DRAFT Medical Coverage Policy | Superficial Radiation Therapy and Electronic Brachytherapy for Nonmelanoma Skin Cancer

EFFECTIVE DATE: 01|01|2027
POLICY LAST REVIEWED: 09|16|2026

OVERVIEW
There are multiple modalities available for the treatment of cutaneous nonmelanoma skin cancers (NMSCs). This policy addresses superficial radiation therapy (SRT) and electronic brachytherapy (EBT).

MEDICAL CRITERIA
Not applicable

PRIOR AUTHORIZATION
Not applicable

POLICY STATEMENT
Medicare Advantage Plans
Superficial radiation therapy, without high-resolution ultrasound, for the treatment of nonmelanoma skin cancer may be considered medically necessary.

The use of high-resolution ultrasound to guide superficial radiation therapy delivery and to assess lesion reduction during the superficial radiation treatment protocol is not covered, as the evidence is insufficient to determine the effects of the technology on health outcomes.

Electronic brachytherapy for the treatment of nonmelanoma skin cancer is considered not covered as the evidence is insufficient to determine the effects of the technology on health outcomes.

Commercial Products
Superficial radiation therapy and electronic brachytherapy for the treatment of nonmelanoma skin cancer is considered not medically necessary as the evidence is insufficient to determine the effects of the technology on health outcomes.

COVERAGE
Benefits may vary between groups and contracts. Please refer to the appropriate Benefit Booklet, Evidence of Coverage or Subscriber Agreement for not medically necessary benefits/coverage.

BACKGROUND
Nonmelanoma Skin Cancer
Squamous cell carcinoma and basal cell carcinoma are the most common types of nonmelanoma skin cancer (NMSC) in the United States, affecting between 1 and 3 million people per year and increasing at a rate of 3% to 8% per year. Other types (e.g., T-cell lymphoma, Merkel cell tumor, basosquamous carcinoma, Kaposi sarcoma) are much less common. The primary risk factor for NMSC is sun exposure, with additional risk factors such as toxic exposures, other ionizing radiation exposure, and immunosuppression playing smaller roles. Although these cancers are rarely fatal, they can impact quality of life, functional status, and physical appearance.

Treatment
In general, the most effective treatment for NMSC is surgical. If surgery is not feasible or preferred, cryosurgery, topical therapy, or radiotherapy can be considered, though the cure rate may be lower. When

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considering the most appropriate treatment strategy, recurrence rate, preservation of function, patient expectations, and potential adverse events should be considered.

Superficial Radiation Therapy
Superficial radiation therapy utilizes x-rays or photons to deliver electromagnetic energy to cells that are rapidly dividing in order to stop mitosis. SRT machines deliver low energy Kilovoltage (kV) in the range of 50 to 150 kV per treatment. The machines used to deliver superficial treatment spare the deeper structures and are ideal for treating cutaneous malignancies. Electronic brachytherapy (EBT) is a variation of SRT except that a high dose x-ray source is placed directly into a skin applicator close to the surface and provides a homogenous dose pattern in the treatment area to a specified depth.

SRT has also been a long-standing, optional treatment by dermatologists and radiation therapists but had been relegated to a second line treatment option for patients who were not surgical candidates or who refused surgical treatment. In addition, there are no prospective or randomized clinical trials (RCTs) in the peer-reviewed literature that compare the outcomes in recurrence rates (long-term 5 years or more, short-term less than 2 years) between MMS or surgical excisions and SRT. In addition, with the advent of newer SRT technology, the reported recurrence rates have improved and are near the MMS rates although there is no consistent reporting of the histology sub-types and comparison of sub-groups with the higher risk NMSCs that are typical of MMS procedures.

Medicare Advantage Plans
The overall quality of evidence for the use of SRT for the primary treatment of BCC and SCC in adults is low due to the lack of nonrandomized, single-center study design with very high potential for patient selection bias, variation in SRT techniques across studies and direct comparison to the standard of care, MMS or other established treatments. However, extensive clinical experience, societal input and some supporting evidence suggest that SRT achieves similar outcomes for low-risk lesions not feasible to surgical excision and similarly for some high risk NMSCs with less aggressive histology and smaller tumor sizes. Therefore, based on recommendations by the various societies including recommendations by NCCN®, the use of SRT for selected patients is deemed appropriate for nonsurgical candidates.

High-Resolution Ultrasound
More recently, High-Resolution Ultrasound (HRUS) has been used as an adjunct in order to improve the effectiveness of both EBT and SRT. Furthermore, several authors have purported to using HRUS guided SRT and HRUS guided EBT as being more effective than SRT or EBT alone, although there are no randomized clinical studies or prospective studies to show that the additional use of high-resolution ultrasound guidance (HRUS) improves the short-term and long-term recurrence rates.

Medicare Advantage Plans and Commercial Products
There is no evidence to support that the addition of HRUS to SRT is required for the treatment of low-risk BCC or low-risk SCC. Comparing HRUS/SRT with prior older technology SRT does not provide additional meaningful comparisons since newer technology machines for delivering SRT have different energy settings and more recent published data with SRT shows nearly equivalent recurrence rates with longer periods of follow-up.[12,13,24,27] In addition, when comparisons were made to the SRT studies without HRUS, no corrections were made for the fact that the SRT studies without HRUS had also included more aggressive lesions and histological subtypes and often larger cutaneous tumors. The smaller more favorable lesions were more preponderant in the retrospective image-guided superficial radiation therapy (IGSRT) studies that were published. Therefore, the quality of evidence is low to support the use of HRUS with SRT.

Electronic Brachytherapy
Electronic brachytherapy is a form of radiotherapy delivered locally, using a miniaturized electronic X-ray source rather than a radionuclide-based source. A pliable mold is constructed of silicone or polymethyl-methacrylate and fitted to the tumor surface. This mold allows treatment to be delivered to nonflat surfaces such as the nose or ear. A radioactive source is then inserted into the mold to deliver a uniform radiation

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dosage directly to the lesion. Multiple treatment sessions within a short time period (typically within a month) are required.

This technique is feasible for well-circumscribed, superficial tumors because it focuses a uniform dose of X-ray source radiation on the lesion with the aid of a shielded surface application. Advantages of this treatment modality compared with standard radiotherapy include a shorter treatment schedule, avoidance of a surgical procedure and hospital stay, less severe side effects because the focused radiation spares healthy tissue and organs, and the avoidance of radioisotopes.

Medicare Advantage Plans and Commercial Products
For individuals who have NMSC who receive electronic brachytherapy, the evidence includes 2 systematic reviews, 2 prospective cohort studies, and case series. Relevant outcomes are overall survival, disease-specific survival, change in disease status, and treatment-related morbidity. No controlled trials were identified that have compared electronic brachytherapy with alternative treatment options. A 2016 systematic review of case series found local control rates ranging from 83% to 100% and recurrence rates ranging from 0% to 17%. In most studies, the recurrence rate was less than 5%. A 2019 meta-analysis reported brachytherapy cosmesis grades and 5-year local control rates that were comparable to both Mohs micrographic surgery (MMS) and conventional excision. Preliminary results from a prospective matched pair cohort study reported no statistically significant difference in outcomes for the use of electronic brachytherapy compared to MMS in NMSC, but confidence in these findings is low due to study design and conduct limitations. In the absence of randomized controlled studies, conclusions cannot be drawn about the efficacy and safety of electronic brachytherapy compared with other treatments for NMSC. Controlled trials are needed in defined populations that compare electronic brachytherapy with alternatives, specifically other forms of radiotherapy or surgical approaches. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

Based upon the consensus of the literature and the recommendations of the AAD, ASTRO and ABS, the use of EBT for the treatment of NMSCs is not considered reasonable and necessary at this time. There is insufficient long-term efficacy and safety data to support the use of electronic surface brachytherapy.

CODING

Medicare Advantage Plans
The following CPT codes are covered:

77436 Surface radiation therapy; superficial or orthovoltage, treatment planning and simulation-aided field setting

77438 Surface radiation therapy; orthovoltage, delivery, >150-500 kv, per fraction

The following CPT code may be considered medically necessary when filed with **BOTH** Modifier KX, **AND** the ICD-10 diagnosis codes below:

77437 Surface radiation therapy; superficial, delivery, </=150 kv, per fraction (eg, electronic brachytherapy)

77437 Allowable Diagnosis Codes.xlsx

The following CPT code is not covered:

77439 Surface radiation therapy; superficial or orthovoltage, image guidance, ultrasound for placement of radiation therapy fields for treatment of cutaneous tumors, per course of treatment (list separately in addition to code for primary procedure)

Commercial Products
The following CPT code(s) are not medically necessary when filed with the ICD-10 diagnosis codes below.

77436 Surface radiation therapy; superficial or orthovoltage, treatment planning and simulation-aided field setting (New Code Effective 1/1/2026)

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77437 Surface radiation therapy; superficial, delivery, </=150 kv, per fraction (eg, electronic brachytherapy) (New Code Effective 1/1/2026)

77438 Surface radiation therapy; orthovoltage, delivery, >150-500 kv, per fraction (New Code Effective 1/1/2026)

77439 Surface radiation therapy; superficial or orthovoltage, image guidance, ultrasound for placement of radiation therapy fields for treatment of cutaneous tumors, per course of treatment (list separately in addition to code for primary procedure) (New Code Effective 1/1/2026)

ICD-10 Diagnosis Code Range C44.00 - C44.99

RELATED POLICIES

None

PUBLISHED

Provider Update, November 2026
Provider Update, October 2025
Provider Update, October 2024
Provider Update, October 2023
Provider Update, November 2022

REFERENCES

1. Centers for Medicare & Medicaid Services (CMS). Local Coverage Determination (LCD): Superficial Radiation Therapy (SRT) for the Treatment of Nonmelanoma Skin Cancers (NMSC) L40168
2. Centers for Medicare & Medicaid Services (CMS). LCD Reference Article: Billing and Coding: Superficial Radiation Therapy (SRT) for the Treatment of Nonmelanoma Skin Cancers (NMSC) A60176
3. Bhatnagar A. Nonmelanoma skin cancer treated with electronic brachytherapy: results at 1 year. Brachytherapy. 2013; 12(2): 134-40. PMID 23312675
4. Madan V, Lear JT, Szeimies RM. Non-melanoma skin cancer. Lancet. Feb 20 2010; 375(9715): 673-85. PMID 20171403
5. American Academy of Dermatology Association. Skin cancer. Updated March 25, 2025. https://www.aad.org/media/stats-skin-cancer. Accessed May 21, 2025.
6. Kim JYS, Kozlow JH, Mittal B, et al. Guidelines of care for the management of basal cell carcinoma. J Am Acad Dermatol. Mar 2018; 78(3): 540-559. PMID 29331385
7. Alam M, Nanda S, Mittal BB, et al. The use of brachytherapy in the treatment of nonmelanoma skin cancer: a review. J Am Acad Dermatol. Aug 2011; 65(2): 377-388. PMID 21496952
8. Avril MF, Auperin A, Margulis A, et al. Basal cell carcinoma of the face: surgery or radiotherapy? Results of a randomized study. Br J Cancer. 1997; 76(1): 100-6. PMID 9218740
9. Lee CT, Lehrer EJ, Aphale A, et al. Surgical excision, Mohs micrographic surgery, external-beam radiotherapy, or brachytherapy for indolent skin cancer: An international meta-analysis of 58 studies with 21,000 patients. Cancer. Oct 15 2019; 125(20): 3582-3594. PMID 31355928
10. Delishaj D, Rembielak A, Manfredi B, et al. Non-melanoma skin cancer treated with high-dose-rate brachytherapy: a review of literature. J Contemp Brachytherapy. Dec 2016; 8(6): 533-540. PMID 28115960
11. Patel R, Strimling R, Doggett S, et al. Comparison of electronic brachytherapy and Mohs micrographic surgery for the treatment of early-stage non-melanoma skin cancer: a matched pair cohort study. J Contemp Brachytherapy. Aug 2017; 9(4): 338-344. PMID 28951753
12. Cox JD, Stetz J, Pajak TF. Toxicity criteria of the Radiation Therapy Oncology Group (RTOG) and the European Organization for Research and Treatment of Cancer (EORTC). Int J Radiat Oncol Biol Phys. Mar 30 1995; 31(5): 1341-6. PMID 7713792
13. Cheng J, Henry GV, Lyden MR, et al. The Elekta Esteya ® electronic brachytherapy system in non-melanoma skin cancers: A post-market observational study. J Contemp Brachytherapy. Dec 2024; 16(6): 478-488. PMID 39943976

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14. Doggett SW, Willoughby M, Miller KA, et al. Long-term clinical outcomes of non-melanoma skin cancer patients treated with electronic brachytherapy. J Contemp Brachytherapy. Feb 2023; 15(1): 9-14. PMID 36970438
15. Kuo AM, Lee EH, Rossi AM, et al. A Multicenter Prospective Trial of Electronic Skin Surface Brachytherapy for Keratinocyte Carcinoma: Early Cosmesis, Quality of Life, and Adverse Events. Int J Radiat Oncol Biol Phys. Jul 01 2023; 116(3): 544-550. PMID 36586493
16. Pellizzon ACA, Fogaroli R, Chen MJ, et al. High-dose-rate brachytherapy using Leipzig applicators for non-melanoma localized skin cancer. J Contemp Brachytherapy. Oct 2020; 12(5): 435-440. PMID 33299432
17. Paravati AJ, Hawkins PG, Martin AN, et al. Clinical and cosmetic outcomes in patients treated with high-dose-rate electronic brachytherapy for nonmelanoma skin cancer. Pract Radiat Oncol. 2015; 5(6): e659-64. PMID 26432680
18. Delishaj D, Laliscia C, Manfredi B, et al. Non-melanoma skin cancer treated with high-dose-rate brachytherapy and Valencia applicator in elderly patients: a retrospective case series. J Contemp Brachytherapy. Dec 2015; 7(6): 437-44. PMID 26816500
19. Tormo A, Celada F, Rodriguez S, et al. Non-melanoma skin cancer treated with HDR Valencia applicator: clinical outcomes. J Contemp Brachytherapy. Jun 2014; 6(2): 167-72. PMID 25097557
20. Bhatnagar A, Loper A. The initial experience of electronic brachytherapy for the treatment of non-melanoma skin cancer. Radiat Oncol. Sep 28 2010; 5: 87. PMID 20875139
21. Gauden R, Pracy M, Avery AM, et al. HDR brachytherapy for superficial non-melanoma skin cancers. J Med Imaging Radiat Oncol. Apr 2013; 57(2): 212-7. PMID 23551783
22. Guix B, Finestres F, Tello J, et al. Treatment of skin carcinomas of the face by high-dose-rate brachytherapy and custom-made surface molds. Int J Radiat Oncol Biol Phys. Apr 01 2000; 47(1): 95-102. PMID 10758310
23. Kim JYS, Kozlow JH, Mittal B, et al. Guidelines of care for the management of cutaneous squamous cell carcinoma. J Am Acad Dermatol. Mar 2018; 78(3): 560-578. PMID 29331386
24. Tom MC, Hepel JT, Patel R, et al. The American Brachytherapy Society consensus statement for electronic brachytherapy. Brachytherapy. 2019; 18(3): 292-298. PMID 30497939
25. Shah C, Ouhib Z, Kamrava M, et al. The American Brachytherapy society consensus statement for skin brachytherapy. Brachytherapy. 2020; 19(4): 415-426. PMID 32409128
26. Likhacheva A, Awan M, Barker CA, et al. Definitive and Postoperative Radiation Therapy for Basal and Squamous Cell Cancers of the Skin: Executive Summary of an American Society for Radiation Oncology Clinical Practice Guideline. Pract Radiat Oncol. 2020; 10(1): 8-20. PMID 31831330
27. National Comprehensive Cancer Network (NCCN). NCCN Clinical Practice Guidelines in Oncology: Basal Cell Skin Cancer. Version 2.2025. https://www.nccn.org/professionals/physician_gls/pdf/nmsc.pdf. Accessed May 22, 2025.
28. National Comprehensive Cancer Network (NCCN). NCCN Clinical Practice Guidelines in Oncology: Squamous Cell Skin Cancer. Version 2.2025. https://www.nccn.org/professionals/physician_gls/pdf/squamous.pdf. Accessed May 27, 2025.

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