

Corporate Medical Policy

Laser Treatment of Port Wine Stains

File Name: laser_treatment_of_port_wine_stains
Origination: 9/2010
Last Review: 8/2024

Description of Procedure or Service

Port wine stains are common vascular malformations that start as pink macules and, if untreated, tend to become darker and thicker over time. They usually occur on the face and neck, but can be located elsewhere on the body. Laser treatment is proposed; several types of lasers are available including pulsed dye lasers, intense pulsed light (IPL), Alexandrite and Nd:YAG lasers.

Background

Port wine stains are the most common of the vascular malformations, affecting approximately 3 in 1000 children. They are composed of networks of ectatic vessels and primarily involve the papillary dermis. Unlike many other birthmarks, port wine stains do not resolve spontaneously. In contrast, they typically begin as pink macules and become redder and thicker over time due to decreased sympathetic innervation. The depth of the skin lesions ranges from about 1 to 5 mm. Port wine stains are generally located on the face and neck, but can occur in other locations such as the trunk or limbs.

Prior to the availability of laser treatment in the 1980s, there were no effective therapies for port wine stains. A laser is a highly focused beam of light that is converted to heat when absorbed by pigmented skin lesions. Several types of lasers have been used to treat port wine stains. Currently, the most common in clinical practice is the pulsed dye laser (PDL) which uses yellow light wavelengths (585-600nm) that selectively target both oxyhemoglobin and deoxyhemoglobin. Pulsed dye lasers penetrate up to 2 mm in the skin. Newborns and young children, who have thinner skin, tend to respond well to this type of laser; the response in thicker and darker lesions may be lower. Other types of lasers with greater tissue penetration and weaker hemoglobin absorption are used for hypertrophic and resistant port-wine stains. In particular, alternatives to the pulsed-dye laser are the long-pulsed 1064 nm Nd: YAG and 755 nm pulsed Alexandrite lasers. The 1064 nm Nd:YAG laser requires a substantial amount of skill to use to avoid scarring. Carbon dioxide and argon lasers are relatively non-selective; they were some of the first lasers used to treat port wine stains, but were associated with an increased incidence of scarring and are not currently used frequently in clinical practice to treat port wine stains. Intense pulsed light (IPL) devices emit polychromatic high-intensity pulsed light. Pulse duration is in the millisecond range and devices use an emission spectrum ranging from 500 to 1400 nm. Compared to other types of lasers, IPL devices both include the oxyhemoglobin selective wavelengths emitted by PDL systems and longer wavelengths that allow deeper penetration into the dermis.

Regulatory Status

Several laser systems have been cleared for marketing by the U.S. Food and Drug Administration (FDA) through the 510(k) process for a variety of dermatologic indications, including treatment of port wine stains. Approved lasers for this indication include the Candela® pulsed-dye laser system (Candela Corp.; Wayland, MA), the Cynosure Photogenica® pulsed-dye laser (Cynosure Inc; Westford, MA) and the Cynosure Nd:YAG laser system. In addition, the Cynergy™ Multiplex Laser (Cynosure), a combined Nd:YAG and pulsed dye laser was approved by the FDA in 2005 for treatment of benign vascular and vascular dependant lesions, including port wine stains.

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In 2003, the Lumenis® family of intense pulsed light systems was approved by the FDA; indications for use include dermatological applications. Subsequently, the NannoLight® intense pulsed light system (Global USA Distribution) was approved by the FDA in 2008 and the Mediflash3 and Esterflash3 systems (Dermeo) were approved in 2010 for indications specifically including treatment of port wine stains.

Related Policy:

Cosmetic and Reconstructive Surgery

*****Note: This Medical Policy is complex and technical. For questions concerning the technical language and/or specific clinical indications for its use, please consult your physician.**

Policy

Pulsed Dye Laser Treatment of port wine stains may be considered medically necessary when the medical criteria and guidelines outlined below are met.

Treatment of port wine stains with pulsed dye lasers in combination with photodynamic therapy or topical angiogenesis inhibitors is considered investigational. BCBSNC does not provide coverage for investigational services or procedures.

Carbon Dioxide (CO₂) lasers for treatment of port wine stains is considered investigational. BCBSNC does not provide coverage for investigational services or procedures.

Benefits Application

This medical policy relates only to the services or supplies described herein. Please refer to the Member's Benefit Booklet for availability of benefits. Member's benefits may vary according to benefit design; therefore member benefit language should be reviewed before applying the terms of this medical policy.

When Pulsed Dye Laser Treatment of Port Wine Stains is covered

Pulsed Dye Laser treatment is covered for port wine stains on the head and/or neck for members age 18 or younger.

Pulsed Dye Laser treatment is covered for port wine stains on the head and/or neck for members over age 18 when associated with recurrent bleeding, infection, pain or ulceration, or when there is documented evidence of physical functional impairment.

Pulsed Dye Laser treatment is covered for port wine stains on the trunk and extremities for any age when associated with recurrent bleeding, infection, pain or ulceration or when there is documented evidence of physical functional impairment.

When Pulsed Dye Laser Treatment for Port Wine Stains is not covered

Treatment of port wine stains with pulsed dye lasers in combination with photodynamic therapy or topical angiogenesis inhibitors is considered investigational.

Carbon Dioxide (CO₂) lasers for treatment of port wine stains is considered investigational.

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Policy Guidelines

Treatment of port wine stain is not covered when performed solely for the purpose of improving or altering appearance or self-esteem, or to treat psychological symptomatology or psychosocial complaints related to one's appearance. Refer to policy titled "Cosmetic and Reconstructive Surgery".

Studies have generally found that laser treatment can be effective at lightening port wine stains. The preponderance of evidence is on the pulsed-dye laser; there is insufficient evidence from comparative studies that one type of laser results in more lightening than another. There is insufficient evidence that adding topical angiogenesis inhibitor to laser therapy results in better outcomes than lasers alone. There was 1 positive RCT and 1 negative RCT. No comparative studies were identified on lasers combined with any other treatments. Thus, laser treatment may be considered medically necessary in certain situations for patients with port wine stains and combination treatment is considered investigational.

Performance of a prior spot test is necessary to select suitable candidates for treatment and to determine the degree of scarring that may occur.

The size of the lesion may require more than one treatment.

Billing/Coding/Physician Documentation Information

This policy may apply to the following codes. Inclusion of a code in this section does not guarantee that it will be reimbursed. For further information on reimbursement guidelines, please see Administrative Policies on the Blue Cross Blue Shield of North Carolina web site at www.bcsnc.com. They are listed in the Category Search on the Medical Policy search page.

Applicable codes: 17106, 17107, 17108

ICD-10 Diagnosis code subject to medical necessity review: Q82.5

BCBSNC may request medical records for determination of medical necessity. When medical records are requested, letters of support and/or explanation are often useful, but are not sufficient documentation unless all specific information needed to make a medical necessity determination is included.

Scientific Background and Reference Sources

BCBSA Medical Policy Reference Manual [Electric Version]. 7.01.40, 6/10/10
Senior Medical Director Review 8/2010

National Institutes of Health (NIH). Combined Use of Pulsed Dye Laser and Topical Antiangiogenic Agents for Treatment of Port Wine Stain Birthmarks. Clinical trial #NCT00969397. Retrieved on August 3, 2011 from <http://clinicaltrials.gov/ct2/show/NCT00969397>

BCBSA Medical Policy Reference Manual [Electronic Version]. 7.01.40, 6/9/11

Specialty Matched Consultant Advisory Panel review 9/2011

National Institutes of Health (NIH). Treatment of Port Wine Stains in Children With Pulsed Dye Laser and Timolol Gel. Clinical trial # NCT01272609. Retrieved from <http://clinicaltrials.gov/ct2/show/NCT01272609?term=NCT01272609&rank=1>

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BCBSA Medical Policy Reference Manual [Electronic Version]. 7.01.40, 6/14/12

Specialty Matched Consultant Advisory Panel review 9/2012

BCBSA Medical Policy Reference Manual [Electronic Version]. 7.01.40, 6/13/13

Specialty Matched Consultant Advisory Panel review 9/2013

Medical Director review 9/2013

Tremaine AM, Armstrong J, Huang YC et al. Enhanced port-wine stain lightening achieved with combined treatment of selective photothermolysis and imiquimod. *J Am Acad Dermatol* 2012; 66(4):634-41.

Passeron T, Maza A, Fontas E et al. Treatment of port wine stains with pulsed dye laser and topical timolol: a multicenter randomized controlled trial. *Br J Dermatol* 2013.

BCBSA Medical Policy Reference Manual [Electronic Version]. 7.01.40, 6/12/14

Specialty Matched Consultant Advisory Panel review 9/2014

Medical Director review 9/2014

Specialty Matched Consultant Advisory Panel review 9/2015

Medical Director review 9/2015

BCBSA Medical Policy Reference Manual [Electronic Version]. 7.01.40, 11/12/15

Patel A, Chou E, Findeiss L, Kelly K. The Horizon for Treating Cutaneous Vascular Lesions. *Seminars in Cutaneous Medicine and Surgery*. 2012, 31:98-104

Zheng JW, Zhang L, Zhou Q, et al. A practical guide to treatment of infantile hemangiomas of the head and neck. *International Journal of Clinical and Experimental Medicine*. 2013;6(10):851-860.

Medical Director review 11/2016

Specialty Matched Consultant Advisory Panel 8/2020

Specialty Matched Consultant Advisory Panel 8/2021

Medical Director review 8/2021

Specialty Matched Consultant Advisory Panel 8/2022

Medical Director review 8/2022

Specialty Matched Consultant Advisory Panel 8/2023

Medical Director review 8/2023

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Medical Director review 8/2024

Policy Implementation/Update Information

- 12/10/10 New policy implemented. Laser treatment of port wine stains in the presence of functional impairment related to the port wine stain may be considered medically necessary. Treatment with lasers in combination with photodynamic therapy or topical angiogenesis inhibitors is considered investigational. References added. Notice given 9/14/10 for Policy effective 12/21/2010. (mco)
- 8/30/11 Updated Description section. Updated Policy Guidelines. References updated. No changes to policy statements. (mco)
- 10/11/11 Re-worded policy statement to read: “Laser treatment of port wine stains causing functional impairment may be considered medically necessary.” Specialty Matched Consultant Advisory Panel review 9/2011. (mco)
- 12/6/11 “When Covered” section revised. Bullet #1 changed to state: “Lesions located where there is potential compromise or actual compromise, (see numbers 3 and 4 below) of vital structures (e.g. nose, eyes, ears, lips, **tongue** or larynx)” and bullet #3 changed to state: “Lesions which involve the eyelids or periorbital tissue and result in impaired vision or strabismus.” Medical Director review 12/2011. (mco)
- 8/7/12 Policy Guidelines updated. References updated. No changes to Policy Statements. (mco)
- 10/16/12 Specialty Matched Consultant Advisory Panel review 9/2012. No changes to Policy Statements. (mco)
- 7/1/13 ICD-10 diagnosis code added to “Billing/Coding” section. (mco)
- 7/30/13 Description section updated. References updated. No changes to Policy Statements. (mco)
- 10/15/13 Specialty Matched Consultant Advisory Panel review 9/2013. Medical Director review 9/2013. No changes to Policy Statements. (mco)
- 7/1/14 Removed ICD-10 effective date from Billing/Coding section (mco)
- 8/12/14 References updated. Policy Guidelines updated. No changes to Policy Statements. (mco)
- 10/14/14 Specialty Matched Consultant Advisory Panel review 9/2014. Medical Director review 9/2014. No changes to Policy Statements. (mco) (td)
- 10/30/15 Specialty Matched Consultant Advisory Panel review 9/2015. Medical Director review 9/2014. No changes to Policy Statements. (td)
- 1/26/15 References updated. (td)
- 12/30/16 Specialty Matched Consultant Advisory Panel review 9/28/2016. Coverage statement revised to read: Pulsed Dye Laser treatment is covered for port wine stains on the head and/or neck for members age 18 or younger. Pulsed Dye Laser treatment is covered for port wine stains on the trunk and extremities which are associated with

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recurrent bleeding, infection, pain or ulceration or when there is documented evidence of physical functional impairment. Carbon Dioxide (CO₂) lasers for treatment of port wine stains is considered investigational. References updated. (an)

- 7/28/17 Language in the “When Covered” section revised for clarity. Pulsed dye laser treatment is covered for port wine stains on the head and/or neck of members **under age 18**. Pulsed dye laser treatment is covered for port wine stains on the head and/or neck for members **over 18** when associated with recurrent bleeding, infection, pain or ulceration, or when there is documented evidence of physical functional impairment. Pulsed dye laser treatment is covered for port wine stains on the trunk and extremities **for any age** when associated with recurrent bleeding, infection, pain or ulceration, or when there is documented evidence of physical functional impairment. The following statement was added to the “Policy Guidelines” section: Treatment of port wine stain is not covered when performed solely for the purpose of improving or altering appearance or self-esteem, or to treat psychological symptomatology or psychosocial complaints related to one’s appearance. Refer to policy titled “Cosmetic and Reconstructive Surgery”. (an)
- 9/15/17 Specialty Matched Consultant Advisory Panel review 8/30/2017. No change to policy statement. (an)
- 9/7/18 Specialty Matched Consultant Advisory Panel review 8/22/2018. No change to policy statement. (an)
- 9/10/19 Specialty Matched Consultant Advisory Panel review 8/20/2019. No change to policy statement. (eel)
- 9/8/20 Specialty Matched Consultant Advisory Panel review 8/19/2020. Coding and References updated. No change to policy statement. (eel)
- 9/7/21 Specialty Matched Consultant Advisory Panel review 8/2021. Medical Director review 8/2021. (jd)
- 9/13/22 Billing/coding section updated for clarity. References updates. Specialty Matched Consultant Advisory Panel review 8/2022. Medical Director review 8/2022. (tt)
- 8/29/23 References updates. Specialty Matched Consultant Advisory Panel review 8/2023. Medical Director review 8/2023. No change to policy statement. (tt)
- 9/18/24 References updates. Specialty Matched Consultant Advisory Panel review 8/2024. Medical Director review 8/2024. No change to policy statement. (tt)

Medical policy is not an authorization, certification, explanation of benefits or a contract. Benefits and eligibility are determined before medical guidelines and payment guidelines are applied. Benefits are determined by the group contract and subscriber certificate that is in effect at the time services are rendered. This document is solely provided for informational purposes only and is based on research of current medical literature and review of common medical practices in the treatment and diagnosis of disease. Medical practices and knowledge are constantly changing and BCBSNC reserves the right to review and revise its medical policies periodically.