

Electronic Brachytherapy for Nonmelanoma Skin Cancer

Medicare Advantage Medical Policy # MA-024

Original Effective Date: 06/18/2024

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Applies to all products administered or underwritten by the Health Plan, unless otherwise provided in the applicable contract. Medical technology is constantly evolving, and we reserve the right to review and update Medical Policy periodically.

Services Are Considered Investigational

Coverage is not available for investigational medical treatments or procedures, drugs, devices or biological products.

Based on review of available data, the Health Plan considers electronic brachytherapy for the treatment of nonmelanoma skin cancer to be **investigational**.*

Background/Overview

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 million and 3 million people per year respectively, and increasing at a rate of 3% to 8% per year. Other types (eg, T-cell lymphoma, Merkel cell tumor, basosquamous carcinoma, Kaposi sarcoma) are much less common. Skin cancer can affect anyone, regardless of skin color; however, the incidence of skin cancer among non-Hispanic White individuals is approximately 30 times higher than that among non-Hispanic Black or Asian/Pacific Islander individuals. In individuals with darker skin tones, skin cancer is often diagnosed at a later stage when it is more difficult to treat. Additionally, these individuals are prone to skin cancer in areas not commonly exposed to the sun such as the palms of the hands, soles of the feet, the groin, and inside of the mouth.

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

Surgical

The choice of surgical procedure depends on the histologic type, size, and location of the lesion. Patient preferences can also play a factor in surgical decisions due to cosmetic reasons, as well as

the consideration of comorbidities and patient risk factors, such as anticoagulation. Local excisional procedures, such as electrodesiccation and curettage or cryotherapy, can be used for low-risk lesions,

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while surgical excision is indicated for lesions that are not low risk. Mohs surgery is an excisional procedure that uses microscopic guidance to achieve greater precision and sparing of normal tissue. In patients who meet criteria for Mohs surgery, 5-year cure rates for basal cell cancer range from 98% to 99%, making Mohs surgery the preferred procedure for those who qualify.

Radiotherapy

Radiotherapy is indicated for certain NMSCs not amenable to surgery. In some cases, this is due to the location of the lesion on the eyelid, nose, or other structures that make surgery more difficult and which may be expected to have a less desirable cosmetic outcome. In other cases, surgery may be relatively contraindicated due to clinical factors, such as bleeding risk or advanced age. In elderly patients with a relatively large tumor that would require extensive excision, the benefit/risk ratio for radiotherapy may be considered favorable. The 5-year control rates for radiotherapy range from 80% to 92%, which is lower than that of surgical excision. A randomized controlled trial by Avril et al (1997) reported that radiotherapy for basal cell carcinoma resulted in greater numbers of persistent and recurrent lesions compared with surgical excision.

When radiotherapy is used for NMSC, the primary modality is external-beam radiotherapy. A number of different brachytherapy techniques have also been developed, including low-dose rate systems, iridium-based systems, and high-dose rate systems.

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, constructed of silicone or polymethyl-methacrylate, is 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 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.

FDA or Other Governmental Regulatory Approval

U.S. Food and Drug Administration (FDA)

Electronic brachytherapy systems for the treatment of NMSCs are designed to deliver high-dose rate brachytherapy to treat skin surface lesions. This technique focuses a uniform dose of X-ray source radiation to the lesion with the aid of a shielded surface application. The Superficial X-Ray Radiation Therapy SRT-100 Vision^{™†} System (Sensus Healthcare), Esteya^{®‡} Electronic Brachytherapy

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System (Nucletron BV), and the Xofig[®] Axxent[®] Electronic Brachytherapy System (iCAD) are systems that have been cleared for marketing by the U.S. Food and Drug Administration through the 510(k) process.

U.S. Food and Drug Administration product code: JAD.

Rationale/Source

This medical policy was developed through consideration of peer-reviewed medical literature generally recognized by the relevant medical community, U.S. Food and Drug Administration approval status, nationally accepted standards of medical practice and accepted standards of medical practice in this community, technology evaluation centers, reference to federal regulations, other plan medical policies, and accredited national guidelines.

Description

Electronic brachytherapy is a form of radiotherapy designed to deliver high-dose rate radiation to treat nonmelanoma skin cancer (NMSC). This technique focuses a uniform dose of X-ray source radiation to the lesion with the aid of a shielded surface application.

Summary of Evidence

For individuals who have nonmelanoma skin cancer (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 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 Mohs micrographic surgery (MMS) in NMSC, and a more recent single-arm prospective cohort study reported short-term improvements in some measures of quality of life, 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.

Supplemental Information

Practice Guidelines and Position Statements

Guidelines or position statements will be considered for inclusion in 'Supplemental Information' if they were issued by, or jointly by, a US professional society, an international society with US

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representation, or National Institute for Health and Care Excellence (NICE). Priority will be given to guidelines that are informed by a systematic review, include strength of evidence ratings, and include a description of management of conflict of interest.

American Academy of Dermatology

In 2018, the American Academy of Dermatology published guidelines on the management of basal cell carcinoma and the management of squamous cell carcinoma. Electronic brachytherapy was rated as a C recommendation, with a level of evidence of II and III. By comparison, surgery, cryosurgery, topical therapies, and photodynamic therapies are rated as A and B recommendations.

American Brachytherapy Society

The American Brachytherapy Society issued a consensus statement on electronic brachytherapy following a literature review focused on trials, prospective studies, multi-institutional series, and single institution reports addressing clinical outcomes and toxicities. Due to a lack of comparative data to traditional treatments and limited long-term follow-up, prospective studies with a larger number of patients undergoing electronic brachytherapy for nonmelanoma skin cancer are recommended. At this time, the statement recommends that treatment with electronic brachytherapy in this patient population should be performed in the context of a clinical registry or trial. This recommendation was reaffirmed in a 2020 American Brachytherapy Society consensus statement on skin brachytherapy.

American Society for Radiation Oncology

The American Society for Radiation Oncology (ASTRO) issued clinical practice guidelines regarding definitive and postoperative radiation therapy for basal and squamous cell cancers of the skin. Key questions were addressed by a systematic literature review and recommendations were developed via consensus with a modified Delphi approach. Consensus recommendations for specific dose-fractionation schemes are detailed for the definitive and post-operative settings. The guideline also states that appropriate use of any of the 4 major radiation modalities, including electronically-generated low energy sources such as electronic brachytherapy, result in similar local control and cosmetic outcomes. Therefore, "the decision of which modality and fractionation scheme to use should be based on both tumor characteristics (eg, shape, contour, depth, and location) and normal tissue considerations."

National Comprehensive Cancer Network

The National Comprehensive Cancer Network guidelines on basal cell carcinoma (v.3.2024) and squamous cell skin cancer (v.1.2024) both contain the following statement on brachytherapy: "There is insufficient long-term efficacy and safety data to support the routine use of electronic surface brachytherapy."

U.S. Preventive Services Task Force Recommendations

Not applicable.

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Medicare National Coverage

There is no national coverage determination. In the absence of national coverage determination, coverage decisions are left to the discretion of local Medicare carriers.

Ongoing and Unpublished Clinical Trials

Some currently ongoing and unpublished trials that might influence this review are listed in Table 1.

Table 1. Summary of Key Ongoing Trials

NCT No.	Trial Name	Planned Enrollment	Completion Date
<i>Ongoing</i>			
NCT02131805	A Multicenter Pilot Study of Electronic Skin Surface Brachytherapy for Cutaneous Basal Cell and Squamous Cell Carcinoma	36	May 2024
<i>Unpublished</i>			
NCT01016899 ^a	Xoft Electronic Brachytherapy Clinical Protocol for the Primary Treatment of Non-Melanoma Skin Cancer	187 (actual)	Aug 2013 (completed)

NCT: national clinical trial.

^a Denotes industry-sponsored or cosponsored trial.

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06/18/2024 Utilization Management Committee review/approval. New policy.

04/15/2025 Utilization Management Committee review/approval. Coding update.

Next Scheduled Review Date: 04/2026

Coding

The five character codes included in the Health Plan Medical Policy Coverage Guidelines are obtained from Current Procedural Terminology (CPT®)‡, copyright 2025 by the American Medical Association (AMA). CPT is developed by the AMA as a listing of descriptive terms and five character identifying codes and modifiers for reporting medical services and procedures performed by physician.

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Codes used to identify services associated with this policy may include (but may not be limited to) the following:

Code Type	Code
CPT	0394T
HCPCS	No codes
ICD-10 Diagnosis	All related diagnoses

*Investigational – A medical treatment, procedure, drug, device, or biological product is Investigational if the effectiveness has not been clearly tested and it has not been incorporated into standard medical practice. Any determination we make that a medical treatment, procedure, drug, device, or biological product is Investigational will be based on a consideration of the following:

- A. Whether the medical treatment, procedure, drug, device, or biological product can be lawfully marketed without approval of the U.S. Food and Drug Administration (FDA) and whether such approval has been granted at the time the medical treatment, procedure, drug, device, or biological product is sought to be furnished; or
- B. Whether the medical treatment, procedure, drug, device, or biological product requires further studies or clinical trials to determine its maximum tolerated dose, toxicity, safety, effectiveness, or effectiveness as compared with the standard means of treatment or diagnosis, must improve health outcomes, according to the consensus of opinion among experts as shown by reliable evidence, including:
 1. Consultation with technology evaluation center(s);
 2. Credible scientific evidence published in peer-reviewed medical literature generally recognized by the relevant medical community; or
 3. Reference to federal regulations.

NOTICE: If the Patient's health insurance contract contains language that differs from the Health Plan's Medical Policy definition noted above, the definition in the health insurance contract will be relied upon for specific coverage determinations.

NOTICE: Medical Policies are scientific based opinions, provided solely for coverage and informational purposes. Medical Policies should not be construed to suggest that the Health Plan recommends, advocates, requires, encourages, or discourages any particular treatment, procedure, or service, or any particular course of treatment, procedure, or service.

NOTICE: Federal and State law, as well as contract language, including definitions and specific contract provisions/exclusions, take precedence over Medical Policy and must be considered first in determining eligibility for coverage.

Medicare Advantage Members

Established coverage criteria for Medicare Advantage members can be found in Medicare coverage guidelines in statutes, regulations, National Coverage Determinations (NCD)s, and Local Coverage

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Determinations (LCD)s. To determine if a National or Local Coverage Determination addresses coverage for a specific service, refer to the Medicare Coverage Database at the following link: <https://www.cms.gov/medicare-coverage-database/search.aspx>. You may wish to review the Guide to the MCD Search here: <https://www.cms.gov/medicare-coverage-database/help/mcd-benehelp.aspx>.

When coverage criteria are not fully established in applicable Medicare statutes, regulations, NCDs or LCDs, internal coverage criteria may be developed. This policy is to serve as the summary of evidence, a list of resources and an explanation of the rationale that supports the adoption of this internal coverage criteria.

InterQual®

InterQual® is utilized as a source of medical evidence to support medical necessity and level of care decisions. InterQual® criteria are intended to be used in connection with the independent professional medical judgment of a qualified health care provider. InterQual® criteria are clinically based on best practice, clinical data, and medical literature. The criteria are updated continually and released annually. InterQual® criteria are a first-level screening tool to assist in determining if the proposed services are clinically indicated and provided in the appropriate level or whether further evaluation is required. The utilization review staff does the first-level screening. If the criteria are met, the case is approved; if the criteria are not met, the case is referred to the medical director.