MEDICAL POLICY

POLICY TITLE	RADIOFREQUENCY ABLATION OF MISCELLANEOUS SOLID TUMORS EXCLUDING LIVER TUMORS
POLICY NUMBER	MP 1.084

CLINICAL BENEFIT	☐ MINIMIZE SAFETY RISK OR CONCERN. ☒ MINIMIZE HARMFUL OR INEFFECTIVE INTERVENTIONS. ☐ ASSURE APPROPRIATE LEVEL OF CARE. ☐ ASSURE APPROPRIATE DURATION OF SERVICE FOR INTERVENTIONS. ☒ ASSURE THAT RECOMMENDED MEDICAL PREREQUISITES HAVE BEEN MET. ☐ ASSURE APPROPRIATE SITE OF TREATMENT OR SERVICE.
Effective date:	**5/1/2026**

POLICY

Radiofrequency ablation may be considered **medically necessary** to palliate pain in patients with osteolytic bone metastases who have failed or are poor candidates for standard treatments such as radiation or opioids.

Radiofrequency ablation may be considered **medically necessary** to treat osteoid osteomas that cannot be managed successfully with medical treatment.

Radiofrequency ablation may be considered **medically necessary** to treat localized renal cell carcinoma that is no more than 4 cm in size when either of the following criteria is met:

- To preserve kidney function in patients with significantly impaired renal function (i.e., the patient has one kidney or renal insufficiency defined by a glomerular filtration rate (GFR) of <60mL/min/m^2); **AND**
- The standard surgical approach (i.e. resection of renal tissue) is likely to substantially worsen kidney function; **OR**
- The patient is not considered a surgical candidate.

Radiofrequency ablation may be considered **medically necessary** to treat an isolated peripheral non-small cell lung cancer lesion that is no more than 3 cm in size when the following criteria are met:

- Surgical resection or radiation treatment with curative intent is considered appropriate based on stage of disease, however, medical co-morbidity renders the individual unfit for those interventions; **AND**
- The tumor is located at least 1 cm from the trachea, main bronchi, esophagus, aorta, aortic arch branches, pulmonary artery and the heart.

Radiofrequency ablation may be considered **medically necessary** to treat malignant non-pulmonary tumor(s) metastatic to the lung that are no more than 3 cm in size when the following criteria are met:

- In order to preserve lung function when surgical resection or radiation treatment is likely to substantially worsen pulmonary status; OR
- The patient is not considered a surgical candidate; AND

- There is no evidence of extrapulmonary metastases; AND the tumor is located at least 1 cm from the trachea, main bronchi, esophagus, aorta, aortic arch branches, pulmonary artery and the heart.

(See the Policy Guidelines section for additional criteria.)

Radiofrequency ablation is considered **investigational** as a technique for ablation of:

- Breast tumors;
- Lung cancer not meeting the criteria above;
- Renal cell cancer not meeting the criteria above;
- Osteoid osteomas that can be managed with medical treatment;
- Painful bony metastases as initial treatment;
- All other tumors outside the liver including, but not limited to, the head and neck, adrenal gland, ovary, and pelvic/abdominal metastases of unspecified origin

There is insufficient evidence to support a general conclusion concerning the health outcomes or benefits associated with this procedure for these indications.

POLICY GUIDELINES

Radiofrequency Ablation (RFA) of the lung

The following are additional criteria that have been developed by clinical judgment or consensus and existing guidelines for the use of RFA in metastatic tumors to the lung and include:

- No more than 3 tumors per lung should be ablated;
- Tumors should be amenable to complete ablation; AND
- Twelve months should elapse before a repeat ablation is considered.

Cross-References:
MP 1.055 Radiofrequency Ablation of Primary or Metastatic Liver Tumors
MP 1.088 Cryoablation of Tumors Located in the Kidney, Lung, Breast, Pancreas, or Bone
MP 1.165 Radiofrequency Ablation of Thyroid Tumors
MP 7.027 Laparoscopic, Percutaneous, and Transcervical Techniques for Uterine Fibroid Myolysis

PRODUCT VARIATIONS

This policy is only applicable to certain programs and products administered by Capital Blue Cross and subject to benefit variations. Please see additional information below.

FEP PPO - Refer to FEP medical policy manual. The FEP medical policy manual can be found at: fepblue.org/benefit-plans/medical-policies-and-utilization-management-guidelines/medical-policies.

DESCRIPTION/BACKGROUND

Radiofrequency Ablation

RFA was initially developed to treat inoperable tumors of the liver (see evidence review **MP 1.055**). Recently, studies have reported on the use of RFA to treat other tumors. For some of these, RFA is being investigated as an alternative to surgery for operable tumors. Well-established local or systemic treatment alternatives are available for each of these malignancies. The hypothesized advantages of RFA for these cancers include improved local control and those common to any minimally invasive procedure (e.g., preserving normal organ tissue, decreasing morbidity, decreasing length of hospitalization).

Goals of RFA may include (1) controlling local tumor growth and preventing recurrence; (2) palliating symptoms; and (3) extending survival duration for patients with certain tumors. The effective volume of RFA depends on the frequency and duration of applied current, local tissue characteristics, and probe configuration (e.g., single vs. multiple tips). RFA can be performed as an open surgical procedure, laparoscopically or percutaneously, with ultrasound or computed tomography guidance.

Potential complications associated with RFA include those caused by heat damage to normal tissue adjacent to the tumor (e.g., intestinal damage during RFA of kidney), structural damage along the probe track (e.g., pneumothorax as a consequence of procedures on the lung), and secondary tumors (if cells seed during probe removal).

Regulatory Status

The U.S. Food and Drug Administration (FDA) issued a statement in September 2008, concerning the regulatory status of RFA. The FDA has cleared RFA devices for the general indication of soft tissue cutting, coagulation, and ablation by thermal coagulation necrosis. Under this general indication, RFA can be used to ablate tumors, including lung tumors. Some RFA devices have been cleared for additional specific treatment indications, including partial or complete ablation of nonresectable liver lesions and palliation of pain associated with metastatic lesions involving bone. The FDA has not cleared any RFA devices for the specific treatment indication of partial or complete ablation of lung tumors, citing lack of sufficient clinical data to establish safety and effectiveness for this purpose. The FDA has received reports of death and serious injuries associated with the use of RFA devices in the treatment of lung tumors.

RATIONALE

SUMMARY OF EVIDENCE

Bone Tumors

For individuals who have painful osteolytic bone metastases who have failed or are poor candidates for standard treatments who receive RFA, the evidence includes cohort study and case series. Relevant outcomes are symptoms, change in disease status, QOL, medication use, and treatment-related morbidity. A prospective cohort study and case series have shown clinically significant pain relief (defined as a decrease of 2 units from baseline on the Brief Pain

Inventory scale) or reduction in opioid use following treatment of painful osteolytic metastases. A multicenter, prospective study reported significant reductions in pain through the 6-month follow-up period, with 59% of patients achieving immediate improvement in pain within 3 days of RFA. The population is comprised of patients with few or no treatment options, for whom short-term pain relief is an appropriate clinical outcome. The evidence is sufficient to determine that the technology results in an improvement in the net health outcome.

For individuals who have painful osteoid osteomas who receive RFA, the evidence includes numerous observational studies and a systematic review of these studies. The relevant outcomes are symptoms, changes in disease status, quality of life, medication use, and treatment-related morbidity. In a systematic review of thermal ablation techniques, clinical success (pain-free) was achieved in 94% to 98% of patients. Most patients (89%-96%) remained pain-free when assessed during longer term follow-up. Although no randomized trials of RFA for osteoid osteomas have been performed, the uncontrolled studies have demonstrated RFA can provide adequate symptom relief with minimal complications, for a population for whom short-term symptom relief and avoidance of invasive procedures are appropriate clinical outcomes. The evidence is sufficient to determine that the technology results in a meaningful improvement in the net health outcome.

Localized Renal Cell Carcinoma
For individuals who have localized renal cell carcinoma that is no more than 4 cm in size who receive RFA, the evidence includes a randomized controlled trial (RCT), numerous observational studies, and systematic reviews of these studies. The relevant outcomes are overall survival, change in disease status, quality of life, and treatment-related morbidity. A recent meta-analysis that included only an RCT and cohort studies found that RFA was as effective as nephrectomy for small renal tumors, with a reduction in complications. Another recent meta-analysis found that partial nephrectomy was superior to ablative techniques (the study included RFA, but also cryoablation and microwave ablation) in overall mortality and local recurrence but not in cancer-specific mortality. It also found fewer complications and improved renal function with ablation. A meta-analysis from 2022 found that PN was superior to ablation (RFA, cryoablation, and microwave ablation) in local recurrence. Overall complications, decline in renal function, and cancer-specific mortality rates did not differ between ablation and nephrectomy. Although inconsistent, the evidence does suggest that, for small renal tumors, RFA may result in a similar rate of disease progression with a lower complication rate than nephrectomy. However, comparative trials are needed to determine with greater certainty the effects of these treatments in the same patient population. The evidence is insufficient to determine the effects of the technology on health outcomes.

Inoperable Primary Pulmonary and Non-pulmonary Tumors
For individuals who have inoperable primary pulmonary tumors or non-pulmonary tumors metastatic to the lung who receive RFA, the evidence includes prospective observational studies and systematic reviews of these studies. The relevant outcomes are overall survival, change in disease status, quality of life, and treatment-related morbidity. A multicenter study found that, for tumors less than 3.5 cm in size, RFA can lead to a complete response in as many as 88% of patients for at least 1 year. Two-year survival rates have been reported to

range from 41% to 75% in case series, with 5-year survival rates of 20% to 27%. In general, the evidence suggests that RFA results in adequate survival and tumor control in patients who are not surgical candidates, with low morbidity rates. The evidence is sufficient to determine that the technology results in a meaningful improvement in the net health outcome.

Breast Tumors
For individuals who have breast tumors who receive RFA, the evidence includes observational studies and systematic reviews of these studies. The relevant outcomes are change in disease status, quality of life, and treatment-related morbidity. Evidence has reported varied and incomplete ablation rates with concerns about post-ablation tumor cell viability. Long-term improvements in health outcomes have not been demonstrated. Additionally, available studies do not permit comparisons with conventional breast-conserving procedures. Further studies, with long-term follow-up, should focus on whether RFA of the breast for small tumors can provide local control and survival rates compared with conventional breast-conserving treatment. The evidence is insufficient to determine the effects of the technology on health outcomes.

Miscellaneous Solid Tumors
For individuals who have miscellaneous tumors (e.g., head and neck, thyroid cancer, pancreas) who receive RFA, the evidence includes a few case series, prospective studies, and retrospective comparative studies. The relevant outcomes are change in disease status, quality of life, and treatment-related morbidity. There is a limited evidence base for each tumor type. Reporting on outcomes or comparisons with other treatments is limited. These studies do not permit conclusions on the health benefits of RFA. The evidence is insufficient to determine the impact of technology on health outcomes.

DEFINITIONS

ADJUVANT refers to a substance, especially a drug, added to a prescription to assist in the action of the main ingredient.

ALKYLATING AGENT is any substance that contains an alkyl radical and is capable of replacing a free hydrogen atom in an organic compound. This type of chemical reaction results in interference with mitosis and cell division, especially in the proliferating tissue. The agents are especially helpful in the treatment of cancer.

DISCLAIMER

Capital Blue Cross' medical policies are used to determine coverage for specific medical technologies, procedures, equipment, and services. These medical policies do not constitute medical advice and are subject to change as permitted by law or applicable clinical evidence from independent treatment guidelines. Treating providers are solely responsible for medical advice and treatment of members. These policies are not a guarantee of coverage or payment. Payment of claims is subject to a determination regarding the member's benefit program and eligibility on the date of service, and a determination that the services are medically necessary and appropriate. Final processing of a claim is based upon the terms of

contract that applies to the members' benefit program, including benefit limitations and exclusions. If a provider or a member has a question concerning this medical policy, please contact Capital Blue Cross' Provider Services or Member Services.

CODING INFORMATION

Note: This list of codes may not be all-inclusive, and codes are subject to change at any time. The identification of a code in this section does not denote coverage as coverage is determined by the terms of member benefit information. In addition, not all covered services are eligible for separate reimbursement.

Investigational; therefore, not covered:

Procedure Codes							
41530							

Covered when medically necessary:

Procedure Codes								
20982	32998	50542	50592					

ICD-10- CM Diagnosis Codes							
C34.01	C34.02	C34.11	C34.12	C34.2	C34.31	C34.32	C64.1
C64.2	C73	C78.01	C78.02	C79.51	D16.01	D16.02	D16.11
D16.12	D16.21	D16.22	D16.31	D16.32	D16.4	D16.5	D16.6
D16.7	D16.8						

REFERENCES

1. *Levy J, Hopkins T, Morris J, et al. Radiofrequency Ablation for the Palliative Treatment of Bone Metastases: Outcomes from the Multicenter OsteoCool Tumor Ablation Post-Market Study (OPuS One Study) in 100 Patients. J Vasc Interv Radiol. Nov 2020; 31(11): 1745-1752. PMID 33129427*
2. *Goetz MP, Callstrom MR, Charboneau JW, et al. Percutaneous image-guided radiofrequency ablation of painful metastases involving bone: a multicenter study. J Clin Oncol. Jan 15 2004; 22(2): 300-6. PMID 14722039*
3. *Gronemeyer DH, Schirp S, Gevargez A. Image-guided radiofrequency ablation of spinal tumors: preliminary experience with an expandable array electrode. Cancer J. Jan-Feb 2002; 8(1): 33-9. PMID 11898806*
4. *Kojima H, Tanigawa N, Kariya S, et al. Clinical assessment of percutaneous radiofrequency ablation for painful metastatic bone tumors. Cardiovasc Intervent Radiol. Nov-Dec 2006; 29(6): 1022-6. PMID 16988875*

5. *Tordjman M, Perronne L, Madelin G, et al. CT-guided radiofrequency ablation for osteoid osteomas: a systematic review. Eur Radiol. Nov 2020; 30(11): 5952-5963. PMID 32518986*
6. *Lanza E, Thouvenin Y, Viala P, et al. Osteoid osteoma treated by percutaneous thermal ablation: when do we fail? A systematic review and guidelines for future reporting. Cardiovasc Intervent Radiol. Dec 2014; 37(6): 1530-9. PMID 24337349*
7. *Albisinni U, Facchini G, Spinnato P, et al. Spinal osteoid osteoma: efficacy and safety of radiofrequency ablation. Skeletal Radiol. Aug 2017; 46(8): 1087-1094. PMID 28497160*
8. *Lassalle L, Campagna R, Corcos G, et al. Therapeutic outcome of CT-guided radiofrequency ablation in patients with osteoid osteoma. Skeletal Radiol. Jul 2017; 46(7): 949-956. PMID 28429047*
9. *Rimondi E, Mavrogenis AF, Rossi G, et al. Radiofrequency ablation for non-spinal osteoid osteomas in 557 patients. Eur Radiol. Jan 2012; 22(1): 181-8. PMID 21842430*
10. *Sahin C, Oc Y, Ediz N, et al. The safety and the efficacy of computed tomography guided percutaneous radiofrequency ablation of osteoid osteoma. Acta Orthop Traumatol Turc. Sep 2019; 53(5): 360-365. PMID 31371131*
11. *Knudsen M, Riishede A, Lucke A, et al. Computed tomography-guided radiofrequency ablation is a safe and effective treatment of osteoid osteoma located outside the spine. Dan Med J. May 2015; 62(5). PMID 26050823*
12. *Rosenthal DI, Hornicek FJ, Torriani M, et al. Osteoid osteoma: percutaneous treatment with radiofrequency energy. Radiology. Oct 2003; 229(1): 171-5. PMID 12944597*
13. *Uhlig J, Strauss A, Rucker G, et al. Partial nephrectomy versus ablative techniques for small renal masses: a systematic review and network meta-analysis. Eur Radiol. Mar 2019; 29(3): 1293-1307. PMID 30255245*
14. *Katsanos K, Mailli L, Krokidis M, et al. Systematic review and meta-analysis of thermal ablation versus surgical nephrectomy for small renal tumours. Cardiovasc Intervent Radiol. Apr 2014; 37(2): 427-37. PMID 24482030*
15. *El Dib R, Touma NJ, Kapoor A. Cryoablation vs radiofrequency ablation for the treatment of renal cell carcinoma: a meta-analysis of case series studies. BJU Int. Aug 2012; 110(4): 510-6. PMID 22304329*
16. *Liu SY, Chu CM, Kong AP, et al. Radiofrequency ablation compared with laparoscopic adrenalectomy for aldosterone-producing adenoma. Br J Surg. Oct 2016; 103(11): 1476-86. PMID 27511444*
17. *Marshall HR, Shakeri S, Hosseiny M, et al. Long-Term Survival after Percutaneous Radiofrequency Ablation of Pathologically Proven Renal Cell Carcinoma in 100 Patients. J Vasc Interv Radiol. Jan 2020; 31(1): 15-24. PMID 31767409*
18. *Andrews JR, Atwell T, Schmit G, et al. Oncologic Outcomes Following Partial Nephrectomy and Percutaneous Ablation for cT1 Renal Masses. Eur Urol. Aug 2019; 76(2): 244-251. PMID 31060824*
19. *Park BK, Gong IH, Kang MY, et al. RFA versus robotic partial nephrectomy for T1a renal cell carcinoma: a propensity score-matched comparison of mid-term outcome. Eur Radiol. Jul 2018; 28(7): 2979-2985. PMID 29426988*
20. *Dai Y, Covarrubias D, Uppot R, et al. Image-Guided Percutaneous Radiofrequency Ablation of Central Renal Cell Carcinoma: Assessment of Clinical Efficacy and Safety in 31 Tumors. J Vasc Interv Radiol. Dec 2017; 28(12): 1643-1650. PMID 28673657*

21. *Dvorak P, Hoffmann P, Brodak M, et al. Percutaneous radiofrequency and microwave ablation in the treatment of renal tumors - 10 years of experience. Wideochir Inne Tech Maloinwazyjne. Dec 2017; 12(4): 394-402. PMID 29362655*
22. *Pantelidou M, Challacombe B, McGrath A, et al. Percutaneous Radiofrequency Ablation Versus Robotic-Assisted Partial Nephrectomy for the Treatment of Small Renal Cell Carcinoma. Cardiovasc Intervent Radiol. Nov 2016; 39(11): 1595-1603. PMID 27435582*
23. *Iannuccilli JD, Dupuy DE, Beland MD, et al. Effectiveness and safety of computed tomography-guided radiofrequency ablation of renal cancer: a 14-year single institution experience in 203 patients. Eur Radiol. Jun 2016; 26(6): 1656-64. PMID 26373755*
24. *Schlijper RC, Grutters JP, Houben R, et al. What to choose as radical local treatment for lung metastases from colo-rectal cancer: surgery or radiofrequency ablation?. Cancer Treat Rev. Feb 2014; 40(1): 60-7. PMID 23768754*
25. *Ratko TA, Vats V, Brock J, et al. Local Nonsurgical Therapies for Stage I and Symptomatic Obstructive Non- Small-Cell Lung Cancer (Comparative Effectiveness Review No. 112). Rockville, MD: Agency for Healthcare Research and Quality; 2013.*
26. *Bilal H, Mahmood S, Rajashanker B, et al. Is radiofrequency ablation more effective than stereotactic ablative radiotherapy in patients with early stage medically inoperable non-small cell lung cancer?. Interact Cardiovasc Thorac Surg. Aug 2012; 15(2): 258-65. PMID 22581864*
27. *Chan VO, McDermott S, Malone DE, et al. Percutaneous radiofrequency ablation of lung tumors: evaluation of the literature using evidence-based techniques. J Thorac Imaging. Feb 2011; 26(1): 18-26. PMID 20829720*
28. *Huang L, Han Y, Zhao J, et al. Is radiofrequency thermal ablation a safe and effective procedure in the treatment of pulmonary malignancies?. Eur J Cardiothorac Surg. Mar 2011; 39(3): 348-51. PMID 20663679*
29. *Zemlyak A, Moore WH, Bilfinger TV. Comparison of survival after sublobar resections and ablative therapies for stage I non-small cell lung cancer. J Am Coll Surg. Jul 2010; 211(1): 68-72. PMID 20610251*
30. *Lencioni R, Crocetti L, Cioni R, et al. Response to radiofrequency ablation of pulmonary tumours: a prospective, intention-to-treat, multicentre clinical trial (the RAPTURE study). Lancet Oncol. Jul 2008; 9(7): 621-8. PMID 18565793*
31. *Zhu JC, Yan TD, Glenn D, et al. Radiofrequency ablation of lung tumors: feasibility and safety. Ann Thorac Surg. Apr 2009; 87(4): 1023-8. PMID 19324122*
32. *Pennathur A, Abbas G, Gooding WE, et al. Image-guided radiofrequency ablation of lung neoplasm in 100 consecutive patients by a thoracic surgical service. Ann Thorac Surg. Nov 2009; 88(5): 1601-6; discussion 1607-8. PMID 19853119*
33. *Xia LY, Hu QL, Xu WY. Efficacy and Safety of Radiofrequency Ablation for Breast Cancer Smaller Than 2 cm: A Systematic Review and Meta-Analysis. Front Oncol. 2021; 11: 651646. PMID 34012918*
34. *Peek MCL, Ahmed M, Napoli A, et al. Minimally invasive ablative techniques in the treatment of breast cancer: a systematic review and meta-analysis. Int J Hyperthermia. Mar 2017; 33(2): 191-202. PMID 27575566*
35. *Zhao Z, Wu F. Minimally-invasive thermal ablation of early-stage breast cancer: a systemic review. Eur J Surg Oncol. Dec 2010; 36(12): 1149-55. PMID 20889281*

36. *Soukup B, Bismohun S, Reefy S, et al. The evolving role of radiofrequency ablation therapy of breast lesions. Anticancer Res. Sep 2010; 30(9): 3693-7. PMID 20944155*
37. *Ito T, Oura S, Nagamine S, et al. Radiofrequency Ablation of Breast Cancer: A Retrospective Study. Clin Breast Cancer. Aug 2018; 18(4): e495-e500. PMID 29079443*
38. *Li P, Xiao-Yin T, Cui D, et al. Evaluation of the safety and efficacy of percutaneous radiofrequency ablation for treating multiple breast fibroadenoma. J Cancer Res Ther. Dec 2016; 12(Supplement): C138-C142. PMID 28230006*
39. *Wilson M, Korourian S, Boneti C, et al. Long-term results of excision followed by radiofrequency ablation as the sole means of local therapy for breast cancer. Ann Surg Oncol. Oct 2012; 19(10): 3192-8. PMID 22911363*
40. *Kinoshita T, Iwamoto E, Tsuda H, et al. Radiofrequency ablation as local therapy for early breast carcinomas. Breast Cancer. Jan 2011; 18(1): 10-7. PMID 20072824*
41. *Imoto S, Wada N, Sakemura N, et al. Feasibility study on radiofrequency ablation followed by partial mastectomy for stage I breast cancer patients. Breast. Apr 2009; 18(2): 130-4. PMID 19324550*
42. *Garbay JR, Mathieu MC, Lamuraglia M, et al. Radiofrequency thermal ablation of breast cancer local recurrence: a phase II clinical trial. Ann Surg Oncol. Nov 2008; 15(11): 3222-6. PMID 18709415*
43. *Rey VE, Labrador R, Falcon M, et al. Transvaginal Radiofrequency Ablation of Myomas: Technique, Outcomes, and Complications. J Laparoendosc Adv Surg Tech A. Jan 2019; 29(1): 24-28. PMID 30198831*
44. *Yin G, Chen M, Yang S, et al. Treatment of uterine myomas by radiofrequency thermal ablation: a 10-year retrospective cohort study. Reprod Sci. May 2015; 22(5): 609-14. PMID 25355802*
45. *Liu B, Mo C, Wang W, et al. Treatment outcomes of percutaneous radiofrequency ablation versus adrenalectomy for adrenal metastases: a retrospective comparative study. J Endocrinol Invest. Sep 2020; 43(9): 1249-1257. PMID 32166699*
46. *Yang MH, Tyan YS, Huang YH, et al. Comparison of radiofrequency ablation versus laparoscopic adrenalectomy for benign aldosterone-producing adenoma. Radiol Med. Oct 2016; 121(10): 811-9. PMID 27300650*
47. *Hasegawa T, Takaki H, Kodama H, et al. Three-year Survival Rate after Radiofrequency Ablation for Surgically Resectable Colorectal Lung Metastases: A Prospective Multicenter Study. Radiology. Mar 2020; 294(3): 686-695. PMID 31934829*
48. *Locklin JK, Mannes A, Berger A, et al. Palliation of soft tissue cancer pain with radiofrequency ablation. J Support Oncol. Sep-Oct 2004; 2(5): 439-45. PMID 15524075*
49. *Rosenthal DI. Radiofrequency treatment. Orthop Clin North Am. Jul 2006; 37(3): 475-84, viii. PMID 16846772*
50. *Liapi E, Geschwind JF. Transcatheter and ablative therapeutic approaches for solid malignancies. J Clin Oncol. Mar 10 2007; 25(8): 978-86. PMID 17350947*
51. *Spiliotis JD, Datsis AC, Michalopoulos NV, et al. Radiofrequency ablation combined with palliative surgery may prolong survival of patients with advanced cancer of the pancreas. Langenbecks Arch Surg. Jan 2007; 392(1): 55-60. PMID 17089173*
52. *Zou YP, Li WM, Zheng F, et al. Intraoperative radiofrequency ablation combined with 125 iodine seed implantation for unresectable pancreatic cancer. World J Gastroenterol. Oct 28 2010; 16(40): 5104-10. PMID 20976848*

53. *Cantore M, Girelli R, Mambrini A, et al. Combined modality treatment for patients with locally advanced pancreatic adenocarcinoma. Br J Surg. Aug 2012; 99(8): 1083-8. PMID 22648697*
54. *Rombouts SJ, Vogel JA, van Santvoort HC, et al. Systematic review of innovative ablative therapies for the treatment of locally advanced pancreatic cancer. Br J Surg. Feb 2015; 102(3): 182-93. PMID 25524417*
55. *Kameyama S, Murakami H, Masuda H, et al. Minimally invasive magnetic resonance imaging-guided stereotactic radiofrequency thermocoagulation for epileptogenic hypothalamic hamartomas. Neurosurgery. Sep 2009; 65(3): 438-49; discussion 449. PMID 19687687*
56. *Vavra P, Dostalik J, Zacharoulis D, et al. Endoscopic radiofrequency ablation in colorectal cancer: initial clinical results of a new bipolar radiofrequency ablation device. Dis Colon Rectum. Feb 2009; 52(2): 355-8. PMID 19279436*
57. *Mylona S, Karagiannis G, Patsoura S, et al. Palliative treatment of rectal carcinoma recurrence using radiofrequency ablation. Cardiovasc Intervent Radiol. Aug 2012; 35(4): 875-82. PMID 22167304*
58. *Ripley RT, Gajdos C, Reppert AE, et al. Sequential radiofrequency ablation and surgical debulking for unresectable colorectal carcinoma: thermo-surgical ablation. J Surg Oncol. Feb 2013; 107(2): 144-7. PMID 22927225*
59. *Howington JA, Blum MG, Chang AC, et al. Treatment of stage I and II non-small cell lung cancer: Diagnosis and management of lung cancer, 3rd ed: American College of Chest Physicians evidence-based clinical practice guidelines. Chest. May 2013; 143(5 Suppl): e278S-e313S. PMID 23649443*
60. *Donington J, Ferguson M, Mazzone P, et al. American College of Chest Physicians and Society of Thoracic Surgeons consensus statement for evaluation and management for high-risk patients with stage I non-small cell lung cancer. Chest. Dec 2012; 142(6): 1620-1635. PMID 23208335*
61. *Campbell S, Uzzo RG, Allaf ME, et al. Renal Mass and Localized Renal Cancer: AUA Guideline. J Urol. Sep 2017; 198(3): 520-529. PMID 28479239*
62. *National Comprehensive Cancer Network (NCCN). NCCN Clinical Practice Guidelines in Oncology: Non-small cell lung cancer. Version 1.2025.*
63. *National Comprehensive Cancer Network (NCCN). NCCN Clinical Practice Guidelines in Oncology: Kidney Cancer. Version 1.2026.*
64. *National Comprehensive Cancer Network (NCCN). NCCN Clinical Practice Guidelines in Oncology: Colon Cancer. Version 4.2025.*
65. *National Comprehensive Cancer Network. NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines): Head and Neck Cancers. Version 5.2025.*
66. *National Comprehensive Cancer Network. NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines): Pancreatic Adenocarcinoma. Version 2.2025.*
67. *National Institute for Health and Care Excellence (NICE). Computed tomography-guided thermocoagulation of osteoid osteoma [IPG53]. 2004*
68. *National Institute for Health and Care Excellence (NICE). Percutaneous radiofrequency ablation of renal cancer [IPG353]. 2010*
69. *National Institute for Health and Care Excellence (NICE). Percutaneous radiofrequency ablation for primary and secondary lung cancers [IPG372]. 2010*

POLICY TITLE	RADIOFREQUENCY ABLATION OF MISCELLANEOUS SOLID TUMORS EXCLUDING LIVER TUMORS
POLICY NUMBER	MP 1.084

POLICY HISTORY

MP 1.084	**08/06/2020 Consensus Review.** Policy statements unchanged. References updated.
	12/03/2021 Minor Review. Added as potentially medically necessary criteria for the treatment of both differentiated thyroid carcinoma and medullary thyroid carcinoma (previously investigational); FEP language updated; added NCCN statement; update diagnosis codes and references.
	12/19/2022 Consensus Review. No changes to policy statement. Updated cross references, rationale, references. Removed code 0404T from INV and added code 50542 as MN.
	11/20/2023 Consensus Review. No changes to policy statement. Updated references. Coding reviewed, no changes.
	12/11/2024 Administrative Update. Added codes 60660-60661. Effective 01/01/2025.
	01/14/2025 Minor Review. Moved thyroid tumors from MN with criteria to INV. Removed NCCN language. Updated references. Moved codes 60660 and 60661 from MN to INV.
	06/25/2025 Administrative Update. Removed Benefit Variations Section and updated Disclaimer.
	10/22/2025 Minor review. Removed thyroid indications from policy, removed CPT codes 60660 and 60661. All RFA for thyroid will be in 1.165.