



# Update On Permanent Hair Reduction

By Stacey A. Burns

According to the January 2007 Medical Laser Report from Laser Focus World, medical laser systems grew 15% worldwide in 2006 and are expected to grow an additional 14% in 2007. One of the fastest growing segments of that market is lasers for hair removal. The number of hair removal procedures was projected to increase from 14 million to 45.4 million by 2009, according to a report from Medical Insights released in 2005. Over the past couple of years the competition among device manufacturers has led to continued refinements and incremental improvements that have made these procedures easier, faster and more effective. As public demand for hair removal continues, manufacturers are making a dynamic shift toward multiuse laser and light-based devices that do more than just reduce the amount of hair.

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“The Lumenis LightSheer diode laser has been the most popular hair removal device in the U.S. market,” says Michael H. Gold, MD, who helped develop the original Epilight, licensed by the FDA in 1997. “And currently there are a number of fast, efficient devices for hair removal, including Lumenis One, Sciton BBL, Alma Lasers and the Aesthera PPx.”

The consensus among the dozen or so experts we consulted for this article is that the next step in hair reduction technology is a move toward more efficiency, using devices that work on a wider range of skin types, allow for faster treatments, and keep patients safer and more comfortable.

According to E. Victor Ross, MD, Division of Dermatology (Skin and Cosmetic Center) at Scripps Clinic, La Jolla, California, “There have not been a lot of significant changes in the field of hair reduction in the past year. Changes have been incremental rather than dramatic, with companies fine-tuning existing technologies and defining and refining the capabilities of lasers and intense pulsed light (IPL) devices. I expect this to continue through 2007.”

The most critical and limiting factor is still the patient’s

skin type and hair color, notes Mitchell Chasin, MD, Reflections Center for Skin and Body, Livingston and Bridgewater, New Jersey. When he speaks to groups about the different devices available and their appropriate use, he inevitably hears the question, “So, which *one* should I buy for my office?” His advice is to assess your practice and choose the device that will allow you to best serve the patient population.

Dr. Chasin has several different hair removal devices in each of his facilities and finds that they all have merit, depending on the patient he is treating. “For a patient population with lighter skin types, I usually choose an Alexandrite laser, specifically the GentleLASE. For patients with darker skin types, I prefer the GentleYAG, an Nd:YAG laser. If you must choose only one device, choose the one that will allow you to serve the most patients. When you do have a patient whose optimal treatment requires a device other than the one you own, be wary of attempting to treat the patient,” he says.

Chasin reports instances where doctors have tried treating skin type VI patients with a short wavelength laser by simply lowering the power. “This is not an acceptable protocol,” he states. “It is not only ineffective at removing the hair but it may possibly worsen the situation. Using a short wavelength at lower power on dark skin can cause hair regrowth that is finer and subsequently more difficult to treat. Plus, the patient may experience pigmentation changes or even additional hair growth stimulation in the area.” Experts unanimously advise against falling into the trap of getting so comfortable using one device that you decide it is the best for all of your patients.



▲ The GentleMAX integrated Aesthetic Workstation allows physicians to treat leg veins and do skin tightening as well as hair removal in the same appointment.

## Multipurpose Trend

The current industry trend toward systems that combine energies and wavelengths, allowing physicians to buy one platform that can be used for all skin types, as well as other procedures, may make it easier for physicians with limited resources to offer a full menu of noninvasive cosmetic treatments. The Lumenis One led this trend in 2004 with one platform that included the LightSheer for hair removal, Multi-Spot Nd:YAG laser technology and an IPL.

The newest of these platforms is the GentleMAX Integrated Aesthetic Workstation from Candela, which combines its GentleLASE Alexandrite and GentleYAG lasers with either cryogen or air cooling options. Use efficiency is further improved with a spot size of 1.5 mm to 18.0 mm.

“It used to be that when two lasers were combined in the same device, many of the operating parameters, including power, were compromised,” says Dr. Chasin. “When I tested the GentleMAX, I was excited to find no reduction of available power or other deficiencies. The lasers were the same as when the two were individual units.”

Dr. Jason Lupton, MD, says the Candela GentleMAX makes it easy to treat vascular and pigmented



▲ Lumenis was one of the first companies to offer a platform that allowed physicians to perform hair removal for different skin types and additional procedures with one system.

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lesions, leg and facial veins, skin tightening and wrinkle reduction during the same appointment as the hair reduction. One appointment makes patients happy and use of the laser more efficient.

Cynosure offers a dual system with its Elite Aesthetic Workstation combining 755 nm and 1064 nm wavelengths within one versatile, compact unit. Shino Bay Aguilera, DO, a dermatologist in private

bipolar radiofrequency energy achieved cosmetically acceptable hair reduction with a high degree of patient satisfaction." A second article in the June 2006 issue of the *Journal of Cosmetic and Laser Therapy* concluded that elos technology can be effectively used for permanent hair reduction even in patients with blonde hair. The emax system also offers ReFirme skin tightening, skin



▲ The new Palomar Starlux 500 platform can include both the Lux Ys and the Lux Rs for hair removal.

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practice in Florida, says that he likes the Elite because he gets repeatable, predictable outcomes and can optimize treatments. “The combination of ‘real laser’ wavelengths is a ‘must have’ for our practice. The Elite has opened the door to a huge market for me,” he says.

In early 2006 Syneron introduced emax, a versatile system that combines radiofrequency and an 810 nm diode laser for fast hair removal. An article in the April 2006 *Journal of the ASLMS* concluded that the “long pulse 810 nm laser coupled with

rejuvenation and treatments for leg veins and acne.

In early 2007 Palomar introduced the LuxYs pulsed light handpiece for its StarLux Laser and IPL Platform. The LuxYs allows practitioners to treat patients with light, fine hair, including vellus hair. The StarLux system already included the LuxRs for permanent hair reduction on all skin types, including tanned skin.

Evan Parker, vice president of sales for Creative Technologies, which makes products used in conjunction with light-based hair

removal devices ([creativeinc.biz](http://creativeinc.biz)), works with nearly 2,000 laser centers across the U.S. “Many of these multi-platform devices are very good at offering both hair removal and other treatments, but make sure you evaluate the hair removal component individually,” he advises. “Are the fluences sufficient? Can you adjust the energy level and pulse rate? Does the company offer good training? No matter which device you choose, you’ll find that efficacy and safety are directly correlated to the technician’s knowledge and proficiency.”

## Newest IPL Devices

Aesthera introduced Painless PPx therapy in August 2005. The PPx System combines IPL and proprietary photopneumatic (PPx) technology. “It’s really quite simple,” states Bob Anderson, CTO / co-founder of Aesthera Corporation, who holds multiple patents associated with laser technology and has more than

## OTC Hair Removal

In December 2006, Palomar Medical Technologies announced that it received the first-ever 510(k) over-the-counter clearance from the U.S. Food and Drug Administration for a light-based hair removal device. OTC clearance means the product can be marketed directly to consumers for home use without a prescription.

“This is a significant milestone for Palomar,” says CEO Joseph P. Caruso. “The market opportunity for an OTC product is bigger than any market we have addressed to date. We have demonstrated again that we are the clear

leader in this technology, just as we did in 1997 when we received the first FDA clearance for a high powered, light-based hair removal device for the professional market. We envision a strong potential market for an OTC product and an increase in consumer awareness to help drive growth in our professional business.”

Palomar has signed an agreement with The Gillette Company to further develop the device for the consumer market. This development period will extend throughout 2007.

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25 years of experience in the laser industry. "During a PPx treatment, a handpiece is gently placed on the skin. In a fraction of a second, a vacuum gently draws the skin into the treatment tip, bringing the targets such as hair follicles closer to the skin's surface. A painless light is applied which sends highly efficient photons to the target at 4 to 5 times the standard rate. Because the hair follicles are closer to the light, a lower energy can be used, providing an overall safer, painless procedure that's extremely fast and effective." Results of one study in which patients were given five to six treatments with the Aesthera PPx showed average hair reduction of 88% at 9 months following the last treatment.



Newer cost-effective multi-application IPL devices include the Mistral from Radiancy and the Chromolite from Genesis BioSystems, both introduced in 2006. The Chromolite with its proprietary Smartlite technology allows the device to target blonde and red hair as well as darker hair. The device is also FDA cleared for skin rejuvenation and active acne. This broad-spectrum light energy attacks hair in two ways. The red spectrum light

◀ The Radiancy Mistral makes it possible to treat all skin types with one efficient device.

targets melanin in the hair, while the yellow spectrum light reaches subsurface skin layers to target the blood that feeds the hair follicle "germ" cells.

This precise targeting means no cooling gel is needed. According to Jim Lafferty, president of Genesis Biosystems, the broad-spectrum light combined with Chromolite's large 15 mm by 50 mm flash lamp and lightning-quick two-second repetition rate make treatments highly cost effective. Hair reduction on a man's back can be completed in 10 minutes and, for ladies, both legs can be treated in about 45 minutes.

The Radiancy Mistral is a light heat energy (LHE) platform, which can also be used for skin rejuvenation and even acne and psoriasis treatments. Mistral introduces Optimized Pulse Protocol, which creates a protected environment for the safe delivery of energy. The LHE hair removal system uses a 35-msec light pulse and a large spot size (22 mm by 55 mm), which heats the hair follicle without heating the surface skin. This allows physicians to achieve better than 50% hair reduction six to nine months after treatment with four to nine treatments, while eliminating the need for any cooling method. A second handpiece allows physicians to safely treat skin types V and VI.

#### **New and Improved**

Patient comfort is another area of emphasis. There has been continued refinement in the manner in which lasers cool the skin during hair removal. Dr. Chasin believes cooling devices need to be more operator-proof to offer safer and more consistent results. "When the treatment depends on the operator spreading a cold gel on the skin to protect the epidermis, or pressing a handpiece against the skin at the right angle and for the right amount of time, there can be a lot of variability," he notes. "Both overcooling and undercooling of the skin can have significant adverse effects. Today's cooling systems are far more exacting than they used to be. Devices with cryogen cooling offer the safest and most predictable results, effectively reducing the chance of tissue damage."

Dr. Aguilera is a proponent of air cooling. "Air cooling allows us to destroy the target effectively without the damage. The risk of hyperpigmentation is significantly decreased, compared to

contact and cryogenic cooling, which must be performed with exact precision and timing. Plus, air cooling eliminates messy gels and creams," he says.

Alma Lasers has taken a different approach to patient comfort with its brand-new Soprano XL

system. This virtually painless hair removal system is made possible by the combination of low fluence, rapid pulsing diode technology with an in-motion treatment technique. According to David J. Friedman, MD, of Jerusalem, Israel and New

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York, one of the principal investigators for this new product, "The SHR mode of the Soprano XL, which is the in-motion mode, is remarkable. My patients love it. I don't find any of the resistance to treatment due to patient discomfort that I have in the past. In addition, I have found the SHR mode affords patients with darker skin an increased safety margin without a compromise in efficacy."

Another interesting refinement comes from HOYA ConBio with the introduction of its PurpuraLite for use with the MedLite laser system. This handpiece allows the fine blood vessels to be temporarily "emptied" in the treatment area so that there is no purpuric response in the skin. Tim Shanahan, director of U.S. medical sales for HOYA ConBio, says that there has been feedback showing increased patient satisfaction because there is less pain, which translates into more patients completing treatments.

### Looking Ahead

Dr. Gold, who uses a variety of IPL and laser devices in his Nashville, Tennessee, laser center, believes that today's hair removal devices are generally comparable in efficacy but he continues to research more effective approaches. At the annual meeting of the American Academy of Dermatology held in Washington, DC, last February, he presented results from a recently completed comparative study done in



▲Using both the Sciton BBL and 1064 Nd:YAG produced more effective hair removal than using either device alone in a recent study.



▲ HOYA ConBio's MedLite C6 now includes the PurpuraLite.

conjunction with Sciton looking at advanced hair removal protocols. Study patients' backs were divided into four sections. One section was left untreated; one was treated only with the Sciton BBL; one was treated only with the Sciton 1064 Nd:YAG; and one was treated with both the BBL and

the Nd:YAG. All three treated sections showed effective hair removal, but the section treated with both the BBL and the Nd:YAG showed significantly better results than either single method.

Andrea Pezzano, director of marketing at Sciton, says, "The PROFILE is the aesthetic system available that offers the advantage of both high-speed robotic scanning of the 1064 Nd:YAG and a BBL with unlimited pulses all in the same platform. And with the configurable platform, any PROFILE system can be easily upgraded with the BBL."

During 2007 our experts predict we'll see the trend toward multi-platform devices continue and researchers will endeavor to refine how each of these devices works individually and in combination.

Finally, Quest Pharmatech, a Canadian-based company, recently reported the results of an initial study with a topical compound called SL-017 designed to be used in conjunction with laser or broad-spectrum light to remove hair. The company is now beginning a trial to determine the appropriate light dose for optimal results. Quest reports that adding SL-017 to light-based hair removal will accomplish permanent hair reduction in fewer sessions—potentially in a single treatment. Stay tuned for more. ✦

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