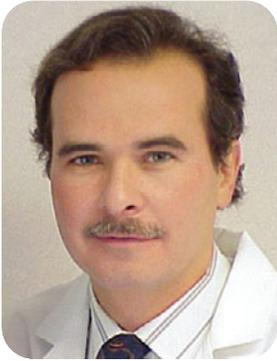


Experts Describe Evolving Role of Lumenis IPL Technology in their Practices



Robert A. Weiss, M.D.

Editor's Note: Our series of clinical roundtables continues as our Medical Advisor Robert Weiss, M.D. moderates this shared perspective on the Intense Pulsed Light (IPL) technology platform. Since its 1995 introduction to the aesthetic field by the company known today as Lumenis, this unique light-based device has replaced lasers in many applications. IPL has also created new treatment markets, and IPL photorejuvenation currently ranks as one of the highest volume aesthetic procedures in the world.

Please comment on the technique of integrating IPL with other new cosmetic procedures in recent practice. Has this helped you create improved and more comprehensive cosmetic treatment programs with better overall results?

Robert A. Weiss, M.D. – The fact that we can improve surface texture by inducing collagen formation enhances all the other techniques utilized for surface improvement such as botulinum toxin and various filling agents. IPL has significant advantages over TCA chemical peels in that dermal and epidermal remodeling is more likely to be seen because of deeper penetration of the red and infrared components of IPL. The amount of downtime is insignificant for IPL when compared to chemical peels. This leads to greater patient acceptance.

When a cosmetic patient enters the doors of our practice, we now explain the various alternatives and combinations. IPL is often the backbone of the various modalities that will be used to improve skin texture, enlarged telangiectases, lentigines and melasma.

For example, a typical 52 year-old female wakes up one morning, sees the rough textured skin, lines around the eyes, blotchy pigmentation and red

patches. All are cumulative signs of photoaging. This patient wants a program to rejuvenate her skin. She does not want to be reminded every time she looks in the mirror that she is getting older.

The primary goal is to reverse the process without anyone knowing. Typically, we recommend starting with a good topical regimen, including some form of vitamin A and soluble vitamin C to enhance collagen synthesis and minimize MMP (collagenase) production. We then deliver some immediate gratification with botulinum toxin in the periocular region and glabella. This may be accompanied by collagen or fat injections in the naso- and meso-labial fold.

For retexturing the surface, four to six treatments of IPL are performed one month apart. Additional use of infrared lasers for deeper lines may also be used. Maintenance following improvement (or to “turbocharge” the results of IPL) now includes LED-based non-thermal photomodulation. If patients have very lax skin we can add monopolar RF treatments to re-drape the skin and contract sagging jowls or lift up foreheads non-invasively.

It is clear that addressing all the problems with several techniques, we can achieve an appearance of at least ten years younger. Our 52 year-old patient will be extremely pleased with the reversal of aging seen in the mirror.

Jean Carruthers, M.D. – We find that patients want to have the elegant aesthetic non-ablative resurfacing that Lumenis IPL provides combined with the use of Botox for restoration of more relaxed facial expression and lip redefinition with fillers. They like the facial canvas to be clear of lentiginos and telangiectasis with the no downtime approach that IPL gives. If patients come in asking for one modality, over the succeeding year they will learn of the other two modalities in our “instant” treatment trilogy and consider them too. We also find that post-surgical patients like the clarity and improvement in skin texture that IPL gives them post-operatively.



Jean Carruthers, M.D.

Jeffrey Dover, M.D., FRCPC – We routinely recommend a series of six IPL skin treatments for patients with epidermal photodamage with early textural changes without a great deal of skin sagging. Those who do best have dyspigmentation (lentiginos) with or without facial redness and telangiectasia. We use the Lumenis IPL Quantum SR.

We recommend a series of microdermabrasions alternating with glycolic acid peels as a complement to IPL photorejuvenation. Further, we often suggest treatment with Botox before we start the IPL series and three to four months after initiation of the series. For patients with actinic keratoses, we consider topical ALA PDT at the time of the first and second IPL treatments.

The conclusion is that IPL treatment is very compatible with many of the treatments we all make use of in cosmetic dermatology. IPL enhances the total result, it gives the skin a smooth and youthful appearance, and the patients are very satisfied.

Gary Monheit, M.D. – IPL photorejuvenation fits into a practice promoting the little or no downtime treatment of aging skin. The use of IPL to eradicate telangiectasis, rosacea flush and erythema or poikiloderma is combined with its ability to destroy lentiginos and dyschromia. Improvement in skin texture is an additional bonus. In my practice, IPL now is a cornerstone for in-office skin rejuvenation and pairs itself well with other minimally invasive techniques for skin rejuvenation.

In my initial consultation, I use the Index of

Photoaging Skin to assess the objective changes in a patient’s skin that can be treated. It enables me to accurately pinpoint both qualitative and quantitative changes in lesions such as telangiectasis, lentiginos, senile comedones, as well as textural changes such as dynamic versus photoaging rhytides, cross-hatched lines, and rough skin surface texture. This allows me to assess how much of these changes are present and prescribe the appropriate therapeutic modality.

I begin with cosmeceuticals, and usually add IPL plus Botox as my next useful instrument. Combining microdermabrasion with IPL seems to have an additional effect beyond just adding another procedure. Stripping the stratum corneum prior to IPL makes the procedure more effective for collagen remodeling and superficial texture. Volume augmentation as produced with collagen and hyaluronic acid fillers will solve the problem of deeper rhytides and supplement the effect of IPL and Botox so that more invasive procedures may not be needed. I thoroughly believe the practice of minimally invasive cosmetic surgery is dependent on using multiple procedures to solve the complex problems of photoaging skin.

Mark Nestor, M.D., Ph.D. – Photorejuvenation using Lumenis IPL devices has been the backbone of non-ablative treatments in our practice. We use both the VascuLight and the IPL Quantum SR extensively to treat coloration changes such as telangiectasis and lentiginos as well as conditions such as rosacea and melasma. IPL is compatible and effective when used with other devices and cosmetic treatments, such as Botox and CosmoPlast.



Mark Nestor, M.D., Ph.D.

This flexibility allows us to offer a wide variety of cosmetic and clinical improvements in a completely non-ablative, no downtime manner, which is a selection criterion important to all our patients.

Recently, the adjunctive use of Levulan (ALA) with Lumenis IPL, a new technique referred to as photodynamic skin rejuvenation, allows us to effectively treat patients with significant actinic damage and actinic keratoses, as well as patients with severe cystic acne.

James Spencer, M.D. – Offering less invasive procedures draws a greater number of patients into our

practice. A limited number of people have the financial resources and the availability of time away from their regular lives to recover from a major surgical procedure, while many people have the time and inclination for “lunchtime” procedures.

The color and texture of the skin is almost always an issue for any patient with photodamage and wrinkles. A patient with deeper rhytides contemplating botulinum toxin or fillers will benefit from IPL treatment of telangiectasis, lentigines, and an overall improvement in the texture of their skin in addition to treatment of the deeper rhytides.

What are your experiences and expectations related to the widening use of topical 5-aminolevulinic acid (ALA – Levulan) with Lumenis IPL in cosmetic IPL / PDT treatments?

Dr. Weiss – We are successfully performing enhanced photorejuvenation on the first or second IPL treatment using ALA. Typically a one hour contact time under occlusion is utilized. On the IPL Quantum system we use program setting 3 at 27 J with thin gel contact so the cooling (set on maximum) from the chilled crystal can be felt on the skin. The big advantage is the ability to treat the actinic keratosis component of photoaging which was previously not possible.

We believe that the results from IPL are seen more quickly and that patients experience greater smoothing of texture as well as enhanced treatment of dyspigmentation.

Dr. Nestor – Photodynamic skin rejuvenation and photodynamic treatment of acne have rapidly become central to our ability to treat conditions such as actinic damage and severe cystic acne. We have had a wide variety of experience treating patients with conditions as diverse as severe sun damage and sebaceous hyperplasia, as well as many patients with rosacea and severe cystic acne.

Our protocols for photodynamic skin rejuvenation for patients with significant sun damage include a five-treatment regimen, whereby the first three

treatments include a three-step process of microdermabrasion, application of Levulan for approximately 30 to 60 minutes, followed by relatively low fluence treatment with IPL. We use the VascuLight IPL system with the 550 nm filter or the IPL Quantum with the 560 nm head, 2.4/2.4 ms double pulse, and a delay of 10 ms. We start at approximately 20 to 22 J/cm² and go up gradually. The last two or three treatments after the ALA session are strictly performed using the Lumenis IPL in the conventional way, and we generally max out the IPL treatments at approximately 32 to 34 J/cm².

Dr. Dover – We are excited about the opportunity topical ALA PDT offers patients with actinic keratoses. In the past we first treated individuals with actinic keratoses with liquid nitrogen on several occasions before initiating IPL photorejuvenation. Now we are very confident in achieving exciting results by adding the “Levulan boost” to the IPL program, for these individuals, with both therapeutic and cosmetic dividends.



Jeffrey Dover,
M.D., FRCPC

We first wash the face thoroughly with alcohol in an effort to fully degrease the skin. Levulan is then applied over the entire face and ears where appropriate. Sixty minutes later, we do a full face IPL treatment, with fluences a bit lower than we use with conventional IPL photorejuvenation. We then wash the face thoroughly before the patient leaves the office. We suggest strict light avoidance for the next 12 to 24 hours where possible to avoid a delayed phototoxic reaction.

Dr. Nestor – We have an alternative program, as well. We call it the “moderate downtime” photodynamic procedure, whereby we do one or two procedures using the protocol of microdermabrasion, Levulan for 60 to 90 minutes, followed by an IPL treatment at approximately 30 to 32 J/cm². In this way, patients realize a more significant improvement with fewer treatments, though with an increase in downtime. Again, the flexibility of the Lumenis IPL allows us to offer an effective program with a great degree of the patient’s preference taken into account.

We also use the Lumenis IPL in acne treatments with some changes to the protocol. We generally perform three treatments using photodynamic therapy, consisting of microdermabrasion, followed by an application of Levulan for approximately 30 minutes, followed by IPL using the 550 or 560 nm filter, a double pulse of 2.4/2.4 ms with a delay of 10 ms, with a fluence approximately 24 to 26 J/cm². In patients with darker skin types, we tend to use the 560 or even the 570 nm filter to allow for more significant penetration of the light source. Once again, I have to say that the Lumenis IPL, which has been so useful in our practice for years, is only becoming more so with the many innovations in aesthetic medicine.

Dr. Carruthers – We find the adjunctive use of Levulan really shortens the IPL treatment cycle. We use Levulan on the patient's skin for one-half hour in a darkened room and then wash it off. We use topical anesthetic as usual and gel as usual, but we turn the settings down a little to prevent side effects. Even so, some subjects become oedematous for a couple of days in the treated area. But they have more complete results earlier.

Dr. Spencer – Recently, it has been appreciated that ALA will accumulate in sebaceous glands, and possibly hair follicles. This provides an opportunity to specifically target these structures with photodynamic therapy. Acne, sebaceous hyperplasia, and nevus sebaceous of Jadassohn are all lesions where targeting sebaceous glands may be beneficial. In our office at Mt. Sinai, we have been treating sebaceous hyperplasia and nevus sebaceous with topical ALA followed by IPL. The ALA is applied topically, then the conversion to protoporphyrin IX is given 45 minutes to proceed. The use of IPL as a light source allows us to treat with such a short incubation time. This results in shrinkage or disappearance of the lesion without scarring.



James Spencer, M.D.

Dr. Nestor – I'd like to add that our patients have seen unparalleled benefits from these new treatment protocols. For patients with significant sun damage, this adds tremendous additional spectrum of improvement whereby actinic damage, actinic ker-

atosis and even superficial skin cancers can be ablated along with the traditional cosmetic improvement in telangiectases and brown spots that Lumenis IPL is so well known for. With regard to acne patients, we have seen results paralleling Accutane in patients with significant cystic acne.

What characteristics do you look for in an IPL system?

Dr. Weiss – The most important features for us are reliability, reproducible results with different operators, patient comfort and quick repair response. The Lumenis Quantum system has met or exceeded these needs in our practice. We find that using the chilled head at maximum cooling allows for greater patient comfort. The technique of thin gel frozen on the crystal allows reproducibility from operator to operator. When we require replacement heads, they are reasonably priced and available overnight. Downtime has been absolutely minimal compared to other laser light sources in our practice and we have over 30 different systems in our office at the present time.

Dr. Carruthers – Alastair and I have two Lumenis IPL systems because there is such a demand for them from our patients. We like the large size of the light guide and the fact it chills variably via active cooling. Some individuals require more chill than others due to more sensitive skin. We also like the dependability of these systems. When we did have a problem with one system, the company gave us immediate, excellent service.

Dr. Nestor – IPL systems are not all created equal. It has become very clear that the specific design of the IPL system – the light source, the geometric configuration of the head, as well as the ability to utilize a variety of different pulse durations, pulse programs, and fluence – are critical factors to the overall clinical outcome of the patient. I happen to have an interest in fine tuning the specific parameters of the Lumenis VascuLight and Quantum, and I believe that the reproducible results that we see are related to the IPL devices that we are using. The continuous calibration feature ensures that the output parameters, and therefore the results, are consistent.

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Dr. Monheit – The filtered flashlamp IPL system has the unique capability of adapting itself to the needs of our patients' skin problems and the characteristics of their skin types. Using low cut off filters of 550-590 nm, treatment can be performed with single pulses of 2.4-3.0 ms pulse duration or, as a more common treatment scheme, using double pulses of a 2.4 ms pulse with a 10 ms delay, followed by a 6.0 ms pulse. The double pulsing with a short and then longer pulse can create greater efficacy with fewer side effects, especially in patients with more sensitive skin and darker skin types. Fluences can be controlled with single or double pulses in safe zones for each individual skin type.



Gary Monheit, M.D.

Where will IPL evolve within the practice of aesthetic medicine? What technological advances in the generations of IPL give you confidence in Lumenis product developments for the future?

Dr. Weiss – We started with the first prototype IPL in late 1994. We have seen tremendous strides in the capability of this technology. The second generation was introduced in 1998, and the third generation Quantum in 2000. The longevity of treatment heads has quadrupled, rapidness of pulsing has increased eight times, cooling has been integrated into the crystal and the user interface has gone from extremely complex to very simple but flexible.

I anticipate even further improvements in the fourth generation IPL system, but it is impressive to know that we still utilize our first generation prototype built in 1994. It has been able to be upgraded to be compatible with the third generation products and still maintains the same flexibility. I am very confident about the ability of Lumenis engineering to stay ahead of others.

Dr. Nestor – IPL photorejuvenation, and now photodynamic skin rejuvenation, are the cornerstones of non-ablative skin rejuvenation. They allow us to

improve our patients in a variety of ways. IPL technology has established its value for some years now, as a treatment of coloration changes, both brown and red, as well as dermal remodeling. Now, IPL performs photodynamic skin rejuvenation and treats certain precancerous skin changes as well. Lumenis has been in the forefront of IPL technology and continues to develop advanced equipment and protocols, and I believe they will be the standard for many years to come.

Dr. Spencer – Combining IPL with topical or systemic photosensitizers seems to be the most exciting utilization of light based technology on the horizon. Photodynamic therapy has held great promise for many years in oncology, and now it appears this approach will have applications in the cosmetic realm. For example, this approach may allow treatment of blond or white hairs via IPL-based hair removal, and open an entirely new approach to the acne patient.

Dr. Dover – Lumenis has been at the forefront of IPL technology development as well as information transfer in the IPL field. They were the first to bring IPL technology to the medical marketplace, to bring built-in contact cooling to IPL, and to support and encourage the development of safe and effective parameters for all the applications. In addition, new generation Lumenis IPL products have designed-in practical improvements and simplified operation. Upgrades have enabled us all to stay at the leading edge for our patients. I suspect they will be at the forefront of exciting new developments in IPL technology in the future as well.

Dr. Nestor – An important trend we are seeing is that the IPL technology is not only applicable in many aspects of aesthetics, but now in clinical dermatology as well. The use of IPL has revolutionized our treatment of rosacea, as well as dyspigmentation conditions. Additionally, the new advent of ALA PDT acne treatments using IPL may very well revolutionize the treatment of significant cystic acne. Over time, the use of Lumenis IPL has expanded greatly and we look forward to even more clinical uses in the future. ■