

Head and Neck Cancer

Note: For Medicare members/enrollees, to ensure consistency with the Medicare National Coverage Determinations (NCD) and Local Coverage Determinations (LCD), all applicable NCDs, LCDs, and Medicare Coverage Articles should be reviewed prior to applying the criteria set forth in this clinical policy. Refer to the CMS website at <http://www.cms.gov> for additional information.

Note: For Medicaid members/enrollees, circumstances when state Medicaid coverage provisions conflict with the coverage provisions within this clinical policy, state Medicaid coverage provisions take precedence. Please refer to the state Medicaid manual for any coverage provisions pertaining to this clinical policy.

DISCUSSION

Cancers that are known collectively as head and neck cancers usually begin in the squamous cells that line the mucosal surfaces of the head and neck (for example, those inside the mouth, throat, and voice box). These cancers are referred to as squamous cell carcinomas of the head and neck. Head and neck cancers can also begin in the salivary glands, sinuses, or muscles or nerves in the head and neck, but these types of cancer are much less common than squamous cell carcinomas.¹

Head and neck cancer accounts for about 4% of all cancers in the United States. It is estimated that 15,050 deaths (10,940 men and 4,110 women) from head and neck cancer will occur in the United States this year. In 2020, an estimated 277,597 people worldwide died from the disease.²

Head and neck cancers are defined as cancers of the lip, oral cavity, oropharynx, hypopharynx, nasopharynx, larynx, glottic larynx, supraglottic larynx, ethmoid and maxillary sinus, nasal cavity, salivary glands (including parotid), mucosa melanoma, thyroid, and head and neck occult primary.¹

Assessment of Radiotherapy

A radiation oncologist should evaluate all patients before radiation treatment starts to ensure the following:

- Review of staging and imaging to determine the extent of disease, exclude the presence of a synchronous primary tumor, assess functional status, and evaluate for potential radiation therapy options.
- Participate in multidisciplinary team discussions regarding patient treatment options with the goal of maximizing survival with preservation of form and function.
- Develop a prospective surveillance plan that includes adequate dental, swallowing, nutritional, and health behavior evaluation and intervention and any other ancillary evaluations that would provide for comprehensive rehabilitation.

General Principles

- Target delineation and optimal dose distribution require experience in head and neck imaging and a thorough understanding of patterns of disease spread. Standards for target definition, dose specification, fractionation (with and without concurrent chemotherapy), and normal tissue constraints are still evolving. Published contouring guidelines referenced are in patients who have not been operated upon.
 - IMRT or other conformal techniques (3DCRT, helical tomotherapy, volumetric modulated arc therapy [VMAT]) may be used as appropriate depending on the stage, tumor location, physician training/experience, and available support.
 - Close interplay exists between radiation technology, techniques, fractionation, cumulative radiation dose, surgery, and chemotherapy options resulting in a large number of combinations that may impact toxicity or tumor control.

- FDG PET/CT or MRI with contrast can be used for fusion in treatment planning.
- Advanced radiotherapy (RT) technologies such as IMRT, tomotherapy, VMAT, image-guided RT (IGRT), may offer clinically relevant advantages in specific instances to spare important organs at risk (OARs), such as the brain, brain stem, cochlea, semicircular canals, optic chiasm and cranial nerves, retina, lacrimal glands, cornea, spinal cord, brachial plexus, mucosa, salivary glands, bone (skull base and mandible), pharyngeal constrictors, larynx, and esophagus, and decrease the risk for late, normal tissue damage while still achieving the primary goal of local tumor control.
- Since the advantages of these techniques include tightly conformal doses and steep gradients next to normal tissues, target definition and delineation and treatment delivery verification require careful monitoring to avoid the risk of tumor geographic miss and subsequent decrease in local tumor control.
 - Initial diagnostic imaging with contrast-enhanced CT, MRI, FDG PET/CT, and other imaging modalities facilitate target definition.
- Image guidance is required to provide assurance of accurate daily delivery. Anatomical changes including rapidly shrinking tumors, changes in air cavities, or significant weight loss may necessitate repeat diagnostic imaging and replanning (adaptive treatment).

Techniques/Dosing

IMRT

- IMRT has been shown to be useful in reducing long-term toxicity in oropharyngeal, nasal cavity, paranasal sinus, salivary gland, and nasopharyngeal cancers by reducing the dose to salivary glands, temporal lobes, auditory structures (including cochlea), and optic structures.

Fractionation

- The simultaneous integrated boost (SIB) technique uses differential “dose painting” (66 Gy to 72 Gy to gross disease; 44 Gy to 63 Gy to subclinical disease) for each fraction of treatment throughout the entire course of radiation. SIB is commonly used in the conventional (5 fractions/week) and the “6 fractions/week accelerated” schedule.
- The sequential (SEQ) technique typically delivers the initial (lower dose) phase (weeks 1–5) followed by the high-dose boost volume phase (weeks 6–7) using 2 to 3 separate dose plans and is commonly applied in standard fractionation and hyperfractionation.
- The concomitant boost accelerated schedule may utilize a modified SEQ dose plan by delivering the dose to the subclinical targets once a day for six weeks, and a separate boost dose plan as a second daily fraction for the last 12 treatment days.
- Another accelerated approach, aside from concomitant boost, is to simply treat six fractions per week.
- Altered fractionation may be used for select patients with comorbidities who are not good candidates for 6 to 7 weeks of adjuvant RT or systemic therapy/RT.

Reirradiation with 3D-CRT, SBRT, or IMRT

- If the area in consideration overlaps with the previously radiated volume, the prior radiotherapy should have been more than 6 months from the appearance of new disease.
- In certain rare circumstances, reirradiation with intraoperative RT (IORT) or brachytherapy may be considered in high-volume centers with expertise in these techniques.
- Before reirradiation, the patient should have a reasonable Eastern Cooperative Oncology Group (ECOG) performance status of 0–1. Patients who are more than two years from prior radiation, who have surgery to remove gross disease prior to reirradiation, and who are free of organ dysfunction (for example, laryngectomy, feeding tube) have better outcomes.

- When using SBRT techniques for reirradiation, careful selection of patients is advised. The best outcomes are seen in patients with smaller tumors and no skin involvement. Exercise caution in cases of circumferential carotid artery involvement.
- Reirradiation dosing:
 - Conventional fractionation
 - Postoperative: 56 Gy to 60 Gy at 1.8 Gy to 2 Gy/fraction
 - Definitive: 66 Gy to 70 Gy at 1.8 Gy to 2 Gy/fraction
 - Accelerated fractionated: 60 Gy to 70 Gy at 1.2 Gy to 1.5 Gy/fraction twice daily
 - Current SBRT schedules being used or investigated are in the range of 35 Gy to 44 Gy using 5 fractions.

DEFINITIONS

- **Adjuvant radiation therapy** - Additional radiation therapy given after the primary treatment to lower the risk of cancer recurrence.
- **Brachytherapy (BT)** - Brachytherapy is a procedure that involves placing radioactive material inside your body. Brachytherapy is sometimes called internal radiation.
- **Definitive radiation treatment** – radiation therapy used with curative intent.
- **External beam radiation therapy (EBRT)** - External radiation (or external beam radiation) is the most common type of radiation therapy used for cancer treatment. A machine is used to aim high-energy rays (or beams) from outside the body into the tumor.
- **Fractions** - A way of dividing a total dose of radiation into separate doses to be administered over a period of time.
- **Gray (Gy)** - One of the two units used to measure the amount of radiation absorbed by an object or person, known as the absorbed dose. One gray (Gy) is the international system of units (SI) equivalent of 100 rads, which is equal to an absorbed dose of 1 Joule/kilogram.
- **Image-guided radiation therapy (IGRT)** - Image-guided radiation therapy (IGRT) is the use of imaging during radiation therapy to improve the precision and accuracy of treatment delivery. IGRT is used to treat tumors in areas of the body that move, such as the lungs. Radiation therapy machines are equipped with imaging technology to allow your doctor to image the tumor before and during treatment. By comparing these images to the reference images taken during simulation, the patient's position and/or the radiation beams may be adjusted to more precisely target the radiation dose to the tumor. To help align and target the radiation equipment, some IGRT procedures may use fiducial markers, ultrasound, MRI, X-ray images of bone structure, CT scan, 3D body surface mapping, electromagnetic transponders, or colored ink tattoos on the skin.
- **Intensity-modulated radiotherapy (IMRT)** - Intensity-modulated radiation therapy (IMRT) is an advanced mode of high-precision radiotherapy that uses computer-controlled linear accelerators to deliver precise radiation doses to a malignant tumor or specific areas within the tumor. IMRT allows the radiation dose to conform more precisely to the three-dimensional shape of the tumor by controlling the intensity of the radiation beam in multiple small volumes. IMRT also allows higher radiation doses to be focused to regions within the tumor while minimizing the dose to surrounding normal critical structures.
- **National Comprehensive Cancer Network® (NCCN)** - An alliance of 32 leading cancer centers devoted to patient care, research, and education. The NCCN guidelines are utilized for Radiation Therapy and Medical Oncology standards. NCCN consensus clinical standards are periodically updated and NantHealth, Inc. reviews these and updates its policies within a timely manner.
- **Palliative Radiation Therapy** - Treatment given to help relieve the symptoms and reduce the suffering caused by cancer or other life-threatening diseases. Palliative therapy may help a person feel more comfortable, but it does not treat or cure the disease. Palliative therapy may be given with other treatments from the time of diagnosis until the end of life.

- **Stereotactic body radiation therapy (SBRT)** - Treatment outside the brain is called stereotactic body radiation therapy (SBRT). SBRT may be used for certain lung, spine, and liver tumors.
- **Three dimensional conformal radiation therapy (3D-CRT)** - A procedure that uses a computer to create a three dimensional picture of the tumor. This allows doctors to give the highest possible dose of radiation to the tumor, while sparing the normal tissue as much as possible.

POLICY

The following table outlines the criteria that must be met for the number of fractions and dosing relative to head and neck cancer radiation treatments. Definitive radiation management patients receive concurrent chemotherapy. This dosing table represents evidence-based doses and fractions for the designated type of cancer treatment. Variations outside of the ranges may indicate a deviation from standard treatment.

Head and Neck Cancer including Thyroid			
All Sites- Stages I-IVB (Definitive and Adjuvant Therapy) with or without Chemotherapy	Number of Fractions	Total Dose	Technique
		30-39	60-70 Gy
	30-39	60-70 Gy	IMRT, 3D, IGRT
Glottic Larynx Stages I-II Definitive	15-35	50-70 Gy	IMRT, 3D, IGRT
Reirradiation	5	30-44 Gy	SBRT
Palliative Radiotherapy	1-20	8-50 GY	IMRT, 3D, IGRT

REFERENCES

1. Head and neck cancers. National Cancer Institute Web site. <https://www.cancer.gov/types/head-and-neck/head-neck-fact-sheet>. Accessed May 12, 2022.
2. Head and neck cancer: statistics. Cancer.Net Web site. <https://www.cancer.net/cancer-types/head-and-neck-cancer/statistics>. Accessed May 12, 2022.
3. NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) for Head and Neck Cancers. (Version 2.2022). Available at https://www.nccn.org/professionals/physician_gls/pdf/head-and-neck.pdf. ©National Comprehensive Cancer Network, 2022.

Please see all related radiation therapy treatment policies for additional information on the treatment modalities. (3D-CRT, BT, EBRT, IGRT, IMRT, PBT, and SBRT)

CODING [ICD-10, HCPCS]*

*Procedure codes appearing in medical policy documents are only included as a general reference. This list may not be all-inclusive and is subject to updates. In addition, codes listed are not a guarantee of payment. CPT codes are available through the AMA.

Code	Description
G6015	Intensity-modulated treatment delivery, single or multiple fields/arcs, via narrow spatially and temporally modulated beams, binary, dynamic MLC, per treatment session
G6016	Compensator-based beam modulation treatment delivery of inverse planned treatment using 3 or more high resolution (milled or cast) compensator convergent beam modulated fields, per treatment session
G0339	Image-guided robotic linear accelerator-based stereotactic radiosurgery, complete course of therapy in one session or first session of fractionated treatment

Code	Description
G0340	Image-guided robotic linear accelerator-based stereotactic radiosurgery, delivery including collimator changes and custom plugging, fractionated treatment, all lesions, per session, second through fifth sessions, maximum 5 sessions per course of treatment
Z51.5	Encounter for palliative care
Z92.3	Personal history of irradiation

REVISION AND REVIEW HISTORY

No.	Description	Metadata
1	Original Effective Date:	5/2022
2	Policy Review Dates:	5/14/2022, 5/16/2022, 5/25/2022, 6/2/2022, 7/20/2022
3	Policy Revision Dates:	5/14/2022, 5/16/2022, 5/25/2022, 6/2/2022, 7/20/2022
4	Department Owner:	Medical Affairs
5	NH Advisory Committee Approval Dates:	5/25/2022, 6/2/2022, 6/24/2022
6	Revision Changes:	6/2/2022 - Included PBT in the cross reference section- 8/2/22- Added the word Thyroid to the dosing table.