Molina Clinical Policy
Radiation Therapy Services (Teletherapy Brachytherapy IMRT SBRT SRS IORT and IGRT)
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Disclaimer
This Molina Clinical Policy (MCP) is intended to facilitate the Utilization Management process. Policies are not a supplementation or recommendation for treatment; Providers are solely responsible for the diagnosis, treatment, and clinical recommendations for the Member. It expresses Molina's determination as to whether certain services or supplies are medically necessary, experimental, investigational, or cosmetic for purposes of determining appropriateness of payment. The conclusion that a particular service or supply is medically necessary does not constitute a representation or warranty that this service or supply is covered (e.g., will be paid for by Molina) for a particular Member. The Member's benefit plan determines coverage – each benefit plan defines which services are covered, which are excluded, and which are subject to dollar caps or other limits. Members and their Providers will need to consult the Member's benefit plan to determine if there are any exclusion(s) or other benefit limitations applicable to this service or supply. If there is a discrepancy between this policy and a Member's plan of benefits, the benefits plan will govern. In addition, coverage may be mandated by applicable legal requirements of a State, the Federal government or CMS for Medicare and Medicaid Members. CMS's Coverage Database can be found on the CMS website. The coverage directive(s) and criteria from an existing National Coverage Determination (NCD) or Local Coverage Determination (LCD) will supersede the contents of this MCP and provide the directive for all Medicare members. References included were accurate at the time of policy approval and publication.

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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.

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.

TERMINOLOGY

Bite Block: A restraining device generally used in the oral cavity often attached to an outside source for patient stability.

Block: A device fabricated of an energy-absorbing material such as lead or Cerrobend (Wood's metal) to shape or delineate the treatment portal to match the configuration of the desired area and to shield or protect normal structures.

Bolus: A tissue equivalent material used to change the surface deposition of a radiation beam.

Boost: The 2nd phase of a course of radiation treatment when the physician narrows down the treatment from a large area (i.e., the whole breast) to a smaller area of the body (i.e., the lumpectomy cavity).

Brachytherapy: A type of radiation therapy that utilizes radioactive isotopes (radioactive metals) for treatment of malignancies or benign conditions by placing the isotope directly on the target surface, into a body cavity (intracavitary), within the body tissues (interstitial) or near the tumor or target tissue.

Breast Separation: The distance between the entrance points of the medial and lateral tangential beams entering at the breast isocenter point plane.

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Centigray (cGy): Unit of ionizing radiation dose in the International System of Units (SI). A gray is the energy absorption of 1 joule per kg of irradiated material. 1 Gy is equivalent to 100 centigray/or rad. 1 centigray is equivalent to 1 rad (radiation absorbed dose).

Compensator: An irregularly shaped beam-modifying device utilized to reconfigure the beam intensity to match irregular tissue contours.

Collimator: A beam shaping device attached to the head of the treatment machine to define the initial configuration (the length and width) of the treatment portal.

Distant Metastatic: Metastatic spread of cancer to any area outside of the regional lymph nodes. (The regional lymph nodes for each specific cancer type are defined in the AJCC Cancer Staging Manual).

Dosimetry: The calculation of the radiation dose distribution within a treatment beam.

Fiducial Markers: Or “fiducial,” is an object placed in the field of view of an imaging system which appears in the image produced, for use as a point of reference or a measure. It may be either something placed into or on the imaging subject, or a mark or set of marks in the reticle of an optical instrument.

Fraction: The number of treatment sessions administered. Administration of the total dose of radiation is spread out over time and delivered to the patient in a number of even parts (fractions) or treatment sessions.

Gray (Gy): Unit of ionizing radiation dose in the International System of Units (SI). It is defined as the absorption of one joule of radiation energy per kilogram of matter.

Hydrogel: A water-based material that is placed within the patient to provide separation and therefore protection of an organ which is adjacent to a target region or planned target volume (PTV).

Hyperfractionation: Radiation therapy delivered more than once per day.

Hypofractionation: Radiation therapy delivered over a shorter period of time (fewer days or weeks) compared to standard radiation therapy.

IMRT (Intensity Modulated Radiation Therapy): Is an advanced, noninvasive radiation treatment that uses a linear accelerator to safely deliver precise radiation to a tumor while minimizing the dose to surrounding normal tissue.

Intraoperative Radiation Therapy (IORT): An intensive radiation treatment that is administered during surgery.

Isodose: A plotting of lines or a series of lines following paths of the same dose distribution within a treatment beam.

Mold: A patient-restraining device usually constructed of plaster or thermosetting plastic that fits to the contour of the patient and restricts the motion of the patient during treatment.

Partial Mastectomy: A lumpectomy.

PTV (planned target volume): A region to be targeted with radiation which may consist of gross tumor volume (GTV) or a clinical target volume (CTV) plus a margin of surrounding tissue to account for potential motion.

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Port, Portal: These words are synonymous and refer to the site on the skin where the radiation beam enters the body. Field, often used as a synonym for port, will not be used in this policy.

Portal Verification: Any means of verifying the placement and configuration of the treatment portal.

RAD (radiation absorbed dose): Unit used to measure the amount of radiation absorbed by an object or person, known as the "absorbed dose," which reflects the amount of energy that radioactive sources deposit in materials through which they pass. The radiation-absorbed dose (rad) is the amount of energy (from any type of ionizing radiation) deposited in any medium (e.g., water, tissue, air). The related international system unit is the gray (Gy), where 1 Gy is equivalent to 100 rad.

Resection Outcome (type of surgical outcome):

- R0 resection - No residual microscopic disease remaining postoperatively
- R1 resection - Microscopic residual disease remaining postoperatively
- R2 resection - Gross residual disease remaining postoperatively

Simulation: Part of the planning process that happens prior to treatment when a simulator, usually a CT, PET/CT, or MRI, is used to acquire images that will be used to plan the radiation treatments.

Stereotactic Radiosurgery (SRS) and Stereotactic Body Radiation Therapy (SBRT): Are advanced, noninvasive radiation treatments that administer high-dose radiotherapy to discreet tumor foci in cranial or extracranial locations respectively in 1 to 5 treatments. SBRT is meant to represent a complete course of treatment and not to be used as a boost following a conventionally fractionated course of treatment. [(1)]

Teletherapy or External Beam Radiation Therapy (EBRT): The delivery of electromagnetic energy from a treatment machine at some distance from the treatment area. External beam radiation is commonly delivered by a linear accelerator, which can deliver photons (x-rays) or electrons to the targeted area.

Volume of interest: This phrase refers to that volume within the body to which the radiation therapy is directed. In this policy, volume of interest is never synonymous with port and is preferred to other terms with (presumably) the same meaning because it is the phrase most commonly used by radiation oncologists. Treatment volume is accurate but less often used. Area of interest, used in the AMA's CPT manual, suggests a two-dimensional configuration and is, in this geometric sense, inaccurate. Target site seems to point to just the tumor itself and excludes the surrounding volume of tissue that might be of interest and other times to mean port. It should be discarded.

Wedge: A treatment beam modifying device acting to change the intensity of the treatment beam in a graduated fashion across the width or length of the treatment portal.

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BREAST CANCER [2]

General

For hyperthermia indications see **Hyperthermia**.

For SIRT indications for unresectable liver metastases, see **Indications for SIRT**.

Post-Mastectomy

Indications for 3D-CRT [2,3]

Treatment using **3-Dimensional Conformal Radiation Therapy (3D-CRT)** is considered medically necessary for treatment of the chest wall following mastectomy. A chest wall scar boost may be delivered with or without bolus using electrons or photons.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 50.4 Gy in up to 28 fractions of **3D-CRT** to chest wall and regional lymph nodes followed by a chest wall scar boost of up to 10 Gy in up to 5 fractions for patients with no metastatic disease
- Hypofractionation (*only* for individuals *NOT* undergoing breast reconstruction)
  - Treatment of up to 42.5 Gy in up to 16 fractions of **3D-CRT** to chest wall and regional lymph nodes followed by a chest wall scar boost of up to 10 Gy in up to 5 fractions for patients with no metastatic disease
- Palliative Fractionation
  - Palliative treatment of the chest wall of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Indications for IMRT [2,4]

Treatment using **Intensity Modulated Radiation Therapy (IMRT)** is considered medically necessary for patients with no distant metastases *only* when *at least one* of the following criteria are met [5,6]:

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

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 50.4 Gy in up to 28 fractions of **IMRT** to chest wall and regional lymph nodes followed by a chest wall scar boost of up to 10 Gy in up to 5 fractions for patients with no metastatic disease

- Hypofractionation (only for individuals not undergoing breast reconstruction)
  - Treatment with up to 42.5 Gy in 16 fractions of **IMRT** to chest wall and regional lymph nodes followed by a chest wall scar boost of up to 10 Gy in up to 5 fractions for patients with no metastatic disease

Exclusions

The following are *NOT* considered medically necessary for treatment of the chest wall:

- Stereotactic Body Radiation Therapy (SBRT)
- Brachytherapy
- Intra-Operative Radiation Therapy (IORT) is considered investigational and not medically necessary for breast cancer

Post-Lumpectomy and Lymph Node Negative

Indications for 3D-CRT

Treatment using 3-Dimensional Conformal Radiation Therapy (3D-CRT) to the whole breast is considered medically necessary for treatment following breast conserving surgery (i.e., lumpectomy). Several randomized clinical trials have confirmed that in lymph node negative patients following a lumpectomy, the preferred dose-fractionation scheme is hypofractionated whole breast irradiation. [7]

Dose Fractionation

- Hypofractionation
  - Treatment to the whole breast of up to 42.50 Gy in up to 16 fractions of **3D-CRT** followed by an optional boost of up to 10 Gy in up to 5 fractions for patients with no metastatic disease
- Ultra-hypofractionation
  - Treatment to the whole breast of up to 28.5 Gy delivered in 5 (once per week) fractions [8] of **3D-CRT** may be considered in selected early-stage patients aged ≥ 50 years following breast conservation surgery for patients with no metastatic disease
- Palliative Fractionation
  - Palliative treatment of the breast of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

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Indications for Accelerated Partial Breast Irradiation (APBI) with 3D-CRT [9]

Treatment using **3-Dimensional Conformal Radiation Therapy (3D-CRT)** to treat only the area around the lumpectomy cavity with an Accelerated Partial Breast Irradiation (APBI) technique is considered medically necessary for selected patients who meet *ALL* of the following criteria:

- Age ≥40 years
- Absence of BRCA in 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 negative lymph nodes
- Patients with no metastatic disease

Dose Fractionation [2,10,11]

- Appropriate fractionation for APBI with **3D-CRT**
  - 40 Gy in 15 fractions delivered once a day *OR*
  - 38.5 Gy in 10 fractions delivered twice a day (BID)

Indications for Whole Breast with IMRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT)** to the whole breast is considered medically necessary in patients *only* when the following criteria is met [5,6]:

- The patient's breast separation is 25 cm or greater

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 50.4 Gy in up to 28 fractions of **IMRT** followed by a boost of up to 10 Gy in up to 5 fractions boost for patients with no metastatic disease [2]

Indications for Accelerated Partial Breast Irradiation (APBI) with IMRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT)** to treat only the area around the lumpectomy cavity with an Accelerated Partial Breast Irradiation (APBI) technique is considered medically necessary for selected patients who meet *ALL* of the following criteria [2,9]:

- Age ≥40 years
- Absence of BRCA in 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 negative lymph nodes
- Patients with no distant metastases

Dose Fractionation [2,12]

- Appropriate fractionation for APBI with **IMRT**
  - 30 Gy in 5 fractions delivered every other day (QOD)

Indications for Accelerated Partial Breast Irradiation (APBI) with Brachytherapy

Treatment using **Brachytherapy** to treat only the area around the lumpectomy cavity with an Accelerated Partial Breast Irradiation (APBI) technique is considered medically necessary for selected patients who meet ***ALL*** of the following criteria [2,9]:

- Age ≥40 years
- Absence of BRCA in 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 negative lymph nodes
- Patients with no distant metastases

Dose Fractionation [2,13]

- Appropriate fractionation schemes for APBI with **Brachytherapy** are
  - 34 Gy in 10 fractions delivered twice a day (BID)

Exclusions

The following are ***NOT*** considered medically necessary for post-lumpectomy lymph node negative patients [2,14]:

- Stereotactic Body Radiation Therapy (SBRT)
- Intra-Operative Radiation Therapy (IORT) - is considered investigational and not medically necessary for breast cancer
- Electronic Brachytherapy
- Non-Invasive Breast Brachytherapy (AccuBoost®)

Post Lumpectomy and Lymph Node Positive

Indications for Whole Breast Radiation Therapy with 3D-CRT

Treatment using 3-Dimensional Conformal Radiation Therapy (3D-CRT) to the whole breast (and lymph nodes when appropriate) is considered medically necessary for treatment following breast conserving surgery (i.e., lumpectomy). Although a hypofractionation regimen is preferred for lymph node negative patients, it is *NOT* currently indicated for lymph node positive patients. [2,7]

Dose Fractionation

- Conventional Fractionation
  - Treatment of the whole breast (and lymph nodes when appropriate) of up to 50.4 Gy in up to 28 fractions of **3D-CRT** followed by a boost of up to 10 Gy in up to 5 fractions boost for patients with no distant metastases
- Palliative Fractionation
  - Palliative treatment of the breast (to slow progression of the local disease or to palliate symptoms) of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Indications for IMRT [2,6,7]

Treatment using **Intensity Modulated Radiation Therapy (IMRT)** is considered medically necessary for patients with no distant metastases when **ANY** of the following criteria are met [5,6]:

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

Dose Fractionation

- Conventional [2]
  - Treatment of up to 50.4 Gy in up to 28 fractions of **IMRT** to chest wall and regional lymph nodes followed by a chest wall scar boost of up to 10 Gy in up to 5 fractions for patients with no distant metastases

Exclusions

The following are *NOT* considered medically necessary for treatment of post-lumpectomy lymph node positive patients [2]:

- Stereotactic Body Radiation Therapy (SBRT)
- Brachytherapy

- Intra-Operative Radiation Therapy (IORT) - is considered investigational and not medically necessary for breast cancer

Male Breast Cancer

Indications

Indications for radiation treatment of male breast cancer are similar to indications for radiation treatment of female breast cancer. Please refer to the clinical subsections above for radiation treatment options.

- **Post-Mastectomy**
- **Post-Lumpectomy and Lymph Node Negative** &
- **Post-Lumpectomy and Lymph Node Positive** (2)

Exclusions

Exclusions for radiation treatment of male breast cancer are similar to exclusions for radiation treatment of female breast cancer.

- **Post-Mastectomy**
- **Post-Lumpectomy and Lymph Node Negative** &
- **Post-Lumpectomy and Lymph Node Positive** (2)

CENTRAL NERVOUS SYSTEM TUMORS

Primary Brain and Spinal Cord Cancers (15,16)

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

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 60 Gy in up to 33 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Palliative Fractionation (3)

- Palliative treatment of the brain of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Exclusions

The following are *NOT* considered medically necessary:

- Stereotactic Radiosurgery (SRS)
- Brachytherapy
- Intra-Operative Radiation Therapy (IORT) - The use of IORT may be appropriate in selected clinical scenarios and will be reviewed on a case-by-case basis

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

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 60 Gy in up to 33 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Hypofractionation/Palliation [17,18]
  - For patients ≥ 65 years old *OR* patients with poor performance status (ECOG >2), treatment of up to 40 Gy in up to 15 fractions using **IMRT or 3D-CRT**

Exclusions

The following are *NOT* considered medically necessary for adult high-grade glioma:

- Stereotactic Radiosurgery (SRS)
- Brachytherapy
- Intra-Operative Radiation Therapy (IORT) - The use of IORT may be appropriate in selected clinical scenarios and will be reviewed on a case-by-case basis

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

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 59.4 Gy in up to 33 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Palliative Fractionation [(3)]
  - Palliative treatment of adult ependymoma of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Exclusions

The following are *NOT* considered medically necessary for adult ependymoma:

- Stereotactic Radiosurgery (SRS)
- Brachytherapy
- Intra-Operative Radiation Therapy (IORT) - The use of IORT may be appropriate in selected clinical scenarios and will be reviewed on a case-by-case basis

Adult Medulloblastoma

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment with Craniospinal Irradiation (CSI) including a primary site boost with a cumulative total dose of up to 55.8 Gy in up to 31 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Palliative Fractionation [(3)]
  - Palliative treatment of adult medulloblastoma of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

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Exclusions

The following are *NOT* considered medically necessary for adult medulloblastoma:

- Stereotactic Radiosurgery (SRS)
- Brachytherapy
- Intra-Operative Radiation Therapy (IORT) - The use of IORT may be appropriate in selected clinical scenarios and will be reviewed on a case-by-case basis

Primary CNS Lymphoma

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment with Whole Brain Radiation Therapy (WBRT) and a boost (if necessary) with a cumulative total dose of up to 45 Gy in up to 25 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Palliative Fractionation [(3)]
  - Palliative treatment of primary CNS lymphoma of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Exclusions

The following are *NOT* considered medically necessary for primary CNS lymphoma:

- Stereotactic Radiosurgery (SRS)
- Brachytherapy
- Intra-Operative Radiation Therapy (IORT) - The use of IORT may be appropriate in selected clinical scenarios and will be reviewed on a case-by-case basis

Primary Spinal Cord Tumors

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment with spinal radiation and a boost for tumors below the conus medullaris (if necessary) with a cumulative total dose of up to 60 Gy in up to 33 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Palliative Fractionation [3]
  - Palliative treatment of primary spinal cord tumors of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Exclusions

The following are *NOT* considered medically necessary for primary spinal cord tumors:

- Stereotactic Radiosurgery (SRS)
- Brachytherapy
- Intra-Operative Radiation Therapy (IORT) - The use of IORT may be appropriate in selected clinical scenarios and will be reviewed on a case-by-case basis

Meningioma (Grade 1)

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment with a cumulative total dose of up to 54 Gy in up to 30 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Palliative Fractionation [3]
  - Palliative treatment of meningioma of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Indications for Stereotactic Radiosurgery (SRS)

Treatment using **Stereotactic Radiosurgery (SRS)** is considered medically necessary.

Dose Fractionation

- Treatment of up to 16 Gy in a single fraction of **SRS** *OR*
- Treatment of up to 30 Gy in up to 5 fractions of **SRS**

Exclusions

The following are *NOT* considered medically necessary for grade 1 meningioma:

- Brachytherapy
- Intra-Operative Radiation Therapy (IORT) - The use of IORT may be appropriate in selected clinical scenarios and will be reviewed on a case-by-case basis

Meningioma (Grade 2&3)

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 60 Gy in up to 33 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Palliative Fractionation [(3)]
  - Palliative treatment grade 2/3 meningioma of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Indications for Stereotactic Radiosurgery (SRS)

Treatment using **Stereotactic Radiosurgery (SRS)** is considered medically necessary.

Dose Fractionation

- Treatment of up to 20 Gy in a single fraction of **SRS** *OR*
- Treatment of up to 30 Gy in up to 5 fractions of **SRS**

Exclusions

The following are *NOT* considered medically necessary for grade 2 & 3 meningioma:

- Brachytherapy
- Intra-Operative Radiation Therapy (IORT) - The use of IORT may be appropriate in selected clinical scenarios and will be reviewed on a case-by-case basis

Benign Brain Lesions

Acoustic Neuroma (Vestibular Schwannoma)

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation [19]
  - Treatment of up to 50.4 Gy in up to 28 fractions using **IMRT or 3D-CRT**

Indications for Stereotactic Radiosurgery (SRS)

Treatment using **Stereotactic Radiosurgery (SRS)** is considered medically necessary.

Dose Fractionation

- Treatment of up to 13 Gy in a single fraction of **SRS** *OR*
- Treatment of up to 25 Gy in up to 5 fractions of **SRS**

Exclusions

The following are *NOT* considered medically necessary for acoustic neuroma:

- Brachytherapy
- Intra-Operative Radiation Therapy (IORT) - The use of IORT may be appropriate in selected clinical scenarios and will be reviewed on a case-by-case basis

Arteriovenous Malformations (AVM)

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation [20,21]
  - Treatment of up to 50 Gy in up to 28 fractions using **IMRT or 3D-CRT**

Indications for Stereotactic Radiosurgery (SRS) [22,23,24]

Treatment using **Stereotactic Radiosurgery (SRS)** is considered medically necessary.

Dose Fractionation

- Treatment of up to 21 Gy in a single fraction of **SRS** *OR*
- Treatment of up to 40 Gy in 5 fractions of **SRS**

Exclusions

The following are *NOT* considered medically necessary for AVMs:

- Brachytherapy
- Intra-Operative Radiation Therapy (IORT) - The use of IORT may be appropriate in selected clinical scenarios and will be reviewed on a case-by-case basis

Trigeminal Neuralgia [25,26]

Indications for Stereotactic Radiosurgery (SRS)

Treatment using **Stereotactic Radiosurgery (SRS)** is considered medically necessary

Dose Fractionation

- Treatment of up to 90 Gy in 1 fractions of **SRS**

Exclusions

The following are *NOT* considered medically necessary for trigeminal neuralgia:

- 3D-CRT (not involving SRS)
- IMRT (not involving SRS)
- Brachytherapy
- Intra-Operative Radiation Therapy (IORT) - The use of IORT may be appropriate in selected clinical scenarios and will be reviewed on a case-by-case basis

Craniopharyngioma

Indications for IMRT or 3D-CRT [27,28]

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 54 Gy in up to 30 fractions using **IMRT or 3D-CRT**

Indications for Stereotactic Radiosurgery (SRS) (29,30)

Treatment using **Stereotactic Radiosurgery (SRS)** is considered medically necessary.

Dose Fractionation

- Treatment of up to 12 Gy in a single fraction of **SRS**

Brachytherapy (31,32)

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)

Exclusions

The following is *NOT* considered medically necessary for craniopharyngioma:

- Intra-Operative Radiation Therapy (IORT) - The use of IORT may be appropriate in selected clinical scenarios and will be reviewed on a case-by-case basis

Pituitary Adenoma

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation (33)
  - Treatment of up to 50 Gy in up to 28 fractions using **IMRT or 3D-CRT**

Indications for Stereotactic Radiosurgery (SRS) (34,35)

Treatment using **Stereotactic Radiosurgery (SRS)** is considered medically necessary.

Dose Fractionation

- Treatment for secreting and non-secreting tumors of up to 24 Gy in a single fraction of **SRS** *OR*
- Treatment of up to 25 Gy in up to 5 fractions of **SRS**

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Exclusions

The following are *NOT* considered medically necessary for pituitary adenoma:

- Brachytherapy
- Intra-Operative Radiation Therapy (IORT)

Prophylactic Cranial Irradiation (PCI)

Indications for 3D-CRT [36,37,38]

Treatment using **3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary for patients only when *ALL* of the following apply:

- The diagnosis is limited or extensive stage small cell lung cancer in patients who have a good response to initial therapy *AND*
- ECOG performance status ≤2

Dose Fractionation

- Treatment of up to 25 Gy in up to 10 fractions using **3D-CRT**

Indications for IMRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT)** is considered medically necessary for patients only when *ALL* of the following apply:

- The diagnosis is limited or extensive stage small cell lung cancer in patients who have a good response to initial therapy *AND*
- ECOG performance status ≤2 *AND*
- A hippocampal avoidance (HA) whole brain **IMRT** technique is used [39,40]

Dose Fractionation

- Treatment of up to 25 Gy in up to 10 fractions using **IMRT**

Exclusions

The following are *NOT* considered medically necessary for PCI:

- Brachytherapy
- Stereotactic Radiosurgery (SRS)
- Intra-Operative Radiation Therapy (IORT) - The use of IORT may be appropriate in selected clinical scenarios and will be reviewed on a case-by-case basis

GASTROINTESTINAL CANCERS

Rectal Cancer [41]

General

For SIRT indications for unresectable liver metastases, see **Indications for SIRT**.

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - In all patients, treatment of up to 50.4 Gy in up to 28 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Palliative Fractionation [3]
  - Palliative treatment of the pelvis of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Indications for IORT

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 18 Gy in a single fraction during surgery is considered medically necessary for close or positive surgical margins in select clinical scenarios such as T4 primary tumor or recurrent disease

Exclusions

The following are *NOT* considered medically necessary for rectal cancer:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)

Anal Cancer [42]

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT) or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary

Dose Fractionation

- Conventional Fractionation [43]
  - Treatment of up to 54 Gy in up to 30 fractions using **IMRT or** 3D-CRT for patients with no metastatic disease
- Palliative Fractionation
  - Palliative treatment of the pelvis of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Exclusions

The following are *NOT* considered medically necessary for anal cancer:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)
- Intra-Operative Radiation Therapy (IORT) - The use of IORT may be appropriate in selected clinical scenarios and will be reviewed on a case-by-case basis

Colon Cancer [44]

General

For SIRT indications for unresectable liver metastases, see **Indications for SIRT**.

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 50.4 Gy in up to 28 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease, *only* in patients meeting *at least one* of the following criteria mentioned below
    - T4 disease (tumor adherent to an adjacent structure after surgery) *OR*

- Inoperable cancer

- Palliative Fractionation [3]
  - Palliative treatment of the abdomen/pelvis of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Indications for IORT

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 18 Gy in a single fraction during surgery is considered medically necessary for close or positive surgical margins in select clinical scenarios such as T4 primary tumor or recurrent disease

Exclusions

The following are *NOT* considered medically necessary for colon cancer:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)

Esophageal Cancer (Thoracic) [45]

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation [46]
  - Treatment of up to 50.4 Gy in up to 28 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Palliative Fractionation [3]
  - Palliative treatment of the chest of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Exclusions

The following are *NOT* considered medically necessary for thoracic esophageal cancer:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)
- Intra-Operative Radiation Therapy (IORT) - The use of IORT may be appropriate in selected clinical scenarios and will be reviewed on a case-by-case basis

Esophageal Cancer (Cervical) [45]

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary [47]

Dose Fractionation

- Conventional Fractionation [48]
  - Treatment of up to 70 Gy in up to 35 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Palliative Fractionation [3]
  - Palliative treatment of the cervical esophageal area of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Exclusions

The following are *NOT* considered medically necessary for cervical esophageal cancer:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)
- Intra-Operative Radiation Therapy (IORT) - The use of IORT may be appropriate in selected clinical scenarios and will be reviewed on a case-by-case basis

Gastric Cancer [49]

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation [50,51]
  - Treatment of up to 50.4 Gy in up to 28 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

- Palliative Fractionation [3]
  - Palliative treatment of the abdomen of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Exclusions

The following are *NOT* considered medically necessary for gastric cancer:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)
- Intra-Operative Radiation Therapy (IORT) - The use of IORT may be appropriate in selected clinical scenarios and will be reviewed on a case-by-case basis

Pancreatic Cancer [52]

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 54 Gy in up to 30 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Hypofractionation
  - Treatment of up to 67.5 Gy in up to 15 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease *OR*
  - Treatment of up to 75 Gy in up to 25 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Palliative Fractionation [3]
  - Palliative treatment of the abdomen of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Indications for SBRT

Treatment using **Stereotactic Body Radiation Therapy (SBRT)** is considered medically necessary.

Dose Fractionation

- Treatment of up to 50 Gy in up 5 fractions of **SBRT** for patients with no metastatic disease

Indications for IORT

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 20 Gy in a single fraction during surgery is considered medically necessary for close or positive surgical margins or recurrent disease in select clinical scenarios

Exclusions

The following is *NOT* considered medically necessary for pancreatic cancer:

- Brachytherapy

Cholangiocarcinoma/Gallbladder Cancer [53]

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT) or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 60 Gy in up to 30 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease *OR*
  - Treatment of up to 77 Gy in up to 35 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Hypofractionation [54]
  - Treatment of up to 60 Gy in up to 25 fractions (with a simultaneous integrated boost - SIB) using **IMRT or 3D-CRT** for patients with no metastatic disease
- Palliative Fractionation [3]
  - Palliative treatment of the abdomen of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

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Indications for SBRT [55]

Treatment using **Stereotactic Body Radiation Therapy (SBRT)** is considered medically necessary.

Dose Fractionation

- Treatment of up to 60 Gy in up 5 fractions of **SBRT** for patients with no metastatic disease

Indications for SIRT

See SIRT Indications in Hepatocellular Carcinoma.

Exclusions

The following are *NOT* considered medically necessary for cholangiocarcinoma and gallbladder cancers:

- Brachytherapy
- Intra-Operative Radiation Therapy (IORT) - The use of IORT may be appropriate in selected clinical scenarios and will be reviewed on a case-by-case basis

Hepatocellular Cancer [56]

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT) or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 66 Gy in up to 33 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Hypofractionation [57]
  - Treatment of up to 72 Gy in up to 20 fractions (with a simultaneous integrated boost - SIB) using **IMRT or 3D-CRT** for patients with no metastatic disease
- Palliative Fractionation [3]
  - Palliative treatment of the abdomen of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

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Indications for SBRT

Treatment using **Stereotactic Body Radiation Therapy (SBRT)** is considered medically necessary.

Dose Fractionation

- Treatment of up to 60 Gy in up 5 fractions of **SBRT** for patients with no metastatic disease

Indications for SIRT

Selective Internal Radiation Therapy (SIRT) uses yttrium-90 (90Y) microspheres (TheraSphere, SIR-Spheres, or QuiremSpheres) to deliver radiation to tumor(s). Any dose (Gy) using up to 2 fractions is considered medically necessary to treat patients with:

- Unresectable hepatocellular carcinoma
- Unresectable intrahepatic cholangiocarcinoma
- Unresectable liver metastases from cancers including but not limited to breast cancer, cholangiocarcinoma, colorectal cancer, hepatocellular carcinoma, melanoma, and neuroendocrine tumors

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

Exclusions

The following are *NOT* considered medically necessary for hepatocellular cancer:

- Brachytherapy
- Intra-Operative Radiation Therapy (IORT) - The use of IORT may be appropriate in selected clinical scenarios and will be reviewed on a case-by-case basis

GENITOURINARY CANCERS

Very Low/Low Risk Prostate Cancer [58,59,60]

Definition

Very Low Risk Prostate Cancer:

- Clinical Primary Tumor Stage [T] is T1c, PSA <10 ng/ml, and Grade Group 1 (Gleason score 3+3=6), PSA density <0.15ng/mL/ g, < 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

Treatment using **Intensity Modulated Radiation Therapy (IMRT) or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Hypofractionation
  - Treatment of up to 70 Gy in up to 28 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Conventional Fractionation is ONLY indicated for patients who are exempt from hypofractionation [61,62,63,64]
  - Treatment of up to 81 Gy 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 *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)
- Palliative Fractionation
  - Palliative treatment of the pelvis of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Indications for SBRT

Treatment using **Stereotactic Body Radiation Therapy (SBRT)** monotherapy is considered medically necessary.

Dose Fractionation

- Treatment of up to 40 Gy in up 5 fractions of **SBRT** for patients with no metastatic disease

Indications for Brachytherapy

Treatment using **Brachytherapy** is considered medically necessary.

Dose Fractionation

- Treatment as monotherapy for patients with no metastatic disease
  - LDR (low dose-rate) brachytherapy monotherapy of up to 145 Gy in a single implant. Examples include
    - 115 Gy using Cesium-131
    - 125 Gy using Palladium-103
    - 145 Gy using Iodine-125
  - HDR (high dose-rate) brachytherapy monotherapy of up to 38 Gy in up to 4 fractions. Examples include
    - 27 Gy in 2 fractions given over 2 implants of 13.5 Gy per implant using Iridium-192 *OR*
    - 38 Gy in 4 fractions given over 2 implants of 9.5 Gy BID per implant using Iridium-192

Exclusions

The following is *NOT* considered medically necessary for very low/low risk prostate cancer:

- Intra-Operative Radiation Therapy (IORT) - The use of IORT may be appropriate in selected clinical scenarios and will be reviewed on a case-by-case basis

Favorable Intermediate Risk Prostate Cancer [58,59,60]

Definition

Favorable Intermediate Risk Prostate Cancer has only one intermediate risk factor:

- Grade Group 1 (Gleason score 6) with only one risk factor, namely, PSA 10-20 ng/mL (risk factor) or clinical primary tumor stage T2b-c (risk factor) OR
- Grade Group 2 (Gleason score 3+4=7; risk factor) with a PSA <10 ng/mL, clinical primary tumor stage T1c-T2a, and < 50% (<6 of 12) of the prostate biopsy cores contain cancer

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Hypofractionation
  - Treatment of up to 70 Gy in up to 28 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

- Conventional Fractionation is ONLY indicated for patients who are exempt from hypofractionation [61,62,63,64,65]
  - Treatment of up to 81 Gy in up to 45 fractions *OR* 95 Gy 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 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
- Palliative Fractionation
  - Palliative treatment of the pelvis of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Indications for SBRT

Treatment using **Stereotactic Body Radiation Therapy (SBRT)** monotherapy is considered medically necessary.

Dose Fractionation

- Treatment of up to 40 Gy in up 5 fractions of **SBRT** for patients with no metastatic disease

Indications for Brachytherapy

Treatment using **Brachytherapy** is considered medically necessary.

Dose Fractionation

- Treatment as monotherapy for patients with no metastatic disease
  - LDR (low dose-rate) brachytherapy monotherapy up to 145 Gy in a single fraction. Examples include
    - 115 Gy using Cesium-131
    - 125 Gy using Palladium-103
    - 145 Gy using Iodine-125
  - HDR (high dose-rate) brachytherapy monotherapy up to 38 Gy in up to 4 fractions. Examples include

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- 27 Gy in 2 fractions given over 2 implants at 13.5 Gy per implant *OR* 38 Gy in 4 fractions given over 2 implants at 9.5 Gy BID per implant using Iridium-192

Exclusions

The following is *NOT* considered medically necessary for favorable intermediate risk prostate cancer:

- Intra-Operative Radiation Therapy (IORT) - The use of IORT may be appropriate in selected clinical scenarios and will be reviewed on a case-by-case basis

Unfavorable Intermediate/High/Very High Risk Prostate Cancer (58,59,60)

Definition

Unfavorable Intermediate Risk Prostate Cancer has 2-3 intermediate risk factors:

- Grade Group 1 (Gleason score 3+3=6) with 2-3 risk factors, namely, PSA 10-20 ng/mL (risk factor) AND clinical primary tumor stage T2b-c (risk factor) AND/OR Grade Group 2 (Gleason score 3+4=7; risk factor) with PSA 10-20 ng/mL and/or clinical stage T2b-c (risk factor) and/or ≥ 50% biopsy cores positive *OR* Grade Group 3 (Gleason score 4+3=7; risk factor) with a PSA <10 *OR* PSA 10-20 (risk factor)

High Risk Prostate Cancer has no very-high-risk features and exactly one high-risk feature: Clinical Primary Tumor Stage T3a OR PSA > 20 ng/mL or Grade Group 4 (Gleason score 8) or Grade Group 5 (Gleason score 9-10)
High Risk Features:

- Clinical Primary Tumor Stage T3a
- PSA > 20 ng/mL
- Grade Group 4 (Geason score 8)
- Grade Group 5 (Gleason score 9-10)

Very High Risk Prostate Cancer has at least one of the following: Clinical Primary Tumor Stage T3b-T4 *OR* Grade Group 5 (Gleason score 9-10) or 2-3 high-risk features or > 4 biopsy cores with Grade Group 4-5 (Gleason score 8-10)
Very High Risk Features:

- Clinical Primary Tumor Stage T3b-T4
- Grade Group 5 (Gleason score 9-10)

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Hypofractionation
  - Treatment of up to 70 Gy in up to 28 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Conventional Fractionation is ONLY indicated for patients who are exempt from hypofractionation [61,62,63,65,66]
  - Treatment of up to 81 Gy in up to 45 fractions *OR* 95 Gy 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 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*
    - 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)
- Conventional Fractionation with a Hypofractionated Boost
  - Treatment of up to 50.4 Gy in up to 28 fractions using **IMRT or 3D-CRT** in combination with up to 19 Gy in 2 fractions with a hypofractionated **IMRT or 3D-CRT** boost

(*The hypofractionated boost cannot be billed as SBRT since SBRT is a stand-alone treatment technique and cannot be billed in conjunction with any other treatment modality such as IMRT) [1]

- Palliative Fractionation
  - Palliative treatment of the pelvis of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Indications for SBRT

Treatment using **Stereotactic Body Radiation Therapy (SBRT)** monotherapy is considered medically necessary.

Dose Fractionation

- Treatment of up to 40 Gy in up 5 fractions of **SBRT** for patients with no metastatic disease

Indications for Brachytherapy

Treatment using a **Brachytherapy boost** is considered medically necessary.

Dose Fractionation

- Treatment for patients with no metastatic disease
  - LDR (low dose-rate) **Brachytherapy boost** of up to 115 Gy in a single implant in combination with **3D-CRT/IMRT** treatment of up to 50.4 Gy in up to 28 fractions. Examples of a brachytherapy boost include
    - 85 Gy using Cesium-131
    - 100 Gy using Palladium-103
    - 115 Gy using Iodine-125
  - HDR (high dose-rate) **Brachytherapy boost** of up to 21.5 Gy in up to 2 fractions in combination with **3D-CRT/IMRT** treatment of up to 50.4 Gy in up to 28 fractions. Examples of brachytherapy include
    - 15 Gy in a single fraction *OR* 21.5 Gy in 2 fractions using Iridium-192

Exclusions

The following is *NOT* considered medically necessary for unfavorable intermediate/high/very high risk prostate cancer:

- Intra-Operative Radiation Therapy (IORT) - The use of IORT may be appropriate in selected clinical scenarios and will be reviewed on a case-by-case basis

Prostate Cancer with Positive Regional Lymph Nodes (N1) **(58,60)**

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

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 81 Gy in up to 45 fractions

        - Using **IMRT or 3D-CRT** for patients with no metastatic disease is considered medically necessary since pelvic lymph nodes are always included in the treatment plan

- Hypofractionation
    - Treatment of up to 70 Gy in up to 28 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Palliative Fractionation
    - Palliative treatment of the pelvis of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Exclusions

The following are *NOT* considered medically necessary for prostate cancer involving the pelvic lymph nodes on conventional imaging:

- Stereotactic Body Radiation Therapy (SBRT)
- Brachytherapy
- Intra-Operative Radiation Therapy (IORT) - The use of IORT may be appropriate in selected clinical scenarios and will be reviewed on a case-by-case basis

Prostate Cancer with a Low Metastatic Burden [58,60,67]

Definition [68]

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:

- Non-regional (M1a) lymph node-only disease *OR*
- Up to 7 bony metastases (M1b) in patients without visceral (M1c) metastases

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Hypofractionation
    - Treatment of up to 55 Gy in up to 20 fractions using **IMRT or 3D-CRT** for patients with a low metastatic burden of disease
- Palliative Fractionation

- Palliative treatment of the pelvis of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with **high metastatic burden of disease**)

Exclusions

The following are *NOT* considered medically necessary for prostate cancer with a low metastatic burden:

- Stereotactic Body Radiotherapy (SBRT) to the prostate
- Brachytherapy
- Intra-Operative Radiation Therapy (IORT) - The use of IORT may be appropriate in selected clinical scenarios and will be reviewed on a case-by-case basis

Prostate Cancer with a High Metastatic Burden

Indications for 3D-CRT

Radiation treatment to the prostate should *NOT* be used in patients with high-volume metastatic disease outside the context of a clinical trial unless the treatment of the prostate is for palliative intent.

Treatment using **3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Palliative Fractionation
  - Palliative treatment of the pelvis of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with high metastatic burden of disease)

Exclusions

The following are *NOT* considered medically necessary for prostate cancer with a high metastatic burden:

- Intensity Modulated Radiation Therapy (IMRT)
- Stereotactic Body Radiotherapy (SBRT) to the prostate
- Brachytherapy
- Intra-Operative Radiation Therapy (IORT) - The use of IORT may be appropriate in selected clinical scenarios and will be reviewed on a case-by-case basis

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Post-Prostatectomy (Adjuvant/Salvage) Radiation for Prostate Cancer [58,60]

Definition

Post-Prostatectomy Radiation Therapy Suitable Patients are patients 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

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 72 Gy in up to 40 fractions using **IMRT or 3D-CRT** in the absence of gross disease
- Hypofractionation [69,70]
  - Treatment of up to 52.5 Gy in up to 20 fractions using **IMRT or 3D-CRT** to the prostate fossa alone

Exclusions

The following are *NOT* considered medically necessary for post-prostatectomy patients:

- Stereotactic Body Radiation Therapy (SBRT)

- Brachytherapy
- Intra-Operative Radiation Therapy (IORT) - The use of IORT may be appropriate in selected clinical scenarios and will be reviewed on a case-by-case basis

Prostate - Prophylactic Breast Radiation (for patients receiving ADT)

Indications for 3D-CRT [71]

Prophylactic Breast Radiation with **3D-Conformal Radiation Therapy (3D-CRT)** for men receiving Androgen Deprivation Therapy (ADT) is considered medically necessary with treatment of up to 12 Gy in up to 3 fractions to prevent gynecomastia.

Exclusions

The following are *NOT* considered medically necessary for patients receiving prophylactic breast radiation:

- Intensity Modulated Radiation Therapy (IMRT)
- Stereotactic Body Radiation Therapy (SBRT)
- Brachytherapy
- Intra-Operative Radiation Therapy (IORT)

Bladder Cancer [72,73]

T2-T4 (organ preservation/nonsurgical)

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 T2-T4 disease for medically inoperable patients *OR* when using an organ sparing treatment approach.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 66 Gy in up to 37 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Hypofractionation
  - Treatment of up to 55 Gy in up to 20 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Palliative Fractionation

- Palliative treatment of the pelvis of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Exclusions

The following are *NOT* considered medically necessary for non-surgical bladder cancer:

- Stereotactic Body Radiation Therapy (SBRT)
- Brachytherapy
- Intra-Operative Radiation Therapy (IORT)

Postoperative Treatment

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary in the postoperative setting, following a radical cystectomy, for T3-T4 disease with suspected microscopic disease, positive lymph nodes, or positive margins.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 60 Gy in up to 34 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Palliative Fractionation
  - Palliative treatment of the pelvis of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Exclusions

The following are *NOT* considered medically necessary postoperative bladder cancer:

- Stereotactic Body Radiation Therapy (SBRT)
- Brachytherapy
- Intra-Operative Radiation Therapy (IORT) - The use of IORT may be appropriate in selected clinical scenarios and will be reviewed on a case-by-case basis

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Recurrent Ta or T1 or Tis (non-extensive)

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary in the setting of recurrent disease including Ta, T1, or Tis (non-extensive).

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 66 Gy in up to 37 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Hypofractionation
  - Treatment of up to 55 Gy in up to 20 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Palliative Fractionation
  - Palliative treatment of the pelvis of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Exclusions

The following are *NOT* considered medically necessary for recurrent Ta/T1/Tis bladder cancer:

- Stereotactic Body Radiation Therapy (SBRT)
- Brachytherapy
- Intra-Operative Radiation Therapy (IORT)

Urethral Cancer [73]

T2N0 or T3-T4 or LN positive (organ preservation/nonsurgical)

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 medically inoperable patients with T2N0, T3-T4, or any lymph node positive disease *OR* when using an organ sparing treatment approach.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 70 Gy with up to 39 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

- Palliative Fractionation
  - Palliative treatment of the pelvis of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Exclusions

The following are *NOT* considered medically necessary non-operable urethral cancer:

- Stereotactic Body Radiation Therapy (SBRT)
- Brachytherapy
- Intra-Operative Radiation Therapy (IORT) - The use of IORT may be appropriate in selected clinical scenarios and will be reviewed on a case-by-case basis

Postoperative treatment

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary in the postoperative setting, following a urethrectomy, with suspected microscopic disease, positive lymph nodes, positive margins, or gross residual disease.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 70 Gy in up to 39 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Palliative Fractionation
  - Palliative treatment of the pelvis of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Exclusions

The following are *NOT* considered medically necessary for postoperative urethral cancer:

- Stereotactic Body Radiation Therapy (SBRT)
- Brachytherapy
- Intra-Operative Radiation Therapy (IORT)

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Recurrent disease

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary in the setting of recurrent urethral disease.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 74 Gy in up to 42 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Palliative Fractionation
  - Palliative treatment of the pelvis of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Exclusions

The following are *NOT* considered medically necessary for recurrent urethral cancer:

- Stereotactic Body Radiation Therapy (SBRT)
- Brachytherapy
- Intra-Operative Radiation Therapy (IORT) - The use of IORT may be appropriate in selected clinical scenarios and will be reviewed on a case-by-case basis

Penile Cancer [74]

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

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT) or 3D-Conformal Radiation Therapy (3D-CRT)** following a circumcision is considered medically necessary for patients with T1-2N0 *OR* T3–4 *OR* any lymph node positive disease for medically inoperable patients *OR* when using an organ sparing treatment approach.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 70 Gy in up to 39 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Palliative Fractionation
  - Palliative treatment of the pelvis of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Indications for Brachytherapy [75,76,77]

Treatment using **Brachytherapy** monotherapy is considered medically necessary.

Dose Fractionation

- In T1-2N0 patients following a circumcision of up to 65 Gy using interstitial Iridium-192 in patients with no metastatic disease

Exclusions

The following are *NOT* considered medically necessary for nonsurgical penile cancer:

- Stereotactic Body Radiation Therapy (SBRT)
- Intra-Operative Radiation Therapy (IORT) - The use of IORT may be appropriate in selected clinical scenarios and will be reviewed on a case-by-case basis

Postoperative Treatment

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary in the postoperative setting, following a penectomy with:

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

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 70 Gy in up to 39 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Palliative Fractionation
  - Palliative treatment of the pelvis of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Exclusions

The following are *NOT* considered medically necessary for postoperative penile cancer:

- Stereotactic Body Radiation Therapy (SBRT)
- Brachytherapy

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- Intra-Operative Radiation Therapy (IORT) - The use of IORT may be appropriate in selected clinical scenarios and will be reviewed on a case-by-case basis

Testicular Cancer (78)

Pure Seminoma (Stage IA/IB)

Indications for 3D-CRT

Treatment using **3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary for stage IA/IB

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 20 Gy in up to 10 fractions using **3D-CRT** for patients with no metastatic disease

Pure Seminoma (Stage IIA)

Indications for 3D-CRT

Treatment using **3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary for stage IIA.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 30 Gy in up to 15 fractions using **3D-CRT** for patients with no metastatic disease

Pure Seminoma (Stage IIB)

Indications for 3D-CRT

Treatment using **3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary for stage IIB.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 36 Gy in up to 18 fractions using **3D-CRT** for patients with no metastatic disease

Exclusions

The following are *NOT* considered medically necessary for pure seminoma:

- Brachytherapy
- Intensity Modulated Radiation Therapy (IMRT) - The risk of second cancers arising in the kidneys, liver, or bowel may be lower with 3D-CRT than IMRT, and IMRT is *NOT* necessary (78)
- Stereotactic Body Radiation Therapy (SBRT)
- Intra-Operative Radiation Therapy (IORT) - The use of IORT may be appropriate in selected clinical scenarios and will be reviewed on a case-by-case basis

GYNECOLOGICAL CANCERS (79)

Cervical Cancer (80,81)

General

Parametrial/Pelvic Sidewall Boost - The treatment of cervical cancer commonly includes whole pelvic **IMRT or 3D-CRT**. In select cases with bulky parametrial/pelvic sidewall disease after completion of initial whole pelvic radiation, a parametrial boost with **IMRT or 3D-CRT** will be considered on a case-by-case basis.

Lymph Node Boost - When using **IMRT** for treatment of the whole pelvis, using a combination of IMRT and a simultaneous integrated boost (SIB) technique can effectively deliver higher doses to grossly positive nodal disease.

Minimizing Toxicity - With the use of higher doses and boost treatments, care must be taken to exclude or severely limit the volume of normal tissue included in the high-dose region(s). Use of image-guided planning with CT/MRI & image-guided radiation therapy (IGRT) with orthogonal imaging and/or routine volumetric imaging (such as cone beam CT) at the time of treatment delivery, is essential to ensure appropriate coverage of targets and sparing of normal tissues.

Postoperative (Post-Hysterectomy)

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

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 50.4 Gy 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 *OR*
    - An **LDR vaginal cuff boost** in up to 2 insertions

Indications for IORT

Dose Fractionation

- Conventional Fractionation
  - Up to 18 Gy in a single fraction during surgery may be appropriate for close or positive surgical margins or recurrent disease in select clinical scenarios

Intact cervix (Nonsurgical)

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

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 50.4 Gy 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 *OR*
    - An **LDR boost** in up to 2 insertions
- Palliative Fractionation
  - Palliative treatment of the pelvis of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Exclusions

The following is *NOT* considered medically necessary:

- Stereotactic Body Radiation Therapy (SBRT)

Endometrial Cancer [82,83]

General

Postoperative Boost - The treatment of endometrial cancer commonly includes whole pelvic **IMRT or 3D-CRT**. In select cases with gross residual primary disease after completion of initial whole pelvic radiation, a boost with **IMRT or 3D-CRT** will be considered on a case-by-case basis.

Lymph Node Boost - When using **IMRT** for treatment of the whole pelvis, using a combination of IMRT and a simultaneous integrated boost (SIB) technique can effectively deliver higher doses to grossly positive nodal disease.

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Minimizing Toxicity - With the use of higher doses and boost treatments, care must be taken to exclude or severely limit the volume of normal tissue included in the high-dose region(s). Use of image-guided planning with CT/MRI & image-guided radiation therapy (IGRT) with orthogonal imaging and/or routine volumetric imaging (such as cone beam CT) at the time of treatment delivery, is essential to ensure appropriate coverage of targets and sparing of normal tissues.

Postoperative (Post-Hysterectomy)

Indications for Brachytherapy Alone

Treatment using **Brachytherapy alone** is considered medically necessary.

Dose Fractionation

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

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

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** and a **Brachytherapy Boost** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 50.4 Gy 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 *OR*
    - An **LDR vaginal cuff boost** in up to 2 insertions

Indications for IORT

Dose Fractionation

- Conventional Fractionation
  - Up to 18 Gy in a single fraction during surgery may be appropriate for close or positive surgical margins or recurrent disease in select clinical scenarios

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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 and may involve the combination of **IMRT/3D-CRT** with a **Brachytherapy boost** *OR* treatment with **Brachytherapy** alone.

Dose Fractionation

- **IMRT/3D-CRT** with a **Brachytherapy boost**
  - Treatment with up to 50.4 Gy with 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 *OR*
    - An **LDR Brachytherapy Boost** in up to 2 insertions
- **Brachytherapy** alone
  - An **HDR Brachytherapy Boost** in up to 6 insertions *OR*
  - An **LDR Brachytherapy** in up to 2 insertions

Exclusions

The following is *NOT* considered medically necessary:

- Stereotactic Body Radiation Therapy (SBRT)

Vulvar Cancer (84)

Definitions

Postoperative Boost - The treatment of vulvar cancer commonly includes whole pelvic **IMRT or 3D-CRT**. In select cases with gross residual primary disease after completion of initial whole pelvic radiation, a boost with **IMRT or 3D-CRT** will be considered on a case-by-case basis.

Lymph Node Boost - When using **IMRT** for treatment of the whole pelvis, using a combination of IMRT and a simultaneous integrated boost (SIB) technique can effectively deliver higher doses to grossly positive nodal disease.

Minimizing Toxicity - With the use of higher doses and boost treatments, care must be taken to exclude or severely limit the volume of normal tissue included in the high-dose region(s). Use of image-guided planning with CT/MRI & image-guided radiation therapy (IGRT) with orthogonal imaging and/or routine volumetric imaging (such as cone beam CT) at the time of treatment delivery, is essential to ensure appropriate coverage of targets and sparing of normal tissues.

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Nonsurgical (Inoperable)

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 64.8 Gy using **IMRT/3D-CRT** in up to 36 fractions for unresectable disease
- Palliative Fractionation
  - Palliative treatment of the pelvis of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Postoperative

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 50.4 Gy using **IMRT/3D-CRT** in up to 28 fractions postoperatively

Exclusions

The following are *NOT* considered medically necessary:

- Brachytherapy - Brachytherapy can sometimes be used as a boost to anatomically amenable primary tumors and will be reviewed on a case-by-case basis
- Stereotactic Body Radiation Therapy (SBRT)
- Intra-Operative Radiation Therapy (IORT) - The use of IORT may be appropriate in selected clinical scenarios and will be reviewed on a case-by-case basis

Vaginal Cancer [85,86]

Definitions

Postoperative Boost - The treatment of vaginal cancer commonly includes whole pelvic **IMRT or 3D-CRT**. In select cases with gross residual primary disease after completion of

initial whole pelvic radiation, a boost with **IMRT or 3D-CRT** will be considered on a case-by-case basis.

Lymph Node Boost - When using **IMRT** for treatment of the whole pelvis, using a combination of IMRT and a simultaneous integrated boost (SIB) technique can effectively deliver higher doses to grossly positive nodal disease.

Minimizing Toxicity - With the use of higher doses and boost treatments, care must be taken to exclude or severely limit the volume of normal tissue included in the high-dose region(s). Use of image-guided planning with CT/MRI & image-guided radiation therapy (IGRT) with orthogonal imaging and/or routine volumetric imaging (such as cone beam CT) at the time of treatment delivery, is essential to ensure appropriate coverage of targets and sparing of normal tissues.

Very Early Nonsurgical (Inoperable)

Indications for Brachytherapy alone

Treatment of very-early-stage vaginal cancers (<5 mm) using **Brachytherapy** alone (not requiring IMRT/3D-CRT) is considered medically necessary.

Dose Fractionation

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

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** followed by a **Brachytherapy boost** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 50.4 Gy with **IMRT/3D-CRT** in up to 28 fractions to pelvis followed by
    - **HDR Brachytherapy** in up to 10 fractions *OR*
    - **LDR Brachytherapy** in up to 4 fractions
- Palliative Fractionation
  - Palliative treatment of the pelvis of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

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Exclusions

The following are *NOT* considered medically necessary:

- Stereotactic Body Radiation Therapy (SBRT)
- Intra-Operative Radiation Therapy (IORT) - The use of IORT may be appropriate in selected clinical scenarios and will be reviewed on a case-by-case basis

HEAD AND NECK CANCERS [87]

General

For hyperthermia indications see **Hyperthermia**.

Background

The treatment of Head and Neck cancers as improved dramatically in the last few decades. The standard use of IMRT (often with simultaneous infield boosts and dose painting), the use of concurrent radiation and chemotherapy (and immunotherapy), advances in brachytherapy, and improved surgical techniques have all led to major advancements in the treatment of Head and Neck cancers.

Historically however, the RTOG 9003 trial [88] was an important trial with results that were first published back in 2000. In an effort to determine the most effect regimen of radiation at the time, it compared several deferent popular regimens of 3D radiation therapy for advanced head and neck cancer (all delivered without chemotherapy). The trial included a standard fractionation arm (SFX), a hyperfractionation arm (HFX), an accelerated fractionation arm with a split (AFX-S) and accelerated fractionation-continuous arm (AFX-C), also known as accelerated fractionation with concomitant boost. The early results with a follow-up of about 2 years were promising and showed improved local control for the HFX and AFX-C arms (although the difference in overall survival was not significant).

These results were then updated in 2014. In the updated data, "HFX improved OS (hazard ratio 0.81, p=0.05) when patients were censored at 5 years. But with longer follow-up the difference in OS did not retain significance." [89] Accordingly, with a median follow-up of 14.1 years, no single regimen of altered fractionation was proven to be more beneficial than conventionally fractionation (i.e., "standard") radiation therapy. Commenting on these results, several experts noted that "because the hyperfractionation (HFX) schedule used in RTOG 9003 requires 68 fractions per 7 weeks of twice-daily (BID) RT, and AFX-C (continuous) 12 BID days and a second IMRT plan, it is simply not logistically or economically feasible in most centers to use these fractionation schedules routinely in the current context of IMRT." [90]

At that time, it was also noted that "another significant factor that must be considered in the context of optimized [Altered Fractionation treatment] is that the standard of care for treatment of advanced HNSCC is now concurrent chemoradiation." [90] According to the current NCCN guidelines for Head and Neck Cancers, "Altered fractionation has not proven to be beneficial in the context of concurrent chemotherapy... [and] data indicate that

accelerated fractionation does not offer improved efficacy over conventional fractionation." [87] On occasion however, "Altered fractionation may be used for select patients with comorbidities who are not good candidates for 6–7 weeks of adjuvant RT or systemic therapy/RT." [87]

In summary therefore, "when surgical resection is less feasible or would result in poor long-term functional outcomes, chemoradiotherapy is the curative standard of care established by the Meta-analysis of Chemotherapy in Head and Neck Cancer (MACH-NC) study...Neither intensifying the radiation doses nor accelerating fractionation schedules has yet been shown to improve outcomes, as compared with conventional fractionated, intensity-modulated, and imaging-guided radiotherapy administered concurrently with chemotherapy." [91,92]

Oral Cavity Cancer

Oral Cavity (organ preservation/nonsurgical)

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 70 Gy in up to 35 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Palliative Fractionation
  - Palliative treatment of the head and neck of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

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

Indications for Brachytherapy [93,94]

Treatment using **Brachytherapy** as monotherapy or in combination with **IMRT or 3D-CR** is considered medically necessary.

Dose Fractionation

- Treatment for patients with no metastatic disease
  - LDR (low dose-rate) interstitial **Brachytherapy boost** of
    - up to 35 Gy in a single fraction in combination with **3D-CRT/IMRT** treatment of up to 50 Gy in up to 25 fractions *OR*
    - up to 70 Gy in a single fraction as monotherapy

OR

- HDR (high dose-rate) interstitial **Brachytherapy boost** of
  - up to 21 Gy in 7 fractions in combination with **3D-CRT/IMRT** treatment of up to 50 Gy in up to 25 fractions *OR*
  - up to 60 Gy in 10 fractions as monotherapy

Exclusions

The following are *NOT* considered medically necessary:

- Stereotactic Body Radiation Therapy (SBRT)
- Intra-Operative Radiation Therapy (IORT)

Postoperative Treatment

Indications for IMRT or 3D-CRT

Treatment using postoperative **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 66 Gy in up to 33 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Indications for IORT

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 20 Gy in a single fraction during surgery is considered medically necessary for close or positive surgical margins or recurrent disease in select clinical scenarios

Exclusions

The following are *NOT* considered medically necessary:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)

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Oropharynx Cancer

Oropharynx (organ preservation/nonsurgical)

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 70 Gy in up to 35 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Palliative Fractionation
  - Palliative treatment of the head and neck of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Exclusions

The following are *NOT* considered medically necessary:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)
- Intra-Operative Radiation Therapy (IORT)

Postoperative Treatment

Indications for IMRT or 3D-CRT

Treatment using postoperative **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 66 Gy in up to 33 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Indications for IORT

Dose Fractionation

- Conventional Fractionation

- Treatment of up to 20 Gy in a single fraction during surgery is considered medically necessary for close or positive surgical margins or recurrent disease in select clinical scenarios

Exclusions

The following are *NOT* considered medically necessary:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)

Hypopharynx Cancer

Hypopharynx (organ preservation/nonsurgical)

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 70 Gy in up to 35 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Palliative Fractionation
  - Palliative treatment of the head and neck of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Exclusions

The following are *NOT* considered medically necessary:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)
- Intra-Operative Radiation Therapy (IORT)

Postoperative Treatment

Indications for IMRT or 3D-CRT

Treatment using postoperative **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 66 Gy in up to 33 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Indications for IORT

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 20 Gy in a single fraction during surgery is considered medically necessary for close or positive surgical margins or recurrent disease in select clinical scenarios

Exclusions

The following are *NOT* considered medically necessary:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)

Nasopharynx Cancer

Nasopharynx (organ preservation/nonsurgical)

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment with up to 70 Gy in up to 35 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease *OR*
  - Treatment with up to 70 Gy in up to 35 fractions using **IMRT or 3D-CRT** for patients even with metastatic disease following chemotherapy - this regimen demonstrated an overall survival benefit in a phase 3 randomized controlled clinical trial [95]
- Palliative Fractionation
  - Palliative treatment of the head and neck of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

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Exclusions

The following are *NOT* considered medically necessary:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)
- Intra-Operative Radiation Therapy (IORT)

Glottic Larynx Cancer

Glottic Larynx (organ preservation/nonsurgical)

Indications 3D-CRT

Treatment using **3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary for **early-stage** cancer of the glottic larynx. IMRT is *NOT* considered medically necessary when the cervical lymph nodes are *NOT* being treated. [96]

Dose Fractionation

- Conventional Fractionation
  - **Tis, N0**
    - Treatment of up to 60.75 Gy in up to 27 fractions of **3D-CRT** *OR* up to 66 Gy in up to 33 fractions **of 3D-CRT**
  - **T1, N0**
    - Treatment of up to 63 Gy in up to 28 fractions of **3D-CRT** *OR* up to 66 Gy in up to 33 fractions **of 3D-CRT**
    - Treatment of up to 50 Gy in up to 16 fractions of **3D-CRT** *OR* up to 52 Gy in up to 16 fractions **of 3D-CRT**
  - **T2, N0**
    - Treatment of up to 65.25 Gy in up to 29 fractions of **3D-CRT** *OR* up to 70 Gy in up to 35 fractions of **3D-CRT**
- Palliative Fractionation
  - Palliative treatment of the head and neck of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

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* when involvement of the cervical lymph nodes is suspected AND the lymph nodes are being treated.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 70 Gy in up to 35 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Palliative Fractionation
  - Palliative treatment of the head and neck of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Exclusions

The following are *NOT* considered medically necessary:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)
- Intra-Operative Radiation Therapy (IORT)

Postoperative Treatment

Indications for IMRT or 3D-CRT

Treatment using postoperative **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 66 Gy in up to 33 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Indications for IORT

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 20 Gy in a single fraction during surgery is considered medically necessary for close or positive surgical margins or recurrent disease in select clinical scenarios

Exclusions

The following are *NOT* considered medically necessary:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)

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Supraglottic Larynx Cancer

Supraglottic Larynx (organ preservation/nonsurgical)

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment with up to 70 Gy in up to 35 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Palliative Fractionation
  - Palliative treatment of the head and neck with up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Exclusions

The following are *NOT* considered medically necessary:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)
- Intra-Operative Radiation Therapy (IORT)

Postoperative Treatment

Indications for IMRT or 3D-CRT

Treatment using postoperative **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 66 Gy in up to 33 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Indications for IORT

Dose Fractionation

- Conventional Fractionation

- Treatment of up to 20 Gy in a single fraction during surgery is considered medically necessary for close or positive surgical margins or recurrent disease in select clinical scenarios

Exclusions

The following are *NOT* considered medically necessary:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)

Salivary Gland Cancer

Salivary Gland (organ preservation/nonsurgical)

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 70 Gy in up to 35 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Palliative Fractionation
  - Palliative treatment of the head and neck of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Exclusions

The following are *NOT* considered medically necessary:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)
- Intra-Operative Radiation Therapy (IORT)

Postoperative Treatment

Indications for IMRT or 3D-CRT

Treatment using postoperative **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 66 Gy in up to 33 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Indications for IORT

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 20 Gy in a single fraction during surgery is considered medically necessary for close or positive surgical margins or recurrent disease in select clinical scenarios

Exclusions

The following are *NOT* considered medically necessary:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)

Ethmoid Sinus Cancer

Ethmoid Sinus (organ preservation/nonsurgical)

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 70 Gy in up to 35 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Palliative Fractionation
  - Palliative treatment of the head and neck of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Exclusions

The following are *NOT* considered medically necessary:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)

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- Intra-Operative Radiation Therapy (IORT)

Postoperative Treatment

Indications for IMRT or 3D-CRT

Treatment using postoperative **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 66 Gy in up to 33 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Indications for IORT

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 20 Gy in a single fraction during surgery is considered medically necessary for close or positive surgical margins or recurrent disease in select clinical scenarios

Exclusions

The following are *NOT* considered medically necessary:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)

Maxillary Sinus Cancer

Maxillary Sinus (organ preservation/nonsurgical)

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 70 Gy in up to 35 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Palliative Fractionation

- Palliative treatment of the head and neck of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Exclusions

The following are *NOT* considered medically necessary:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)
- Intra-Operative Radiation Therapy (IORT)

Postoperative Treatment

Indications for IMRT or 3D-CRT

Treatment using postoperative **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 66 Gy in up to 33 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Indications for IORT

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 20 Gy in a single fraction during surgery is considered medically necessary for close or positive surgical margins or recurrent disease in select clinical scenarios

Exclusions

The following are *NOT* considered medically necessary:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)

Unknown Primary Head and Neck Cancer

Postoperative Treatment

Indications for IMRT or 3D-CRT

Treatment using postoperative **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 66 Gy in up to 33 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Indications for IORT

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 20 Gy in a single fraction during surgery is considered medically necessary for close or positive surgical margins or recurrent disease in select clinical scenarios

Exclusions

The following are *NOT* considered medically necessary:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)

Unknown Primary (organ preservation/nonsurgical)

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 70 Gy in up to 35 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Palliative Fractionation
  - Palliative treatment of the head and neck of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

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Exclusions

The following are *NOT* considered medically necessary:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)
- Intra-Operative Radiation Therapy (IORT)

HYPERTHERMIA

General

Heat treatments (hyperthermia) can be applied locally, regionally, or to the whole body for the treatment of cancer.

  - Local hyperthermia is typically administered every 72 hours for up to 10 treatments using applicators that are placed close to or in a cancer

- Various approaches may be used to heat a region of the body, such as the peritoneal cavity, an organ, or a limb
- Whole-body hyperthermia can be accomplished using a thermal chamber or hot water blankets to raise the body temperature to 107–108°F

Indications for Local Hyperthermia With Concurrent Radiation Therapy for Specific Cancer Types

- Primary or metastatic cutaneous or subcutaneous superficial malignancies *OR*
- Chest wall recurrence of breast cancer *OR*
- Recurrent cervical lymph nodes from head and neck cancer
  - Up to ten (10) local hyperthermia treatments are considered medically necessary if any one of the above indications is met

Hyperthermia Contraindications

- Metastatic disease for which chemotherapy or hormonal therapy is being given concurrently or planned *OR*
- When used alone or in connection with chemotherapy *OR*
- Tumor > 4 cm in depth

LUNG CANCER

Non-Small Cell Lung Carcinoma (NSCLC) [97]

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

Indications for SBRT [98,99,100]

Treatment using Stereotactic Body Radiation Therapy (SBRT) is considered medically necessary for patients only with stage I *OR* stage IIA (tumors ≤5cm).

Dose Fractionation

- Hypofractionation
  - Treatment of up to 60 Gy in up to 5 fractions using **SBRT** for patients with no metastatic disease

Indications for IMRT

Treatment using Intensity Modulated Radiation Therapy (IMRT) is considered medically necessary for patients with stage I *OR* stage IIA.

Dose Fractionation

- Hypofractionation
  - Treatment of up to 70 Gy in up to 10 fractions using **IMRT** for patients with no metastatic disease

Indications for 3D-CRT

Treatment using **3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary for patients with stage I *OR* stage IIA/IIB tumors.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 70 Gy in up to 35 fractions using **3D-CRT** for patients with no metastatic disease
- Palliative Fractionation
  - Palliative treatment of the lung of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Exclusions

The following are *NOT* considered medically necessary:

- Brachytherapy

- Stereotactic Body Radiation Therapy (SBRT) for stage IIB tumors, any tumor >5 cm, and lymph node positive disease
- Intra-Operative Radiation Therapy (IORT)

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

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 lymph node positive patients including stage IIB *OR* stage IIIA *OR* stage IIIB *OR* stage IIIC. [101]

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 70 Gy in up to 35 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Palliative Fractionation
  - Palliative treatment of the lung of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Exclusions

The following are *NOT* considered medically necessary:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)
- Intra-Operative Radiation Therapy (IORT)

Stage IIIA Non-Small Cell Lung Cancer (Preoperative)

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 patients with resectable N2 disease (stage IIIA) and is recommended for resectable superior sulcus tumors.

Dose Fractionation

- Conventional Fractionation
  - Treatment preoperatively of up to 54 Gy in up to 27 fractions using **IMRT or 3D-CRT** for patients that proceed to surgery and have no metastatic disease *OR*
    - Treatment of up to 70 Gy in up to 35 fractions using **IMRT or 3D-CRT** for patients that do *NOT* proceed to surgery and have no metastatic disease

Exclusions

The following are *NOT* considered medically necessary:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)
- Intra-Operative Radiation Therapy (IORT)

Stage IIIA Non-Small Cell Lung Cancer (Postoperative)

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 postoperative stage IIIA patients (with N2 disease) and an R0 resection (with negative surgical margins) *OR* an R1 resection (with microscopic residual tumor) *OR* an R2 resection (with macroscopic residual tumor).

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 70 Gy in up to 35 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease

Exclusions

The following are *NOT* considered medically necessary:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)
- Intra-Operative Radiation Therapy (IORT)

Small Cell Lung Carcinoma (SCLC) (102)

Limited Stage Small Cell Lung Cancer (Nonsurgical)

Indications for SBRT

Treatment using **Stereotactic Body Radiation Therapy (SBRT)** is considered medically necessary for patients only with stage I *OR* stage IIA (tumors ≤5cm).
(*Principles of SBRT/SABR for SCLC are similar to those for NSCLC)

Dose Fractionation

- Hypofractionation
  - Treatment of up to 60 Gy in up to 5 fractions using **SBRT** for patients with no metastatic disease

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 70 Gy in up to 35 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Hyperfractionation [103,104]
  - Treatment of up to 45 Gy in up to 30 fractions given BID (twice daily) using **IMRT or 3D-CRT** for patients with no metastatic disease *OR*
  - Treatment of up to 60 Gy in up to 40 fractions given BID (twice daily) using **IMRT or 3D-CRT** for patients with no metastatic disease [105]
- Hypofractionation
  - Treatment of up to 70 Gy in up to 10 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease *OR*
  - Treatment of up to 65 Gy in up to 26 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease [106]
- Palliative Fractionation
  - Palliative treatment of the lung of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

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

Exclusions

The following are *NOT* considered medically necessary:

- Brachytherapy
- Intra-Operative Radiation Therapy (IORT)

Limited Stage Small Cell Lung Cancer (Postoperative)

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 postoperative patients with N2 disease an in selected patients with N1 disease. Principles for SCLC are similar to those for NSCLC.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 70 Gy 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**).

Exclusions

The following are *NOT* considered medically necessary:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)
- Intra-Operative Radiation Therapy (IORT)

Extensive Stage SCLC

Indications for IMRT or 3D-CRT [107,108,109]

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary for selected patients with complete response or good response to systemic therapy.

Dose Fractionation

- Treatment of up to 54 Gy in up to 36 fractions (accelerated hyperfractionation) using **IMRT or 3D-CRT** *OR*
- Treatment of up to 30 Gy in up to 10 fractions using **IMRT or 3D-CRT** *OR*
- Treatment of up to 40 Gy in up to 15 fractions using **IMRT or 3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

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

Exclusions

The following are *NOT* considered medically necessary:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)
- Intra-Operative Radiation Therapy (IORT)

Malignant Pleural Mesothelioma

Indications for IMRT or 3D-CRT (110)

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary for postoperative patients following a surgery. (110,111)

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 60 Gy in up to 25 fractions (50 Gy with a simultaneous integrated boost up to 60 Gy) using **IMRT or 3D-CRT** for patients with no metastatic disease
- Palliative Fractionation
  - Palliative treatment of the lung of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Exclusions

The following are *NOT* considered medically necessary:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)
- Intra-Operative Radiation Therapy (IORT)

LYMPHOMA

Hodgkin's Lymphoma - Combined Modality Therapy (CMT) (112)

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.

Dose Fractionation

- Conventional Fractionation

- For patients with **non-bulky disease (stage I–II),** treatment of up to 30 Gy in up to 20 fractions for patients with no metastatic disease
- For patients with **non-bulky disease (stage IB & IIB)**, treatment of up to 30 Gy in up to 20 fractions for patients with no metastatic disease
- For patients with **bulky disease (all stages),** treatment of up to 36 Gy in up to 24 fractions for patients with no metastatic disease
- For patients with a **partial response/refractory disease (Deauville 4–5)**, treatment of up to 45 Gy in up to 30 fractions for patients with no metastatic disease

- Palliative Fractionation
  - Palliative treatment of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Exclusions

The following are *NOT* considered medically necessary:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)
- Intra-Operative Radiation Therapy (IORT)

Hodgkin's Lymphoma - Radiation as Monotherapy [112]

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.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 36 Gy 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)
- Palliative Fractionation

- Palliative treatment of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Exclusions

The following are *NOT* considered medically necessary:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)
- Intra-Operative Radiation Therapy (IORT)

Non-Hodgkin's Lymphoma (B-cell) (113)

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.

Dose Fractionation

- Conventional Fractionation
  - For patients with **Follicular Lymphoma (FL),** treatment of up to 30 Gy in up to 20 fractions for patients with no metastatic disease
  - For patients with **Extranodal Marginal Zone Lymphoma (EMZL) of the stomach**, treatment of up to 30 Gy in up to 20 fractions for patients with no metastatic disease
  - For patients with **Extranodal Marginal Zone Lymphoma (EMZL) of the orbit and salivary gland,** treatment of up to 24 Gy in up to 16 fractions for patients with no metastatic disease
  - For patients with a **Mantle Cell Lymphoma (MCL),** treatment of up to 36 Gy in up to 24 fractions for patients with no metastatic disease
  - For patients with a **Diffuse Large B-Cell Lymphoma (DLBCL),** treatment of up to 56 Gy in up to 31 fractions for patients with no metastatic disease
  - For patients with a **High-Grade B-cell Lymphoma (HGBL),** treatment of up to 56 Gy in up to 31 fractions for patients with no metastatic disease
  - For patients with a **Primary Mediastinal B-cell Lymphoma (PMBL),** treatment of up to 56 Gy in up to 31 fractions for patients with no metastatic disease
- Palliative Fractionation

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- Palliative treatment of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Exclusions

The following are *NOT* considered medically necessary:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)
- Intra-Operative Radiation Therapy (IORT)

Non-Hodgkin's Lymphoma (T-cell) [114]

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.

Dose 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 of up to 56 Gy in up to 31 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 of up to 36 Gy in up to 20 fractions for patients with no metastatic disease
- Palliative Fractionation
  - Palliative treatment of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Exclusions

The following are *NOT* considered medically necessary:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)

- Intra-Operative Radiation Therapy (IORT)

Primary Cutaneous Lymphoma (B/T-cell) [115]

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. [116] For certain body surfaces, treatment with higher energy photon fields **(2/3D- CRT)** may be required.

Dose Fractionation

- Conventional Fractionation
  - For patients with **Mycosis Fungoides (MF) and Sezary Syndrome (SS),** treatment of up to 30 Gy in up to 17 fractions for patients with no metastatic disease
  - For patients with **Primary Cutaneous Anaplastic Large Cell Lymphoma (PC-ALCL),** treatment of up to 30 Gy in up to 17 fractions for patients with no metastatic disease
  - For patients with **Primary Cutaneous Follicle Center Lymphoma (PCFCL) and Primary Cutaneous Marginal Zone Lymphoma (PCMZL)**, treatment of up to 30 Gy in up to 17 fractions for patients with no metastatic disease
  - For patients with **Primary cutaneous CD30+ T-cell Lymphoproliferative Disorders (PTCL),** treatment of up to 50 Gy in 28 fractions for patients with no metastatic disease
  - For patients with **Primary Cutaneous NK/T-Cell Lymphoma (PCNKTCL),** treatment of up to 60 Gy in up to 33 fractions for patients with no metastatic disease
  - For patients requiring **Total Skin Electron Beam Therapy (TSEBT),** treatment of up to 36 Gy in up to 24 fractions for patients with no metastatic disease
- Palliative Fractionation
  - Palliative treatment of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Exclusions

The following are *NOT* considered medically necessary:

- Intensity Modulated Radiation Therapy (IMRT)
- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)

- Intra-Operative Radiation Therapy (IORT)

METASTATIC CANCER

Palliation of Non-Oligo Metastatic Disease

Categories

Categories of metastatic tumors include:

- **Palliation of Body Metastases**
  - **Non-Spine** - metastatic disease in an organ/soft tissue mass *OR* a non-spinal bone
  - **Spine** - metastatic disease in a spinal bone
- **Palliation of Brain Metastases** - metastatic disease in the brain

Palliation of Body Metastases (Non-Spine)

Indications for 3D-CRT

Treatment using **3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- For palliative treatment to **an organ or soft tissue mass** in the body of up to 45 Gy in up to 15 fractions of **3D-CRT**
- For palliative treatment to a **bone** (i.e., femur, numerus, pelvis, etc.) of up to 30 Gy in up to 10 fractions *OR* up to 20 Gy in 5 fractions *OR* 8 Gy in a single fraction of **3D-CRT** (117,118)

Exclusions

The following are *NOT* considered medically necessary:

- Intensity Modulated Radiation Therapy (IMRT)
- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)
- Intra-Operative Radiation Therapy (IORT)

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Palliation of Body Metastases (Spine)

Indications for SBRT

Treatment using **Stereotactic Body Radiation Therapy (SBRT)** is considered medically necessary for **Spinal Metastases** 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

Dose Fractionation [119,120]

- Treatment of up to 24 Gy in 2 fractions using **SBRT** to the Spinal Metastases

Indications for 3D-CRT [117,118,120]

Treatment using **3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary for spinal metastases.

Dose Fractionation

- Palliative treatment to a **bone** (i.e., femur, numerus, pelvis, etc.) of up to 30 Gy in up to 10 fractions *OR* up to 20 Gy in 5 fractions *OR* 8 Gy in a single fraction of **3D-CRT**

Exclusions

The following are *NOT* considered medically necessary:

- Intensity Modulated Radiation Therapy (IMRT) when it is ***NOT*** used to plan SRS/SBRT treatment
- Brachytherapy
- Intra-Operative Radiation Therapy (IORT)

Palliation of Brain Metastases

Indications for SRS [16]

Stereotactic Radiosurgery may be used to treat patients with limited brain metastases (and select patients with disseminated systemic disease). The definition of "limited" brain metastases in terms of number of metastases or total intracranial disease volume is evolving and may depend on the specific clinical situation. [121]

Treatment using **Stereotactic Radiosurgery** of the brain is considered medically necessary.

Dose Fractionation for **Non-surgical patients**

- Treatment with up to 24 Gy in a single fraction using **SBRT** (dose is based on tumor volume)
- Treatment with up to 30 Gy in a up to 5 fractions using **SBRT** (for tumors >2 cm)

Treatment using **Stereotactic Radiosurgery** of the brain is considered medically necessary.

Dose Fractionation for **Postoperative patients**

- Treatment with up to 20 Gy in a single fraction using **SBRT** (dose is based on tumor volume)
- Treatment with up to 30 Gy in a up to 5 fractions using **SBRT** (for tumors with larger postoperative cavities)

Indications for IMRT [6,16,38]

Treatment using **Intensity Modulated Radiation Therapy (IMRT)** is considered medically necessary for patients only when a hippocampal avoidance (HA) whole brain **IMRT** technique is used

Dose Fractionation

- Whole brain treatment with up to 30 Gy in up to 10 fractions using **IMRT**

Indications for 3D-CRT [16]

Treatment using **3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Whole brain treatment with up to 30 Gy in up to 10 fractions using **3D-CRT** *OR*
- Whole brain treatment with up to 20 Gy in up to 5 fractions using **3D-CRT** (for patients with a poor prognosis)

Exclusions

The following are *NOT* considered medically necessary:

- Intensity Modulated Radiation Therapy (IMRT) if ***NOT*** being requested in combination with a whole brain hippocampal avoidance (HA) technique *OR* when it is ***NOT*** used to plan SRS/SBRT treatment
- Brachytherapy
- Intra-Operative Radiation Therapy (IORT)

Treatment of Oligometastatic Disease [122]

Indications for SBRT

Definition
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 only when [123,124]:

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

Treatment using **Stereotactic Body Radiation Therapy (SBRT)** is considered medically necessary for treatment of OMD.

Dose Fractionation

- Hypofractionation
  - Treatment of up to 60 Gy in up to 5 fractions using **SBRT** for **non-bone metastasis** [125,126,127]

Exclusions

The following are *NOT* considered medically necessary:

- Intensity Modulated Radiation Therapy (IMRT) when it is ***NOT*** used to plan SRS/SBRT treatment.
- Brachytherapy
- Intra-Operative Radiation Therapy (IORT)

Treatment of Oligoprogressive Disease

Indications for SBRT

Definitions
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 [128,129]:

- 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 *AND*

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- Sufficient full body radiology documentation explaining the extent of the metastatic disease has been provided (either with a PET/CT scan report *OR* with CT scan reports of the Chest, Abdomen, & Pelvis). These scans must be recent and performed no more than 2 months prior to the Treatment Start Date (TSD)
- Treatment using Stereotactic Body Radiation Therapy (SBRT**)** is considered medically necessary for treatment of OPD

Dose Fractionation

- Hypofractionation
  - Treatment of up to 60 Gy in up to 5 fractions using **SBRT**

Exclusions

The following are *NOT* considered medically necessary:

- Intensity Modulated Radiation Therapy (IMRT) when it is ***NOT*** used to plan SRS/SBRT treatment
- Brachytherapy
- Intra-Operative Radiation Therapy (IORT)

MYELOMA

Solitary Plasmacytoma [(130)]

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

Treatment using **3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 50 Gy in up to 25 fractions using **3D-CRT** for patients with no metastatic disease *OR*
  - Treatment of up to 40 Gy in up to 20 fractions using **3D-CRT** for solitary plasmacytomas <5 cm in size

Indications for SBRT [1]

Treatment using **Stereotactic Body Radiation Therapy (SBRT)** is considered medically necessary.

Dose Fractionation

- Treatment options include [131]:
  - Treatment of up to 15 Gy in a single fraction for skull base lesions *OR*
  - Treatment of up to 24 Gy in 3 fractions for spine lesions *OR*
  - Treatment of up to 30 Gy in 5 fractions for other bones

Exclusions

The following are *NOT* considered medically necessary:

- Intensity Modulated Radiation Therapy (IMRT) when it is ***NOT*** used to plan SRS/SBRT treatment (CPT 77371, 77372, or 77373)
- Brachytherapy
- Intra-Operative Radiation Therapy (IORT)

Multiple Myeloma

Definition

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

Indications for 3D External Beam Radiation Therapy [130]

Treatment using **3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 8 Gy in a single fraction using **3D-CRT** *OR*
  - Treatment of up to 20 Gy in up to 10 fractions using **3D-CRT** in cases without severe symptomatic cord compression *OR*
  - Treatment of up to 30 Gy in up to 10 total fractions using **3D-CRT** as palliative treatment for uncontrolled pain, for impending pathologic fracture, or for impending cord compression

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Indications for SBRT [1]

Treatment using **Stereotactic Body Radiation Therapy (SBRT)** is considered medically necessary for MM for:

- If the patient satisfies criteria for OMD - see section on **Treatment of Oligometastatic Disease** *OR*
- If the patient satisfies criteria for OPD - see section on **Treatment of Oligoprogressive Disease**
- **Dose Fractionation**
- See sections on **Treatment of Oligometastatic Disease** and **Treatment of Oligoprogressive Disease**

Exclusions

The following are *NOT* considered medically necessary:

- Intensity Modulated Radiation Therapy (IMRT) when it is ***NOT*** used to plan SRS/SBRT treatment
- Brachytherapy
- Intra-Operative Radiation Therapy (IORT)

NON-CANCEROUS CONDITIONS

Background

Several non-cancerous conditions were previously discussed in several 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

(132,133,134,135,136,137,138,139,140,141,142,143,144,145,146)

Other non-cancerous conditions that may be treated with radiotherapy include:

- **Carcinoid tumor**: Up to 54 Gy in up to 30 fractions
- **Coronary artery disease:** Intravascular brachytherapy up to 120 Gy in 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
  - In-stent re-stenosis in a bare-metal stent *OR*
  - Treatment of a native coronary artery or a saphenous vein graft to prevent re-stenosis *OR*
  - Recurrent drug-eluting stent in-stent restenosis
- **Dupuytren's contracture (fibromatosis) of hands/feet:** Up to 30 Gy in up to 10 fractions (e.g., 15 Gy in 5 fractions, 10-14-week break, and an additional 15 Gy in 5 fractions) for progressive disease and with 20 degrees or less of finger contractures
- **Graves' ophthalmopathy:** Up to 20 Gy in up to 10 fractions of 2D-CRT, 3D-CRT, or IMRT
- **Hemangiomas** (brain, spinal cord, subglottis, glottis, liver, GI tract, urinary tract, joints, and orbit): Up to 45 Gy in up to 25 fractions using 3DCRT or IMRT and up to 35 Gy in up to 5 fractions using SRS/SBRT
- **Heterotopic ossification (bone):** 8 Gy in a single fraction preoperatively or postoperatively
- **Keloids**: Up to 20 Gy in up to 5 fractions postoperatively
- **Langerhans cell histiocytosis (LCH):** for localized growth: Up to 50.4 Gy in up to 28 fractions
- **Lentigo maligna (melanoma in situ), Hutchinson's melanotic freckle, or circumscribed precancerous melanosis of Dubreuilh:** Up to 60 Gy in up to 30 fractions (skin)
- **Orbital pseudotumor (lymphoid hyperplasia):** Up to 30 Gy in 15 fractions of 2D-CRT, 3D-CRT, or IMRT
- **Paraganglioma** (including carotid body, glomus jugulare, and glomus tympanicum tumors, organ of Zuckerkandl, pheochromocytoma, and pulmonary and vagal paragangliomas): Up to 50.4 Gy in up to 28 of 2D-CRT, 3D-CRT, or IMRT or up to 30 Gy in up to 5 fractions of SBRT
- **Pigmented villonodular synovitis:** Up to 50.4 Gy in up to 28 fractions
- **Plantar fasciitis/fibromatosis:** Up to 6 Gy in up to 6 fractions of 2D-CRT or 3D-CRT. If there is osteoarthritis with plantar fasciitis, up to 30 Gy in up to 10 fractions, e.g., 15 Gy in 5 fractions followed about 2 months later by an additional 15 Gy in 5 fractions of 2D-CRT or 3D-CRT

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- **Pterygium:** Sr-90/Y-90 eye applicator brachytherapy: up to 60 Gy in up to 6 fractions
- **Splenomegaly** (hypersplenism often secondary to Myelofibrosis): Up to 10 Gy up to 10 fractions
- **Total Body Irradiation (TBI):** Up to 12 Gy in up to 12 fractions

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) [147]. Patients >18 years old with cancers that display the same histology as common pediatric cancers will be evaluated and may be approved for these treatments as an adolescent or young adult (AYA) on a case-by-case basis. [148]

Pediatric patients who require radiation treatment, should be treated by Radiation Oncologists with access to clinical research trials who have considerable clinical experience treating pediatric patients.

Consider multidisciplinary consultation, which includes a radiation oncologist for the optimal method to reduce radiation-induced late effects.

Radiation Oncologists who specialize in this patient population will have the discretion to choose the treatment modality and the appropriate number of fractions/dose that are needed to treat these cancer patients (including 3D-Conformal Radiation Therapy, Intensity Modulated Radiation Therapy (IMRT), Stereotactic Body Radiation Therapy, Stereotactic Radiosurgery, Brachytherapy, Proton Beam, etc.). [149]

RE-IRRADIATION [41,87,150]

Definition

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, 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. [151,152,153] Greater accuracy with treatments such as IMRT, 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. [154]

SARCOMA (155,156,157)

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

Indications for IMRT and 3D-CRT

Treatment using Intensity Modulated Radiation Therapy **(IMRT) or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary for preoperative treatment.

Dose Fractionation

- Conventional Fractionation
  - Treatment with of up to 50.4 Gy in up to 28 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease *AND*
  - Since delivery of an adjuvant RT boost for a positive margin does not clearly add benefit, the decision should be individualized (possibly by adding either an **IMRT or 3D-CRT boost** *OR* **a Brachytherapy boost**)
- Palliative Fractionation
  - Palliative treatment of sarcoma of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Exclusions

The following are *NOT* considered medically necessary:

- Stereotactic Body Radiation Therapy (SBRT)
- Intra-Operative Radiation Therapy (IORT)

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

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 postoperative treatment.

Dose Fractionation

- Conventional Fractionation
  - For patients with an **R0 resection,** treatment of up to 60.4 Gy in up to 34 fractions (which is the sum of 50.4 Gy in up to 28 fractions using **IMRT or 3D-**

CRT followed by a boost of up to 10 Gy in up to 5 fractions **using IMRT or 3D-CRT**) for patients with no metastatic disease

- For patients with an **R1 resection**, treatment with up to 66.4 Gy in up to 37 fractions (which is the sum of 50.4 Gy in up to 28 fractions using **IMRT or 3D-CRT** followed by a boost of up to 16 Gy in up to 9 fractions using **IMRT or 3D-CRT**) for patients with no metastatic disease

- Palliative Fractionation
  - Palliative treatment of sarcoma of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Indications for Brachytherapy

Dose Fractionation

- For positive margins (treatment with a combined modality approach)
  - 50.4 Gy in up to 28 fractions using **IMRT or 3D-CRT** and a boost of up to 20 Gy using **LDR Brachytherapy** (Low Dose Rate) *OR*
  - 50.4 Gy in up to 28 fractions using **IMRT or 3D-CRT** and a boost of up to 16 Gy using **HDR Brachytherapy** (High Dose Rate)
- For negative margins (treatment with a Brachytherapy alone approach)
  - 45 Gy using **LDR Brachytherapy** *OR*
  - 36 Gy using **HDR Brachytherapy** in 10 fractions in 5 days treating BID

Indications for IORT

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 20 Gy in a single fraction during surgery is considered medically necessary for close or positive surgical margins or recurrent disease in select clinical scenarios

Exclusions

The following is *NOT* considered medically necessary:

- Stereotactic Body Radiation Therapy (SBRT)

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

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 postoperative treatment.

Dose Fractionation

- Conventional Fractionation
  - For patients with unresectable disease, treatment of up to 80 Gy in up to 45 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease
- Palliative Fractionation
  - Palliative treatment of sarcoma of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Exclusions

The following are *NOT* considered medically necessary:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)
- Intra-Operative Radiation Therapy (IORT)

Desmoid Tumors (Aggressive Fibromatosis)

Indications for IMRT or 3D-CRT [(156)]

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary for patients with non-mesenteric desmoid tumors [(158)] who either cannot tolerate systemic therapy/surgery *OR* are postoperative, for postoperative treatment.

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 56 Gy in up to 28 fractions using **IMRT or 3D-CRT**

Exclusions

The following are *NOT* considered medically necessary:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)
- Intra-Operative Radiation Therapy (IORT)

Retroperitoneal/Abdominal Sarcoma (Preoperative)

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 preoperative treatment. (159,160)

Dose Fractionation

- Conventional Fractionation
  - Treatment of up to 50.4 Gy in up to 28 fractions using **IMRT or 3D-CRT** for patients with no metastatic disease *OR*
  - Treatment of up to 57.5 Gy in up to 25 fractions with a simultaneous integrated boost (SIB) to the area of the high-risk retroperitoneal margin jointly defined by the surgeon and radiation oncologist (and no boost after surgery)
- Palliative Fractionation
  - Palliative treatment of sarcoma of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)
- (Adjuvant RT after surgery is discouraged for retroperitoneal/intra-abdominal sarcoma)

Exclusions

The following are *NOT* considered medically necessary:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)
- Intra-Operative Radiation Therapy (IORT)

SKIN CANCERS

General

*Daily image guidance (IGRT) and tracking are not indicated for superficial treatment of skin cancers.

For hyperthermia indications see **Hyperthermia**.

Basal Cell (BCC) and Squamous (SCC) Carcinoma [161,162]

Indications for 2D/3D-CRT or Electron Beam

Treatment using **2D/3D-Conformal Radiation Therapy (3D-CRT) or Electron Beam** is considered medically necessary.

Dose Fractionation

- Hypofractionation [163,164]
  - BCC and SCC skin cancers ≤ 2cm (*NOT* including cancers of the nose & ear) [165]
    - Treatment of up to 55 Gy in up to 20 fractions using 2D/3D-Conformal Radiation Therapy **(2D/3D-CRT) or Electron Beam** for patients with no metastatic disease
- Conventional Fractionation
  - BCC and SCC skin cancers > 2cm [165] *OR*
  - BCC and SCC skin cancers of the nose & ear, any size
    - Treatment of up to 60 Gy in up to 30 fractions using **2D/3D-Conformal Radiation Therapy (2D/3D-CRT) or Electron Beam** for patients with no metastatic disease [162,166]
- Palliative Fractionation
  - Palliative treatment of BCC or SCC skin cancers of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Superficial Radiation (SRT) and Orthovoltage Radiation [167]

Treatment using **SRT or Orthovoltage** is considered medically necessary.

Dose Fractionation

- Hypofractionation
  - BCC and SCC skin cancers ≤ 2cm
    - Treatment with up to 50 Gy in up to 20 fractions using **Superficial Radiation and Orthovoltage Radiation** for patients with no metastatic disease
- Conventional Fractionation
  - BCC and SCC skin cancers > 2cm *OR*
  - BCC and SCC skin cancers on the nose & ear, any size
    - Treatment with up to 60 Gy in up to 30 fractions using **Superficial Radiation and Orthovoltage Radiation** for patients with no metastatic disease

Indications for Brachytherapy [161,168]

Treatment using **Brachytherapy** is considered medically necessary.

Dose Fractionation

- Treatment of up to 50 Gy in up to 10 fractions using **HDR Brachytherapy** (with Iridium- 192) is considered medically necessary for the treatment of Basal Cell and Squamous Cell Carcinomas for patients with no metastatic disease
- (The use of Electronic Brachytherapy is considered investigational and not medically necessary [162,166])

Indications for IMRT [6,162,166]

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

Dose Fractionation

- Conventional Fractionation
  - For patients with unresectable disease, treatment with up to 70 Gy in up to 35 fractions using **IMRT** for patients with no metastatic disease

Exclusions

The following are *NOT* considered medically necessary:

- Intra-Operative Radiation Therapy (IORT)
- Electronic Brachytherapy

Melanoma [169]

General

For SIRT indications for unresectable liver metastases, see **Indications for SIRT**.

Indications for IMRT or 2D/3D-CRT or Electron Beam

Treatment using **Intensity Modulated Radiation Therapy (IMRT) or 2D/3D-Conformal Radiation Therapy (2D/3D-CRT) or Electron Beam** is considered medically necessary.

Dose Fractionation

- **Unresectable Treatment**

- For patients with unresectable disease, treatment of up to 70 Gy in up to 35 fractions using **IMRT or 2D/3D-CRT or Electron Beam** for patients with no metastatic disease

- **Postoperative Treatment** (which may or may include regional nodal disease)
  - For postoperative treatment of up to 66 Gy in up to 33 fractions using **IMRT or 2D/3D-CRT or Electron Beam** for patients with no metastatic disease
  - **NOTE:** Postoperative treatment is often used to treat patients with high risk factors for local recurrence including location on the head or neck, extensive neurotropism, pure desmoplastic melanoma histologic subtype, close margins where re-resection is not feasible, locally recurrent disease, regional recurrence and lymph nodes with extracapsular extension of melanoma in clinically (macroscopic) involved node(s)

- **Palliative Fractionation**
  - Palliative treatment of melanoma of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Exclusions

The following are *NOT* considered medically necessary:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)
- Intra-Operative Radiation Therapy (IORT)

Merkel Cell Carcinoma

Indications for IMRT or 2D/3D-CRT or Electron Beam [(170)]

Treatment using **Intensity Modulated Radiation Therapy (IMRT) or 2D/3D-Conformal Radiation Therapy (2D/3D-CRT) or Electron Beam** is considered medically necessary.

Dose Fractionation

- **Unresectable** *OR* **Postoperative Treatment** (which may or may include regional nodal disease)
  - For postoperative treatment of up to 66 Gy in up to 33 fractions using **IMRT or 2D/3D-CRT or Electron Beam** for patients with no metastatic disease

- **Palliative Fractionation**
  - Palliative treatment of Merkel Cell Carcinoma of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

Exclusions

The following are *NOT* considered medically necessary:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)
- Intra-Operative Radiation Therapy (IORT)

Dermatofibrosarcoma Protuberans (DFSP) (171)

Indications for 2D/3D External Beam Radiation Therapy or Electron Beam

Treatment using **2D/3D-Conformal Radiation Therapy (2D/3D-CRT) or Electron Beam** is considered medically necessary.

Dose Fractionation

- **Postoperative Treatment** (which may or may include regional nodal disease)
  - For postoperative treatment of up to 66 Gy in up to 33 fractions using **2D/3D-CRT or Electron Beam**

Exclusions

The following are *NOT* considered medically necessary:

- Intensity Modulated Radiation Therapy (IMRT)
- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)
- Intra-Operative Radiation Therapy (IORT)

THYMOMAS AND THYMIC CARCINOMAS

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- **Unresectable disease**
  - Conventional Fractionation
    - For patients with unresectable disease, treatment of up to 70 Gy in up to 35 fractions using **IMRT or 3D-CRT**

- Palliative Fractionation
  - Palliative treatment of thymoma/thymic cancer of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

- **Postoperative Disease**
  - Conventional Fractionation
    - Following an **R0 resection** with close margins, treatment of up to 50 Gy in up to 25 fractions using **IMRT or 3D-CRT**
    - Following an **R1 resection** with microscopically positive margins, treatment of up to 60 Gy in up to 30 fractions using **IMRT or 3D-CRT**
    - Following an **R2 resection** with grossly positive margins, treatment of up to 70 Gy in up to 35 fractions using **IMRT or 3D-CRT**

Exclusions

The following are *NOT* considered medically necessary:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)
- Intra-Operative Radiation Therapy (IORT)

THYROID (172)

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

Indications for IMRT or 3D-CRT

Treatment using **Intensity Modulated Radiation Therapy (IMRT), or 3D-Conformal Radiation Therapy (3D-CRT)** is considered medically necessary.

Dose Fractionation

- **Unresectable disease**
  - Conventional Fractionation
    - Treatment of up to 70 Gy in up to 35 fractions using **IMRT or 3D-CRT**
  - Palliative Fractionation
    - Palliative treatment thyroid cancer of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)

- **Postoperative Disease**

- Conventional Fractionation
  - Following an **R1 resection** with microscopically positive margins, treatment of up to 66 Gy in up to 33 fractions using **IMRT or 3D-CRT**
  - Following an **R2 resection** with grossly positive margins, treatment of up to 77 Gy in up to 35 fractions using **IMRT or 3D-CRT**

Exclusions

The following are *NOT* considered medically necessary:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)
- Intra-Operative Radiation Therapy (IORT)

Anaplastic Thyroid Cancer

Indications for IMRT or 3D-CRT

Dose Fractionation

- **Unresectable disease**
  - Conventional Fractionation
    - Treatment of up to 70 Gy in up to 35 fractions using **IMRT or 3D-CRT**
  - Hyperfractionation
    - Treatment of up to 70 Gy in up to 58 fractions delivered twice daily (BID) using **IMRT or 3D-CRT**
  - Palliative Fractionation
    - Palliative treatment of up to 45 Gy in up to 15 fractions of **3D-CRT** (to slow progression of the local disease, to palliate symptoms, or for patients with metastatic disease)
- **Postoperative Disease**
  - Conventional Fractionation
    - Following an **R0 resection or R1 resection**, treatment of up to 66 Gy in up to 33 fractions using **IMRT or 3D-CRT**
    - Following an **R2 resection**, treatment of up to 70 Gy in up to 35 fractions using **IMRT or 3D-CRT**
  - Hyperfractionation
    - Following an **R0 resection or R1 resection**, treatment of up to 66 Gy in up to 55 fractions delivered twice daily (BID) using **IMRT or 3D-CRT**

- Following an **R2 resection**, treatment of up to 70 Gy in up to 58 fractions delivered twice daily (BID) using **IMRT or 3D-CRT**

Exclusions

The following are *NOT* considered medically necessary:

- Brachytherapy
- Stereotactic Body Radiation Therapy (SBRT)
- Intra-Operative Radiation Therapy (IORT)

CODING AND STANDARDS

Coding

CPT Codes

0394T, 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, 77014, 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, 77385, 77386, 77387, 77399, 77401, 77402, 77407, 77412, 77417, 77424, 77425, 77427, 77431, 77432, 77435, 77469, 77470, 77499, 77600, 77605, 77610, 77615, 77620, 77750, 77761, 77762, 77763, 77767, 77768, 77770, 77771, 77772, 77778, 77789, 77790, 77799, C2616, C9794, C9795, G0339, G0340, G0458, G6001, G6002, G6003, G6004, G6005, G6006, G6007, G6008, G6009, G6010, G6011, G6012, G6013, G6014, G6015, G6016, G6017

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:
A. Consultation
B. Simulation
C. Treatment Planning
D. Treatment Delivery

POLICY HISTORY

12/11/24 New Policy.

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