02-99221-16

Original Effective Date 04/15/10

Reviewed: 02/27/25

Revised: 03/15/25

Subject: Interstitial Laser Therapy

THIS MEDICAL COVERAGE GUIDELINE IS NOT AN AUTHORIZATION, CERTIFICATION, EXPLANATION OF BENEFITS, OR A GUARANTEE OF PAYMENT, NOR DOES IT SUBSTITUTE FOR OR CONSTITUTE MEDICAL ADVICE. ALL MEDICAL DECISIONS ARE SOLELY THE RESPONSIBILITY OF THE PATIENT AND PHYSICIAN. BENEFITS ARE DETERMINED BY THE GROUP CONTRACT, MEMBER BENEFIT BOOKLET, AND/OR INDIVIDUAL SUBSCRIBER CERTIFICATE IN EFFECT AT THE TIME SERVICES WERE RENDERED. THIS MEDICAL COVERAGE GUIDELINE APPLIES TO ALL LINES OF BUSINESS UNLESS OTHERWISE NOTED IN THE PROGRAM EXCEPTIONS SECTION.

DESCRIPTION:

Interstitial laser therapy (ILT)/laser interstitial thermal therapy (LITT) is a thermoablative procedure that uses a laser to produce a precise and minimally invasive heat injury to target tissue. This technology has been proposed as a minimally invasive means of treating medically refractive epilepsy, brain tumors that are difficult to access or as an alternative to open craniotomy, and radiation necrosis. The procedure involves placement of a laser probe using either frameless or frame-based stereotactic techniques. In neurological applications, LITT involves the creation of a transcranial burr hole for the placement of the laser probe at the target brain tissue. Probe position, ablation time, and intensity are controlled under MRI guidance.

The U.S. Food and Drug Administration (FDA) have cleared through the 510(k) process several devices (e.g., Novilase® Laser Therapy System, Monteris Medical NeuroBlate™ System, Visualase® Thermal Therapy System) for interstitial irradiation or thermal therapy.

Summary and Analysis of Evidence: There is published medical evidence in the peer-reviewed literature regarding the safety and efficacy of interstitial laser therapy for intracranial (brain) tumors, brain metastases (metastatic brain tumors), glioblastoma, radiation necrosis, epilepsy (drug resistant, refractory, temporal lobe).

Laser interstitial thermal therapy (LITT) is a minimally invasive treatment option for brain tumors including glioblastoma, other primary central nervous system (CNS) neoplasms, metastases, and radiation necrosis. LITT employs a fiber optic coupled laser delivery probe stabilized via stereotaxis to deliver thermal energy that induces coagulative necrosis in tumors to achieve effective cytoreduction. LITT complements surgical resection, radiation treatment, tumor treating fields, and systemic therapy, especially in patients who are high risk for surgical resection due to tumor location in eloquent regions or poor functional status. These factors must be balanced with the increased rate of cerebral edema

post LITT compared to surgical resection. LITT has also been shown to induce transient disruption of the blood-brain barrier (BBB), especially in the peritumoral region, which allows for enhanced CNS delivery of anti-neoplastic agents, thus greatly expanding the armamentarium against brain tumors to include highly effective anti-neoplastic agents that have poor BBB penetration. In addition, hyperthermia-induced immunogenic cell death is another secondary side effect of LITT that opens up immunotherapy as an attractive adjuvant treatment for brain tumors. Numerous large studies have demonstrated the safety and efficacy of LITT against various CNS tumors and as the literature continues to grow on this novel technique so will its indications (Melnick et al 2021).

Radiation necrosis is a well described complication after radiosurgical treatment of intracranial pathologies - best recognized after the treatment of patients with arteriovenous malformations and brain metastases but possibly also affecting patients treated with radiosurgery for meningioma. The pathophysiology of radiation necrosis is still not well understood but is most likely a secondary local tissue inflammatory response to brain tissue injured by radiation. Radiation necrosis in brain metastases patients may present radiographically and behave clinically like recurrent tumor. Differentiation between radiation necrosis and recurrent tumor has been difficult based on radiographic changes alone. Biopsy or craniotomy therefore remains the gold standard method of diagnosis. For symptomatic patients, corticosteroids are first-line therapy, but patients may fail medical management due to intolerance of chronic steroids or persistence of symptoms. In these cases, open surgical resection has been shown to be successful in management of surgically amenable lesions but may be suboptimal in patients with deep-seated lesions or extensive prior cranial surgical history, both carrying high risk for peri-operative morbidity. Laser interstitial thermal therapy has emerged as a viable, alternative surgical option. In addition to allowing access to tissue for diagnosis, thermal treatment of the lesion can also be delivered precisely and accurately under real-time imaging guidance (Hong et al 2020).

POSITION STATEMENT:

Laser interstitial thermal therapy (LITT) with an FDA approved device **meets the definition of medical necessity** for the following:

Laser interstitial thermal therapy (LITT) **meets the definition of medical necessity** in the treatment of epilepsy when the following criteria are met:

- There is documentation of disabling seizures despite use of two or more antiepileptic drug regimens (e.g.., medically refractory epilepsy); **AND**
- There are well-defined epileptogenic foci accessible by LITT.

Laser interstitial thermal therapy (LITT) **meets the definition of medical necessity** in the treatment of brain tumors or radiation necrosis of the brain when the following criteria are met:

- Recurrent or progressive malignant tumor (primary or metastatic); **OR**
- Lesion(s) inaccessible to surgical resection; **OR**
- The member is unable to tolerate surgical resection due to medical comorbidities; **AND**
- The treatment plan for LITT has been agreed upon by a multidisciplinary team of physicians and, after considering all relevant possible treatment approaches, is determined to be the best treatment option; **AND**

- The LITT is being performed by a neurosurgeon who has completed procedure specific training in the use of an FDA approved LITT ablation system.

Laser interstitial thermal therapy (LITT) is considered **experimental or investigational** for all other indications. There is insufficient evidence to support conclusions regarding the effect of laser interstitial thermal therapy (LITT) on health outcomes.

BILLING/CODING INFORMATION:

CPT Coding:

61736	Laser interstitial thermal therapy (LITT) of lesion, intracranial, including burr hole(s), with magnetic resonance imaging guidance, when performed; single trajectory for 1 simple lesion
61737	Laser interstitial thermal therapy (LITT) of lesion, intracranial, including burr hole(s), with magnetic resonance imaging guidance, when performed; multiple trajectories for multiple or complex lesion(s)

REIMBURSEMENT INFORMATION:

Refer to **POSITION STATEMENT**.

PROGRAM EXCEPTIONS:

Federal Employee Program (FEP): Follow FEP guidelines.

State Account Organization (SAO): Follow SAO guidelines.

Medicare Advantage products: No National Coverage Determination (NCD) and/or Local Coverage Determination (LCD) were found at the time of the last guideline reviewed date.

If this Medical Coverage Guideline contains a step therapy requirement, in compliance with Florida law 627.42393, members or providers may request a step therapy protocol exemption to this requirement if based on medical necessity. The process for requesting a protocol exemption can be found at Coverage Protocol Exemption Request.

DEFINITIONS:

No guideline specific definitions apply.

RELATED GUIDELINES:

Cryosurgical Ablation of Solid Tumors Other Than Liver or Prostate Tumors, 02-99221-12
Radiofrequency Ablation of Solid Tumors Other Than Liver Tumors, 02-99221-13

OTHER:

Note: The use of specific product names is illustrative only. It is not intended to be a recommendation of one product over another, and is not intended to represent a complete listing of all products available.

Interstitial laser ablation
Interstitial laser coagulation (ILC)
Interstitial laser therapy (ILT)
Interstitial laser thermotherapy
Kelsey Interstitial Laser Therapy System
Laser interstitial thermal therapy (LITT)
Magnetic Resonance Image-Guided Thermal Therapy System
Magnetic Resonance-Guided Laser Induced Thermal Therapy (MRgLITT)
MRI guided laser interstitial thermal therapy (LITT)

Monteris Medical NeuroBlate™ System
Novilase™ Interstitial Laser Therapy System
Stereotactic laser ablation (SLA)
Visualase® Thermal Therapy System

REFERENCES:

1. Ahluwalia M, Barnett GH, Deng D, et al. Laser ablation after stereotactic radiosurgery: a multicenter prospective study in patients with metastatic brain tumors and radiation necrosis. J Neurosurg. 2018 May 4;130(3):804-811.
2. Ali MA, Carroll KT, Rennert RC, et al. Stereotactic laser ablation as treatment for brain metastases that recur after stereotactic radiosurgery: a multiinstitutional experience. Neurosurg Focus. 2016 Oct;41(4): E11.
3. Alkazemi M, Lo YT, Hussein H, et al. Laser Interstitial Thermal Therapy for the Treatment of Primary and Metastatic Brain Tumors: A Systematic Review and Meta-Analysis. World Neurosurg. 2023 Mar;171:e654-e671. [Abstract]
4. Arocho-Quinones EV, Lew SM, Handler MH, et al. Pediatric Stereotactic Laser Ablation Workgroup, et al. Magnetic resonance-guided stereotactic laser ablation therapy for the treatment of pediatric brain tumors: a multiinstitutional retrospective study. J Neurosurg Pediatr. 2020 Mar 27:1-9.
5. American Society of Clinical Oncology. In-Situ laser ablation of mammographically detected breast cancers (2003).
6. Attiah MA, Paulo DL, Danish SF, et al. Anterior temporal lobectomy compared with laser thermal hippocampectomy for mesial temporal epilepsy: A threshold analysis study. Epilepsy Res. 2015 Sep; 115:1-7. [Abstract].
7. Barnett GH, Voigt JD, Alhuwalia MS. A Systematic Review and Meta-Analysis of Studies Examining the Use of Brain Laser Interstitial Thermal Therapy versus Craniotomy for the Treatment of High-Grade Tumors in or near Areas of Eloquence: An Examination of the Extent of Resection and Major Complication Rates Associated with Each Type of Surgery. Stereotact Funct Neurosurg. 2016;94(3):164-173.
8. Bastos DCA, Fuentes DT, Traylor J, et al. The use of laser interstitial thermal therapy in the treatment of brain metastases: a literature review. Int J Hyperthermia. 2020 Jul;37(2):53-60.

9. Bastos DCA, Rao G, Oliva ICG, et al. Predictors of local control of brain metastasis treated with laser interstitial thermal therapy. Neurosurgery. 2020 Jul 1;87(1):112-122. [Abstract].
10. Bloom K. Pathologic changes after interstitial laser therapy of infiltrating breast carcinoma. American Journal of Surgery. 2001 Oct; 182 (4): 384–388.
11. Blue Cross Blue Shield Association Evidence Positioning System®. 7.01.170 Laser Interstitial Thermal Therapy for Neurological Conditions, 01/25.
12. Brawer MK. Update on the Use of Interstitial Laser Coagulation in the Treatment of Benign Prostatic Hyperplasia. Rev Urol 2005; 7 (Suppl 9): S1–S2.
13. Cabrera A, Kirkpatrick J, Fiveash J, et al. Radiation therapy for glioblastoma: Executive summary of an American Society for Radiation Oncology Evidence-Based Clinical Practice Guideline. Practical Radiation Oncology, July 2016, Volume 6, Issue 4, 217-225.
14. Centers for Medicare & Medicaid Services (CMS). National Coverage Determination (NCD) for Laser Procedures (140.5),05/01/97.
15. de Almeida Bastos DC, Everson RG, de Oliveira Santos BF, et al. A comparison of spinal laser interstitial thermotherapy with open surgery for metastatic thoracic epidural spinal cord compression. J Neurosurg Spine. 2020 Jan 3:1-9.
16. de Franca SA, Tavares WM, Salinet ASM, et al. Laser interstitial thermal therapy as an adjunct therapy in brain tumors: A meta-analysis and comparison with stereotactic radiotherapy. Surg Neurol Int. 2020 Oct 29;11:360.
17. Dick EA, Taylor-Robinson SD, Thomas HC et al. Ablative therapy for liver tumours. Gut 2002 May; 50(5): 733-739.
18. Dowlatshahi K. Interstitial Laser Therapy of Breast Fibroadenomas with 6 and 8 year follow-up. The Breast Journal.2010 Jan-Feb; 16 (1):73–76.
19. Dowlatshahi K. Laser Therapy of Breast Cancer with 3-Year Follow-up. The Breast Journal 2004 May-June; 10(3): 240–243.
20. Eichberg DG, Menaker SA, Jermakowicz WJ, et al. Multiple iterations of magnetic resonance-guided laser interstitial thermal ablation of brain metastases: single surgeon's experience and review of the literature. Oper Neurosurg (Hagerstown). 2020 Aug 1;19(2):195-204. [Abstract].
21. Elder JB, Nahed BV, Linskey ME, et al. Congress of Neurological Surgeons Systematic Review and Evidence-Based Guidelines on the Role of Emerging and Investigational Therapies for the tTeatment of Adults with Metastatic Brain Tumors. Neurosurgery. 2019 Mar 1;84(3):E201-E203.
22. Esmaeili B, Hakimian S, Ko AL, et al. Epilepsy-Related Mortality After Laser Interstitial Thermal Therapy in Patients With Drug-Resistant Epilepsy. Neurology. 2023 Sep 26;101(13):e1359-e1363. [Abstract]
23. Fuchs S, Gebauer B, Stelter L, et al. Postinterventional MRI findings following MRI-guided laser ablation of osteoid osteoma. Eur J Radiol. 2014 Apr;83(4):696-702. [Abstract].
24. Ginalis EE, Danish SF. Magnetic resonance-guided laser interstitial thermal therapy for brain tumors in geriatric patients. Neurosurg Focus. 2020 Oct;49(4): E12.
25. Grewal SS, Alvi MA, Lu VM, et al. Magnetic resonance-guided laser interstitial thermal therapy versus stereotactic radiosurgery for medically intractable temporal lobe epilepsy: a systematic review and meta-analysis of seizure outcomes and complications. World Neurosurg. 2019;122: e32- e47. [Abstract].

26. Hafez DM, Liekweg C, Leuthardt EC. Staged laser interstitial thermal therapy (LITT) treatments to left insular low-grade glioma. Neurosurgery. 2020 Mar 1;86(3): E337-E342.

27. Haraldsdottir K. Interstitial laser thermotherapy (ILT) of breast cancer. European Journal of Curgical Oncology. 2008 July; 34(7): 739-745.

28. Haraldsdóttir KH, Ingvar C, Stenram U et al. Long-term Follow-up After Interstitial Laser Thermotherapy of Breast Cancer. Anticancer Research. 2015 Nov;35(11):6147-52.

29. Hawasli AH, Bagade S, Shimony JS et al. Magnetic resonance imaging-guided focused laser interstitial thermal therapy for intracranial lesions: single-institution series. Neurosurgery 2013 Dec; 73(6):1007-1017.

30. Hernandez RN, Carminucci A, Patel P, et al. Magnetic resonance-guided laser-induced thermal therapy for the treatment of progressive enhancing inflammatory reactions following stereotactic sadiosurgery, or PEIRs, for metastatic brain disease. Neurosurgery 2019 Jul 1;85(1):84-90. [Abstract]

31. Holste KG, Orringer DA. Laser interstitial thermal therapy. Neurooncol Adv. 2019 Dec 16;2(1): vdz035.

32. Hong CS, Beckta JM, Kundishora AJ, et al. Laser interstitial thermal therapy for treatment of cerebral radiation necrosis. Int J Hyperthermia. 2020 Jul;37(2):68-76.

33. Hong CS, Deng D, Vera A, et al. Laser-interstitial thermal therapy compared to craniotomy for treatment of radiation necrosis or recurrent tumor in brain metastases failing radiosurgery. J Neurooncol. 2019 Apr;142(2):309-31.

34. Ierardi AM, Carnevale A, Angileri SA, et al. Outcomes following minimally invasive imagine-guided percutaneous ablation of adrenal glands. Gland Surg. 2020 Jun;9(3):859-866.

35. Jobst BC, Cascino GD. Resective epilepsy surgery for drug-resistant focal epilepsy: a review. JAMA. 2015 Jan 20;313(3):285-93 [Abstract].

36. Kamath AA, Friedman DD, Akbari SHA, et al. Glioblastoma treated with magnetic resonance imaging-guided laser interstitial thermal therapy: safety, efficacy, and outcomes. Neurosurgery. 2019 Apr 1;84(4):836-843.

37. Kamath AA, Friedman DD, Hacker CD, et al. MRI-Guided Interstitial Laser Ablation for Intracranial Lesions: A Large Single-Institution Experience of 133 Cases. Stereotact Funct Neurosurg. 2017;95(6):417-428.

38. Kang JY, Sperling MR. Epileptologist's view: Laser interstitial thermal ablation for treatment of temporal lobe epilepsy. Epilepsy Res. 2018 May;142:149-152. [Abstract].

39. Kaye J, Patel NV, Danish SF. Laser interstitial thermal therapy for in-field recurrence of brain metastasis after stereotactic radiosurgery: does treatment with LITT prevent a neurologic death? Clin Exp Metastasis. 2020 Jun;37(3):435-444. [Abstract].

40. Kerezoudis P, Parisi V, Marsh WR, et al. Surgical outcomes of laser interstitial thermal therapy for temporal lobe epilepsy: systematic review and meta-analysis. World Neurosurg. 2020 Nov; 143:527-536.e3.

41. Kim AH, Tatter S, Rao G, et al. Laser ablation of abnormal neurological tissue using robotic NeuroBlate System (LAANTERN): 12-month outcomes and quality of life after brain tumor ablation. Neurosurgery. 2020 Sep 1;87(3): E338-E346.

42. Kohlhase K, Zöllner JP, Tandon N, et al. Comparison of minimally invasive and traditional surgical approaches for refractory mesial temporal lobe epilepsy: A systematic review and meta-analysis of outcomes. Epilepsia. 2021 Apr;62(4):831-845.
43. Kwan P, Arzimanoglou A, Berg AT, et al. Definition of drug resistant epilepsy: consensus proposal by the ad hoc Task Force of the ILAE Commission on Therapeutic Strategies. Epilepsia. 2010 Jun;51(6):1069-77.
44. Landazuri P, Shih J, Leuthardt E, et al. A prospective multicenter study of laser ablation for drug resistant epilepsy One-year outcomes. Epilepsy Res. 2020 Nov;167: 106473.
45. Laser-induced Interstitial Thermal Therapy for Liver Metastases. SBU Alert Report No 2011-01•2011-03-02.
46. Le S, Ho AL, Fisher RS et al. Laser interstitial thermal therapy (LITT): Seizure outcomes for refractory mesial temporal lobe epilepsy. Epilepsy Behav. 2018 Dec; 89:37-41. [Abstract].
47. Lee I, Kalkanis S, Hadjipanayis CG. Stereotactic Laser Interstitial Thermal Therapy for Recurrent High-Grade Gliomas. Neurosurgery. 2016 Dec;79 Suppl 1:S24-S34.
48. Leuthardt EC, Voigt J, Kim AH et al. A Single-Center Cost Analysis of Treating Primary and Metastatic Brain Cancers with Either Brain Laser Interstitial Thermal Therapy (LITT) or Craniotomy. PharmacoEconomics Open. 2017 Mar;1(1):53-63.
49. Loeffler JS. Overview of the treatment of brain metastases. In: UpToDate, Post TW (Ed), UpToDate, Waltham, MA. (Accessed on April 26, 2021.)
50. Mahammedi A, Bachir S, Escott EJ, et al. Prediction of recurrent glioblastoma after laser interstitial thermal therapy: The role of diffusion imaging. Neurooncol Adv. 2019 Aug 20;1(1): vdz021.
51. Medvid R, Ruiz A, Komotar RJ et al. Current Applications of MRI-Guided Laser Interstitial Thermal Therapy in the Treatment of Brain Neoplasms and Epilepsy: A Radiologic and Neurosurgical Overview. American Journal of Neuroradiology 2015 Nov;36(11):1998-2006.
52. Melnick K, Shin D, Dastmalchi F, et al. Role of Laser Interstitial Thermal Therapy in the Management of Primary and Metastatic Brain Tumors. Curr Treat Options Oncol. 2021 Oct 23;22(12):108. [Abstract].
53. Mirza FA, Mitha R, Shamim MS. Current role of laser interstitial thermal therapy in the Tteatment of intracranial tumors. Asian J Neurosurg. 2020 Dec 21;15(4):800-808.
54. Mohammadi AM, Hawasli AH, Rodriguez A, et al. The role of laser interstitial thermal therapy in enhancing progression-free survival of difficult-to-access high-grade gliomas: a multicenter study. Cancer Med. 2014 Aug;3(4):971-9.
55. Montemurro N, Anania Y, Cagnazzo F, et al. Survival outcomes in patients with recurrent glioblastoma treated with Laser Interstitial Thermal Therapy (LITT): A systematic review. Clin Neurol Neurosurg. 2020 Aug;195:105942. [Abstract].
56. Munoz-Casabella A, Alvi MA, Rahman M, et al. Laser Interstitial Thermal Therapy for Recurrent Glioblastoma: Pooled Analyses of Available Literature. World Neurosurg. 2021 Sep;153:91-97.e1. [Abstract]
57. Narloch JL, Farber SH, Sammons S, et al. Biopsy of enlarging lesions after stereotactic radiosurgery for brain metastases frequently reveals radiation necrosis. Neuro Oncol. 2017 Oct 1;19(10):1391-1397.

58. National Comprehensive Cancer Network. NCCN Clinical Practice Guidelines in Oncology: Central Nervous System Cancers. Version 1.2022.
59. National Institute for Clinical Excellence (NICE). Interstitial laser therapy for fibroadenomas of the breast. Interventional Procedure Guidance No. 131. London, UK: NICE; June 2005.
60. National Institute for Clinical Excellence (NICE). Interstitial laser therapy for breast cancer. Interventional Procedure Guidance No. 89. London, UK: NICE; September 2004.
61. Patel B, Kim AH. Laser Interstitial Thermal Therapy. Mo Med. 2020 Jan-Feb;117(1):50-55.
62. Pisipati S, Smith KA, Shah K et al. Intracerebral laser interstitial thermal therapy followed by tumor resection to minimize cerebral edema. Neurological Focus 2016 Oct; 41(4): E13.
63. Prince E, Hakimian S, Ko AL, et al. Laser interstitial thermal therapy for epilepsy. Curr Neurol Neurosci Rep. 2017 Sep;17(9):63. [Abstract].
64. Rahmathulla G, Recinos P F, Valerio J E et al. Laser Interstitial Thermal Therapy for Focal Cerebral Radiation Necrosis: A Case Report and Literature Review. Stereotactic and Functional Neurosurgery 2012; 90:192–200.
65. Rammo R, Asmaro K, Schultz L, et al. The safety of magnetic resonance imaging-guided laser interstitial thermal therapy for cerebral radiation necrosis. J Neurooncol. 2018 Jul;138(3):609-617. [Abstract].
66. Rao MS, Hargreaves EL, Khan AJ, et al. Magnetic resonance-guided laser ablation improves local control for postradiosurgery recurrence and/or radiation necrosis. Neurosurgery. 2014 Jun;74(6):658-67. [Abstract].
67. Rennert RC, Khan U, Bartek J, et al. Laser ablation of abnormal neurological tissue using robotic Neuroblate System (LAANTERN): procedural safety and hospitalization. Neurosurgery. 2020 Apr 1;86(4):538-547.
68. Riordan M, Tovar-Spinoza Z. Laser induced thermal therapy (LITT) for pediatric brain tumors: case-based review. Transl Pediatr. 2014 Jul;3(3):229-35.
69. Salehi A, Kamath AA, Leuthardt EC, et al. Management of intracranial metastatic disease with laser interstitial thermal therapy. Front Oncol. 2018 Oct 31; 8:499.
70. Salem U, Kumar VA, Madewell JE et al. Neurosurgical applications of MRI guided laser interstitial thermal therapy (LITT). Cancer Imaging. 2019 Oct 15;19(1):65.
71. Shah AH, Burks JD, Buttrick SS, et al. Laser Interstitial Thermal Therapy as a Primary Treatment for Deep Inaccessible Gliomas. Neurosurgery. 2019 Mar 1;84(3):768-777. [Abstract].
72. Shah AH, Semonche A, Eichberg DG, et al. The role of laser interstitial thermal therapy in surgical neuro-oncology: series of 100 consecutive patients. Neurosurgery. 2020 Aug 1;87(2):266-275.
73. Shao J, Radakovich NR, Grabowski M, et al. Lessons learned in using laser interstitial thermal therapy for treatment of brain tumors: a case series of 238 patients from a single institution. World Neurosurg. 2020 Jul;139: e345-e354.
74. Sharma M, Ball T, Alhourani A, et al. Inverse national trends of laser interstitial thermal therapy and open surgical procedures for refractory epilepsy: a Nationwide Inpatient Sample-based propensity score matching analysis. Neurosurg Focus. 2020 Apr 1;48(4): E11.
75. Shukla ND, Ho AL, Pendharkar AV, et al. Laser interstitial thermal therapy for the treatment of epilepsy: evidence to date. Neuropsychiatr Dis Treat. 2017 Sep 26; 13:2469-2475.
76. Skandalakis GP, Rivera DR, Rizea CD, et al. Hyperthermia treatment advances for brain tumors. Int J Hyperthermia. 2020 Jul;37(2):3-19.

77. Sloan AE, Ahluwalia MS, Valerio-Pascua J et al. Results of the NeuroBlate System first-in-humans Phase I clinical trial for recurrent glioblastoma: clinical article. Journal of Neurosurgery 2013 Jun;118(6):1202-1219.

78. Sujijantarat N, Hong CS, Owusu KA, et al. Laser interstitial thermal therapy (LITT) vs. bevacizumab for radiation necrosis in previously irradiated brain metastases. J Neurooncol. 2020 Jul;148(3):641-649. [Abstract].

79. Thomas JG, Al-Holou WN, de Almeida Bastos DC, et al. A novel use of the intraoperative MRI for metastatic spine tumors: laser interstitial thermal therapy for percutaneous treatment of epidural metastatic spine disease. Neurosurg Clin N Am. 2017 Oct;28(4): 513-524. [Abstract].

80. Thomas JG, Rao G, Kew Y et al. Laser interstitial thermal therapy for newly diagnosed and recurrent glioblastoma. Neurosurgical Focus. 2016 Oct;41(4):E12.

81. Tovar-Spinoza Z, Choi H. Magnetic resonance-guided laser interstitial thermal therapy: report of a series of pediatric brain tumors. J Neurosurg Pediatr. 2016 Jun;17(6):723-733.

82. Traylor JI, Patel R, Muir M, et a. Laser interstitial thermal therapy for glioblastoma: a single-center experience. World Neurosurg. 2021 May;149: e244-e252. [Abstract].

83. U.S. Food and Drug Administration (FDA) 510k Summary. Kelsey Interstitial Laser Therapy SystemK070353, 05/02/07.

84. U. S. Food and Drug Administration (FDA) Safety Alert: Magnetic Resonance-guided Laser Interstitial Thermal Therapy (MRgLITT) Devices: Letter to Health Care Providers - Risk of Tissue Overheating Due to Inaccurate Magnetic Resonance Thermometry, 4/25/2018.

85. U.S. Food and Drug Administration (FDA) 510K. Monteris Medical NeuroBlate™ System K162762, Oct 26, 2016.

86. U.S. Food and Drug Administration (FDA) 510K. Novilase® Laser Therapy System (LTS-2)Therapy K160392, Feb 26, 2016.

87. U.S. Food and Drug Administration (FDA) 510K. Visualase Thermal Therapy System K081656, sept 10, 2008.

88. Viozzi I, Guberinic A, Overduin CG, et al. Laser Interstitial thermal therapy in patients with newly diagnosed glioblastoma: A systematic review. J Clin Med. 2021 Jan 19;10(2):355.

89. Vlastos G. Minimally Invasive approaches for diagnosis and treatment of Early-stage Breast Cancer. The Oncologist. 2007 Jan; 12 (1):1–10.

90. Williams D, Loshak H. Laser interstitial thermal therapy for epilepsy and/or brain tumours: a review of clinical effectiveness and cost-effectiveness [Internet]. Ottawa (ON): Canadian Agency for Drugs and Technologies in Health; 2019 Jun 17.

91. Wright J, Chugh J, Wright CH et al. Laser interstitial thermal therapy followed by minimal-access transsulcal resection for the treatment of large and difficult to access brain tumors. Neurosurgical Focus 2016 Oct; 41(4): E14.

92. Wu C, Jermakowicz WJ, Chakravorti S, et al. Effects of surgical targeting in laser interstitial thermal therapy for mesial temporal lobe epilepsy: A multicenter study of 234 patients. Epilepsia. 2019 Jun;60(6):1171-1183.

93. Xue F, Chen T, Sun H. Postoperative outcomes of magnetic resonance imaging (MRI)-guided laser interstitial thermal therapy (LITT) in the treatment of drug-resistant epilepsy: A Meta-Analysis. Med Sci Monit. 2018 Dec 21;24: 9292-9299.

COMMITTEE APPROVAL:

This Medical Coverage Guideline (MCG) was approved by the Florida Blue Medical Policy and Coverage Committee on 02/27/25.

GUIDELINE UPDATE INFORMATION:

04/15/10	New Medical Coverage Guideline.
04/15/11	Scheduled review; position statement unchanged; references updated.
04/15/12	Scheduled review with literature search; position statement unchanged.
04/15/13	Scheduled review with literature search; position statement unchanged; references updated; Program Exceptions section updated.
04/15/14	Scheduled annual review with literature search; position statement unchanged; references updated.
11/01/15	Revision: ICD-9 Codes deleted.
07/15/18	Review; revised position statement. Updated description and references. Changed guideline name to “Interstitial Laser Therapy”.
06/15/19	Review; no change in position statement. Updated references.
10/15/21	Review; no change in position statement. Updated references.
01/01/22	Annual CPT/HCPCS coding update. Added 61736 and 61737.
10/15/22	Review; added medically necessity position statement. Updated references.
08/21/23	Update to Program Exceptions section.
03/15/24	Review; no change in position statement. Updated references.
03/15/25	Review; no change in position statement. Updated references.