

## Présentation annuelle lors de Photonics West (San Francisco, Février 2019) de l'analyse du marché du laser par Strategic Unlimited.

Extrait pour la partie lasers médicaux.

La globalité de l'analyse dans "Laser Focus World » de Janvier 2019

### Medical and aesthetic

The sale of lasers for medical applications continued its upward trend in 2018, with cosmetic and dermatology applications leading the sector. In its March 2018 aesthetic laser market forecast, laser components and solutions provider [Lasertel \(Tucson, AZ\) noted](#)<sup>78</sup> that growth in this segment is being driven in large part by the replacement of gas lasers by small, energy-efficient diode lasers. But Lasertel's report also notes that growth because of technological advances and decreased treatment cost pales in comparison to that arising from consumer demand for laser skin treatment (such as tattoo, wrinkle, hair, and scar removal and skin lightening).

At 20% growth from 2016 to 2017, Asia is at the forefront of aesthetic laser treatments (facilitated by the addition of Taiwan and Korea as medical tourism destinations). In Europe, the Middle East, and portions of Africa (areas that have previously not embraced aesthetics), the laser aesthetics market grew 16%.

Such growth has attracted the interest of investors, as demonstrated by multiple acquisitions in 2018. In September, Syneron Candela (Wayland, MA) acquired Ellipse (Denmark), a privately held company (financial terms were not disclosed) known for its Intense Pulsed Light (IPL) and laser-based platforms for medical and aesthetic dermatologic applications. The acquisition strengthens Syneron Candela's position in multi-application, multi-technology devices. A key Ellipse product is an IPL-and-Nd:YAG platform targeting vascular and pigmented lesions, hair removal, and (with a fractionated 1550 nm add-on handpiece) skin resurfacing. Incidentally, the provision of systems to address multiple specific applications is a trend in product development—not only in aesthetics, but also in surgical lasers.

In November 2018, private equity firm CVC Capital Partners (Luxembourg) was nearing [finalization of its acquisition](#)<sup>79</sup> of medical and aesthetic laser company Lumenis (Yokneam, Israel). The deal is valued at roughly \$950 million, compared to the approximately \$510 million paid for the company in 2015 by another private equity firm, XIO (London, England). For fiscal year 2014, Lumenis' last as a public company, the firm reported \$289 million in revenue. The company's current annual sales are reportedly around \$500 million, which represents entry into new medical markets.

Growth in the aesthetic sector was also facilitated by a number of U.S. Food and Drug Administration (FDA) approvals that expand dermatology applications: Alma Lasers (Caesarea, Israel) was approved for its three-wavelengths-in-one compact applicator; Syneron Candela won clearance for its 595 nm pulsed dye laser (PDL) cosmetic device that adds a 1064 nm wavelength to treat a broad range of skin conditions; and Lutronic (Korea) was

cleared for its device offering pico- and nanosecond modes with precise control over pulsewidth, wavelength, and fluence for cases that have resisted other Nd:YAG treatments. Strata Skin Sciences (Horsham Township, PA), which reported Q3 2018 revenues of \$7.9 million (an increase of 8% over 2017), received approval for an excimer laser tip able to custom-filter narrowband UVB light for a maximum non-blistering dose. And Korean developer Hironic got clearance for its hybrid acne treatment device that pairs a 1450 nm diode laser with bipolar radiofrequency and cryogenic cooling.

Hair restoration received a number of FDA approvals in 2018 as well, including the Theradome (Pleasanton, CA) LH80 PRO (now approved for men), the HairMax (Boca Raton, FL) RegrowMD for treatment of androgenetic alopecia in both men and women, and the InMode (Lake Forest, CA) Triton, the only device to provide concurrent emission from the three most-popular hair-removal lasers—alexandrite, diode, and Nd:YAG.

But the FDA's influence on the laser aesthetics market wasn't all rainbows and sunshine. On July 30, 2018, it issued a warning concerning systems it had approved for treatment of "serious conditions like the destruction of abnormal or precancerous cervical or vaginal tissue..." saying that the "FDA has serious concerns about the use of these devices to treat gynecological conditions beyond those for which the devices have been approved or cleared." The agency was targeting the marketing of such products for "vaginal rejuvenation" procedures and stated that adverse event reports and published literature highlighted numerous cases of burns, scarring, and recurring or chronic pain.

The agency notified seven device manufacturers (Alma Lasers, BTL Industries, Cynosure, InMode, Sciton, Thermigen, and Venus Concept) of concerns about inappropriate marketing. The manufacturers—and providers of such services—were quick to respond, and even [National Public Radio weighed in](#),<sup>80</sup> saying that gynecologists have reported good results from CO2 lasers in particular.

The FDA delivered another wake-up call to manufacturers of laser-based biomedical systems. In April 2018, following Medtronic's (Minneapolis, MN) Class 2 recall of its Visualase Cooled Laser Applicator System (VCLAS) for MRI-guided laser brain surgery, the FDA issued a Class I recall (the most serious type) for Monteris Medical's (also in Minneapolis) NeuroBlate MRI-guided ablation system because of unexpected heating of laser delivery probes. Soon afterward, the FDA issued a general warning about the risk of tissue overheating during use of such systems, owing to inaccurate magnetic resonance thermometry. To address the problem, the manufacturers provided guidance to users, and Monteris obtained 510(k) clearance for a fiber-optic-controlled, cooling-equipped laser probe.

Additional FDA approvals in 2018 included a laser endomicroscopy system for use in neurosurgery from Mauna Kea Technologies (Paris, France); a Lensar (Orlando, FL) laser for presbyopia treatment and another from Carl Zeiss Meditec (Jena, Germany) that extends laser-based myopia treatment to patients with astigmatism; the first 355 nm laser for clearing plaques responsible for peripheral artery disease from Eximo Medical (Rehovot, Israel); and a Multi Radiance Medical (Solon, OH) system for neck and shoulder pain relief that uses advanced laser diodes to "super pulse" up to 50 W of power (more than most Class IV lasers) and aims to maximize treatment by discouraging the body from adapting to its effects.

Acquisitions were also numerous in 2018, demonstrating heightened anticipation of growth in the medical laser industry. In October 2018, Novanta (Bedford, MA) completed its purchase

of [Laser Quantum](#) (Manchester, England), supplier of solid-state and ultrafast laser sources to medical OEMs. The \$45.7 million deal is a follow-on to Novanta's (formerly GSI Group) January 2017 increase in Laser Quantum's equity stake to 76%.

In a deal valued at \$28 million, optics and photonics supplier Gooch & Housego (G&H; London, England) acquired Integrated Technologies (ITL; Ashford, England), maker of medical devices including *in vitro* diagnostic tools. The August purchase helps fulfill some of G&H's strategic goals: ITL business will double G&H's existing life sciences revenues, and the company's system-based products move G&H "up the value chain."

Also in August, fiber and CO2 laser manufacturer OmniGuide (Cambridge, MA) acquired Lisa Laser (Katlenburg-Lindau, Germany), maker of thulium and holmium lasers for treatment of benign prostatic hyperplasia (BPH)—an application area of growing importance, given that it was also an area of investment for Boston Scientific (Marlborough, MA), provider of the Greenlight XPS Laser Therapy system and holmium platforms.

While dental lasers are still a minor player in the field of laser medicine, their total revenues rose dramatically in 2018. Biolase (Irvine, CA), which calls itself the global leader in dental lasers, reported that U.S. laser revenue for Q3 2018 had increased 22% year-over-year. In its Southern California Model Market, laser revenue increased 127% year-over-year for the quarter and 175% over the last two quarters—growth the company attributed to "early success as we test different go-to-market approaches." Biolase also announced a partnership with the Dallas Mavericks basketball team to raise awareness on the benefits of dental lasers.

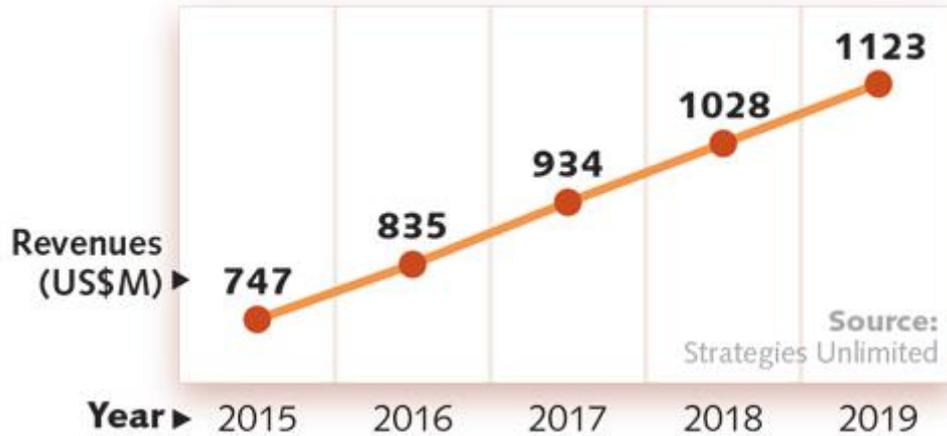
Considering the future of the laser market, Praveen Arany, president of the World Association of Laser Therapy ([WALT](#)),<sup>81</sup> points to the first-ever [congressional briefing on "innovative medical technologies for pain management"](#)<sup>82</sup> and subsequent passage of the Opioid Crisis Response Act (OCRA) of 2018, mandating development and adoption of pain treatment alternatives as an indicator of what's to come for new applications. "There is tremendous excitement about photobiomodulation for pain management and oral mucositis," he said, referencing commercial opportunities for laser treatment of opioid addiction and painful ulcers in chemo-radiation-transplant oncology patients. Indeed, even macroeconomic softening cannot deflate the ever-expanding medical laser markets for 2019 and beyond.

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## Medical & aesthetic

Includes all lasers used for ophthalmology (including refractive surgery and photocoagulation), surgical, dental, therapeutic, skin, hair, and other aesthetic applications.

In 2018, sales of lasers for medical purposes had a great year after a very strong 2017. Cosmetic and dermatology lasers had the strongest showing, driven by positive economic conditions in most regions—and especially in Asia.



Applications include tattoo, wrinkle, hair, and scar removal, and skin lightening. Dental laser sales were also up sharply in 2018, but in terms of total revenue, remain a relatively small medical application—only 6% of the total medical laser revenue. After a great 2017, surgical laser revenue had a good showing in 2018. The most exciting part of the surgical laser business is the expansion of its use: a surgeon who uses a laser for one procedure is more likely to feel comfortable with it for other types of surgery, advancing the probability of its purchase by a surgeon for its practice. In addition, laser light, and disposable laser probes, are less likely to carry germs between patients and usually don't require sterilization.