

Vbeam® Prima

The gold standard 595 & 1064 nm system.



Science | Results | Trust





Dear reader,

On behalf of Candela, we would like to thank you for your interest in Vbeam® Prima, the gold standard 595 & 1064 nm pulsed dye laser (PDL) system. Healthcare providers all over the world use the Vbeam Prima system to treat a variety of indications - for face and body - with high patient tolerability and a low incidence of side effects.¹

In this eBook, we provide you with the most important information regarding this device, from technology overview to results clinical experts worldwide have achieved with their patients.

Know that when you decide to work with one or more of our devices, we'll do everything we can to provide you with the highest level of customer service possible.

That's our promise to you.

The Candela Marketing Team

¹. Vbeam Prima CE mark.



What can you treat?

The Vbeam Prima is a highly efficient PDL used by healthcare providers all over the world to treat a variety of indications for both face and body with high patient tolerability and a low incidence of side effects.¹⁻¹⁴ Our Vbeam family has been long considered a gold standard for the treatment of rosacea and has also been successfully used for the treatment of port wine stains and vascular anomalies in infants, as well as adults. Vbeam lasers are currently used in nearly 700 universities and hospitals worldwide and has been included in hundreds of medical publications.

1. Bernstein EF, Kligman A. Rosacea treatment using the new- generation, high-energy, 595 nm, long pulse-duration pulsed-dye laser. *Lasers Surg Med.* 2008;40(4):233-239. 2. Woo SH, Ahn HH, Kim SN, Kye YC. Treatment of vascular skin lesions with the variable-pulse 595 nm pulsed dye laser. *Dermatol Surg.* 2006;32(1):41-48. 3. Chapas AM, Eickhorst K, Geronemus RG. Efficacy of early treatment of facial port wine stains in newborns: a review of 49 cases. *Lasers Surg Med.* 2007;39(7):563-568. 4. Jasim ZF, Woo WK, Handley JM. Long-pulsed (6-ms) pulsed dye laser treatment of rosacea-associated telangiectasia using sub purpuric clinical threshold. *Dermatol Surg.* 2004;30(1):37-40. 5. Jørgensen GF, Hedelund L, Hædersdal M. Long-pulsed dye laser versus intense pulsed light for photodamaged skin: a randomized split-face trial with blinded response evaluation. *Lasers Surg Med.* 2008;40(5):293-299. 6. Halachmi S, Israeli H, Ben-Amitai D, Lapidoth M. Treatment of the skin manifestations of hereditary haemorrhagic telangiectasia with pulsed dye laser. *Lasers Med Sci.* 2014;29(1):321-324. 7. Yu W, Ma G, Qiu Y, et al. Prospective comparison treatment of 595-nm pulsed-dye lasers for virgin port-wine stain. *Br J Dermatol.* 2015;172(3):684-691. 8. Galeckas KJ, Ross EV, Uebelhoefer NS. A pulsed dye laser with a 10-mm beam diameter and a pigmented lesion window for purpura-free photo rejuvenation. *Dermatol Surg.* 2007;34:1-8. 9. Madan V, Ferguson J. Using the ultra-long pulse width pulsed dye laser and elliptical spot to treat resistant nasal telangiectasia. *Lasers Med Sci.* 2010;25(1):151-154. 10. Bernstein EF, Schomacker K, Paranjape A, Jones CJ. Pulsed dye laser treatment of rosacea using a novel 15 mm diameter treatment beam. *Lasers Surg Med.* 2018;doi:10.1002/lsm.22819. 11. Bernstein EF, Schomacker K, Paranjape A, Jones CJ. Pulsed dye laser treatment of rosacea using a novel 15 mm spot size. Candela, data on file. 12. Cohen JL, Geronemus R. Safety and efficacy evaluation of pulsed dye laser treatment, CO2 ablative fractional resurfacing, and combined treatment for surgical scar clearance. *J Drugs Dermatol.* 2016;15(11):1315-1319. 13. Conologue TD, Norwood C. Treatment of surgical scars with the cryogen-cooled 595 nm pulsed dye laser starting on the day of suture removal. *Dermatol Surg.* 2006;32(1):13-20. Source for claims 15 and 16: plastic surgeons sell sheet. 14. Bernstein EF. The pulsed-dye laser for treatment of cutaneous conditions. *G Ital Dermatol Venereol.* 2009;144(5):557-572.



CE
indications

595nm:

- ✓ **General Surgery:** Photocoagulation of benign cutaneous vascular lesions and benign cutaneous lesions.
- ✓ **Dermatology/Plastic Surgery:** For treatment of benign cutaneous vascular lesions, such as facial and leg telangiectasia, rosacea, port wine stains, hemangiomas, angioma, spider angioma, poikiloderma of civatte, and benign cutaneous lesions, such as warts, scars, striae, psoriasis and the treatment of wrinkles.
- ✓ **Treatment of benign epidermal pigmented lesions.** Treatment of inflammatory acne vulgaris.
- ✓ **Gynecology:** Photocoagulation of benign cutaneous lesions and benign vascular lesions in gynecology.
- ✓ **Podiatry:** Treatment of benign cutaneous lesions, such as warts.

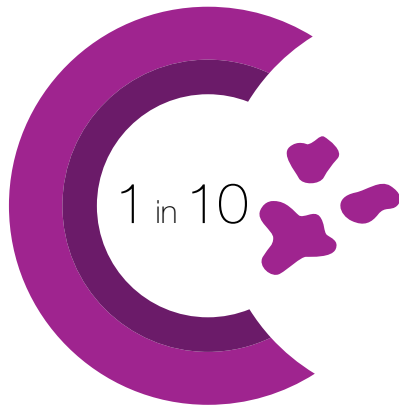
1064nm:

- ✓ **For the coagulation and hemostasis of benign vascular lesions** such as port wine stains, hemangiomas, warts, telangiectasia, rosacea, venus lakes, leg veins, spider veins, and poikiloderma of civatte and treatment of benign cutaneous lesions such as, but not limited to lentigos (age spots), solar lentigos (sun spots), café au lait manules, seborrheic keratoses, nevi, chloasma, verrucae, skin tags, and keratoses. The laser is also indicated for the treatment of wrinkles such as periocular and perioral wrinkles.

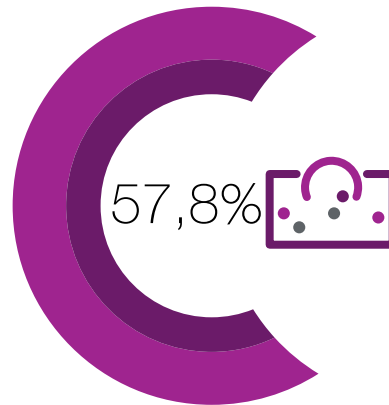
Extend your practice's reach to millions of potential patients.

Across various indications.

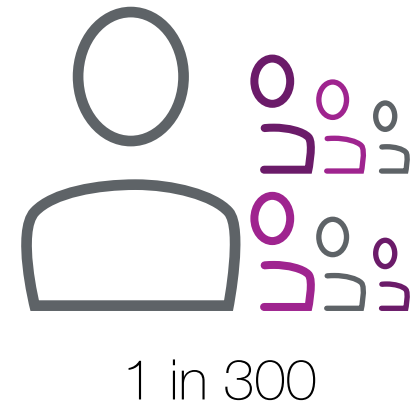
With a single device.



In Germany, an estimate of
1 in 10 suffers from rosacea¹



Self-reported acne prevalence
in Europe equals **57,8%**²



An estimated **1 in 300**
infants with port wine stains³

1. J. Tan, H. Schöfer, E. Araviiskaia, F. Audibert, N. Kerrouche, M. Berg, and the RISE study group, Prevalence of rosacea in the general population of Germany and Russia – The RISE study

2. A Delarue, A Zkik, G Berdeaux, Prevalence of Acne Vulgaris in Europe and Impact of Lifestyle Factors.

3. Baby Center website. Available at: https://www.babycenter.com/0_birthmarks_75.bc.

Practice advantages

- ✓ **Versatility.** Our gold standard 595 & 1064 nm system lets you treat rosacea, vascular and pigmented lesions and port wine stains amongst others
- ✓ **Proven performance.** The Vbeam lasers have been the industry standard for two decades. That means you can confidently perform treatments with consistent results.
- ✓ **Unmatched support after sale.** With 20+ years of expertise and over 12,000 systems+ systems installed, you can count on Candela for unmatched support, from fast customer responses to reliable repairs, as well as optimized marketing support.
- ✓ **Optimize ROI.** Treat more patients across more indications for optimal return on your investment.



Patient Advantages

- 
- A smiling couple outdoors, with a man wearing glasses and a woman with blonde hair, both looking happy and relaxed.
- ✓ **Safety.** The Vbeam family has provided life changing aesthetic and dermatologic benefits for millions of patients for more than 20 years. The technology is scientifically proven in consistent clinical results, which underscores both safety and efficacy.
 - ✓ **Comfort.** Vbeam Prima uses two different cooling systems, keeping the treatment as comfortable as possible for patients: Cryogen-based DCD, which provides consistent topical skin cooling for patient comfort and increased treatment efficiency and efficacy¹ and EverCool contact cooling.
 - ✓ **Minimal downtime.** Patients experience minimal downtime following the Vbeam Prima Treatments and can return to their regular everyday activities within a few days.²⁻³ They can even put makeup on as soon as they are done with the treatment.
 - ✓ **Minimal side effects.** Side effects are minimal, though sometimes there is minor bruising that resolves within a few days.²⁻³

1. Active Skin Cooling in Conjunction with Laser Dermatologic Surgery. Seminars in Cutaneous Medicine and Surgery. Nelson, J.S., MD, PhD., 19 (4): 253-66, 2000.

2. Pulsed Dye Laser Treatment of Rosacea Using a Novel 15mm Diameter Treatment Beam, Eric F. Bernstein, MD, MSE, et al, Lasers in Surgery and Medicine 9999:1±5, 2018.

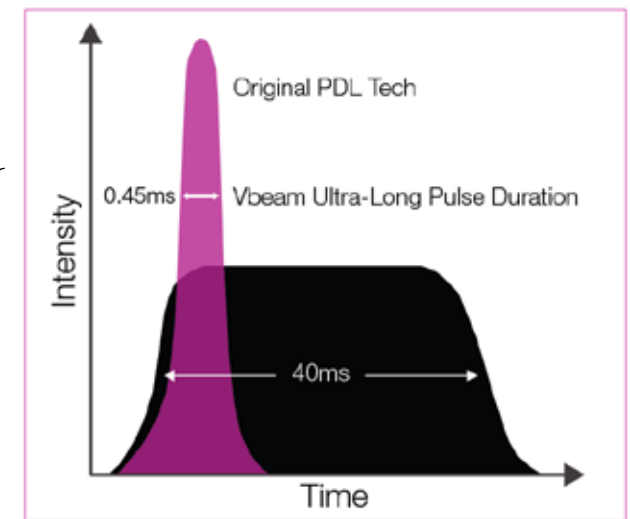
3. Treatment of Poikiloderma of Civatte Using a Redesigned Pulsed Dye Laser with a 15 mm Diameter Treatment Spot, Eric F. Bernstein, MD, MSE, et al, Lasers SurgMed. 2018 Nov 27.

Mechanism of action

The Vbeam laser system is a flashlamp-excited pulsed dye laser indicated for dermatological applications. It delivers pulsed laser energy that passes through the dermis and epidermis skin layers and is absorbed by the oxyhaemoglobin in the blood vessels rather than by the surrounding tissue.

The device offers two wavelengths, which means more treatment parameters:

- The proprietary 595 nm wavelength deeply penetrates the skin to reach targeted blood vessels.¹ Its energy is absorbed by oxyhaemoglobin to coagulate and clear vessels with more tolerability and fewer instances of melanin absorption.²
- The 1064 nm wavelength lets you treat blue veins, venous lakes, and wrinkles.³ The Vbeam laser system is a flashlamp-excited pulsed dye laser indicated for dermatological applications. It delivers pulsed laser energy that passes through the dermis and epidermis skin layers and is absorbed by the oxyhaemoglobin in the blood vessels rather than by the surrounding tissue.



1. Woo SH, Ahn HH, Kim SN, Kye YC. Treatment of vascular skin lesions with the variable-pulse 595 nm pulsed dye laser. *Dermatol Surg.* 2006;32(1):41-48.

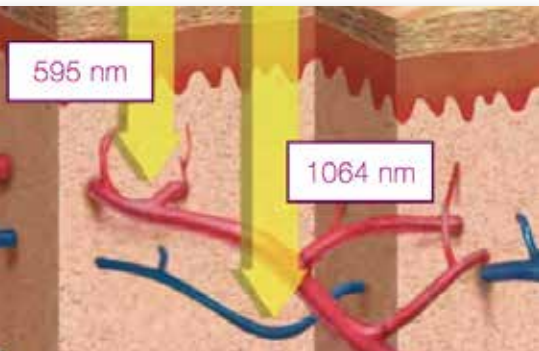
2. Bernstein EF. The pulsed-dye laser for treatment of cutaneous conditions. *G Ital Dermatol Venereol.* 2009;144(5):557-572.

3. Vbeam Prima CE mark.

Product Features

The Vbeam® Prima device offers a variety of new features that will help physicians and their patients achieve better results, including:

- An ideal wavelength (595 nm) for vascular treatments, which allows for deeper skin penetration and vessel clearance by reaching vessels in the reticular dermis as compared to other lasers in its class.
- An additional 1064 nm wavelength that improves the treatment of deep blue veins across the face and body and reduces the appearance of wrinkles.
- Increased maximum fluence and larger spot size, which enables fast and efficient treatment of some of the most popular indications like rosacea, spider veins, and aging due to the sun.
- Capacity to operate across a variety of skin conditions, including spider veins, port wine stains, rosacea, aging due to the sun, inflammatory acne vulgaris, and benign cutaneous lesions (warts, scars, striae, psoriasis).



- Software that keeps track of remaining dye life, providing a graphical indicator to the user and warnings near the end of dye life so replacements can be proactively scheduled.
- Calibration on first use, eliminating the need to calibrate when changing settings between patients/treatments, thus saving treatment time.
- A Zoom handpiece that offers increased convenience and versatile treatment.
- Two types of cooling:
 1. proven, operator-independent Dynamic Cooling Device™ (DCD™) that administers consistent, predictable skin protection;
 2. new EverCool™ technology that keeps skin protected during treatments for vascular and pigmented lesions.

The Vbeam® Prima device is clinically proven to treat existing vascular lesions. Most physicians who use the Vbeam laser recommend integrating it into a patient's regular skincare regimen to ensure that any new vascular lesions are treated as soon as they form.

Rosacea



Baseline



After

Courtesy of Eric F. Bernstein, MD, MSE.

Photos are unretouched. Individual results may vary.

Rosacea



Baseline



Post 1 treatment

Courtesy of Edward Victor Ross, MD.

Photos are unretouched. Individual results may vary.

Rosacea



Baseline



Post 4 treatments

Courtesy of Eric F. Bernstein, MD, MSE.

Photos are unretouched. Individual results may vary.

Telangiectasia



Baseline



Post 3 Treatments

Courtesy of Eric F. Bernstein, MD, MSE.

Photos are unretouched. Individual results may vary.

Telangiectasia



Baseline



Post 3 Treatments

Courtesy of Eric F. Bernstein, MD, MSE.

Photos are unretouched. Individual results may vary.

Telangiectasia



Baseline



Post 3 Treatments

Courtesy of Eric F. Bernstein, MD, MSE.

Photos are unretouched. Individual results may vary.

Telangiectasia



Baseline



Post 1 treatment

Courtesy of Edward Victor Ross, MD.

Photos are unretouched. Individual results may vary.

Pigmentation



Baseline



Post 1 treatment

Courtesy of Edward Victor Ross, MD.

Photos are unretouched. Individual results may vary.

Poikiloderma of Civatte



Baseline



Post 3 Treatments

Courtesy of Eric F. Bernstein, MD, MSE.

Photos are unretouched. Individual results may vary.

Poikiloderma of Civatte



Baseline



Post 3 Treatments

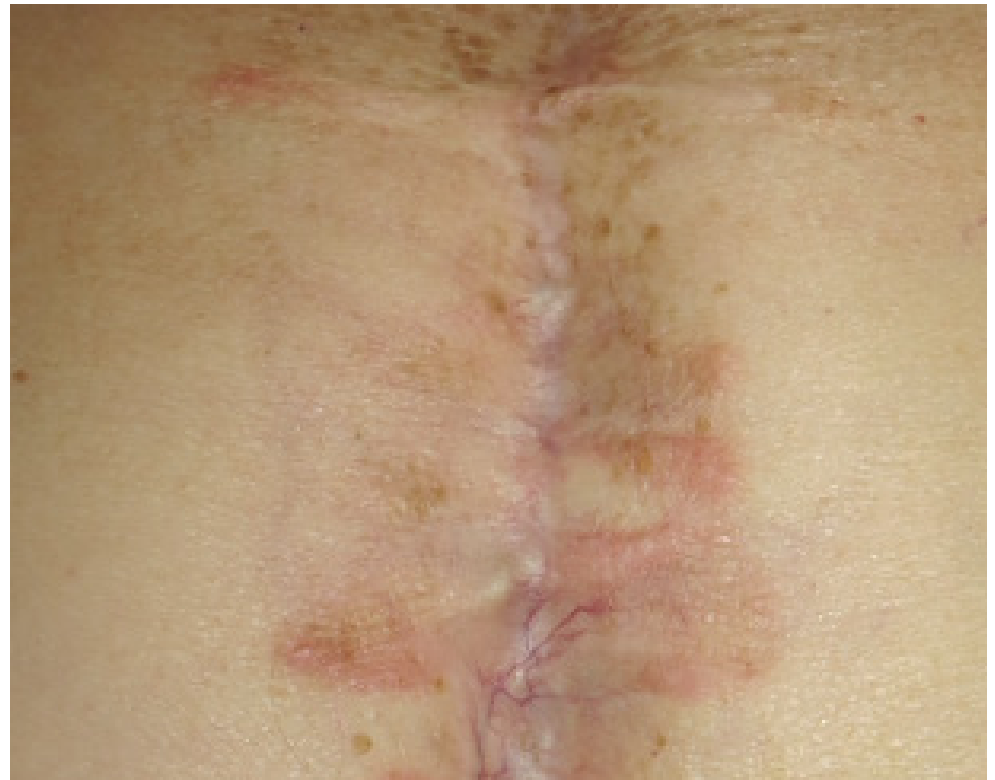
Courtesy of Eric F. Bernstein, MD, MSE.

Photos are unretouched. Individual results may vary.

Keloid Scar



Baseline



After

Courtesy of Daniel Nieto Rodríguez, MD.

Photos are unretouched. Individual results may vary.

Wart



Baseline



After

Courtesy of Daniel Nieto Rodríguez, MD.

Photos are unretouched. Individual results may vary.

Don't take our word. Take it from our customers.



"Vbeam, with its versatility and proven results, is the most used laser in my practice; in fact, we own 3 of them! I highly recommend Vbeam to any practice, especially those starting out, as an essential and foundational laser."

Thomas E. Rohrer, MD.

Dermatologist at SkinCare Physicians Chestnut Hill, Massachusetts, USA



"As a plastic surgeon, I never realized how essential a good laser would be for my practice. We use the Vbeam system all day, from post-injection purpura and post-operative scar therapy to rosacea, acne, and skin maintenance. Patients know and love our Vbeam device."

David Shafer, MD, FACS.

Owner of Shafer Plastic Surgery & Laser Center New York, New York, USA



"The broad range of indications for pulsed-dye laser is so extensive, well tolerated, and provides clinically proven results. We find that in our clinical practice the Vbeam lasers are used all day long."

"My recommendation of the Vbeam is based upon consistency and clinically proven results. And a broad range of indications where the treatment simply works. It works extremely well. I recommend the Vbeam for a number of reasons. One, it's designed to be extremely safe to use. Two, the results are very consistent. Three, the results are proven time and time again. Four, there's just broad acceptance for so many indications."

Roy Geronemus, MD.

Director of the Laser & Skin Surgery Center of New York, New York, USA

Don't take our word. Take it from our customers.



"With the Vbeam Perfecta, a clinician can also address many pigmented lesions in addition to vascular concerns. Having the ability to treat both vascular and pigmentary changes makes it a versatile instrument."

Jerome Garden, MD.

Dermatologist, Chicago, Illinois, USA



"When you ask what single feature I prefer in the new Vbeam Prima device, it is difficult to give a quick answer. There are so many new features that collectively result in better, faster treatments. Once daily calibration of the device on first use with a wavelength means that patients do not experience any delays once treatments have started resulting in a more relaxed session. Additionally, I can now combine 595nm Pulsed Dye Laser with 1064nm Nd:YAG, allowing me to treat both superficial vessels and deeper vessels successfully."

"The new release has caused considerable excitement, but does it live up to its promise? According to Dr Firas al-Niimi, the answer is a resounding yes. "The Perfecta energy was sufficient, but increased energy in Vbeam Prima, coupled with a larger maximum spot-size (15mm compared to 12mm) results in faster, easier treatments. Additionally, the ability to choose contact cooling enables me to get a comfortable treatment of surface pigment, and in the same treatment session I can now combine 595nm Pulsed Dye Laser with 1064nm Nd:YAG, allowing me to treat both superficial vessels and deeper vessels successfully."

Firas al Naimi, MD.

Dermatologist, London, UK

Don't take our word. Take it from our customers.



"In my laser practice, there isn't a day that goes by where I don't use Vbeam. It's really a workhorse laser at our practice."

Brian Zelickson, MD.

Dermatologist, Minneapolis, Minnesota, USA



"In a given day, we might treat patients with rosacea, we can treat patients with the blood vessels and spider veins. We can even treat patients with warts. There are certain settings you can use for warts. [Vbeam] is an excellent option for reducing the pinkness on scars, and other issues, other lesions like stretchmarks."

Gilly Munavalli, MD.

Dermatologist, Charlotte, North Carolina, USA



"The Vbeam Prima is a tremendous leap in technology. A lot of times we'll see devices come out and there's an incremental improvement, it's like, okay. This is a completely redesigned laser. I mean it is really a new generation."

Eric Bernstein, MD.

Dermatologist, Ardmore, Pennsylvania, USA

Summary of peer-reviewed articles

The Efficacy of Pulsed Dye Laser Pretreated With or Without Local Anesthetic on Patients Presenting With Erythema of Face, Neck, Chest, and Extremities

Chunharas C, Boen M, Alhaddad M, Wu DC. Lasers Surg Med. 2020 Apr;52(4):307-314.

STUDY DETAILS

- Retrospective study of 69 subjects with erythema from various skin conditions including telangiectasia, cherry angioma, striae, and rosacea.
- 31 patients (21 females, 10 males; mean age 48.8) were pretreated with topical anesthetics (23% lidocaine / 7% tetracaine ointment or 7% lidocaine / 7% tetracaine ointment) before PDL (Vbeam Perfecta) therapy, 38 patients (25 females, 13 males; mean age 46.1) had no pretreatment anesthetic.
- Subjects underwent 1 - 6 Vbeam treatments.
- 2 blinded dermatologists evaluated digital photographs for erythema improvement, using a quartile scale (0 = 0%, 4 = 76–100%).

RESULTS

- Mean improvement of 2.2581 in the anesthesia group, 2.2632 in the non-anesthesia group (no significant difference).
- No significant difference between both groups as confirmed by a noninferiority test.

Summary of peer-reviewed articles

A Larger Spot Size Does Enhance Penetration and Efficacy in the Treatment of Port-Wine Stains

Al-Niaimi F. J Cosmet Dermatol 2020 Jun;19(6):1359-1360.

CASE STUDY 1

- A 36-year-old man (Fitzpatrick Skin Type III) with a laser-resistant port-wine stain (PWS) previously had ~6 PDL sessions (maximum spot size of 10 mm).
- 2 treatments with the Vbeam Prima system, using 15 mm spot size, fluence of 6.5 J/cm², pulse duration of 0.45 ms and cryogen cooling (DCD™ 30:20 ms).
- Marked lightening of the PWS with no epidermal injury.

CASE STUDY 2

- A 28-year-old man (Fitzpatrick Skin Type IV) with a laser-resistant PWS previously had 5 PDL sessions with 10 mm spot, 0.45 ms, and fluences up to 9.5 J/cm².
- 2 monthly treatments with the Vbeam Prima system:
Treatment 1: 15 mm spot size, fluence of 6.5 J/cm², pulse duration of 0.45 ms and contact cooling handpiece on the colder mode;
Treatment 2: 12 mm spot size, fluence of 7.5 J/cm², pulse duration of 0.45 ms and contact cooling handpiece on the colder mode.
- Laser-resistant PWS improvement following the 2 sessions.

Summary of peer-reviewed articles

Treatment of Erythematotelangiectatic Rosacea With Pulsed-Dye Laser and Oxymetazoline 1.0% Cream: A Retrospective Study

Suggs AK, Macri A, Richmond H, Munavalli G, Friedman PM. Lasers Surg Med. 2020 Jan;52(1):38-43.

STUDY DETAILS

- Retrospective study of 31 subjects (20 females, 11 males; mean age 51 ± 13 years) with erythematotelangiectatic (ET) rosacea.
- Pre- and post-treatment cross-polarized images from subjects on combination treatment with PDL and oxymetazoline 1.0% cream were graded by a board-certified dermatologist at each practice
- Blinded images were analyzed using the Clinical Erythema Assessment (CEA) Scale (0 = clear and 4 = severe).
- Unblinded images were analyzed using a 5-point Telangiectasia Scale to determine the degree of improvement post-treatment compared with baseline (1 = <5% clearance and 5 = 75-100% clearance).

RESULTS

- 55% of subjects improved by at least 1 CEA grade and 13% by 2 grades of improvement.
- 62% of subjects showed at least moderately clear results (25-50%) for telangiectasias.
- Subjects with more severe baseline erythema (i.e., the CEA Grade 3-4 group) showed significantly greater erythema improvement post-treatment

Summary of peer-reviewed articles

Pulsed dye laser treatment of port-wine stains in infancy without the need for general anesthesia

Jeon H, Bernstein LJ, Belkin DA, Ghalili S, Geronemus RG. JAMA Dermatol. 2019 Mar 13.

STUDY DETAILS

- Retrospective review of **197** infants (73 boys, 124 girls), mean age of first treatment 3.38 months (range, 5-355 days) with Fitzpatrick Skin Types I –VI, treated for port-wine stains.
- **Vbeam Perfecta** (595-nm PDL) parameters (determined by PWS location): spot size 10 to 12 mm, fluence 6.5 to 9.0 J/cm² and pulse duration of 0.45 to 1.5 ms.
- Mean number of treatments was 9.8 (range 2-23, mean interval of 37.29 days). **Topical or general anesthesia was not administered.**
- Independent grading by 4 physicians of clinical photography (before and 1 year after the initial treatment), using a 5-point scale: poor (0%-25%), fair (26%-50%), good (51%-75%), excellent (76%-99%), and complete (100%) clearance

RESULTS

- **67% of all patients** showed >75 to 100% improvement.
- Mean grade for all patients was 3.65±1.26, corresponding to **excellent clearance.**
- **None** of the patients experienced **scarring or permanent pigmentary change.**
- All of the patients with darker Fitzpatrick Skin Types (IV - VI) did well, without any significant complications.

Summary of peer-reviewed articles

Pulsed-dye laser as an adjuvant treatment for papulopustular eruptions from epidermal growth factor receptor inhibitors, a randomized blinded split-faced controlled trial

Rerknimitr P, Suphankong Y, Panchaprateep R, et al. Lasers Surg Med. 2019 Mar 7.

STUDY DETAILS

- 14 subjects (8 males, 6 females; mean age 50±10.8 years) with **facial acneiform eruptions due to EGFRi** were enrolled. Subjects continued with EGFRi therapy during the study.
- A randomized side of the face was treated with 595nm-PDL (Vbeam Perfecta), while the contralateral side served as a control.
- Subjects received 4 treatments (at 2-week intervals): 10-mm spot size, 6-ms pulse width and fluence of 7 J/cm² for Fitzpatrick Skin Type IV and 7.5 J/cm² for skin type III.
- Treatment was assessed by erythema index (EI) measured by colorimeter, papulopustular lesion count and physician global assessment (PGA).

RESULTS

- In the laser-treated side, the mean EI decreased from a mean **23.5** at baseline to **16.3** at week 10.
- **Statistically significant improvement** was observed in the PDL arm after 4 weeks and onward.
- Mean **lesion count decreased significantly** from 58.07 at baseline to 15.9 at week 10.
- Higher patient satisfaction in the PDL arm.
- Side effects limited to mild erythema.
No post-inflammatory hyperpigmentation observed.

Summary of peer-reviewed articles

Treatment of poikiloderma of Civatte using a redesigned pulsed dye laser with a 15 mm diameter treatment spot

Bernstein EF, Schomacker K, Paranjape A, Jones CJ. Lasers Surg Med. 2018 Nov 27.

STUDY DETAILS

- 17 subjects (10 females, 7 males; mean age 55±4 years, range 47-61 years; Fitzpatrick Skin Types I-IV) with Poikiloderma of Civatte (POC) completed the study.
- **Vbeam Prima** parameters for 4 monthly treatments:
 - 15mm with mean fluence 5-5.7 J/cm², pulse repetition rate of 1.5 Hz, 1.5 ms pulse duration;
 - DCD™ cooling (40ms cooling/20ms delay).
- 3 blinded physician reviewers graded improvement on a 11-point scale from 0 to 100% improvement in 10% increments.

RESULTS

- Blinded evaluation success rate of **94%** (16/17 post-treatment images correctly identified).
- **Significant improvement (P<0.0001)** with mean score of 4.9, corresponding to 49.2% improvement.
- No or mild transient erythema, purpura or edema following treatment.
- **No hypo-/hyperpigmentation or scarring.**

Summary of peer-reviewed articles

The application of 595-nm pulsed dye laser for vascular anomalies in a Chinese population: a 10-year experience

Lin MY, Lin CS, Hu S, et al. J Cosmet Laser Ther. 2018 Jul 27.

STUDY DETAILS

- 431 Chinese patients (259 females and 172 males; Fitzpatrick Skin Types III–IV) with 8 different types of vascular anomalies were treated with 595-nm PDL (Vbeam Perfecta) – see Table below.
- Independent evaluation by 2 dermatologists, using an Investigator Global Assessment (IGA) 5-point scale of score 1=0%, no improvement to score 5=75–100%, excellent improvement.

RESULTS

- Improvements were significantly correlated with infantile hemangioma (IH) subtypes.
- Significant correlation between efficacy and lesion color, anatomical sites, and hypertrophic-type port-wine stain (PWS) was found ($p < 0.05$). No significant correlation between efficacy and age or sex ($p > 0.05$).
- Pigmentary changes occurred with IH and PWS lesions only.

	Parameters				Session (Mean $\pm$ SD)	Excellent improvement		Good-to-excellent improvement	
	Spot size (mm)	Pulse duration (ms)	Fluence (J/ cm ²)	IGA Score (Mean $\pm$ SD)		Percentage (%)	Session (Mean $\pm$ SD)	Percentage (%)	Session (Mean $\pm$ SD)
IH	7	0.45–3	7–15	4.35 $\pm$ 1.05	4.54 $\pm$ 2.93	66.67	5.22 $\pm$ 3.13	79.23	5.00 $\pm$ 3.05
PWS	7	0.45–6	8–15	3.50 $\pm$ 1.31	5.61 $\pm$ 3.27	33.81	6.89 $\pm$ 3.17	51.08	6.56 $\pm$ 3.28
Telangiectasia	7	10	8.5–11.5	4.58 $\pm$ 0.69	2.89 $\pm$ 1.73	68.42	3.46 $\pm$ 1.81	89.47	3.06 $\pm$ 1.75
Solitary angioma	3	1.5	12.5–20.75						
	7	1.5–3	8.25–12.5	4.91 $\pm$ 0.29	2.31 $\pm$ 1.87	90.74	2.43 $\pm$ 1.93	100	2.31 $\pm$ 1.87
Spider nevi	3	1.5	12–15	4.42 $\pm$ 0.76	2.04 $\pm$ 1.00	55.69	2.60 $\pm$ 0.91	84.61	2.23 $\pm$ 0.97

Summary of peer-reviewed articles

Angiographic optical coherence tomography imaging of hemangiomas and port wine birthmarks

Waibel JS, Holmes J, Rudnick A, et al. Lasers Surg Med. 2018 Mar 22.

STUDY DETAILS

- 49 subjects (21 hemangioma subjects and 28 PWB subjects), ranging from 3 months – 73 years old, and Fitzpatrick Skin Types I-V were enrolled.
- Blood vessel depth and diameter was evaluated with optical coherence tomography (OCT).
- Treatments with 595nm-PDL (Vbeam Perfecta): 7-10 millimeter spot size; fluence 7.0 – 9.5 J/cm², pulse duration 1.5 – 10 msec, and 30/20 – 20/10 cooling).

RESULTS

- OCT images revealed that the blood vessel patterns in vascular lesions appeared dramatically different from that seen in normal skin.
- Highly heterogeneous blood vessel patterns with vessel diameters ranging from 20 to 160 µm.
- Largest vessels in the range 120 to 160 µm diameter were mainly at 0.50 millimeter depth.
- PWB tended to have larger vessel diameters than hemangiomas but not necessarily higher density.
- Vascular OCT may be used to give information to individualize laser settings.

Summary of peer-reviewed articles

Pulsed Dye Laser Treatment of Rosacea using a Novel 15mm Spot Size

Bernstein EF, et al. Lasers Surg Med. Lasers Surg Med. 2018 Apr 10.

STUDY DETAILS

- 19 subjects (16 females, 3 males; mean age 52 years, range 36-69 years; Fitzpatrick Skin Types II-IV) with rosacea (primarily moderate to severe) were treated with 595nm pulsed dye laser.
- Vbeam Prima parameters:
 - Linear vessels: 3x10 mm spot size with fluence 15 J/cm² and 40ms pulses;
 - Full face diffuse redness: 15mm with fluence range 6.25-7 J/cm² and 3ms pulse duration;
 - DCD cooling (40ms cooling/20ms delay).
- 3 (n= 2 subjects) or 4 treatments (n=17 subjects) administered at 4-week intervals.
- 3 blinded investigators graded rosacea on a 11-point scale of from 0 to 100% improvement in 10% increments.

RESULTS AT 2 MONTHS AFTER FINAL TREATMENT

- Blinded evaluation success rate of **96.5%** (55/57 post-treatment images correctly identified).
- **84.2%** (16/19 subjects) had >40% improvement.
- No hypo-/hyperpigmentation or scarring.

Summary of peer-reviewed articles

Treatment of post-pulsed dye laser purpura with pulsed dye laser

Chang YC, Lee SJ, Chung HJ. J Cosmet Laser Ther. 2018 Feb;20:21-23.

CASE STUDY DETAILS

- 3 Asian subjects with 585 nm PDL-induced purpura after treatment of acne erythema.
- Treated with 595 nm Vbeam laser at 3 days (Figure - case 1), 2 days (case 2) or same day (case 3) following PDL-induced purpura.
- All patients had clinically-significant improvement following 1 or 2 Vbeam treatments with 595nm.
- Treatment with 595nm PDL, which targets hemoglobin and its breakdown products, after initial PDL treatment may reduce post-PDL purpura & speed the resolution of purpura.



Figure. Top - Before 1 treatment with 10mm spot size, 6 ms pulse duration, 7.5 J/cm² fluence. Lower – 4 days post-treatment.

Summary of peer-reviewed articles

Effects of Early Combinatorial Treatment of Autologous Split-Thickness Skin Grafts in Red Duroc Pig Model Using Pulsed Dye Laser and Fractional CO₂ Laser

Bailey JK, Blackstone BB, DeBruler DM, et al. Lasers Surg Med 2018 Jan;50(1):78-87.

STUDY DETAILS

- 8 female red Duroc pigs (FRDP) received 4 standardized, 1 in. x 1 in. third degree burns that were excised and autografted.
- Wound sites were treated as follows: fractional CO₂ (CO₂RE laser) at 70mJ setting and 396J/cm² fluence, 150 µm spot diameter, 5% fractional coverage; PDL (Vbeam® system) at 5-6J/cm², 10 mm spot size, 0.45ms pulse duration, and DCD 30/20ms or both (PDL followed by fractional CO₂).
- 3 treatments at 4, 8, and 12 weeks post grafting. Grafts receiving no laser therapy served as controls.
- Scar appearance, morphology, size, and erythema were assessed, and punch biopsies collected at weeks 4, 8, 12, and 16.

RESULTS AT WEEK 16 AFTER 3 TREATMENTS

- Treatment with PDL, FX CO₂, or PDL + FX CO₂ resulted in significantly less contraction versus skin. graft only controls. No statistically significant difference among laser therapy groups.
- Scars treated with the CO₂RE laser were visually smoother and contained significantly fewer wrinkles.
- Hyperpigmentation was significantly reduced in scars treated with the CO₂RE laser.

Summary of peer-reviewed articles

Nd:YAG and pulsed dye laser therapy in infantile haemangiomas: a retrospective analysis of 271 treated haemangiomas in 149 children

Hartmann F, Lockmann A, Grönemeyer LL, et al. J Eur Acad Dermatol Venereol. 2017 Aug;31:1372-1379.

STUDY DETAILS

- 271 IH in 149 infants (107 females & 42 males; median age 24 weeks, range 1-533 weeks) were treated with Nd:YAG and PDL (n:187, 69%) or PDL alone (n:84, 31%).
- Treatment parameters:
- 1064-nm Nd:YAG laser (**GentleYAG®**): 6-mm spot diameter, fluence 90 - 170 J/cm², 50-ms pulse duration, epidermal cooling with 30 ms duration/ 60-ms delay;
- 595-nm PDL (**Vbeam**): 7-mm spot diameter, fluence 9 - 14 J/cm², 3-ms pulse duration and DCD cooling with 30-ms duration/10-ms delay.
- 3 physicians independently evaluated IH remission based on clinical photographs at baseline and 4–6 weeks after the last treatment.
- Remissions were categorized as 0–25% (I), 26–50% (II), 51–75% (III) and 76–100% (IV).

RESULTS AT 4-6 WEEKS AFTER FINAL TREATMENT

- Moderate or strong (III/IV) improvement was observed in 92.4% of all IH treated.
- No serious adverse effects were observed.

Summary of peer-reviewed articles

Safety and Efficacy Evaluation of Pulsed Dye Laser Treatment, CO₂ Ablative Fractional Resurfacing, and Combined Treatment for Surgical Scar Clearance

Cohen JL, Geronemus R. J Drugs Dermatol. 2016 Nov 1;15(11):1315-1319.

STUDY DETAILS

- 25 healthy subjects (15 males, 10 females; mean age 61 years) with Mohs surgical scarring.
- Randomized to treatment arms: 3-4 CO₂RE laser treatments, Vbeam pulsed dye laser treatments or combined treatments following suture removal.
- Investigator assessments of Vancouver Scar Scale (VSS).

RESULTS AFTER TREATMENT

- 83% significant improvement response rate on VSS with CO₂RE treatments.
- 100% response rate on VSS with combined treatments.
- CO₂RE treatments showed greater improvement with pigmentation, while Vbeam treatments improved vascularity.
- Combined treatments potentially have a synergistic effect and an accelerated outcome on the cosmesis of recent surgical scars.

Summary of peer-reviewed articles

Successful treatment of two pediatric port wine stains in darker skin types using 595 nm laser

Bae YS, Ng E, Geronemus RG. Lasers Surg Med. 2016 Apr;48(4):339-42..

CASE REPORT 1

- 1-month old Fitzpatrick Skin Type V patient (African descent) with a PWS on the upper lip.
- Vbeam treatment: 10% overlapping pulses, 10mm spot size, 7.5 J/cm², pulse duration 1.5 ms, and dynamic cooling spray (DCD™) duration of 30 ms.
- Cold hydrogel dressings were applied immediately after each treatment.
- Complete resolution after 3 monthly treatments and no complications.

CASE REPORT 2

- 4 year old Fitzpatrick Skin Type V patient (African descent) with a PWS on the right side of the forehead and glabella.
- Vbeam treatment: 10% overlapping pulses, 10mm spot size, 7–8.25 J/cm², pulse duration 1.5 ms, and dynamic cooling spray of 30 ms.
- Cold hydrogel dressings were applied immediately after each treatment.
- Complete resolution after 2 treatments and no complications.

Summary of peer-reviewed articles

Prospective comparison treatment of 595-nm pulsed-dye lasers for virgin port-wine stain

Yu W, Ma G, Qiu Y, Chen H, et al. Br J Dermatol. 2015 Mar.

STUDY DETAILS

- 22 subjects with PWS treated on adjacent sites by both Vbeam and Cynergy 595nm PDL devices.
- Vbeam parameters: radiant exposure of 11 J/cm², 1.5 ms pulse duration, 7 mm spot size, DCD cooling (30 ms cooling/20 ms delay).
- Cynergy® (Cynosure Corp) parameters: radiant exposure of 11 J/cm², 2 ms pulse duration, 7 mm spot size, cold-air cooling system of level three.
- 3 treatments on both sites.
- Chromameter and visual assessment at 2-months post treatment.

RESULTS

- Average blanching rate was statistically higher for Vbeam sites (36.4%) compared to Cynergy sites (21.24%).
- No scarring or permanent pigmentation change.

Summary of peer-reviewed articles

Efficacy of 595nm pulsed dye laser therapy for Mibelli angiokeratoma

Su Q, Lin T, Wu Q, Wu Y, Guo L, Ge Y. J Cosmet Laser Ther. 2015 Feb.

STUDY DETAILS

- 50 patients with Mibelli angiokeratoma (cutaneous lesion of capillaries).
- Vbeam parameters: pulse duration of 10ms, spot size of 7 mm, energy fluency 12-13.5 J/cm² with 10% overlapping pulses and DCD cooling.
- Up to 4 treatments repeated at intervals of 4-6 weeks until the lesion was cleared, or the patients discontinued the treatment.
- Investigator and subject assessment at ~3 months after treatment, using a 4-point scale: no change or mild improvement, 0 – 30%; moderate improvement, 30 – 60%; significant improvement, 60 – 95% and fully recovered, 95 – 100%.

RESULTS AT 3 MONTHS AFTER FINAL TREATMENT

- 92% of lesions had at least moderate improvement to full clearance.
- 80% showed significant or full clearance.
- Most common skin effect was purpura and edema, which usually lasted for 12h to several days.
- Temporary pigment changes were not commonly seen after treatment.
No scarring or skin atrophy was observed.



Figure 1. Before treatment.



Figure 2. After one treatment.

Summary of peer-reviewed articles

Treatment of the skin manifestations of hereditary hemorrhagic telangiectasia with pulsed dye laser

Halachmi S, Israeli H, Ben-Amitai D, Lapidoth M. Lasers Med Sci. 2014 Jan.

STUDY DETAILS

- 8 patients (5 males, 3 females, Fitzpatrick Skin Type II-IV) with cutaneous facial lesions of hereditary hemorrhagic telangiectasia (HHT).
- Vbeam parameters: pulse duration of 10ms, spot sizes of 5-7 mm, energy fluency 9.5-11 J/cm², 1.5msec pulses and DCD cooling (30msec spray/20msec delay).
- All lesions received 2 stacked pulses during treatment.
- Treatments repeated at 3-month intervals until satisfactory clinical improvement achieved.
- 2 independent physicians graded photographs, using a 5-point scale.

RESULTS

- All patients exhibited excellent (75-100%) clearance after a mean of 2.6 treatments (range 1-8).
- In comparison, a control group of patients with non-HHT facial telangiectasia required a mean of 1.9 (range 1-5; p< 0.05) treatments.
- No adverse events were reported in either group.

Summary of peer-reviewed articles

Treatment of port-wine stains with flash lamp pumped pulsed dye laser on Indian skin: a six year study

Thajudheen CP, Jyothy K, Priyadarshini A. J Cutan Aesthet Surg. 2014 Jan.

STUDY DETAILS

- 75 patients (44 females, 31 males, age range 8 months to 43 years, Fitzpatrick Skin Type IV&V) with PWS underwent multiple (6-17) treatments at monthly intervals.
- Vbeam parameters: spot sizes 7-10mm, energy fluency 6-12 J/cm², 0.45-10ms pulses, single pass with 10% overlapping, and DCD™ cooling.
- 2 independent dermatologists graded photographs, using a quartile grading scale.
- Subjects followed up at 6 monthly intervals to observe re-darkening of PWS.

RESULTS

- All patients who had at least 6 treatments showed improvement.
- 70% of pediatric subjects and 50% of adults had a grade 3 response (61-80% clearance) after 8-10 treatments.
- No re-darkening of PWS during the study.
- Lesions over the face cleared better than other areas.
- PWS in children <5 years of age responded faster than adults due to thinner lesions that were bright pink in color.
- Erythema, edema and crusting lasted 5-7 days. No major side effects.
- Post inflammatory hyperpigmentation (n=19 cases, 30%) resolved by 1-2 months.

Summary of peer-reviewed articles

Rosacea treatment using the new-generation, high-energy, 595 nm long pulse-duration pulsed-dye laser

Bernstein EF, Kligman A. Lasers Surg Med. 2008 Apr.

STUDY DETAILS

- 20 subjects (18 females, 2 males with Fitzpatrick Skin Types I-III) with rosacea were treated.
- Vbeam parameters for linear vessels: elliptical spot size 3x10mm, energy fluency 17-19 J/cm², 40ms pulses, and DCD™ cooling (40ms cooling/20ms delay).
- Entire face was then treated with Vbeam parameters: 12mm spot size, 6-7 J/cm², 3ms pulses, and DCD cooling (40ms cooling/20ms delay).
- 4 treatments administered at 4-week intervals.
- Investigators graded rosacea on a 0 (no rosacea) - 6 (severe rosacea) scale.
- Blinded assessment of photos, using a 5-point scale of 0=no improvement to 4=76-100% improvement

RESULTS AT 8 WEEKS AFTER FINAL TREATMENT

- Rosacea scores decreased significantly after 4th treatment and at follow-up ($p < 0.001$).
- 79% of paired images showed overall improvement by blinded assessment.
- No hypo-/hyperpigmentation or scarring.

PRODUCT SPECIFICATIONS

Laser wavelengths	› PDL: 595 nm › Nd:YAG laser: 1064 nm
Laser pulse repetition rate	› PDL: Up to 1.5 Hz › Nd:YAG laser: Up to 10 Hz
Laser pulse duration	› PDL: 0.45-40 ms › Nd:YAG laser: 0.5-60 ms
Maximum pulse energy	› PDL: 12 J › Nd:YAG laser: 45 J
Method of optical output	Lens-coupled optical fiber with user-selectable spot sizes
Networking method	Wi-Fi
Dimensions (H x W x D)	53 x 20 x 33 in / 135 x 51 x 84 cm
Weight	280 lbs / 127 kg
Electrical requirements	200-240 VAC, 24 A max, 50/60 Hz, single phase
Cooling methods	Dynamic Cooling Device (DCD) and EverCool contact cooling

Dynamic Cooling Device (DCD)

Integrated controls, cryogen container, and handpiece with distance gauge

Cryogen	HFC 134a
DCD spray duration	User-adjustable range: 0-100 ms
DCD delay duration	User-adjustable range: 10-150 ms
DCD post-spray duration	User-adjustable range: 0-50 ms
Beam spot sizes	› 3-15 mm Zoom handpiece › 3 x 10 mm › 1.5 mm

EverCool contact cooling

User-controlled, adjustable sapphire cooling tip for use pre, during, and post pulse

Temperature range	10°C-20°C
Beam spot size	3-15 mm Zoom handpiece

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