*National Imaging Associates, Inc.	
Clinical guidelines: **SKIN CANCER**	**Original Date: May 2016**
Radiation Oncology	**Last Revised Date: May 2023**
Guideline Number: NIA_CG_136	**Implementation Date: January 2024**

GENERAL INFORMATION

- *It is an expectation that all patients receive care/services from a licensed clinician. All appropriate supporting documentation, including recent pertinent office visit notes, laboratory data, and results of any special testing must be provided. If applicable: All prior relevant imaging results and the reason that alternative imaging cannot be performed must be included in the documentation submitted.*
- *Where a specific clinical indication is not directly addressed in this guideline, medical necessity determination will be made based on widely accepted standard of care criteria. These criteria are supported by evidence-based or peer-reviewed sources such as medical literature, societal guidelines and state/national recommendations.*

INDICATIONS FOR RADIATION THERAPY

Basal & Squamous Cell Skin Cancer[1, 2,3, 4]

2D or 3D-CRT EBRT (electron/ photon) are appropriate techniques for treatment of basal squamous cell skin cancer for any of the following: definitive treatment for non-surgical candidates, cancer surgery would be disfiguring, further resection needed post-operative or adjuvant therapy for cancers at risk for recurrence. Fractionation and treatment schedules range from single fraction to 33 fractions. Longer fractionation is associated with improved cosmetic results.

Dosage and Schedule Guidelines

- Definitive RT
  - Tumor diameter
    - 60-64 Gy over 6-7 weeks
    - 50-55 Gy over 3-4 weeks
    - 40 Gy over 2 weeks
    - 30 Gy in 5 fractions over 2-3 weeks
  - Tumor diameter ≥ 2 cm, T3/T4, or those with invasion of bone or deep tissue
    - 60-70 Gy over 6-7 weeks
    - 45-55 Gy over 3-4 weeks
- Post-operative RT/ Regional Disease

- Positive lymph nodes (not indicated for single, small (< 3cm) cervical lymph node harboring carcinoma, without extracapsular extension)
- Gross perineural spread
- Depth > 6mm
- Close or positive margins that cannot be corrected with further surgery
- Recurrence after a prior margin-negative resection
- T3 and T4 tumors
- Desmoplastic or infiltrative tumors in the setting of chronic immunosuppression
    - Lymph node regions, after lymph node dissection[1, 2]
        - Negative margins, no ECE: 50-60 Gy over 5 to 6 weeks
        - Positive margins or ECE: 60-66 Gy over 6 to 7 weeks
    - Lymph node regions, without lymph node dissection
        - Clinically negative, at risk: 50 Gy over 5 weeks
        - Clinically positive: 60-70 Gy over 6 to 7 weeks
    - Clinically at-risk nerves: 50-60 Gy over 5 to 6 weeks

Melanoma[5]

2D or 3D-CRT EBRT (electron/ photon) are appropriate techniques for treatment of Melanoma skin cancer for any of the following: adjuvant treatment after resection of primary site, regional disease following resection of nodes, local recurrent disease, or palliative treatment.

Dosage and Schedule Guidelines

- *Definitive Therapy*: may be considered as a treatment option for MIS, LM-type (i.e., high-CSD) in medically inoperable patients or those in whom surgical morbidity of complete resection would be prohibitive.
    - 64-70 Gy in 32–35 fractions over 6–7 weeks
    - 50-57.5 Gy in 20–23 fractions over 4–5 weeks
    - 35 Gy in 5 fractions over 1 week for fields < $3cm^2$
    - 32 Gy in 4 fractions once per week
- *Adjuvant Therapy/Regional Disease*: may be considered for select cases of high-risk desmoplastic melanoma based on a combination of risk factors for local recurrence. Risk factors for regional recurrence include gross and/or histologic extracapsular extension of melanoma in clinically (macroscopic) involved node(s), ≥ 1 parotid node, ≥ 2 cervical or axillary nodes, ≥ 3 inguinofemoral nodes, ≥ 3 cm cervical or axillary node, and/or ≥4 cm inguinofemoral node. Other risk factors include Breslow ≥4mm, head and neck primaries, ulceration, satellitosis, and perineural invasion.
    - 50-66 Gy in 25-33 fractions over 5-7 weeks
    - 48 Gy in 20 fractions over 4 weeks
    - 30 Gy in 5 fractions over 2 weeks (twice per week or every other day)
- *Palliative Therapy*:

- Unresectable nodal, satellite, or in-transit disease
- Residual local, satellite, or in-transit disease after prior treatment
- Symptomatic Extracranial Metastases
    - 24-27 Gy in 3 fractions over 1-1.5 weeks
    - 32 Gy in 4 fractions over 4 weeks
    - 40 Gy in 8 fractions over 4 weeks
    - 50 Gy in 20 fractions over 4 weeks
    - 30 Gy in 10 fractions over 2 weeks
    - 30 Gy in 5 fractions over 2 weeks
    - 20 Gy in 5 fractions over 1 week
    - 8 Gy in 1 fraction over 1 day

Merkel Cell Carcinoma[6]

2D or 3D-CRT EBRT (electron/ photon) are appropriate techniques for treatment of Merkel Cell Carcinoma skin cancer for any of the following: adjuvant treatment after resection of primary site, regional disease following resection of nodes, local recurrent disease, or palliative treatment

Dosage and Schedule Guidelines

- *Definitive Therapy*: Unresectable, Surgery refused by patient, Surgery would result in significant morbidity
    - 60-66 Gy in 30–33 fractions over 6-7 weeks
- *Adjuvant RT*
    - Negative resection margins: 50-56 Gy
    - Microscopically positive resection margins: 56-60 Gy
    - Grossly positive resection margins and further resection not possible: 60-66 Gy
- *Regional Disease*
    - No SLNB or LN dissection
        - Clinically evident lymphadenopathy: 60-66 Gy
        - Clinically node negative, but at risk for subclinical disease: 46-50 Gy
    - SLNB without LN dissection
        - SLN negative — RT not routinely indicated: Observation
        - SLN positive: 50-56 Gy
    - After LN dissection with multiple involved nodes and/or extracapsular extension: 50-60 Gy

Cutaneous Lymphoma[7, 8]

- *PTCL*
    - Consolidation after chemotherapy CR: 30-36 Gy
    - Complementary after PR: 40-50 Gy
    - RT as primary treatment for refractory or non-candidates for chemotherapy: 40-55 Gy

    - In combination with HCT: 20-36 Gy, depending on sites of disease and prior RT exposure
- *Breast-implant associated ALCL*: 24-36 Gy for local residual disease
- *NK/T-cell lymphoma*
    - RT alone as primary treatment (if unfit for chemotherapy): 50-55 Gy
    - RT in combined modality therapy: 45-56 Gy
    - Combined modality therapy (non–asparaginase-based):
        - CCRT:
            - 50 Gy in combination with DeVIC (dexamethasone, etoposide, ifosfamide, and carboplatin)
            - 50-54 Gy in combination with cisplatin followed by VIPD (etoposide, ifosfamide, cisplatin, and dexamethasone)
        - Sequential chemoradiation: Modified SMILE regimen followed by RT 45-50.4 Gy for stage I–II disease
        - Sandwich chemoradiation: P-GEMOX (2 cycles) followed by RT 56 Gy followed by P-GEMOX (2–4 cycles)
    - Palliative RT: 20-36 Gy in 5-18 fractions
- *PCMZL and PCFCL*: Optimal initial management for solitary/regional disease is with 24-30 Gy external beam radiation therapy (EBRT)
    - RT for relapsed disease: 4 Gy EBRT may be adequate
- *MF/SS*
    - Treatment of individual plaques or tumors
        - Optimal management for individual plaque and tumor lesions is with EBRT, 8-12 Gy; 8 Gy may be given in 1–2 fractions
        - For unilesional MF, 24-30 Gy
    - Total Skin Electron Beam Therapy (TSEBT) may be utilized to cover the entire cutaneous surface
        - The dose range is 12-36Gy, generally 4 – 6 Gy per week. “Shadowed” areas may need to be supplemented with individual electron fields. Individual tumors may be boost with doses of 4-12 Gy
- *Primary cutaneous ALCL*:
    - RT for curative treatment: 24-36 Gy
    - Palliative RT: 2 Gy x 2
    - Doses as low as 6 Gy are used occasionally, but data are limited regarding response and duration.

TREATMENT OPTIONS (will be reviewed on a case-by-case basis):

Brachytherapy

LDR, HDR, surface or interstitial brachytherapy may be considered where excision or EBRT is contraindicated. Electronic brachytherapy is considered experimental and investigational at this time.[1]

Intensity modulated radiation therapy (IMRT)

IMRT is not indicated as a standard treatment option and should not be used routinely for the delivery of radiation therapy for skin cancer. IMRT is strictly defined by the utilization of inverse planning modulation techniques. IMRT may be appropriate for limited circumstances in which radiation therapy is indicated and 3D conformal radiation therapy (3D-CRT) techniques cannot adequately deliver the radiation prescription without exceeding normal tissue radiation tolerance, the delivery is anticipated to contribute to potential late toxicity or tumor volume dose heterogeneity is such that unacceptable hot or cold spots are created. If IMRT is utilized, techniques to account for respiratory motion should be performed.

Clinical rationale and documentation for performing IMRT rather than 2D or 3D-CRT treatment planning and delivery will need to:

- Demonstrate how 3D-CRT isodose planning cannot produce a satisfactory treatment plan (as stated above) via the use of a patient-specific dose volume histograms and isodose plans. 3D-CRT techniques such as step-and-shoot or field-in-field should be considered for the comparison.
- Confirm the IMRT requested will be inversely planned (forward plans or 'field-in-field' plans are not considered IMRT).
- Provide tissue constraints for both the target and affected critical structures.

Proton Beam Radiation Therapy

Proton beam is not an approved treatment option for skin cancer. Proton beam has not been proven superior treatment to conventional radiation therapy.

Stereotactic Body Radiation Therapy (SBRT)

Stereotactic Body Radiation Therapy is not a standard treatment option for the treatment of skin cancer. These requests will be reviewed on a case-by-case basis.

BACKGROUND

There are three main types of skin cancer:

- Basal cell carcinoma (BCC)
- Squamous cell carcinoma (SCC)
- Melanoma

BCC and SCC are the most common forms of skin cancer and are collectively referred to as nonmelanoma skin cancers. Nonmelanoma skin cancer is the most commonly occurring cancer in the United States. BCC is the more common type of the two nonmelanoma types, accounting for about three-quarters of nonmelanoma skin cancers. The incidence of nonmelanoma skin cancer appears to be increasing in some areas of the United States. Incidence rates in the United States have likely been

increasing for several years. At least some of this increase may be attributable to increasing skin cancer awareness, resulting in an increase in investigation and biopsy of skin lesions.

Melanoma is a malignant tumor of melanocytes, which are the cells that make the pigment melanin and are derived from the neural crest. Melanomas may arise from mucosal surfaces or at other sites to which neural crest cells migrate, including the uveal tract, although most melanomas arise in the skin.

Skin cancer is the most common malignancy diagnosed in the United States, with 3.5 million cancers diagnosed in 2 million people annually and the incidence increasing over the past four decades. Melanoma represents less than 5% of skin cancers but results in most deaths. Elderly men are at highest risk; however, melanoma is the most common cancer in young adults aged 25 to 29 years and the second most common cancer in those aged 15 to 29 years.

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POLICY HISTORY

Date	Summary

May 2023	• Clarified/Updated
	  ○ Basal & Squamous Cell Skin Cancer
	  ○ Melanoma
	  ○ Merkel Cell Carcinoma
	  ○ Cutaneous Lymphoma
	• Deleted Additional Resources
	• Changed "Treatment options requiring physician review" to Treatment Options (will be reviewed on a case-by-base basis**)**

January 2022	• Added Merkel Cell Carcinoma • Added Total Skin Electron Beam Therapy (TSEBT) may be utilized to cover the entire cutaneous surface • Added dosage guidelines for TSEBT

Reviewed / Approved by NIA Clinical Guideline Committee

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