein causing the veins to seal off.

On the other hand, after treatment of sun-induced brown spots, the treated area may become darker for approximately one week before it begins to lighten. Typically by the second week, the treated area begins

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to lighten significantly. Three to five laser/ IPL treatments, each separated by four to six weeks, are usually recommended. The final results are impressive, and patients are delighted that they no longer must wear makeup to cover up the spots. Similar to the treatment of red blood vessels, there is little to no pain or downtime associated with the procedure, and most people return to their daily activities right after the procedure.

### **After Treatment**

After the treatment, many patients like having a cold pack placed on the skin for 15 to 20 minutes. This can be soothing and can draw away some of the heat from the skin. The face is usually a bit red, but this typically resolves quickly, usually within 15 to 20 minutes. Wearing sunscreen is mandatory because these lesions will return if they are overexposed to the sun. Topical sunscreen and mineral makeup can typically be applied immediately after the treatment.

Most patients are comfortable getting this treatment done on a lunch hour or in the middle of a busy day. Intense pulsed light and laser treatment for pigmentation is one of the best rejuvenation treatments available. This is one area in which today's available modalities have a huge advantage over previously used methods for skin rejuvenation.

The treating physician may recommend that the patient see the esthetician for microdermabrasion treatments or chemical exfoliations between treatments to enhance the results. The microdermabrasion or peels can assist in sloughing away the pigmented areas on the surface of the skin.

### **Complications**

Poor outcomes and complications are

rare if proper protocols and precautions are followed. If the energy used is too high or if the pulse widths are too short (meaning that too much energy is absorbed by the skin too quickly) blisters may form on the skin. This indicates too much heat was absorbed superficially. The wound must be cared for with topical ointments until it heals. These wounds may become hyperpigmented temporarily, but to prevent permanent scarring and hypopigmentation, certain precautions, such as the use of sunscreen, must be exercised.

Almost universally, hyperpigmentation will resolve over time with bleaching agents and sunscreen. Uneven pigment can also be covered with camouflage makeup. If a blister develops, it is important that it not be disrupted, and the patient see the physician. If the blister breaks open, it must be cleansed three to four times a day with a gauze pad or cotton tip applicator and peroxide, followed by a clean dressing. Patients must not smoke during this healing period, and the wound should not be covered with cosmetics.

After it has re-epithelized, the wound must be treated to prevent scarring. Use of a topical steroid or a steroid injection may be necessary if keloids (hard, raised scars that are usually slightly pink or white) are recognized. However, this outcome is rare.

### **The Esthetician's Role in Medical Ablative Laser Treatments**

Lasers that improve wrinkles and fine lines work by heating the water content in the skin to a boiling point thereby vaporizing the skin cells.

This laser treatment results in a "controlled burn," which is limited to the

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outer layers of the skin. When this occurs, it is called ablative because the outer layers of skin are being destroyed or “ablated”. If the treatment is aggressive, the underlying skin is left raw, uncovered, and unprotected. The skin typically becomes red (erythematous) and weepy following the procedure. It is therefore important to keep the skin clean and protected with an emollient.

Skin regeneration can take up to six months, depending on the depth of the procedure. As the wound heals, new skin regenerates by collagen formation. There is a thickening of the dermis and the epidermis, excess dead skin cells are removed, and superficial brown spots greatly improve.

### **Contraindications for Ablative Laser**

Treatments for darker skin tones: Fitzpatrick skin types IV -VI, those who scar easily or anyone prone to keloid scars, smokers, those using nicotine patches and even those in proximity to secondhand smoke can have altered healing because smoke is a vasoconstrictor. Those with an active herpes infection, pregnancy, isotretinoin use within the past year, and those who have undergone electrolysis, may be contraindicated for treatment.

### ***The Carbon Dioxide Laser***

In the early 1990s, the carbon dioxide (CO<sub>2</sub>) laser was the most popular laser for skin resurfacing. It provided outstanding results. The carbon dioxide laser uses a long wavelength 10600 nm, which is absorbed by the water in the skin. This ablative resurfacing rejuvenates the skin by destroying the outermost (and the most

photodamaged) layers of the skin.

During this ablative therapy, the layers of the epidermis and the dermis are vaporized down to the level of the upper reticular dermis. Heat travels locally in a controlled manner to the deeper dermal reticular layers. The generated heat changes the shape of dermal protein such as collagen, which shrinks as it tightens. This is usually a one-time procedure and is one of the most aggressive treatments for rejuvenating aged, photodamaged skin. Although the occurrence of adverse effects is higher with a more aggressive laser treatment, most patients ultimately appreciate their “new skin” that appears the way it did decades earlier.

The major problem with the CO<sub>2</sub> laser treatments, however, is the extended recovery time needed. Some patients may appear “red” or “pink” for months, and some patients may develop areas of hypopigmentation (this has been seen in approximately 20% of patients when multiple passes of the CO<sub>2</sub> laser were performed). In the end, the extended recovery needed for this treatment in addition to the substantial risk for complications, such as hypo-pigmentation and scarring, have resulted in the deeper ablative therapies falling out of favor with most clinicians.

### **The Esthetician’s Role**

The esthetician’s role is involved and intense with these patients because these are patients that are attuned to their skin and will want a lot of advice. Some physicians recommend six to eight weeks of microdermabrasion and superficial exfoliations peels performed by an

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esthetician to prepare the skin for the resurfacing laser procedure. It is important to counsel patients and prepare them for the intense treatment they are about to undergo. It must be made clear to the patient that they cannot smoke or expose their skin to the sun. After the treatment, some patients need many hours of care and reassurance from the medical staff.

Understanding the post-treatment protocols is necessary, as is identifying any concerns so that a physician or nurse can be notified of potential adverse effects as soon as possible. During the ensuing six-month healing time, the skin will need attentive care. Most patients will be excited and interested to learn how to take proper care of their “new” rejuvenated skin, and they will be motivated to work with the esthetician to keep the skin in a healthy state.

### **Fractionated Ablative Lasers**

One of the largest breakthroughs in facial rejuvenation treatments in the last few years is the advent of fractionated laser resurfacing (Fraxel™, *Reliant Technologies, Palo Alto, CA*; Active Fx™, *Lumenis, Yokneam, Israel*). The laser beam is fractionated by a special diffracted microlens, so that it is evenly distributed from the hand piece to the skin. Islands of untreated, intact skin are targeted evenly throughout the treatment field, and the result is rapid healing. The Fraxel fractionated CO<sub>2</sub> laser was the first laser to receive FDA approval for skin resurfacing and treating melasma, pigmented lesions, crow’s feet (periorbital rhytids), and soft tissue coagulation.

### **During Treatment**

Patients are usually given a prescription for medication to ease any discomfort or anxiety prior to the procedure. After the skin is cleansed with alcohol, a topical anesthetic is applied to the skin for 60 to 90 minutes. The anesthetic must be cleansed off thoroughly (with alcohol) prior to beginning the laser treatment because if the skin is not properly cleansed, it can cause deep dermal burns. Most patients will experience some burning and discomfort during the treatment, although if the patient is properly prepared for the procedure the discomfort is usually minimal.

### **After Treatment**

The physician or esthetician will apply a thick layer of occlusive ointment and supply the patient with a cooling compress post-treatment. The patient must be instructed to avoid direct sunlight to the face for at least four weeks following the treatment. The patient may take an analgesic, such as ibuprofen, for discomfort, should gently cleanse the skin with tepid water, and apply the occlusive ointment recommended by the physician after cleansing. After the surface of the skin has healed, it may be cleansed with a gentle cleanser followed by a hydrating serum containing hyaluronic acid or vitamin B<sup>5</sup>. The patient must be educated on the importance of wearing a zinc-oxide based sunscreen and mineral makeup.

### **Non-Ablative Fractionated**

The Pixel® 2940 Er:YAG (*Alma Lasers, Inc, Israel*) laser module was specifically developed to capture the same superior aesthetic results of an ablative technique

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and also the comfort, short recovery, and mild adverse effect profile of a non-ablative modality. Such technology allows deep penetration of energy that denatures (changes the structure of) collagen and stimulates a wound response. The results have been reliable and predictable and treatments produce mild to no pain requiring no anesthesia. The hand-piece can be adjusted to fit the desired aggressiveness of the treatment, the patient's response, and the skin's sensitivity. Rapid epithelization is typically induced within 24 hours and erythema and edema rarely last more than one to two days. There is considerable skin protection when using this laser, and there is a reduced risk of scarring and heat-related complications. Complete healing is achieved quickly, and there is essentially little to no downtime. Several treatments are usually done at intervals of three to four weeks to maximize benefits; however, in clinical practice, most patients are completely satisfied after only two to three treatments.

After the laser treatment series is complete, the skin's texture and discolorations (dyschromias) generally improve. One can expect to see a significant improvement in epidermal and deeper dermal dyschromias, indicating that this technology is effective without the downtime common to medium-depth peels and ablative laser treatments. The efficacy of the treatment is comparable to other modalities used for dyschromias, such as intense pulsed light and visible light laser.

### **The Esthetician's Role**

The esthetician frequently takes care of

these patients both before and after the laser procedure. Patients may be undergoing chemical exfoliations and microdermabrasion treatments and then begin requesting treatments that are slightly more aggressive than simple epidermal treatments. For patients seeking more aggressive treatments, it is important to refer them to the physician once the treatments performed by the esthetician have reached outside scope of their practice. Patients should be educated on the importance of daily sunscreen use and laser treatments, and many of these patients return to the esthetician to maintain the benefits of their treatment. Some return visits may be simply to get a recommendation regarding a topical product with natural skin lightening effects such as kojic acid, bearberry, or retinol.

### ***Erbium:YAG Laser Resurfacing 2940 nm***

For patients who want an improvement but do not want the significant amount of downtime or risk that comes with CO<sub>2</sub> laser therapy, there is another option: the erbium:YAG laser or Er:YAG laser. One of the greatest benefits of the erbium laser is that it allows adjusting the strength of the treatment from a mild resurfacing to a deeper treatment. The treatment can thus be adjusted to the patient's desire.

The Er:YAG laser has a shorter wavelength 2940 nm than does the CO<sub>2</sub> laser. It produces energy in the mid-infrared invisible light spectrum, and this energy is 10 to 15 times better absorbed by water in the skin than is the energy from the traditional CO<sub>2</sub> lasers. This has several consequences for the client, because this laser energy is so well absorbed, it instantly

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vaporizes skin and tissue so precisely that the surrounding skin is hardly affected.

The Er:YAG laser does not “burn” the skin like the CO<sub>2</sub> laser does, so the amount of pain and the number of adverse effects experienced by the patient are greatly reduced, while the degree of precision and control is significantly enhanced. Only a few microns of thickness are removed with each pass. The healing process lasts only one or two weeks, so this procedure is suitable for relatively young, working patients who cannot afford significant down time.

The procedure also will be of interest to patients who have had their facial skin resurfaced by another method and would like to improve their condition further or resurface delicate skin surfaces like the neck or hands. The higher safety profile of Er:YAG lasers allows the clinician to treat patients with darker skin colors—Fitzpatrick types IV–VI.

### ***Low-level Erbium Laser Treatment***

Despite the lower morbidity associated with standard short-pulse Er:YAG treatment, patients and physicians are in constant search for less invasive techniques. The concept of micro-resurfacing is an attractive option. Generally speaking, low-level erbium ablative therapy can be done on patients with all skin colors and in those who want mild improvement in their skin texture and tone without significant downtime. Those with thin fair skin color, multiple skin discolorations, and fine lines tend to respond best to low level erbium laser treatments. The treatment is contraindicated in pregnancy (as are all laser and light treatments), in patients with an active herpetic breakouts, in patients

with a history of hypertrophic scarring or keloid formation, and with patients who have taken isotretinoin within the last year. Non-smokers will achieve better results than will smokers.

### **The Esthetician’s Role**

Similar to the esthetician’s role in CO<sub>2</sub> laser resurfacing, in Er:YAG laser treatment, the esthetician is involved both before and after treatment, but more care is usually needed after treatment. During the first week after the laser treatment, the esthetician often guides the aftercare by recommending the appropriate cleanser. Care must be taken with patients who have oily or acne prone skin to avoid irritation and future breakouts. If the skin is not healing, becomes ulcerated or if the patient continually complains about pain or itchiness, the esthetician should communicate these concerns to the nurse or physician. Counseling after treatment is essential, especially regarding the importance of wearing sunscreen. Many patients undergoing Er:YAG laser treatments become motivated regular clients of the esthetician because their skin is in better condition and they will need continued help to care for it.

### **Conclusion**

Working within a medical facility can be a fulfilling career choice for estheticians. Understanding your role and your limitations, can ensure full support and teamwork with your physician.

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### Self Assessment Test 3

1. Lasers emit \_\_\_\_\_ and \_\_\_\_\_ light in a \_\_\_\_\_ wavelength.
2. Visible light is seen as:
  - a) Green
  - b) Blue
  - c) Orange
  - d) All of the above
3. IPL is a light therapy device that targets \_\_\_\_\_ wavelengths.
4. After laser treatment, many patients like applying a:
  - a) Mud mask
  - b) Topical antibiotics
  - c) Cold pack
  - d) Vitamin A
5. To prevent post laser hyperpigmentation, the patient's daily use of \_\_\_\_\_ is mandatory.
6. An ablative or CO<sub>2</sub> laser can vaporize down to the level of:
  - a) Stratum corneum
  - b) Papillary dermis
  - c) Upper reticular dermis
  - d) Stratum germinativum
7. CO<sub>2</sub> lasers require more patient downtime than the Er:YAG laser.  
True or False?
8. Which lasers uses a diffracted microlens so that the beam is evenly distributed?
  - a) CO<sub>2</sub> lasers
  - b) Fractionated lasers
  - c) IPLs
  - d) Er:YAGs