

Dosimetry Planning – Radiation Oncology Coding Standard

CPT Codes: 77295, 77300, 77301, 77306, 77307, 77321, 77316, 77317, 77318, 77331, 77399

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Dosimetry planning is the process of determining the amount, rate, and distribution of radiation emitted from a source of ionizing radiation based on the physician’s prescription. Different methods of dosimetry planning may be utilized based on the type of treatment delivery prescribed by the physician; however, only one dosimetry planning service is typically necessary per phase of treatment delivery. In addition to standard isodose planning and more advanced conformal three-dimensional or intensity modulated planning, dosimetry services may also include monitor unit calculations and special dosimetry services to assure that the appropriate radiation dose is delivered to the target volume. Dosimetry services are performed by a medical dosimetrist and/or a qualified medical physicist under the direction of a radiation oncologist. This coding standard describes appropriate utilization of Current Procedural Terminology (CPT®) billing codes.

Three-dimensional Radiotherapy Plan (CPT® Code 77295)

Professional and Technical

77295 3-dimensional radiotherapy plan, including dose-volume histogram.

Three-dimensional planning involves computer reconstruction of a delineated tumor volume and surrounding critical normal tissue structures from a computed tomography (CT) scan and/or magnetic resonance imaging (MRI) dataset in preparation for non-coplanar or coplanar therapy. This planning utilizes documented three-dimensional beam’s eye view volume dose displays of multiple or moving beams. This procedure combines a computer-aided field setting simulation with isodose planning which occurs during dosimetry treatment planning. 3D radiotherapy plans are billable as one per treatment course; however, there are occasional scenarios in which more than one 3D radiotherapy plan may be medically necessary. A new CT or MRI dataset supporting a meaningful change in the tumor volume and/or surrounding anatomy and documented medical necessity are required to claim another 3D conformal plan.

When performing a 3D radiotherapy plan, a separate charge for an isodose plan would not be appropriate for the same phase of treatment of that volume. This is due to the isodose plans being

utilized as a component of the 3D radiotherapy plan. It would be appropriate, however, to bill an isodose plan for a boost or cone-down performed on the same CT data set that was used for the initial conformal plan.

Standards for CPT® Code 77295

- One (1) 3D radiotherapy plan (CPT® code 77295) may be approved for each course of 3D external beam treatment delivery. Only one 3D radiotherapy plan is allowed per course of therapy, unless there is documentation of medical necessity, and a second data set is acquired which demonstrates a meaningful change in patient anatomy and/or delineated tumor volumes. In this instance an additional 3D radiotherapy plan may be appropriate.
- The work performed within a 3D radiotherapy plan includes isodose planning. Therefore, it would not be appropriate to bill for an isodose plan (CPT® codes 77306-77307) or a teletherapy port plan (CPT® code 77321) in addition to CPT® code 77295 for the same segment of therapy.
- One (1) 3D radiotherapy plan (CPT® code 77295) may be approved for each course of Stereotactic Radiosurgery (SRS) or Stereotactic Body Radiation Therapy (SBRT).
- 3D radiotherapy plans may be appropriate for high dose rate (HDR) and low dose rate (LDR) brachytherapy treatment courses. CPT® code 77295 may be utilized in lieu of brachytherapy isodose plans (CPT® codes 77316 – 77318). If 3D criteria are met, only 1 unit is allowed per course of therapy unless there is documentation of medical necessity, and a second data set is acquired which demonstrates a meaningful change in patient anatomy and/or delineated tumor volumes. In this instance, an additional 3D radiotherapy plan may be appropriate.
- 3D radiotherapy plans may be appropriate for proton or neutron beam therapy. CPT® code 77295 may be utilized in lieu of teletherapy isodose plans (CPT® code 77321). However, only 1 unit is allowed per course of therapy unless there is documentation of medical necessity, and a second data set is acquired which demonstrates a meaningful change in patient anatomy and/or delineated tumor volumes. In this instance, an additional 3D radiotherapy plan may be appropriate.
- CPT® code 77295, 3-Dimensional Radiotherapy Plan, is not billable for IMRT boost plans.

Basic Dosimetry Calculations (CPT® Code 77300)

Professional and Technical

77300 Basic radiation dosimetry calculation, central axis depth dose calculation, TDF-NSD gap calculation, off axis factor, tissue inhomogeneity factors, calculation of non-ionizing radiation surface and depth dose as required during treatment, only when prescribed by the treating physician.

Only one calculation is billable per port/beam/angle/arc for 3D and IMRT external beam treatments. In the case of IMRT, secondary monitor unit calculations are required for verification in addition to the “dose” verification performed with phantom measurements. Calculations generated

by the treatment planning system are included in the IMRT isodose plan (CPT® code 77301) and are not separately billable.

Standards for CPT® Code 77300

- Monitor unit calculations are not billable with CPT® codes 77306, 77307 and 77321. Calculations are considered bundled into these planning codes and are not separately billable.
- CPT® code 77300 is approvable for 2DCRT when hand calculations are done.
- For 3D and IMRT, dosimetry calculations are billable as a quantity of one (1) per medically necessary field/port/angle/arc.
- Multiple calculations per beam angle, when billable, are not allowed due to linear accelerator limitations (e.g., split carriage fields).
- Monitor unit calculations (CPT® code 77300) are bundled into brachytherapy isodose planning codes (CPT® codes 77316, 77317, and 77318) and are not separately authorized. Consequently, CPT® code 77300 is not approvable if BBI generates it in addition to 77316, 77317, or 77318 for brachytherapy planning.
- Monitor unit calculations (CPT® code 77300) are considered bundled into HDR brachytherapy delivery codes (CPT® codes 77770, 77771, 77772, 77767, and 77768) and are not separately authorized.
- Monitor unit calculations (CPT® code 77300) may be approved for stereotactic courses of therapy. The quantity approved will equal the number of fields/portals/angles/arcs submitted by the provider in the preauthorization process. Requests for quantities above a value of ten (10) will require additional supporting documentation and/or physician review for medical necessity.
- For selective internal radiation therapy (SIRT) brachytherapy, up to two (2) monitor unit calculations are approvable upon request.

Requests for additional dosimetry calculations may require additional supporting documentation and/or a physician review of medical necessity based on individual patient circumstances.

IMRT Plan (CPT® Code 77301)

Professional and Technical

77301 Intensity modulated radiotherapy plan, including dose-volume histograms for target and critical structure partial tolerance specifications.

Intensity Modulated Radiation Therapy (IMRT) is a computer-based method of planning treatment delivery. IMRT allows for delivery of highly conformal dose distributions to complex targets positioned near sensitive normal tissues. Conforming the dose to the target area, and away from sensitive normal tissues, improves therapeutic ratios. IMRT utilizes many non-uniform radiation beam intensities using multiple beam angles to deliver a conformal dose. These non-uniform beam intensities are determined by a computer-based optimization technique known as “inverse planning.”

Inverse planning requires the planner to identify treatment volumes and sensitive normal structures near the treatment volume. The physician must supply dose constraints for the organs at risk and dose goals for the target area. These goals and constraints allow the IMRT planning software to “reverse engineer” the plan. A Multi-Leaf Collimator (MLC) can be used to shape the radiotherapy beam. IMRT static compensators may also be used.

An IMRT plan (CPT® code 77301) is billable only one time during a course of therapy. In rare cases, billing a second IMRT plan during the same course of therapy may be warranted. In this scenario, planning from a new CT or MRI dataset showing a substantial change in the delineated tumor volume/volume of interest or patient anatomy is required. In addition, a statement from the physician supporting medical necessity is required and must be in the patient’s medical record.

If IMRT planning is performed **without** a new CT/MRI data set, then the IMRT plan (CPT® code 77301) is **not** billable. It is possible, however, to capture the charges for the new secondary calculations (CPT® code 77300) performed and for treatment devices (CPT®-code 77334 if they are compensator-based and CPT® code 77338 if they are MLC-based).

A traditional “field-in-field technique” is not considered IMRT but rather 3D conformal radiation therapy. The use of a “field in field” or forward planning technique to block hotspots is NOT considered IMRT. These hotspots are contoured to create a volume of interest to block and would not be considered “inverse planning”.

Current planning techniques often employ intensity modulated radiation therapy planning and CPT® code 77301 may be applied to these scenarios. When utilizing CPT® code 77301, all requirements of the code are expected to be met. Associated standards for treatment devices and calculations as well as NCCI edits also apply.

Standards for CPT® Code 77301

- One (1) IMRT plan (CPT® code 77301) may be approved per course of medically necessary IMRT treatment.
- Requests for additional IMRT plans (CPT® code 77301) require an additional computed tomography (CT) or magnetic resonance imaging (MRI) scan to be acquired for planning purposes and a medical necessity statement from the requesting physician. The new CT/MRI data set must demonstrate a meaningful change in volumes to necessitate utilization of the new data for planning.
- In terms of associated billing codes, CPT® code 77334 would be applied to devices only in the event of compensator-based IMRT. All other beam modulation created with multileaf collimator (MLC)-based systems would be captured with CPT® code 77338 and allowed once per IMRT plan.
- Request for an IMRT plan for a course of stereotactic radiotherapy (SRS and SBRT) in place of a 3D radiotherapy plan (CPT® code 77295) requires submission of documentation of the IMRT treatment plan. If approved, one (1) IMRT plan (CPT® code 77301) may be approved for each requested course of stereotactic radiosurgery (SRS) or stereotactic body radiation therapy (SBRT).

Isodose Plans (CPT® Codes 77306 and 77307)

Professional and Technical

An isodose plan is a graphic display of patient's anatomy to include the distribution of radiation based on a prescribed dose and plan of care created by a radiation oncologist. CPT® codes 77306 and 77307 are not billable on the same date of service with an intensity modulated radiation therapy (IMRT) plan (CPT® code 77301) as IMRT dosimetry planning techniques represent a more advanced method of distributing radiation doses to target volumes. If the volume of interest for the isodose plan is separate and distinct from the volume of interest for the 3D plan, the isodose plan may be separately billable.

- **77306** Teletherapy isodose plan; simple (1 or 2 unmodified ports directed to a single area of interest), includes basic dosimetry calculation(s)
- **77307** Teletherapy isodose plan; complex (multiple treatment areas, tangential ports, the use of wedges, blocking, rotational beam, or special beam considerations), includes basic dosimetry calculation(s)

Standards for CPT® Codes 77306 and 77307

- Electron only plans are billable as CPT® code 77321 and not CPT® code 77306 or 77307. These codes are not billable for the same isodose plan.
- Only one isodose plan is allowed per volume of interest. Contiguous volumes of interest such as breast tangents and a supraclavicular nodal field are considered one volume of interest. Therefore, additional isodose plans are not allowed. In addition, with current planning techniques, a single isocenter planning process is routine which further supports a single plan for these contiguous volumes.
- One (1) isodose plan may be approved for all 2D external beam plans and 3D external beam boost plans in which a 3D isodose plan (CPT® code 77295) has already been billed during the same course of therapy.

Brachytherapy Isodose Plans (CPT® Codes 77316, 77317 & 77318)

Professional and Technical

Brachytherapy isodose plans involve CPT® codes 77316 – 77318. The plan will indicate the internal devices used such as tandem and ovoids, vaginal cylinders, catheters and/or other applicators as well as the location of source placement and doses delivered to specific regions of interest. Only one isodose plan is billable per unique tumor volume or procedure. For example, if a partial breast irradiation or GYN vaginal cylinder HDR brachytherapy treatment was planned and the same plan will be used to treat the patient each fraction, then an additional plan is not necessary and therefore only one plan is billable. However, for tandem and ovoids or interstitial

needles, if the placement of the device or a change in patient anatomy necessitates a second plan, then it may be billable.

- **77316** Brachytherapy isodose plan; simple (calculation[s] made from 1 to 4 sources, or remote afterloading brachytherapy, 1 channel), includes basic dosimetry calculation(s)
- **77317** Brachytherapy isodose plan; intermediate (calculation[s] made from 5 to 10 sources, or remote afterloading brachytherapy, 2-12 channels), includes basic dosimetry calculation(s)
- **77318** Brachytherapy isodose plan; complex (calculation[s] made from over 10 sources, or remote afterloading brachytherapy, over 12 channels), includes basic dosimetry calculation(s)

Standards for CPT® Codes 77316, 77317 and 77318

Only one brachytherapy isodose plan is billable per unique treatment volume. In medically necessary situations where each application of brachytherapy requires a new image set and new brachytherapy isodose plan, a brachytherapy isodose plan may be billed for each application. Additional brachytherapy isodose plans within the same course of therapy may be approved if the requesting physician provides a rationale that explains why the previous brachytherapy isodose plan cannot be utilized and that supports the medical necessity of creating a new isodose plan.

- A 3D radiotherapy plan (CPT® code 77295) may be substituted for a brachytherapy isodose plan (CPT® codes 77316-77318) if requested by a provider and if a 3D radiotherapy plan has not been authorized in the same course of therapy.
- For prostate seed implants, up to two (2) isodose plans may be approved.

Special Teletherapy Port Plan (CPT® Code 77321)

Professional and Technical

77321 Special teletherapy port plan, particles such as electrons, neutrons and protons, hemi-body and total body.

This code is typically used for electron isodose plans; however, it may also be utilized for special beam considerations such as total body irradiation. An isodose plan is required to support this charge as it is an integral piece of documentation of the planning process. In contrast, an isodose plan is not required for hemi-body and total body planning. A separate form of documentation must be provided instead. This code is billed once per course of treatment. It would not be appropriate to bill an IMRT plan (CPT® code 77301), a 3D radiotherapy plan (CPT® code 77295) or an isodose plan (CPT® codes 77306 – 77307) and a special teletherapy port plan (CPT® code 77321) on the same date of service for the same volume of interest. **If the volume of interest for**

the isodose or 3D plan is separate from the volume of interest for the special teletherapy port plan, then CPT® code 77321 could be billed on the same date as CPT® code 77295, 77306, or 77307.

Standards for CPT® Code 77321

- A special teletherapy port plan is a dosimetry plan and must NOT be billed with another dosimetry plan (CPT® code 77306-77307, 77295, or 77301) for the same work performed.
- A special teletherapy port plan may be billed with another dosimetry plan (CPT® code 77306-77307 or 77295) when the volumes of interest are different.
- CPT® code 77321 is not billable for simply utilizing electrons. An isodose plan must be created except for total-body or hemi-body electron treatments.
- One (1) teletherapy port plan (CPT® code 77321) may be approved for all computer-based planning of electron treatments and all proton and neutron beam isodose planning.
- One (1) teletherapy port plan (CPT® code 77321) may be approved for point dose calculations generated for total body irradiation (TBI) special particle planning.
- For proton and neutron beam isodose planning, a 3D radiotherapy plan (CPT® code 77295) may be allowed in lieu of CPT® code 77321.

Special Dosimetry (CPT® Code 77331)

Professional and Technical

77331 Special dosimetry (e.g., TLD/thermoluminescent dosimetry, microdosimetry), only when prescribed by the treating physician

This type of dosimetry is used as a source of independent dose verification, and can be performed using film, diodes, or TLDs, among other tools. It allows for dose confirmation involving a particular area. The frequency of special dosimetry will vary during the radiation course and may be used as many times as unique measurements are medically necessary. If performed, special dosimetry measurements may occur only once per port/field, when supported by medical necessity, and should not be performed as a routine procedure.

Standards for CPT® Code 77331

- CPT® code 77331 is billable once per port/field/angle, per course of 2D, electron beam therapy, or 3D external beam radiation therapy only when medically necessary and ordered by a radiation oncologist.
- CPT® code 77331 is not billable for quality assurance (QA) or output measurements associated with brachytherapy, IMRT, intra-operative radiation therapy, proton beam therapy, or stereotactic procedures (SRS and SBRT).

- When diodes are requested with 2D or 3D treatment planning, 77331 may be approved as a quantity equal to the number of ports/fields/arcs/angles.
- Requests with other forms of radiation therapy must be submitted with a medically necessary rationale for the service. The request and rationale will be submitted to a physician clinical reviewer for determination.

Unlisted Dosimetry Procedure (CPT® Code 77399)

Professional and Technical

77399 Unlisted procedure, medical radiation physics, dosimetry and treatment devices, and special services

Unlisted dosimetry procedures are utilized for services and procedures in which an already established Healthcare Common Procedure Coding System (HCPCS) code does not accurately describe the procedure or service provided. Unlisted procedures require documentation for review of the service or procedure to be provided.

Standards for CPT® 77399

- An unlisted dosimetry procedure (CPT® code 77399) must be requested. Rationale and documentation of service must be reviewed by a physician.
- An unlisted dosimetry procedure may be approved for services where a CPT® code does not already exist, and the service is not bundled or packaged into any other services. For example, CPT® code 77399 is not medically necessary when CT-MRI fusion with IMRT planning will be performed. CPT® code 77370 exists and is also not medically necessary in this scenario.

▼ Sources:

The Coding Standards are created and maintained by Evolent based on our understanding of current:

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- American Society for Radiation Oncology (ASTRO) Radiation Oncology Coding Resource

- Medicare’s Local Coverage Determinations (LCDs) and National Coverage Determination (NCD) for radiation oncology
- Office of the Inspector General (OIG) compliance standards
- National Correct Coding Initiative (NCCI) edits
- National Correct Coding Initiative (NCCI) Policy Manual
- Centers for Medicare and Medicaid Services (CMS) Internet Only Manuals (IOM).