

QUICK REFERENCE GUIDE TO

# TNM Staging of Head and Neck Cancer and Neck Dissection Classification

Fourth Edition



AMERICAN ACADEMY OF  
OTOLARYNGOLOGY-  
HEAD AND NECK SURGERY

F O U N D A T I O N



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**Quick Reference Guide to  
TNM Staging of Head and Neck Cancer  
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American Head and Neck Society**

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# Preface

Staging is the language essential to the proper and successful management of head and neck cancer patients. It is the core of diagnosis, treatment planning, application of therapeutics from multiple disciplines, recovery, follow-up, and scientific investigation. Staging must be consistent, efficient, accurate, and reproducible. The head and neck cancer caregiver can never be too fluent in this mode of communication, as we educate patients and navigate them toward cure. The simple clarification that Stage IV disease is not synonymous with a “death sentence” has powerful impact for patients and their families. With this imperative, the American Academy of Otolaryngology—Head and Neck Surgery Foundation and the American Head and Neck Society present the fourth edition of *Quick Reference Guide to TNM Staging of Head and Neck Cancer and Neck Dissection Classification*.

Just as our knowledge of and therapeutics for head and neck cancer evolve, so does the language we use in managing the disease. Such terms as “chemoradiation,” “organ preservation,” “HPV positive,” and “de-escalation” are now central to care planning discussions. Likewise, the staging system evolves to incorporate current knowledge and reflect state-of-the-art treatments.

This new edition of *Quick Reference Guide to TNM Staging of Head and Neck Cancer and Neck Dissection Classification* incorporates the changes from the seventh edition of the American Joint Commission on Cancer (AJCC) Cancer Staging Manual, as well as updated discussions of site-specific cancers.

We hope this *Quick Reference Guide* will serve the practitioner and the patient equally well as we ready ourselves for further evolution of head and neck cancer staging and management.

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## Acknowledgments

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All staging information in Chapters II and III are used with the permission of the American Joint Committee on Cancer (AJCC), Chicago, Illinois. The original source for this material is the AJCC Cancer Staging Manual, Seventh Edition (2010), published by Springer Science and Business Media LLC, [www.springer.com](http://www.springer.com).

All photos have been graciously donated by Richard V. Smith, MD.

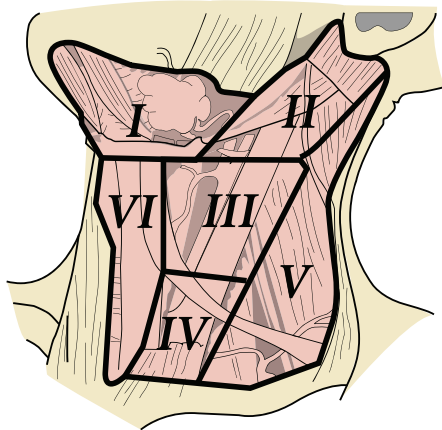
## IV. Definition of Lymph Node Groups

The level system for describing the location of lymph nodes in the neck consists of Level I, submental and submandibular group; Level II, upper jugular group; Level III, middle jugular group; Level IV, lower jugular group; Level V, posterior triangle group; and Level VI, anterior compartment (Figure 1).

### A. Levels IA and IB: Submental and Submandibular Groups

#### IA—SUBMENTAL GROUP

Lymph nodes within the triangular boundary of the anterior belly of the digastric muscles and the hyoid bone are at greatest risk for harboring



**FIGURE 1** The level system for describing the location of lymph nodes in the neck: Level I, submental and submandibular group; Level II, upper jugular group; Level III, middle jugular group; Level IV, lower jugular group; Level V, posterior triangle group; Level VI, anterior compartment.



metastases from cancers arising from the floor of mouth, anterior oral tongue, anterior mandibular alveolar ridge, and lower lip (Figure 2).

### **IB—SUBMANDIBULAR GROUP**

This group consists of lymph nodes within the boundaries of the anterior and posterior bellies of the digastric muscles, the stylohyoid muscle, and the body of the mandible. The group includes the pre- and postglandular nodes, and the pre- and postvascular nodes. The submandibular gland is included in the specimen when the lymph nodes within this triangle are removed. These nodes are at greatest risk for harboring metastases from the cancers arising from the oral cavity, anterior nasal cavity, soft tissue structures of the midface, and submandibular gland (Figure 3).

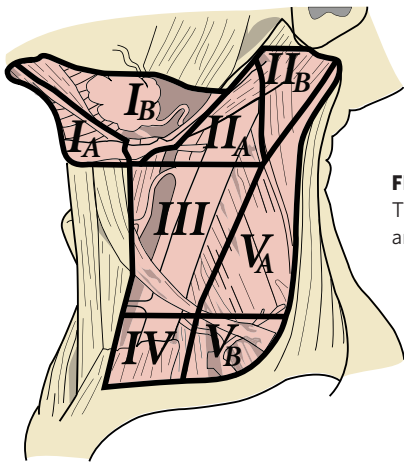
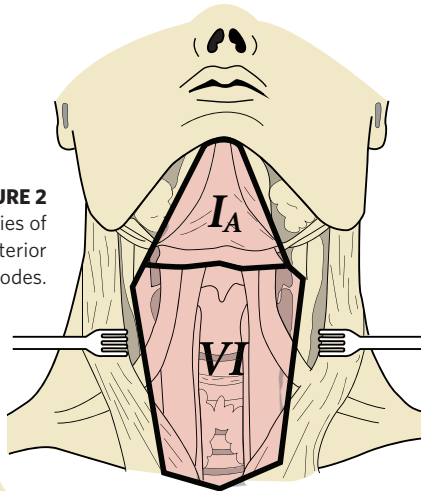
### **B. Levels IIA and IIB: Upper Jugular Group**

This group is comprised of lymph nodes located around the upper third of the internal jugular vein and adjacent spinal accessory nerve extending from the level of the skull base (above) to the level of the inferior border of the hyoid bone (below). The anterior (medial) boundary is the lateral border of the sternohyoid muscle and the stylohyoid muscle, and the posterior (lateral) boundary is the posterior border of the sternocleidomastoid muscle. Sublevel IIA nodes are located anterior (medial) to the vertical plane defined by the spinal accessory nerve. Sublevel IIB nodes are located posterior (lateral) to the vertical plane defined by the spinal accessory nerve. The upper jugular nodes are at greatest risk for harboring metastases from cancers arising from the oral cavity, nasal cavity, nasopharynx, oropharynx, hypopharynx, larynx, and parotid gland (Figure 3).

### **C. Level III: Middle Jugular Group**

This group consists of lymph nodes located around the middle third of the internal jugular vein extending from the inferior border of the hyoid bone (above) to the inferior border of the cricoid cartilage (below). The anterior (medial) boundary is the lateral border of the sternohyoid muscle, and the posterior (lateral) boundary is the posterior border of the sternocleidomastoid muscle. (Included in this group is the jugulo-omohyoid node, which lies immediately above the superior belly of the omohyoid muscle as it crosses the internal jugular vein.) These nodes are at greatest risk for harboring

**FIGURE 2**  
Dark lines depict the boundaries of the submental (IA) and anterior compartment (VI) lymph nodes.



**FIGURE 3**  
The boundaries dividing levels I, II, and V into sublevels A and B.

metastases from cancers arising from the oral cavity, nasopharynx, oropharynx, hypopharynx, and larynx (Figure 3).

#### **D. Level IV: Lower Jugular Group**

This group consists of lymph nodes located around the lower third of the internal jugular vein extending from the inferior border of the cricoid (above) to the clavicle (below). The anterior (medial) boundary is the lateral border of the sternohyoid muscle, and the posterior (lateral) boundary is the posterior

border of the sternocleidomastoid muscle. These nodes are at greatest risk for harboring metastases from cancers arising from the hypopharynx, cervical esophagus, and larynx (Figure 3).

### **E. Levels VA and VB: Posterior Triangle Group**

This group is comprised predominantly of the lymph nodes located along the lower half of the spinal accessory nerve and the transverse cervical artery, along with the supraclavicular nodes. The superior boundary is the apex formed by a convergence of the sternocleidomastoid and the trapezius muscles, the inferior boundary is the clavicle, the anterior (medial) boundary is the posterior border of the sternocleidomastoid muscle, and the posterior (lateral) boundary is the anterior border of the trapezius muscle. Sublevel VA is separated from Sublevel VB by a horizontal plane marking the inferior border of the arch of the cricoid cartilage. Sublevel VA includes the spinal accessory nodes, and Sublevel VB includes the nodes following the transverse cervical vessels and the supraclavicular nodes. (Virchow's node is located in Level IV.) The posterior triangle nodes are at greatest risk for harboring metastases from cancers arising from the nasopharynx and oropharynx (Sublevel VA), and the thyroid gland (Sublevel VB) (Figure 3).

The surgical landmark that defines the lateral boundary of Levels II, III, and IV and the corresponding medial boundary of the posterior triangle (Level V) is the plane that parallels the sensory branches of the cervical plexus.

### **F. Level VI: Anterior (Central) Compartment Group**

Lymph nodes in this compartment include the pre- and paratracheal nodes, the precricoid (Delphian) node, and the perithyroidal nodes, including the lymph nodes along the recurrent laryngeal nerves. The superior boundary is the hyoid bone, the inferior boundary is the suprasternal notch, and the lateral boundaries are the common carotid arteries. These nodes are at greatest risk for harboring metastases from cancers arising from the thyroid gland, glottic and subglottic larynx, apex of the pyriform sinus, and cervical esophagus (Figure 2).

The American Academy of Otolaryngology—Head and Neck Surgery Foundation's education initiatives are aimed at increasing the quality of patient outcomes through knowledgeable, competent, and professional physicians. The goals of education are to provide activities and services for practicing otolaryngologists, physicians-in-training, and nonotolaryngologist health professionals.

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On May 13, 1998, The American Head and Neck Society (AHNS) became the single largest organization in North America for the advancement of research and education in head and neck oncology. The merger of two societies, the American Society for Head and Neck Surgery and the Society of Head and Neck Surgeons, formed the American Head and Neck Society. The American Head and Neck Society remains dedicated to the common goals of its parental organizations:

- To promote and advance the knowledge of prevention, diagnosis, treatment, and rehabilitation of neoplasms and other diseases of the head and neck,
- To promote and advance research in diseases of the head and neck, and
- To promote and advance the highest professional and ethical standards.

For more information about the AHNS, visit [www.ahns.info](http://www.ahns.info).



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