Molina Clinical Policy
Radiation Therapy Services (Teletherapy Brachytherapy IMRT SBRT SRS IORT and IGRT)
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STATEMENT

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. This guideline is not a prescription for treatment. All individual treatment decisions are the responsibility of the treating physician.*
- *The guideline criteria in the following sections were developed utilizing evidence-based and peer-reviewed resources from medical publications and societal organization guidelines as well as from widely accepted standard of care, best practice recommendations. This guideline considers treatment endorsed by professional organizations (i.e., the American Society for Radiation Oncology and the National Comprehensive Cancer Network). It approves many treatment regimens that fall within that guidance, but it is also modified by significant factors such as toxicity and the level of available medical evidence.*

Purpose

The purpose of this guideline is to provide general information applicable to the review and appropriateness of Radiation Therapy services. Although a service, supply or procedure may be medically necessary, it may be subject to limitations and/or exclusions under a member's benefit plan. Although a service, supply or procedure may be discussed in the guideline, it may be subject to limitations and/or exclusions under a member's benefit plan. If a service, supply, or procedure is not covered and the member proceeds to obtain the service, supply or procedure, the member may be responsible for the cost. This guideline does not apply to inpatient treatment such as inpatient two-dimensional (2D), three-dimensional conformal radiation therapy (3D-CRT), intensity-modulated radiation therapy (IMRT), brachytherapy, hyperthermia, stereotactic radiosurgery/stereotactic body radiation therapy (SRS/SBRT), selective internal radiation therapy (SIRT), and intraoperative radiation therapy (IORT) treatments. It only applies to treatment that is delivered to a patient as an outpatient or as an outpatient observation service rendered to a patient in a hospital.

BREAST CANCER (1)

Post-Mastectomy

Indications for 3D-CRT to the Chest Wall [1]

Fractionation

- Conventional Fractionation
  - Treatment to chest wall and regional lymph nodes in up to 28 fractions of **3D-CRT** followed by an optional chest wall scar boost in up to 5 fractions for patients with no metastatic disease
- Hypofractionation
  - Treatment to chest wall and regional lymph nodes in up to 16 fractions of **3D-CRT** followed by an optional chest wall scar boost in up to 5 fractions for patients with no metastatic disease

Indications for IMRT to the Chest Wall [1,2]

ONLY when one of the following anatomical considerations are met [2]:

- The planned treatment area includes the Internal Mammary Lymph Node Chain **OR**
- The patient has an unfavorable anatomy with a breast separation of 25 cm or greater

Fractionation

- Conventional Fractionation
  - Treatment to chest wall and regional lymph nodes in up to 28 fractions of **IMRT** followed by an optional chest wall scar boost in up to 5 fractions for patients with no metastatic disease
- Hypofractionation
  - Treatment to chest wall and regional lymph nodes in 16 fractions of **IMRT** followed by an optional chest wall scar boost of up in up to 5 fractions for patients with no metastatic disease

Post-Lumpectomy and Lymph Node Negative

Indications for 3D-CRT to the Whole Breast [1]

Fractionation

- Hypofractionation
  - Treatment to the whole breast in up to 16 fractions of **3D-CRT** followed by an optional boost in up to 5 fractions for patients with no metastatic disease
- Ultra-hypofractionation
  - Treatment to the whole breast in 5 fractions of **3D-CRT** may be considered in selected early-stage patients following breast conservation surgery for patients with no metastatic disease

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Indications for IMRT to the Whole Breast

Only when the following anatomical consideration is met [3]:

- The patient has an unfavorable anatomy with a breast separation of 25 cm or greater

Fractionation Irradiation

- Conventional Fractionation
  - Treatment to the whole breast in up to 28 fractions of **IMRT** followed by an optional boost in up to 5 fractions boost for patients with no metastatic disease [1]

Indications for Accelerated Partial Breast (APBI) with 3D-CRT or IMRT [3]

ONLY when **ALL** of the following criteria are met:

- Age ≥40 years
- Absence of BRCA 1/2 mutations, if assessed
- Invasive Ductal Carcinoma, ≤3 cm in size, negative margins
- Ductal Carcinoma In Situ (DCIS), ≤3 cm in size, negative margins
- Patients with no metastatic disease

Fractionation [1,3]

- 15 fractions **OR**
- 10 fractions delivered twice a day (BID) **OR**
- 5 daily fractions

Indications for Accelerated Partial Breast Irradiation (APBI) with Brachytherapy

ONLY when **ALL** of the following criteria are met [1,3]:

- Age ≥40 years
- Absence of BRCA 1/2 mutations, if assessed
- Invasive Ductal Carcinoma, ≤3 cm in size, negative margins
- Ductal Carcinoma In Situ (DCIS), ≤3 cm in size, negative margins
- Patients with no metastatic disease

Fractionation [1,4]

Appropriate fractionation schemes for APBI with **Brachytherapy** are

- Up to 10 fractions delivered twice a day (BID)

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***Note**: The following types of brachytherapy are considered investigational/experimental for the treatment of breast cancer [5]

- Electronic Brachytherapy
- Non-Invasive Breast Brachytherapy (AccuBoost®)

Post Lumpectomy and Lymph Node Positive

Indications for 3D-CRT to the Whole Breast

Fractionation

- Conventional Fractionation [1]
  - Treatment to the whole breast and regional lymph nodes in up to 28 fractions of **3D-CRT** followed by an optional boost in up to 5 fractions boost for patients with no metastatic disease.

Indications for IMRT to the Whole Breast [1,2]

ONLY when **ONE** of the following anatomical considerations are met:

- The planned treatment area includes the Internal Mammary Lymph Node Chain **OR**
- The patient has an unfavorable anatomy with a breast separation of 25 cm or greater

Fractionation

- Conventional Fractionation [1]
  - Treatment to the whole breast and regional lymph nodes in up to 28 fractions of **IMRT** followed by an optional boost in up to 5 fractions for patients with no metastatic disease.

***Note:** Indications for radiation treatment of **Male Breast Cancer** are similar to indications for radiation treatment of female breast cancer. [1] Please refer to the clinical subsections above for radiation treatment options.

Breast Cancer- See section on **HYPERTHERMIA**

Breast Cancer - See section on **IORT**

CENTRAL NERVOUS SYSTEM TUMORS

Primary Brain and Spinal Cord Cancers [6]

Low Grade Adult Glioma (WHO grade 1 & 2, Glioma, Astrocytoma, Oligodendroglioma, and Oligoastrocytoma) [7]

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation
  - Treatment in up to 30 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

High Grade Adult Glioma (WHO grade 3 & 4, GBM, Anaplastic Astrocytoma, Anaplastic Oligodendroglioma, and Anaplastic Oligoastrocytoma) [7]

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation for patients age <60 years old and PS 0-2
  - Treatment in up to 33 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Hypofractionation [6]
  - For patients ≥ 60 years old **OR** patients with poor performance status (ECOG >2), treatment in up to 15 fractions using **IMRT or 3D-CRT**

Indications for Brachytherapy [8,9]

- In patients only with recurrent high-grade disease, a single treatment of GammaTile brachytherapy

Adult Intracranial and Spinal Ependymoma (Brain and/or Spine)

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation [6]
  - Treatment in up to 33 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Adult Medulloblastoma

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation [6]
  - Treatment with Craniospinal Irradiation (CSI) including a primary site boost in up to 31 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Primary CNS Lymphoma

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation [6]
  - Treatment with Whole Brain Radiation Therapy (WBRT) and a boost (if necessary) in up to 25 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Primary Spinal Cord Tumors

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation [6]
  - Treatment in up to 30 fractions using **IMRT or 3D-CRT**
  - For tumors below the conus medullaris, treatment in up to 33 fractions using **IMRT or 3D-CRT**

Meningioma (Grade 1)

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation [6]
  - Treatment in up to 30 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Indications for SRS or Fractionated SRS (SBRT)

Fractionation

- Treatment in 1 fraction of **SRS**
- Treatment in 2 to 5 fractions of Fractionated SRS (SBRT**)**

Meningioma (Grade 2)

Indications for IMRT or 3D-CRT [6]

Fractionation

- Conventional Fractionation
  - Treatment in up to 33 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Indications for SRS or Fractionated SRS (SBRT) [6]

Fractionation

- Treatment in 1 fraction of **SRS**

- Treatment in 2 to 5 fractions of **Fractionated SRS (SBRT)**

Meningioma (Grade 3)

Indications for IMRT or 3D-CRT [6]

Fractionation

- Conventional Fractionation
  - Treatment in up to 35 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Benign Brain Lesions

Acoustic Neuroma (Vestibular Schwannoma)

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation [10]
  - Treatment in up to 28 fractions using **IMRT or 3D-CRT**

Indications for SRS or Fractionated SRS (SBRT) [10]

Fractionation

- Treatment in 1 fraction of **SRS**
- Treatment in 2 to 5 fractions of **Fractionated SRS (SBRT)**

Arteriovenous Malformations (AVM)

Indications for SRS or Fractionated SRS (SBRT) [11,12]

Fractionation

- Treatment in 1 fraction of **SRS**
- Treatment in 2 to 5 fractions of Fractionated SRS (**SBRT)**

Trigeminal Neuralgia [13]

Indications for Stereotactic Radiosurgery (SRS)

Fractionation

- Treatment in 1 fraction of **SRS**

Craniopharyngioma

Indications for IMRT or 3D-CRT [2,14]

Fractionation

- Conventional Fractionation
  - Treatment in up to 30 fractions using **IMRT or 3D-CRT**

Indications for Stereotactic Radiosurgery (SRS) *(14,15)*

Fractionation

- Treatment in 1 fraction of **SRS**
- Treatment in 2 to 5 fractions of **Fractionated SRS (SBRT)**

Brachytherapy *(16)*

Treatment using intracavitary **Brachytherapy** via the injection of a radioisotope is considered medically necessary using isotopes such as:

- Yttrium-90 (Y90) **OR**
- Phosphorus-32 (P32)

Pituitary Adenoma

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation [17]
  - Treatment in up to 28 fractions using **IMRT or 3D-CRT**

Indications for SRS or Fractionated SRS (SBRT) *(18)*

Fractionation

- Treatment in 1 fraction of **SRS**
- Treatment in 2 to 5 fractions of **Fractionated SRS (SBRT)**

Prophylactic Cranial Irradiation (PCI)

Indications for 3D-CRT *(19)*

ONLY when **ALL** of the following apply:

- Diagnosis is limited or extensive stage small cell lung cancer
- The patient had a good response to initial therapy
- ECOG performance status ≤2

Fractionation

- Treatment in up to 10 fractions using **3D-CRT**

Indications for IMRT (19)

ONLY when **ALL** of the following apply:

- Diagnosis is limited or extensive stage small cell lung cancer
- Had a good response to initial therapy
- ECOG performance status ≤2
- A hippocampal avoidance (HA), whole brain **IMRT** technique is being used for this treatment

Fractionation

- Treatment in up to 10 fractions using **IMRT**

GASTROINTESTINAL CANCERS

Rectal Cancer (20)

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation
  - Treatment in up to 30 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Rectal Cancer - See section on **IORT**

Anal Cancer (21)

T1-T2N0

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation
  - Treatment in up to 28 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

T3-T4N0 or LN positive

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation
  - Treatment in up to 30 fractions using **IMRT or 3D-CRT** for patients with no

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metastatic disease

Colon Cancer (22)

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation
  - Treatment in up to 28 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease, **ONLY** in patients meeting **ONE** of the following criteria mentioned below:
    - T4 disease (tumor adherent to an adjacent structure after surgery) **OR**
    - Inoperable cancer

Colon Cancer - See section on **IORT**

Esophageal Cancer (Thoracic) (23)

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation
  - Treatment in up to 28 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Esophageal Cancer (Cervical) (23)

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation
  - Treatment in up to 35 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Gastric Cancer (24)

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation
  - Treatment in up to 28 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

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Pancreatic Cancer (25)

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation
  - Treatment in up to 31 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Hypofractionation
  - Treatment in up to 15 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
  - Treatment in up to 25 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Indications for SBRT

Fractionation

- Treatment in up to 5 fractions of **SBRT** for patients with no metastatic disease

Cholangiocarcinoma/Gallbladder Cancer (26)

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation
  - Treatment in up to 35 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Hypofractionation
  - Treatment in up to 15 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Indications for SBRT

Fractionation

- Treatment in up to 5 fractions of **SBRT** for patients with no metastatic disease

Cholangiocarcinoma - See section on

SIRT

Hepatocellular Cancer [27]

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation
  - Treatment in up to 33 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Hypofractionation
  - Treatment in up to 15 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Hepatocellular carcinoma - See section on

SIRT

Indications for SBRT

Fractionation

- Treatment in up to 5 fractions of **SBRT** for patients with no metastatic disease

GENITOURINARY CANCERS

Very Low/Low Risk Prostate Cancer [28,29]

Definition

Very Low Risk Prostate Cancer:

- Clinical Primary Tumor Stage [T] is T1c, PSA <10 ng/ml, Grade Group 1 (Gleason score 3+3 ≤ 6), PSA density <0.15 ng/mL/ g, and < 3 biopsy cores positive with ≤ 50% cancer in each core

Low Risk Prostate Cancer:

- Clinical Primary Tumor Stage [T] is T1c-T2a, PSA <10 ng/ml, and Grade Group 1 (Gleason score 3+3 ≤ 6) but does not qualify for the very low risk group

Indications for IMRT or 3D-CRT [28,29]

Fractionation

- Hypofractionation

- Treatment in up to 28 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

- Conventional Fractionation
  - Treatment in up to 45 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease is considered medically necessary ONLY for patients who are exempt from hypofractionation due to **ONE** of the following criteria:
    - The prostate is 80 grams or larger [30] **OR**
    - There is a history of inflammatory bowel disease **OR**
    - The International Prostate Symptom Score (IPSS) is 12 or greater **AND** documented in the submitted records **OR**
    - There is a history of a prior transurethral resection of the prostate (TURP) [31]

Indications for SBRT [29]

Fractionation

- Treatment in up to 5 fractions of **SBRT** for patients with no metastatic disease

Indications for Brachytherapy [29]

Fractionation

- Treatment with LDR or HDR as monotherapy for patients with no metastatic disease
  - LDR (low dose-rate) brachytherapy options include:
    - 1 implant of Cesium-131
    - 1 implant of Palladium-103
    - 1 implant of Iodine-125
  - HDR (high dose-rate) brachytherapy options include:
    - 2 fractions given over 2 days using Iridium-192
    - 4 fractions given over 2 days (twice daily) using Iridium-192

Favorable Intermediate Risk Prostate Cancer [28,29]

Definition

- < 50% (e.g., <6 of 12) of the prostate biopsy cores contain cancer
- No high-risk or very high-risk group features, and no more than one of the following intermediate risk factors:
  - PSA 10-20 ng/mL
  - Clinical primary tumor stage T2b-c
  - Grade Group 2 (Gleason score 3+4=7; risk factor) with a PSA <10 ng/mL and clinical

primary tumor stage T1c-T2a

Indications for IMRT or 3D-CRT

Fractionation

Hypofractionation

- Treatment in up to 28 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Conventional Fractionation

- Conventional fractionation is considered medically necessary **ONLY** for patients who are exempt from hypofractionation due to **ONE** of the following criteria:
  - The prostate is 80 grams or larger **OR**
  - There is a history of inflammatory bowel disease **OR**
  - The International Prostate Symptom Score (IPSS) is 12 or greater **AND** documented in the submitted records **OR**
  - There is a history of a prior transurethral resection of the prostate TURP [31]
- Treatment
  - Treatment in up to 45 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
  - Treatment in up to 35 fractions (with a simultaneous integrated micro-boost to the MRI-dominant nodules) using **IMRT or 3D-CRT** for patients with no metastatic disease

Indications for SBRT

Fractionation

- Treatment in up to 5 fractions of **SBRT** for patients with no metastatic disease

Indications for Brachytherapy

Fractionation

- Treatment with LDR or HDR as monotherapy for patients with no metastatic disease
  - LDR (low dose-rate) brachytherapy options include:
    - 1 implant of Cesium-131
    - 1 implant of Palladium-103
    - 1 implant of Iodine-125
  - HDR (high dose-rate) brachytherapy options include:
    - 2 fractions given over 2 days using Iridium-192

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- 4 fractions given over 2 days (twice daily) using Iridium-192

Unfavorable Intermediate/High/Very High-Risk Prostate Cancer (28,29)

Definition

Unfavorable Intermediate Risk Prostate Cancer has one or more of the following:

- ≥ 50% biopsy cores positive (e.g., <6 of 12)
- Grade Group 3 (Gleason score 4+3=7)
- 2-3 intermediate risk factors, including:
  - PSA 10-20 ng/mL
  - Clinical primary tumor stage T2b-c
  - Grade Group 2 (Gleason score 3+4=7)

High Risk Prostate Cancer has no very-high-risk features and at least one of the following high-risk features:

- Clinical Primary Tumor Stage T3-T4
- PSA > 20 ng/mL
- Grade Group 4 (Gleason score 8) or 5 (Gleason score 9-10)

Very High Risk Prostate Cancer has at least one of the following very high-risk features:

- Clinical Primary Tumor Stage T3-T4
- PSA > 40 ng/mL
- Grade Group 4 (Gleason score 8) or 5 (Gleason score 9-10)

Indications for IMRT or 3D-CRT

Fractionation

Hypofractionation

- Treatment in up to 28 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Conventional Fractionation (31–34)

- Conventional Fractionation is considered medically necessary **ONLY** for patients who are exempt from hypofractionation due to **ONE** of the following criteria:
  - The pelvic lymph node chains are included in the treatment plan **OR**
  - The prostate is 80 grams or larger **OR**
  - There is a history of inflammatory bowel disease **OR**

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- The International Prostate Symptom Score (IPSS) is 12 or greater **AND** documented in the submitted records **OR**
- There is a history of a prior transurethral resection of the prostate (TURP)

- Treatment
  - Treatment in up to 45 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
  - Treatment in up to 35 fractions (with a simultaneous integrated micro-boost to the MRI-dominant nodules) using **IMRT or 3D-CRT** for patients with no metastatic disease

Indications for SBRT

Fractionation

- Treatment in up to 5 fractions of **SBRT** for patients with no metastatic disease

Indications for Brachytherapy

Fractionation

- With no metastatic disease
  - LDR (low dose-rate) **Brachytherapy boost** in combination with **3D-CRT or IMRT** treatment in up to 28 fractions. Brachytherapy boost options include:
    - 1 implant of Cesium-131
    - 1 implant of Palladium-103
    - A single implant of Iodine-125
  - HDR (high dose-rate) **Brachytherapy boost** in combination with **3D-CRT or IMRT** treatment in up to 28 fractions. Brachytherapy boost options include:
    - 1 fraction using Iridium-192
    - 2 fractions using Iridium-192

Prostate Cancer with Positive Regional Lymph Nodes (N1) (29)

Definition

N1 M0 disease refers to prostate cancer that has spread to the regional lymph nodes and is visible on conventional imaging (i.e., CT scan, MRI scan or bone scan).

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation
  - Treatment in up to 45 fractions using **IMRT or 3D-CRT** for patients with no

metastatic disease

- Hypofractionation
  - Treatment in up to 28 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Prostate Cancer with a Low Metastatic Burden (29)

Definition (29)

Low metastatic burden, castration-sensitive disease refers to prostate cancer that is metastatic and visible on conventional imaging (i.e., CT scan, MRI scan or bone scan) and meeting the following criteria:

- Up to 7 bony metastases (M1b) in patients without visceral (M1c) metastases

Indications for IMRT or 3D-CRT

Fractionation

- Hypofractionation
  - Treatment in up to 20 fractions using **IMRT or 3D-CRT.**

Indications for SBRT

Fractionation

- Treatment in up to 5 fractions of **SBRT** for patients with no metastatic disease

Post-Prostatectomy (Adjuvant/Salvage) Radiation for Prostate Cancer (29)

Definition

Post-Prostatectomy Radiation Therapy Suitable Patients are patients with no metastatic disease who require **Adjuvant Radiation** due to concerning pathologic features following a radical prostatectomy **OR Salvage Radiation** due to persistently rising/detectable PSA after a radical prostatectomy.

- Patients who require **Adjuvant Radiation** after a radical prostatectomy include patients with concerning pathology findings such as:
  - Extracapsular extension (pT3a disease) **OR**
  - Seminal vesicle invasion (pT3b) **OR**
  - Positive surgical margin(s) **OR**
  - Gleason score 8-10 (on either a biopsy or found at the time of surgery)
- Patients who require **Salvage Radiation** after a radical prostatectomy include patients with:

- A PSA that was undetectable after surgery and later became detectable again and increased on 2 additional measurements **OR**
- A PSA that remained persistently detectable after surgery

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation
  - Treatment in up to 40 fractions using **IMRT or 3D-CRT** in the absence of gross disease
- Hypofractionation [29]
  - Treatment in up to 20 fractions using **IMRT or 3D-CRT** to the prostate fossa alone

Prostate - Prophylactic Breast Radiation (for patients receiving ADT)

Indications for 3D-CRT [35]

- Prophylactic Breast Radiation with **3D-Conformal Radiation Therapy (3D-CRT)** for men receiving Androgen Deprivation Therapy (ADT) is considered medically necessary with treatment in up to 3 fractions to prevent gynecomastia.

Bladder Cancer [36]

T2-T4 or positive lymph nodes (organ preservation/nonsurgical)

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation
  - Treatment of the whole or partial bladder (and elective treatment to the lymph nodes is optional) in up to 37 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Hypofractionation
  - Treatment in up to 20 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Postoperative Treatment

Indications for IMRT or 3D-CRT

Following a radical cystectomy with suspected microscopic disease, positive lymph nodes, or positive margins.

Fractionation

- Conventional Fractionation
  - Treatment in up to 33 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Urethral Cancer (36)

T2-T4 or positive lymph nodes (organ preservation/nonsurgical)

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation
  - Treatment in up to 39 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Postoperative treatment (36)

Indications for IMRT or 3D-CRT

Following a urethrectomy with suspected microscopic disease, positive lymph nodes, or positive margins.

Fractionation

- Conventional Fractionation
  - Treatment in up to 39 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Recurrent disease (36)

Indications for IMRT or 3D-CRT

For areas of gross recurrent disease:

Fractionation

- Conventional Fractionation
  - Treatment in up to 41 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Penile Cancer (37)

T1-2N0 or T3–4 or LN positive (organ preservation/nonsurgical)

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation
  - Treatment in up to 39 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Indications for Brachytherapy [37,38]

Fractionation

- In T1-2N0 patients following a circumcision, monotherapy treatment using an interstitial implant in patients with no metastatic disease

Postoperative Treatment [37]

Indications for IMRT or 3D-CRT

Following a penectomy with:

- Suspected microscopic disease **OR**
- Positive lymph nodes **OR**
- Positive margins **OR**
- Gross residual disease

Fractionation

- Conventional Fractionation
  - Treatment in up to 39 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Testicular Cancer [39]

***Note**: The mean dose of radiation to sensitive organs may be lower when using 3D-CRT compared to IMRT and IMRT is therefore not necessary.

Pure Seminoma (Stage IA/IB)

Indications for 3D-CRT

Fractionation

- Conventional Fractionation
  - Treatment in up to 11 fractions using **3D-CRT** for patients with no metastatic disease

Pure Seminoma (Stage IIA/IIB)

Indications for 3D-CRT

Fractionation

- Conventional Fractionation

- Treatment in up to 20 fractions for patients with no metastatic disease

GYNECOLOGICAL CANCERS (40)

General

***Note**: Treatment with additional fractions of **IMRT or 3D-CRT** may be approved (following manual review by a physician reviewer) in select cases including:

- **A Parametrial/Pelvic Sidewall Boost** - for patients with bulky parametrial/pelvic sidewall disease.
- **A Lymph Node Boost** - for patients with grossly positive nodal disease.
- **A Gross Residual Disease Boost** - for patients with gross residual disease postoperatively.

Cervical Cancer (41,42)

Postoperative (Post-Hysterectomy)

Indications for IMRT or 3D-CRT and a Brachytherapy Boost

Fractionation

- Conventional Fractionation
  - Treatment in up to 28 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease followed by a **Brachytherapy boost** in cases of close or positive margin at the vaginal cuff
    - An **HDR vaginal cuff boost** in up to 5 insertions
    - An **LDR vaginal cuff boost** in up to 2 insertions

Intact cervix (Nonsurgical)

Indications for IMRT or 3D-CRT and a Brachytherapy Boost

Fractionation

- Conventional Fractionation
  - Treatment in up to 28 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease followed by a **Brachytherapy boost** with either
    - An **HDR boost** in up to 5 insertions
    - An **LDR boost** in up to 2 insertions

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Cervical cancer - See section on **IORT**

Endometrial Cancer (43)

Postoperative (Post-Hysterectomy) (44)

Indications for Brachytherapy Alone

Fractionation

- **HDR vaginal cuff Brachytherapy** in up to 5 insertions
- **LDR vaginal cuff Brachytherapy** in up to 2 insertions

Indications for IMRT or 3D-CRT and a Brachytherapy Boost

Fractionation

- Conventional Fractionation
  - Treatment in up to 28 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease followed by a **Brachytherapy boost** with either
    - An **HDR vaginal cuff boost** in up to 5 insertions
    - An **LDR vaginal cuff boost** in up to 2 insertions

Nonsurgical (Inoperable)

Indications for IMRT/3D-CRT with a Brachytherapy Boost OR Brachytherapy alone

Treatment of medically inoperable uterine cancer is determined by the risk of extrauterine spread.

Fractionation

- **IMRT/3D-CRT** with a **Brachytherapy boost**
  - Treatment in up to 28 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease followed by a **Brachytherapy boost** with either
    - An **HDR Brachytherapy Boost** in up to 5 insertions
    - An **LDR Brachytherapy Boost** in up to 2 insertions
- **Brachytherapy** alone
  - An **HDR Brachytherapy Boost** in up to 6 insertions
  - An **LDR Brachytherapy** in up to 2 insertions

Endometrial cancer - See section on **IORT**

Vulvar Cancer (45)

***Note**: Brachytherapy can sometimes be used as a boost to treat anatomically amenable primary tumors and may be approved (following manual review by a physician reviewer).

Nonsurgical (Inoperable)

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation
  - Treatment in up to 36 fractions using **IMRT or 3D-CRT** for unresectable patients with no metastatic disease

Postoperative

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation
  - Treatment in up to 28 fractions using **IMRT or 3D-CRT** postoperatively for patients with no metastatic disease

Vaginal Cancer (46)

Very Early Nonsurgical (Inoperable)

Indications for Brachytherapy alone

Treatment of very-early-stage vaginal cancers (<5 mm) for patients with no metastatic disease

Fractionation

- Intra-cavitary **Brachytherapy** alone may be used in up to 8 fractions of HDR
- Intra-cavitary **Brachytherapy** alone may be used in up to 4 fractions of LDR

Nonsurgical (Inoperable)

Indications for IMRT/3RD-CRT and a Brachytherapy Boost

Fractionation

- Conventional Fractionation
  - Treatment in up 28 fractions with **IMRT/3D-CRT** for patients with no metastatic disease followed by
    - **HDR Brachytherapy** in up to 10 fractions
    - **LDR Brachytherapy** in up to 4 fractions

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HEAD AND NECK CANCERS

Oral Cavity Cancer (47)

Organ preservation/nonsurgical

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation
  - Treatment in up to 35 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

***Note**: For T1–T2 simple lip lesions, please see sections on **Basal Cell and Squamous Cell Skin Cancers**).*

Indications for Brachytherapy

Treatment using **Brachytherapy** as monotherapy or in combination with **IMRT or 3D-CRT** for patients with no metastatic disease:

Fractionation

- LDR (low dose-rate) interstitial **Brachytherapy:**
  - In a single fraction as an LDR boost in combination with **IMRT or 3D-CRT** in up to 25 fractions **OR**
  - In a single fraction as LDR monotherapy

  OR
- HDR (high dose-rate) interstitial **Brachytherapy**:
  - In 7 fractions as an HDR boost in combination with **IMRT or 3D-CRT** in up to 25 fractions **OR**
  - In 10 fractions as HDR monotherapy

Postoperative Treatment

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation
  - Treatment in up to 33 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Oropharynx Cancer (47)

Organ preservation/nonsurgical

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation
  - Treatment in up to 35 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Postoperative Treatment

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation
  - Treatment in up to 33 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Hypopharynx Cancer (47)

Organ preservation/nonsurgical

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation
  - Treatment in up to 35 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Postoperative Treatment

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation
  - Treatment in up to 33 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Nasopharynx Cancer (47)

Organ preservation/nonsurgical

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation

- Treatment in up to 35 fractions using **IMRT or 3D-CRT** for patients with or without metastatic disease [48]

Glottic Larynx Cancer [47]

Organ preservation/nonsurgical

Indications 3D-CRT

***Note**: For early glottic laryngeal cancers, IMRT is not considered medically necessary when the cervical lymph nodes are not being treated.

Fractionation

- Conventional Fractionation
  - **Tis, N0**
    - Treatment in up to 27 fractions of **3D-CRT OR** up to 33 fractions **of 3D-CRT**
  - **T1, N0**
    - Treatment in up to 25 fractions of **3D-CRT OR** up to 33 fractions **of 3D-CRT**
  - **T2, N0**
    - Treatment in up to 29 fractions of **3D-CRT OR** in up to 35 fractions of **3D-CRT**

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT) or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary for glottic larynx when the cervical lymph nodes are positive **OR** for T1N0 and T2N0 when cervical lymph node chain involvement is suspected **AND** the lymph nodes are being treated in the treatment plan.

Fractionation

- Conventional Fractionation
  - Treatment in up to 35 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Postoperative Treatment

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation
  - Treatment in up to 33 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Supraglottic Larynx Cancer [47]

Organ preservation/nonsurgical

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation
  - Treatment in up to 35 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Postoperative Treatment

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation
  - Treatment in up to 33 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Salivary Gland Cancer (47)

Organ preservation/nonsurgical

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation
  - Treatment in up to 35 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Postoperative Treatment

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation
  - Treatment in up to 33 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Ethmoid and Maxillary Sinus Cancer (47)

Organ preservation/nonsurgical

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation
  - Treatment in up to 35 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

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Postoperative Treatment

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation
  - Treatment in up to 33 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Unknown Primary Head and Neck Cancer (47)

Organ preservation/nonsurgical

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation
  - Treatment in up to 35 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Postoperative Treatment

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation
  - Treatment in up to 33 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Head and Neck cancer - See section on **HYPERTHERMIA**

LUNG CANCER

Non-Small Cell Lung Carcinoma (NSCLC) (49)

Early Stage I – IIA Non-Small Cell Lung Cancer (Nonsurgical)

Indications for SBRT (50)

Fractionation

- Hypofractionation
  - Treatment in up to 5 fractions using **SBRT** for patients with tumors ≤5 cm with no metastatic disease

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Indications for IMRT

Fractionation

- Hypofractionation
  - Treatment in up to 10 fractions using **IMRT** for patients with no metastatic disease
  - Treatment in up to 15 fractions using **IMRT** for patients with no metastatic disease (51,52)

Indications for 3D-CRT

Fractionation

- Conventional Fractionation
  - Treatment in up to 35 fractions using **3D-CRT** for patients with no metastatic disease

Stage IIB-III Non-Small Cell Lung Cancer (Nonsurgical)

Indications for IMRT or 3D-CRT (53)

Fractionation

- Conventional Fractionation
  - Treatment in up to 35 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Hypofractionation (54)
  - Treatment in up to 15 fractions using **IMRT or 3D-CDT** for patients with no metastatic disease

Stage IIIA Non-Small Cell Lung Cancer (Preoperative)

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation
  - Treatment preoperatively in up to 27 fractions using **IMRT or 3D-CRT** for patients that proceed to surgery and have no metastatic disease
  - Treatment in up to 35 fractions using **IMRT or 3D-CRT** for patients that have preoperative radiation, and additional radiation is needed after surgery, in patients with no metastatic disease

Stage IIIA Non-Small Cell Lung Cancer (Postoperative)

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation

- Treatment in up to 35 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Small Cell Lung Carcinoma (SCLC) (55)

Limited Stage Small Cell Lung Cancer (Nonsurgical)

***Note**: Treatment principles of SBRT for SCLC are similar to those for NSCLC

Indications for SBRT (for stages I or IIA)

Fractionation

- Hypofractionation
  - Treatment in up to 5 fractions using **SBRT** for patients with tumors ≤5 cm with no metastatic disease.

Indications for IMRT or 3D-CRT

Fractionation

- Conventional Fractionation
  - Treatment in up to 35 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Hyperfractionation
  - Treatment in up to 30 fractions given BID (twice daily) using **IMRT or 3D-CRT** for patients with no metastatic disease
  - Treatment in up to 40 fractions given BID (twice daily) using **IMRT or 3D-CRT** for patients with no metastatic disease (56)
- Hypofractionation (57)
  - Treatment in up to 10 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Limited Stage Small Cell Lung Cancer (Postoperative)

***Note**: Treatment principles for SCLC are similar to those for NSCLC.

Indications for IMRT or 3D-CRT

For postoperative patients with N1 or N2 disease.

Fractionation

- Conventional Fractionation

- Treatment in up to 35 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

For guidelines regarding Prophylactic Cranial Irradiation (PCI), see the **PCI section of CNS tumors**.

Extensive Stage SCLC

Indications for IMRT or 3D-CRT

For selected patients with complete response or good response to systemic therapy.

Fractionation

- Treatment in up to 10 fractions using **IMRT** or **3D-CRT**
- Treatment in up to 35 fractions using **IMRT** or **3D-CRT**

***Note**: For guidelines regarding Prophylactic Cranial Irradiation (PCI), see the **PCI section of CNS tumors**.

Malignant Pleural Mesothelioma (Postoperative)

Indications for IMRT or 3D-CRT *(58)*

Fractionation

- Conventional Fractionation
  - Treatment in up to 30 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

LYMPHOMA

Hodgkin's Lymphoma – when combined with chemotherapy (59)

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT)** is considered medically necessary with combined modality therapy (chemotherapy) **ONLY** for treatment of lymphomas of the head/neck & mediastinum.

Treatment using **3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary with combined modality therapy (chemotherapy) for treating lymphomas in all other regions of the body.

Fractionation

- Conventional Fractionation

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- For patients with **non-bulky disease (stage I–II),** treatment in up to 20 fractions for patients with no metastatic disease
- For patients with **non-bulky disease (stage IB & IIB)**, treatment in up to 20 fractions for patients with no metastatic disease
- For patients with **bulky disease (all stages),** treatment in up to 20 fractions for patients with no metastatic disease
- For patients with a **partial response/refractory disease (Deauville 4–5)**, treatment in up to 30 fractions for patients with no metastatic disease

Hodgkin's Lymphoma - Radiation as Monotherapy (59)

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT)** is considered medically necessary as monotherapy (without chemotherapy) **ONLY** for treatment of lymphomas of the head/neck & mediastinum.

Treatment using **3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary as monotherapy (without chemotherapy) for treating lymphomas in all other regions of the body.

Fractionation

- Conventional Fractionation
  - Treatment in up to 24 fractions for patients with no metastatic disease. The treatment of Hodgkin's Lymphoma with radiotherapy alone is uncommon except for patients with Nodular Lymphocyte Predominant Hodgkin's Lymphoma (NLPHL)

Non-Hodgkin's Lymphoma (B-cell) (60)

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT)** is considered medically necessary **ONLY** for treatment of lymphomas of the head/neck & mediastinum.

Treatment using **3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary for treating lymphomas in all other regions of the body.

Fractionation

- Conventional Fractionation
  - For patients with **Follicular Lymphoma (FL),** treatment in up to 20 fractions for patients with no metastatic disease
  - For patients with **Extranodal Marginal Zone Lymphoma (EMZL) of the stomach**, treatment in up to 16 fractions for patients with no metastatic disease
  - For patients with **Extranodal Marginal Zone Lymphoma (EMZL) of the orbit and salivary gland,** treatment in up to 16 fractions for patients with no metastatic disease

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- For patients with a **Mantle Cell Lymphoma (MCL),** treatment in up to 24 fractions for patients with no metastatic disease
- For patients with a **Diffuse Large B-Cell Lymphoma (DLBCL),** treatment n up to 33 fractions for patients with no metastatic disease
- For patients with a **High-Grade B-cell Lymphoma (HGBL),** treatment in up to 33 fractions for patients with no metastatic disease
- For patients with a **Primary Mediastinal B-cell Lymphoma (PMBL),** treatment in up to 33 fractions for patients with no metastatic disease

Non-Hodgkin's Lymphoma (T-cell) (61)

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT)** is considered medically necessary **ONLY** for treatment of lymphomas of the head/neck & mediastinum.

Treatment using **3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary for treating lymphomas in all other regions of the body.

Fractionation

- Conventional Fractionation
  - For patients with **Peripheral T-Cell Lymphoma (PTCL), including Extranodal Nasal/NK T-Cell Lymphoma (ENKL;** previously known as **Lethal Midline Granuloma)** treatment in up to 33 fractions for patients with no metastatic disease
  - For patients with **Breast Implant-Associated Anaplastic Large Cell Lymphoma (BIA-ALCL) and Post-Transplant Lymphoproliferative Disorders (PTLD),** treatment in up to 24 fractions for patients with no metastatic disease

Primary Cutaneous Lymphoma (B/T-cell) (62)

Indications for Electrons, Low Energy X-rays, and 2/3-D CRT

Treatment using **electrons** or **low energy X-rays (~100 kV)** is considered medically necessary for Primary Cutaneous Lymphomas. (63) For certain body surfaces, treatment with higher energy photon fields **(2D or 3D-CRT)** may be required.

Fractionation

- Conventional Fractionation
  - For patients with **Mycosis Fungoides (MF) and Sezary Syndrome (SS),** treatment in up to 20 fractions for patients with no metastatic disease
  - For patients with **Primary Cutaneous Anaplastic Large Cell Lymphoma (PC-ALCL),** treatment in up to 20 fractions for patients with no metastatic disease
  - For patients with **Primary Cutaneous Follicle Center Lymphoma (PCFCL) and Primary Cutaneous Marginal Zone Lymphoma (PCMZL)**, treatment in up to 20 fractions for patients with no metastatic disease

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- For patients with **Primary cutaneous CD30+ T-cell Lymphoproliferative Disorders (PTCL),** treatment in up to 28 fractions for patients with no metastatic disease
- For patients with **Primary Cutaneous NK/T-Cell Lymphoma (PCNKTCL),** treatment in up to 33 fractions for patients with no metastatic disease (63)
- For patients requiring **Total Skin Electron Beam Therapy (TSEBT),** treatment in up to 24 fractions for patients with no metastatic disease

METASTATIC CANCER

Palliation of Non-Oligo Metastatic Disease

Palliation of an organ, soft tissue mass, or non-spinal bone metastasis

Indications for 3D-CRT

Fractionation

- Palliative Fractionation
  - For palliative treatment to an **organ or soft tissue mass** in the body using up to 15 fractions of **3D-CRT** (64,65)
  - For palliative treatment to a **non-spinal bone** (i.e., femur, humerus, pelvis, etc.) in 10 fractions, 5 fractions, or in a single fraction of **3D-CRT** (66)
  - For palliative treatment of metastatic **Head and Neck cancers** in twice a day fractions (BID) for 2 consecutive days (4 fractions total) of **IMRT** (i.e., the quad shot) (64,65)

Liver Metastases – See section on

SIRT

Palliation of Spinal Bone Metastases

Indications for SBRT

For **Spinal Metastases ONLY** when **ALL** of the following apply:

- There are painful MRI confirmed spinal metastases **AND**
- There are no more than 3 consecutive spinal segments that are included in the target radiation treatment volume **AND**

- There is no Spinal Instability Neoplastic Score (SINS) >12 (i.e., SINS unstable) **OR** neurologic deficits due to malignant epidural spinal cord compression **OR** cauda equina syndrome

Fractionation (67)

- Treatment in 2 fractions using **SBRT** to the Spinal Metastases

Indications for 3D-CRT

Fractionation (68)

- Palliative treatment to a **spinal bone** in 10 fractions, 5 fractions, or in a single fraction of **3D-CRT**

Palliation of Brain Metastases

Indications for Fractionated SRS (SBRT) (6)

Fractionation for **Non-surgical and Postoperative patients**

- Treatment in a 1 fraction using **SRS**
- Treatment in 2 to 5 fractions using Fractionated SRS (**SBRT)**

Indications for Whole Brain IMRT (6,55)

For patients only when a hippocampal avoidance (HA) whole brain **IMRT** technique is used

Fractionation

- Whole brain treatment in up to 10 fractions using **IMRT**

Indications for Whole Brain 3D-CRT (6)

Fractionation

- Whole brain treatment in up to 10 fractions using **3D-CRT**

Treatment of Oligometastatic Disease (69)

Indications for SBRT

Oligometastatic Disease (OMD) is limited metastatic disease in a patient with a total of ≤5 metastatic tumors present at the time of the initial cancer diagnosis or within 3 months of the initial treatment.

Fractionation

- Hypofractionation
  - Treatment in up to 5 fractions using **SBRT**

***Note**: Sufficient full body radiology documentation explaining the extent of the metastatic disease has been provided with either with a PET/CT scan report **OR** With CT scan reports of

the Chest, Abdomen, & Pelvis). These scans and their reports must be recent and performed no more than 2 months prior to the Treatment Start Date (TSD)

Treatment of Oligoprogressive Disease (69)

Indications for SBRT

Oligoprogressive Disease (OPD) is defined as the development of limited metastatic tumor progression, generally but not always limited to 1-5 progressing metastases anywhere in the body (non-brain) when:

- New limited metastases (or limited progression of prior metastases) have developed after an initially successful course of systemic therapy was given to a patient with metastatic disease **AND**
- The primary tumor and other metastatic tumors are controlled with no progression

Fractionation

- Hypofractionation
  - Treatment in up to 5 fractions using **SBRT**

***Note**: Sufficient full body radiology documentation explaining the extent of the metastatic disease has been provided with either a PET/CT scan report **OR** With CT scan reports of the Chest, Abdomen, & Pelvis. These scans and their reports must be recent and performed no more than 2 months prior to the Treatment Start Date (TSD).

MYELOMA

Solitary Plasmacytoma (70)

Definition

Solitary Plasmacytoma (SP) is a rare plasma cell cancer that involves a single tumor of abnormal plasma cells in a one bone or soft tissue site.

Indications for 3D-CRT

Fractionation

- Conventional Fractionation:
  - Treatment in up to 25 fractions using **3D-CRT** for patients with no metastatic disease

Multiple Myeloma (70)

Definition

Multiple Myeloma (MM) is a plasma cell cancer that involves multiple tumors of abnormal plasma cells in different locations.

Indications for 3D-CRT

Fractionation

- Palliative Fractionation:
  - Treatment in up to 15 fractions using **3D-CRT**

NON-CANCEROUS CONDITIONS

Several non-cancerous conditions were previously discussed in several prior sections of this guideline. These include:

- **Acoustic Neuroma (Vestibular Schwannoma)**
- **Arteriovenous Malformations**
- **Craniopharyngioma**
- **Desmoid Tumor (Aggressive Fibromatosis)**
- **Gynecomastia**
- **Pituitary Adenoma**
- **Trigeminal Neuralgia**

Indications for Other Non-Cancerous Conditions [71,72]

- **Carcinoid tumor**: Treatment in up to 30 fractions using 2D or 3D-CRT [73]
- **Coronary artery disease:** Intravascular brachytherapy treatment using a single fraction using High Dose Rate (HDR); Brachytherapy is medically necessary to treat coronary artery disease as part of a percutaneous coronary intervention (PCI) for any of the following [74]:
  - In-stent re-stenosis in a bare-metal stent
  - Treatment of a native coronary artery or a saphenous vein graft to prevent re-stenosis
  - Recurrent drug-eluting stent in-stent restenosis
- **Dupuytren's contracture (palmar fibromatosis):** Treatment in up to 10 fractions using electrons, 2D, 3D-CRT, or superficial radiation therapy for progressive disease
- **Graves' ophthalmopathy:** Treatment in up to 10 fractions using 2D, 3D-CRT, or IMRT [75]
- **Hemangiomas** (brain, spinal cord, subglottis, glottis, liver, GI tract, urinary tract, joints, and orbit): Treatment in up to 25 fractions using 2D, 3D-CRT or IMRT and in 1 to 5 fractions using SRS or SBRT [76]

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- **Heterotopic ossification (bone):** Treatment in a single fraction preoperatively or postoperatively using 2D, 3D-CRT, or superficial radiation therapy [77]
- **Keloids**: Treatment in up to 5 fractions postoperatively using 2D (i.e., superficial radiation therapy, orthovoltage radiation therapy, or electron beam therapy), 3D-CRT or HDR brachytherapy [78]
- **Langerhans cell histiocytosis (LCH):** for localized growth: Treatment in up to 28 fractions using 2D or 3D-CRT [79]
- **Lentigo maligna (melanoma in situ), Hutchinson's melanotic freckle, or circumscribed precancerous melanosis of Dubreuilh:** Treatment in up to 30 fractions (skin) using 2D (i.e., superficial radiation therapy or orthovoltage radiation therapy or electron beam therapy) [80]
- **Orbital pseudotumor (lymphoid hyperplasia):** Treatment in 15 fractions using 2D, 3D-CRT, or IMRT [81]
- **Paraganglioma** (including carotid body, glomus jugulare, and glomus tympanicum tumors, organ of Zuckerkandl, pheochromocytoma, and pulmonary and vagal paragangliomas): Treatment in up to 28 fractions of 2D, 3D-CRT, or IMRT or up to 5 fractions of SBRT [83,84]
- **Pigmented villonodular synovitis:** Treatment in up to 28 fractions using 2D or 3D-CRT [85]
- **Plantar fibromatosis (Ledderhose disease):** Treatment in up to 10 fractions using 2D or 3D-CRT [88]
- **Pterygium:** Treatment in up to 6 fractions using brachytherapy with an SR-90 or Y-90 eye applicator [89]
- **Splenomegaly** (hypersplenism often secondary to Myelofibrosis): Treatment in up to 10 fractions using 2D or 3D-CRT [90]
- **Total Body Irradiation (TBI):** Treatment in up to 12 fractions using 2D, 3D-CRT, or IMRT [91,92]
- **Ventricular tachycardia:** Treatment in a single fraction of SBRT [93,94]

Radiation therapy to treat any non-cancer indication other than those listed above (e.g., osteoarthritis, plantar fasciitis) is considered **experimental, investigational, and unproven** due to insufficient evidence in the peer-reviewed medical literature to establish long-term safety, efficacy, and effect on net health outcomes.

PALLIATION OF A PRIMARY TUMOR (NON-METASTATIC)

Indications for 3D-CRT

Fractionation

- Palliative Fractionation
  - Palliative treatment of a **primary organ tumor** in up to 15 fractions of **3D-CRT** (to slow progression of the local disease or to palliate symptoms) [64,65]
  - For palliative treatment of **Head and Neck cancers** in twice a day fractions (BID) for 2 consecutive days (4 fractions total) of **IMRT** (i.e., the quad shot) [95,96]

PEDIATRIC MALIGNANCIES

All treatments (i.e., 2D/3D-CRT, IMRT, SBRT, SRS, IORT, and Brachytherapy) will be approved for all pediatric cancer patients (≤18 years old). Patients <21 years old with cancers that display the same histology as common pediatric cancers may be approved (following manual review by a physician reviewer) in select cases. [97]

RE-IRRADIATION [98]

Re-irradiation is defined as the use of additional radiation treatment to treat an area of the body that has already received prior radiation to that same area.

The term "re-irradiation" does not apply to situations where a patient has received radiation treatment to one area of the body (i.e. the lung) and now requires radiation to a completely separate area of the body (i.e. the brain).

Treatments such as IMRT, IORT, Brachytherapy, SRS, SBRT, and Proton Beam are considered medically necessary in cases of re-irradiation since the organs in the treatment area are usually at or near their maximum tolerance levels. Greater accuracy with treatments such as IMRT, IORT, Brachytherapy, SRS, SBRT, and Proton Beam are therefore required to improve patient safety and decrease the toxicity as much as possible.

The radiation dose and the number of fractionations prescribed for each patient receiving re-irradiation will be different and based on that patient's prior treatment history. The dose and the number of fractionations will be left to the discretion on the treating physician and when possible, based on peer reviewed literature

SARCOMA

Soft Tissue Sarcoma: Extremity/Body Wall/Head and Neck (Pre-Operative)

Indications for IMRT and 3D-CRT *(99,100)*

Fractionation

- Conventional Fractionation
  - Treatment in up to 28 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

***Note**: Treatment with additional fractions as a boost of **IMRT or 3D-CRT** may be approved (following manual review by a physician reviewer) in select cases with positive margins.

Soft Tissue Sarcoma: Extremity/Body Wall/Head and Neck (Post-Operative)

Indications for IMRT or 3D-CRT *(100)*

Fractionation

- Conventional Fractionation
  - For patients with an **R0 resection,** treatment in up to 33 fractions (which is the sum of 28 fractions using **IMRT or 3D-CRT** followed by a boost of 5 fractions **using IMRT or 3D-CRT**) for patients with no metastatic disease
  - For patients with an **R1 resection**, treatment in up to 37 fractions (which is the sum of 28 fractions using **IMRT or 3D-CRT** followed by a boost of 9 fractions using **IMRT or 3D-CRT**) for patients with no metastatic disease

Indications for Brachytherapy *(100)*

Fractionation

- For positive margins (treatment with a combined modality approach)
  - Treatment of up to 28 fractions using **IMRT or 3D-CRT** and a boost using a single fraction of **LDR Brachytherapy**
  - Treatment of up to 28 fractions using **IMRT or 3D-CRT** and a boost of up to 10 fractions using **HDR Brachytherapy**
- For negative margins (treatment with a Brachytherapy alone approach)
  - Treatment using 1 fraction of **LDR Brachytherapy**
  - Treatment using up to 10 fractions of **HDR Brachytherapy**

Soft Tissue Sarcoma: Extremity/Body Wall/Head and Neck (Unresectable)

Indications for IMRT or 3D-CRT *(100)*

Fractionation

- Conventional Fractionation
  - For patients with unresectable disease, treatment in up to 45 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Soft Tissue Sarcoma - See section on **IORT**

Desmoid Tumors (Aggressive Fibromatosis)

Indications for IMRT or 3D-CRT *(100)*

Fractionation

- Conventional Fractionation
  - Treatment in up to 31 fractions using **IMRT or 3D-CRT**

Retroperitoneal/Abdominal Sarcoma (Preoperative)

Indications for IMRT or 3D-CRT *(100)*

Fractionation

- Conventional Fractionation
  - Treatment in up to 28 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Retroperitoneal Sarcoma - See section on **IORT**

Kaposi Sarcoma

Indications for Electron Beam, Superficial Radiation Therapy (SRT), Orthovoltage, 2D/3D External Beam Radiation Therapy, or IMRT *(101)*

Fractionation

- Treatment in up to 20 fractions using **Electron Beam, SRT, Orthovoltage, 2D/3D external beam radiation therapy, or IMRT.**

SKIN CANCERS

***Note**: Image guidance or IGRT (including ultrasound) is not considered medically necessary for treatment of skin cancer using electron beam, SRT or orthovoltage radiation.

Basal Cell (BCC) and Squamous (SCC) Carcinoma

Indications for 2D/3D-CRT or Electron Beam *(102–104)*

Fractionation

- Hypofractionation
  - BCC and SCC skin cancers ≤ 2 cm (not including cancers of the nose & ear)
    - Treatment of up to 20 fractions using **2D or 3D-CRT or Electron Beam** for patients with no metastatic disease
- Conventional Fractionation
  - BCC and SCC skin cancers > 2 cm
  - BCC and SCC skin cancers of the nose & ear, any size
    - Treatment of up to 30 fractions **2D or 3D-CRT or Electron Beam** for patients with no metastatic disease.

Indications for Superficial Radiation and Orthovoltage Radiation *(105)*

Fractionation

- Conventional fractionation
  - Treatment of up to 25 fractions using **Superficial Radiation and Orthovoltage Radiation** for patients with no metastatic disease

Indications for Brachytherapy *(104,106)*

Fractionation

- Treatment of up to 10 fractions using **HDR Brachytherapy** (with Iridium-192) for patients with no metastatic disease

***Note**: The use of Electronic Brachytherapy is considered investigational and not medically necessary* (102,103)

Indications for IMRT *(2,102,103)*

Treatment using **Intensity Modulated Radiation Therapy (IMRT)** is considered medically necessary ONLY when the treatment includes a lymph node chain.

Fractionation

- Conventional Fractionation
  - Treatment with up to 35 fractions using **IMRT** for patients with no metastatic disease

Basal Cell and Squamous Cell Skin Cancers - See section on **HYPERTHERMIA**

Melanoma of the Skin and Eye (Uveal)

Indications for IMRT or 2D/3D-CRT or Electron Beam of the Skin *(107)*

Fractionation

- **Unresectable Treatment**
  - For patients with unresectable disease, treatment of up to 35 fractions using **IMRT or 2D or 3D-CRT or Electron Beam** for patients with no metastatic disease
- **Postoperative Treatment**
  - For postoperative treatment of up to 33 fractions using **IMRT or 2D or 3D-CRT or Electron Beam** for patients with no metastatic disease

Melanoma of the Skin - See section on **HYPERTHERMIA**

Indications for Brachytherapy of the Eye (Uveal) *(108)*

Fractionation

- Treatment using 1 fraction of plaque brachytherapy for patients with no metastatic disease

Merkel Cell Carcinoma (MCC)

Indications for IMRT or 2D/3D-CRT or Electron Beam *(109)*

Fractionation

- Treatment for postoperative and unresectable disease in up to 33 fractions using **IMRT or 2D or 3D-CRT or Electron Beam** for patients with no metastatic disease

Dermatofibrosarcoma Protuberans (DFSP)

Indications for 2D/3D External Beam Radiation Therapy or Electron Beam *(110)*

Fractionation

- For postoperative treatment in up to 33 fractions using **2D or 3D-CRT or Electron Beam**

THYMOMAS AND THYMIC CARCINOMAS

Indications for IMRT or 3D-CRT (111)

Fractionation

- **Unresectable disease**
  - Conventional Fractionation
    - Treatment in up to 35 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease.

- **Postoperative Disease**
  - Conventional Fractionation
    - Following an **R0 resection** with close margins, treatment in up to 25 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease.
    - Following an **R1 resection** with microscopically positive margins, treatment in up to 27 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease.
    - Following an **R2 resection** with grossly positive margins, treatment in up to 35 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease.

THYROID

Differentiated, Medullary or Poorly Differentiated (Non-Anaplastic) Thyroid Cancer

Indications for IMRT or 3D-CRT *(112)*

Fractionation

- **Unresectable disease**
  - Conventional Fractionation
    - Treatment in up to 35 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease.
- **Postoperative Disease**
  - Conventional Fractionation
    - Following an **R1 resection** with microscopically positive margins, treatment in up to 33 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease.
    - Following an **R2 resection** with grossly positive margins, treatment in up to 35 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease.

Anaplastic Thyroid Cancer

Indications for IMRT or 3D-CRT *(112)*

Fractionation

- **Unresectable or salvage treatment following an R2 resection**
  - Conventional Fractionation
    - Treatment in up to 35 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease.
  - Hyperfractionation

- Treatment in up to 58 fractions delivered twice daily (BID) using **IMRT or 3D-CRT** for patients with no metastatic disease.

- **Postoperative treatment following an R0 resection or R1 resection**
  - Conventional Fractionation
    - Treatment in up to 33 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease.
  - Hyperfractionation
    - Treatment in up to 55 fractions delivered twice daily (BID) using **IMRT or 3D-CRT** for patients with no metastatic disease.

UNIQUE TREATMENT MODALITIES

IORT

Indications for IORT

- For the treatment of **Cervical and Uterine Cancers** in 1 fraction only in the following scenarios [41,43]:
  - Unresectable disease **OR**
  - Residual disease (including positive margins) following surgery **OR**
  - Recurrent disease
- For the treatment of **Colon and Rectal Cancers** in 1 fraction only in the following scenarios [113,114]:
  - Unresectable disease **OR**
  - Residual disease (including positive margins) following surgery **OR**
  - Recurrent disease **OR**
  - Initial treatment of T4 tumors penetrating a fixed structure
- For the treatment of **Soft Tissue & Retroperitoneal Sarcoma** in 1 fraction only in the following scenarios [115]:
  - Residual disease (including positive margins) following surgery **OR**
  - Recurrent disease

***Note**: For **Breast Cancer**, Intraoperative Radiation Therapy (IORT) is not recommended

HYPERTHERMIA

Indications for Hyperthermia

Up to 10 local hyperthermia treatments are considered medically necessary for **ANY** of the following indications:

- Recurrent melanoma of the skin [107] **OR**
- Recurrent basal cell carcinoma or squamous cell carcinoma of the skin **OR**
- A chest wall recurrence of breast cancer [116] **OR**
- Recurrent cervical lymph node metastases from head and neck cancer [117]

SIRT

Indications for SIRT

For Selective Internal Radiation Therapy (SIRT) utilizing yttrium-90 (90Y) microspheres (TheraSphere, SIR-Spheres, or QuiremSpheres) to treat hepatocellular cancer please refer to ***MCP 181 Radioembolization (Selective Internal Radiation Therapy) for Liver Tumors.***

The use of SIRT for the treatment of all other conditions is considered investigational and not medically necessary.

CODING AND STANDARDS

Codes

0395T, 19294, 19296, 19297, 19298, 20555, 31643, 32701, 41019, 43499, 47999, 55860, 55862, 55865, 55875, 55899, 55920, 57155, 57156, 58346, 61796, 61797, 61798, 61799, 61800, 63620, 63621, 67218, 76145, 76873, 76965, 77011, 77261, 77262, 77263, 77280, 77285, 77290, 77293, 77295, 77299, 77300, 77301, 77306, 77307, 77316, 77317, 77318, 77321, 77331, 77332, 77333, 77334, 77336, 77338, 77370, 77371, 77372, 77373, 77387, 77399, , 77402, 77407, 77412, 77417, 77424, 77425, 77427, 77431, 77432, 77435, 77436, 77437, 77438,77439, 77469, 77470, 77499, 77600, 77605, 77610, 77615, 77620, 77750, 77761, 77762, 77763, 77767, 77768, 77770, 77771, 77772, 77778, 77789, 77790, 77799, C2616, G0339, G0340, G0458

BACKGROUND

Radiation Oncology is the specialty of medicine that utilizes high-energy ionizing radiation in the treatment of malignant neoplasms and certain non-malignant conditions. Radiation Oncology uses several distinct therapeutic modalities: Teletherapy or, 2D external beam radiation therapy

(EBRT), 3D external beam radiation therapy (EBRT), electron beam therapy, intensity modulated radiation therapy (IMRT), brachytherapy, hyperthermia, proton beam therapy, carbon ion therapy, neutron beam therapy and stereotactic radiation.

Radiation Therapy Treatment Process:

- Consultation
- Simulation
- Treatment Planning
- Treatment Delivery

SUMMARY OF EVIDENCE (2,99,122)

3D-Conformal Radiation Therapy (3D-CRT): This technique uses imaging to create a three-dimensional representation of the tumor, allowing for precise targeting of radiation. It is particularly useful for treating tumors in complex areas like the brain and spinal cord, where precision is crucial to minimize damage to surrounding healthy tissue.

Intensity Modulated Radiation Therapy (IMRT): IMRT is an advanced form of 3D-CRT that modulates the intensity of the radiation beams. This allows for even more precise targeting, which is beneficial for tumors located near sensitive structures. IMRT is commonly used for head and neck cancers, prostate cancer, and certain types of brain tumors.

Stereotactic Radiosurgery (SRS) and Stereotactic Body Radiation Therapy (SBRT): These techniques deliver high doses of radiation in fewer sessions. SRS is typically used for brain tumors, while SBRT is used for tumors in the body, such as lung and liver cancers. The high precision of these methods reduces the risk of damage to surrounding tissues.

Brachytherapy: This involves placing radioactive sources directly into or near the tumor. It is often used for prostate cancer, cervical cancer, and certain types of breast cancer. Brachytherapy allows for high doses of radiation to be delivered to the tumor while sparing surrounding healthy tissue.

Intraoperative Radiation Therapy (IORT): IORT is administered during surgery, allowing for direct application of radiation to the tumor site. This technique is beneficial for certain types of cancers, such as pancreatic and colorectal cancers, where it can help to control local disease.

Hypofractionation and Hyperfractionation: Hypofractionation involves delivering larger doses of radiation over fewer sessions, while hyperfractionation involves smaller doses over more sessions. These approaches can be tailored to the specific needs of the patient and the type of cancer being treated.

ANALYSIS OF EVIDENCE (2,99,122)

Type and Stage of Cancer: Different types of radiation therapy are suitable for different cancers and stages. For example, 3D-Conformal Radiation Therapy (3D-CRT) and Intensity Modulated Radiation Therapy (IMRT) are commonly used for various cancers, while Stereotactic Radiosurgery (SRS) and Stereotactic Body Radiation Therapy (SBRT) are used for more precise targeting of tumors in the brain and body.

Location of the Tumor: The location of the tumor plays a crucial role in determining the type of radiation therapy. Tumors near sensitive structures may benefit from IMRT due to its precision in modulating radiation intensity.

Patient's Anatomy: Factors such as breast separation in breast cancer patients can influence the choice of therapy. For instance, IMRT is considered medically necessary for patients with a breast separation of 25 cm or greater.

Presence of Metastases: The presence or absence of distant metastases can affect the choice of therapy. For example, certain therapies like SBRT and brachytherapy may not be considered medically necessary for patients with metastatic disease.

Prior Treatments: Previous treatments, including surgeries and chemotherapy, can impact the choice of radiation therapy. For instance, postoperative radiation therapy may be necessary for patients with positive surgical margins.

Patient's Health and Performance Status: The patient's overall health and performance status, such as ECOG performance status, can influence the choice of therapy. Hypofractionation or palliative fractionation may be considered for patients with poor performance status.

Specific Clinical Scenarios: Certain clinical scenarios, such as the need for a boost to the treatment area or the presence of specific genetic mutations, can dictate the choice of therapy. For example, accelerated partial breast irradiation (APBI) with brachytherapy is considered medically necessary for selected patients meeting specific criteria.

Medical Necessity and Exclusions: The guideline outlines specific indications and exclusions for each type of radiation therapy. For instance, intraoperative radiation therapy (IORT) is considered investigational and not medically necessary for certain cancers.

These considerations help ensure that the chosen radiation therapy is tailored to the patient's specific needs, maximizing effectiveness while minimizing potential side effects and damage to healthy tissues.

APPROVAL HISTORY

02/11/2026	Added E/I/U statement for all non-cancerous indications other than those listed in the policy.
12/10/2025	Updated fractions according to societal guidance throughout policy; Radiation doses (i.e., Grays (Gy)) were removed; 'Exclusion' sections were removed; Palliative care indications were consolidated; Unnecessary wording was removed; Added a Summary of Evidence and Analysis of Evidence; Updated references
06/11/2025	Removed SIRT therapy guidelines for Hepatocellular Carcinoma and routed the criteria to reference MCP 181
12/11/2024	New Policy.

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