

American Osteopathic College of Otolaryngology– Head and Neck Surgery

Otolaryngology/Facial Plastic Surgery

Resident Curriculum

Final Edition

**Prepared by the
Subcommittee on Curriculum in Otolaryngology/Facial Plastics Surgery**

Wayne Robbins, D.O., Chair

Gregory Hogle, D.O. – Head and Neck Surgery

Harold Hollander, D.O. - Otolaryngology Osteopathic Manipulative Medicine

Judith L. Kunkle, Ph.D. - Curricular Structure and Clinical Research

Kevin Meakin, D.O., - Facial Plastics

Wayne Robbins, D.O., - Otology, Laryngology, and Head and Neck Surgery

Mark I. Veronneau, D.O., - Rhinology

Renee Walker, D.O. - Pediatric Otorhinolaryngology

Edition Date: July 1, 2004

Preface to the First Edition

This first edition to Otolaryngology/Facial Plastics Resident Curriculum emphasizes the principles adopted by the American Osteopathic Association related to General and Core Competency requirements for Osteopathic Graduate Medical Education or OGME. The mission of residency training in Otolaryngology/Facial Plastics Surgery is to produce an Osteopathic Physician, skilled in the specialty of Otolaryngology/Facial plastic surgery and who can provide compassionate, quality care, continue lifelong learning, display integrity, and professionalism. Training shall be accomplished through meeting or exceeding educational goals and objectives as outlined not only in the Standards for Program Approval but through a structured, written curriculum for the program that may include the following competencies in:

- Medical Knowledge
- Osteopathic philosophy and osteopathic manipulative medicine
- Patient care
- Interpersonal and communication skills
- Professionalism
- Practice-based learning and improvement
- Systems-based practice

The following information outlines the essential required curriculum in Otolaryngology/Facial Plastics Surgery. This curriculum should be used as a template to further individual program educational goals. Although this curriculum is not exhaustive, the AOCOO-HNS expects individual program directors, attendings, and residents to use this as a basis for evaluation and outcome assessment as mandated by the American Osteopathic Association (AOA) and the American Council on Graduate Medical Education (ACGME).

Content Index

Page 2	Preface
Page 3	Index
Page 5	Section 1
Page 5	AOCOO-HNS Basic Standards
Page 13	Section 2
Page 13	Medical Knowledge
Page 13	Otology
Page 13	2.1.1 – Hearing
Page 16	2.1.2 – Acute Inflammatory Diseases of the Ear
Page 18	2.1.3 – Chronic Inflammatory Disease of the Ear
Page 20	2.1.4 – Neurotology
Page 22	2.1.5 – Vertigo
Page 24	2.1.6 – Facial Nerve
Page 26	2.2 – Rhinology
Page 26	2.2.1- General Rhinology
Page 29	2.2.2 – Inflammatory Rhinology
Page 32	2.2.3 – Rhinologic Congenital Disorders
Page 34	2.2.4 – Neoplastic Rhinology
Page 36	2.2.5 - Rhinologic Trauma
Page 38	2.3 – Laryngology
Page 38	2.3.1 – Laryngology – Voice
Page 40	2.3.2 – Congenital Laryngology
Page 42	2.3.3 – Neoplastic Laryngology
Page 45	2.3.4 – Laryngeal Trauma
Page 47	2.4 – Head and Neck
Page 47	2.4.1 – Benign Neoplasia
Page 50	2.4.2 – Malignant Neoplasia
Page 53	2.4.3 – Congenital
Page 55	2.4.4 – Inflammatory Diseases
Page 58	2.4.5 – Trauma: Adult and Pediatric
Page 61	2.4.6 – Esophageal Disorders
Page 63	2.5 – Facial Plastic and Reconstructive Surgery
Page 63	2.5.1 – Facial Plastic and Reconstructive Surgery
Page 69	2.6 – Pediatric Otolaryngology
Page 69	2.6.1 – General Pediatric Otolaryngology
Page 72	2.6.2 – Pediatric Head and Neck
Page 75	2.6.3 – Pediatric Laryngology

Page 76	Section 3
Page 76	3.1-Otolaryngologic Osteopathic Philosophy and Manipulative Medicine
Page 76	3.1 - Otolaryngologic Osteopathic Principles and Practices
Page 80	Section 4
Page 80	Research/Epidemiology/Evidenced-Based Medicine
Page 80	4.1 – Research and Biostatistical Methods
Page 86	4.2 – Clinical Epidemiology
Page 86	4.2.1 – Clinical Epidemiology
Page 89	4.3 – Evidenced-Based Medicine and Outcomes Research
Page 91	Section 5
Page 91	Recommended Case Load to minimal competency

Section 1

Section 1.1

Otolaryngology/ Facial Plastics Surgery Resident Curriculum Goals

A. Seven Core Competencies of the Osteopathic Profession:

Upon completion of the residency program, residents are required to attain and demonstrate competencies in the seven areas described above to a level expected of a new practitioner or journeyman level practitioner. The residency program is required to define specific knowledge, skills, and attitudes required and provide educational experiences as needed in order for its residents to demonstrate competency in medical knowledge and Osteopathic Manipulative Medicine. (See section 2 for a recommended curriculum).

B. Guidelines for Resident Education:

The Otolaryngology/Facial Plastics Surgery Curriculum has integrated units, so that resident objectives related to patient care are presented with, or immediately adjacent to, related Otolaryngology/Facial Plastics Surgery content.

Section 1.2

A. Program Design

The program director and faculty must prepare and implement written educational goals for the program.

1. All educational components of a residency program should be related to program goals and specialty content (Standard II, C. Specialty Content) with documentation of multiple measures to assess the resident's performance (Appendix). The program design and/or structure must be approved by the COME and AOA as part of the regular review process.
2. The program must have a comprehensive, well organized, and effective curriculum, including:
 - a. The cyclical presentation of core specialty knowledge supplemented by the addition of current information.
 - b. Indication of what competencies are needed to progress through each year of training.

- c. Evidence that the teaching is conducted in a variety of educational settings such as clinics, classrooms, operating rooms, bedsides, and laboratories, employing accepted educational principles.
- 3. To fulfill requirements of the basic standards or enhance training, the program director may arrange for required rotations with affiliated training sites.
 - a. A program seeking to fulfill its requirements through affiliations with other AOA or ACGME institutions shall sign formal affiliation agreements with these training sites. Affiliation agreements shall be signed by representatives of both the base institution and the affiliate training sites, and shall be maintained on file with the DME at the base institution. Affiliations shall be consistent with the guidelines of the AOA.
 - b. Residents on rotation to affiliated training sites shall remain under contract to the base institution. Resident training logs shall reflect training and service to the affiliated training site and shall be included in the resident records at the base institution. Written evaluation of the resident's performance at the affiliated training site must be submitted by the on-site faculty to the program director at the base institution.
 - c. The parent institution or organization may arrange for up to a total of six (6) consecutive months of training outside of the institution.
 - d. In no case shall the maximum aggregate time on outside rotations be more than one- third the length of the program.

B. Specialty Content

The broad scope of the specialty of Otolaryngology - Head and Neck Surgery requires that the program provide surgical and medical education in the following areas:

- 1. Osteopathic Management of Otolaryngic diseases with the ability to demonstrate knowledge of:
 - a. Basic concepts of structure-function relationships and the body's inherent healing ability.
 - b. How to design a management plan that promotes the body's ability to regulate itself toward health.

1. Patient education regarding medication abuse, pollutants, humidification, and allergies.
 2. Osteopathic manipulative treatment based on the musculoskeletal system's impact on circulation to and from all tissues, the autonomic nervous system and the promotion of lymphatic circulation and its role in reducing swelling and inflammation and stimulation of the immune system.
 3. Medical and surgical intervention combined with patient education and appropriate musculoskeletal treatment.
2. Morphology, physiology, pharmacology, pathology, microbiology biochemistry, genetics, and immunology relevant to the head and neck; the upper respiratory and upper alimentary systems; the communication sciences, including knowledge of audiology and speech-language pathology; the chemical senses and allergy, endocrinology, and neurology as they relate to the head and neck; and voice sciences as they relate to laryngology.
 3. Diagnosis and diagnostic methods: audiologic and vestibular assessments, techniques in voice assessment, electrophysiological techniques, and other related laboratory procedures for diagnosing diseases and disorders of the ears, the upper respiratory and upper alimentary systems, and the head and neck.
 4. Therapeutic and diagnostic radiology: the interpretation of medical imaging techniques relevant to the head and neck and the thorax, including studies of the temporal bone, skull, nose, paranasal sinuses, salivary and thyroid glands, larynx, neck, lungs, and esophagus.
 5. Diagnostic evaluation and management of congenital anomalies, allergy, trauma, and diseases affecting the regions and systems mentioned above.
 6. Management of congenital, inflammatory, endocrine, neoplastic, degenerative, and traumatic states, including operative intervention and preoperative and postoperative care of the following major categories:
 - a. General otolaryngology
 - b. Head and neck surgery
 - c. Plastic and reconstructive surgery
 - d. Otology
 - e. Endoscopy

7. Habilitation and rehabilitation techniques and procedures including respiration, deglutition, chemoreception, balance, speech, and hearing.
8. Diagnostic and therapeutic techniques involving the application and utilization of lasers and flexible and rigid perioral endoscopy.

C. Clinical Components

The volume and variety of clinical ophthalmologic problems in children and adults must be sufficient to afford each resident a graduated supervised experience with the entire spectrum of otolaryngic diseases so that the resident may develop diagnostic, therapeutic, and manual skills and judgment as to their appropriate use.

During the course of training residents should be responsible for the care of a panel of outpatients who represent a broad range of otolaryngic diseases. There must be appropriate faculty supervision of the residents in all outpatient visits. Appropriate faculty supervision occurs when the faculty is readily available to the resident(s) for consultation or assistance.

1. Outpatient experience
 - a. There must be a well-organized and well-supervised outpatient service. This service must operate in relation to an inpatient service used in the program. Residents must have the opportunity to see patients, establish provisional diagnoses, and initiate preliminary treatment plans. An opportunity for follow-up care must be provided so that the results of surgical care may be evaluated by the responsible residents. These activities must be carried out under appropriate faculty supervision.
 - b. If residents participate in preoperative and postoperative care in a private office, the program director must ensure that the resident functions with an appropriate degree of responsibility with adequate supervision. Experience should be provided in office practice procedures and management.
 - c. Residents must have experience in the emergency care of critically ill and injured patients with otolaryngology-head and neck conditions.
2. Surgical Experience
 - a. Residents must perform and assist at a sufficient number of operative procedures to become skilled as comprehensive

otolaryngology/facial plastic surgeons. That is, each resident must have major technical and patient care responsibilities in surgery (including laser surgery).

- b. The program director is responsible for documenting the surgical experiences of each resident, to include the number of cases in each category where the resident has served as the primary surgeon or the assistant surgeon. This documentation must be provided to the COME and individual resident logs must be available at the time of the site visit.
 - c. While not all residents are expected to have operative experience in all surgical specialty procedures, the surgical procedures performed by the residents must be sufficient in number and variety to provide education in the entire scope of the specialty. There must be adequate distribution and sufficient complexity within the principal categories of the specialty.
 - d. Generally equivalent and adequate distribution of categories and procedures among the residents must be demonstrated. Significantly unequal experience in volume and/or complexity of cases managed by the residents will be considered serious noncompliance with these requirements.
3. Systemic Disease Consultation Experience

Each resident should receive experience in providing inpatient and outpatient consultation during the course of his/her education.

D. Resident Duty Hours and the Working Environment

Providing residents with a sound academic and clinical education must be carefully planned and balanced with concerns for patient safety and resident well being. Each program must ensure that the learning objectives of the program are not compromised by excessive reliance on residents to fulfill service obligations. Didactic and clinical education must have priority in the allotment of residents' time and energies. Duty hour assignments must recognize that faculty and residents collectively have responsibility for the safety and welfare of patients.

1. Supervision of Residents

The residency is an educational experience and must be designed by the institution to offer structured and supervised exposure in order to promote learning rather than service. An opportunity must exist for residents to be supervised and evaluated throughout their training

with availability of teaching staff scheduled within the program. During daytime hours, residents will be responsible to attending physicians for assignment and assignment of responsibility.

2. Work Hours must comply with AOA policy (**See Basic Standards Document Appendix**)

3. Moonlighting Policy

Any professional clinical activity (moonlighting) performed outside of the official residency program can only be conducted with the permission of the program administration (DME/Program Director). A written request by the resident must be approved or disapproved by the Program Director and DME and be filed in the institution's resident file. All approved hours are included in the total allowed work hours under AOA policy and are monitored by the institution's graduate medical education committee. This policy must be published in the institution's house staff manual. Failure to report and receive approval by the program may be grounds for terminating a resident's contract.

E. Progressive Responsibilities

The program must provide the residents with experience in direct and progressively responsible patient management as they advance through the educational program. This education must culminate in sufficient independent responsibility for clinical decision making to reflect that the graduating resident has developed sound clinical judgment and possesses the ability to formulate and carry out appropriate management plans.

F. Research and Scholarly Activities

1. Graduate medical education must take place in an environment of inquiry and scholarship in which residents participate in the development of new knowledge, learn to evaluate research findings, and develop habits of inquiry as a continuing professional responsibility. Research offers an important opportunity for the application of the basic sciences to clinical problems and is an important part of the preparation of the resident for a lifetime of self-education after the completion of formal residency education.
2. The educational program should provide a structured research experience for the residents, sufficient to result in an understanding of the basic principles of study design,

performance, analysis, and reporting. The research experience may be clinical or basic in nature and should reflect careful advice by and planning with the faculty. Facilities and protected time for research by the residents should be provided, with guidance and supervision by qualified faculty.

3. The responsibility for establishing and maintaining an environment of inquiry and scholarship rests with the faculty. While not all members of the faculty must be investigators, the faculty as a whole must demonstrate broad involvement in scholarly activity. This activity should include:
 - a. Participation of the faculty in clinical discussions, rounds, and conferences in a manner that promotes a spirit of inquiry and scholarship. Scholarship implies an in-depth understanding of basic mechanisms of normal and abnormal states and the application of current knowledge to practice.
 - b. Participation in journal clubs and research conferences.
 - c. Participation in regional or national professional and scientific societies, particularly through presentations at the organizations' meetings and publication in their journals.
 - d. Participation in research, particularly in projects that are funded following peer review and/or result in publications or presentations at regional and national scientific meetings.
 - e. Offering of guidance and technical support (e.g., research design, statistical analysis) for residents involved in research.
 - f. Provision of support for resident participation in scholarly activities.

G. Conferences

1. Basic Science

The resident must complete a minimum of 100 hours of basic science studies relating to Otolaryngology / Facial Plastic surgery and

presented in a structured format. Resident attendance must be monitored, education must be evaluated, and content must be integrated into the educational program. The basic science education should meet the following requirements:

- a. Basic science education should include instruction in anatomy, biochemistry, cell biology, embryology, immunology, molecular genetics, pathology, pharmacology, physiology, and other basic sciences related to the head and neck.
- b. Sufficient funding for instruction in the basic sciences should be available.
- c. Resident instruction in anatomy should include study and dissection of cadaver anatomic specimens, including the temporal bone, with appropriate lectures and other formal sessions.
- d. Resident instruction in pathology should include formal instruction in correlative pathology in which gross and microscopic pathology relating to the head and neck area are included. The resident should study and discuss with the pathology service tissues removed at operations and autopsy material. It is desirable to have residents rotate in the Department of Pathology.

2. Clinical Conferences

Clinical conferences must be held regularly and should be attended by all residents and faculty. Grand rounds, mortality and morbidity conferences, tumor conferences, and conferences on other pertinent topics must be included in the educational program. Interdisciplinary conferences are encouraged.

Section 2

MEDICAL KNOWLEDGE –

OTOLARYNGOLOGY/FACIAL PLASTICS SURGERY

Section 2.1

Otolaryngology/Facial Plastics Medical Knowledge

Unit 2.1 Otology:

Unit Objectives:

Demonstrate knowledge of anatomy, physiology, and pathophysiology of otologic disease pertinent to general otolaryngology.

Demonstrate the ability to manage clinically and surgically patients with otologic diseases.

2.1.1 Otology – Hearing:

Competency-Based Knowledge Objectives:

1. Basic Science:

- A. Demonstrate an understanding of basic anatomical and physiological mechanisms of the ear, auditory pathway and vestibular system.
- B. Describe the embryology of the external, middle and inner ear.
- C. Describe the chronologic development of the auditory system.
- D. Demonstrate comprehension of neurophysiology of the ear related to hearing.
- E. Explain from memory the microscopic anatomy of the cochlea and eighth cranial nerve.
- F. Describe concepts related to measurement of sound and hearing.
 - 1. Instrumentation.
 - 2. Physical and psycho-acoustic measures.
 - 3. Masking.
 - 4. Pure tone audiometry.
 - 5. Speech audiometry.
- G. Demonstrate comprehension of theories of otoacoustic emissions.

- H. Demonstrate comprehension of theories of Brainstem Evoked Responses including sites of waveform generators.
- I. List the normal developmental milestones for hearing and speech in the pediatric population.

2. Clinical:

- A. Recognize clinical correlates of common audiometric patterns.
- B. Demonstrate knowledge in the use of amplification and aural rehabilitation to include hearing aids, assistive listening devices.
- C. Discuss the classification, causes and treatment of Tinnitus.
- D. Describe a standard test battery for new born hearing screening and diagnosis of hearing impairment.
- E. Categorize and describe the patterns of cochlear dysplasia.
- F. List all risk factors for congenital sensor neural hearing loss. List from memory common congenital syndromes that are associated with hearing loss.
- G. Describe the symptoms and natural history of sudden idiopathic sensorineural hearing loss.
- H. Outline the treatment options for sudden idiopathic Sensorineural hearing loss.
- I. Summarize the causes and treatments of fluctuating sensorineural hearing loss.
- J. List indications for cochlear implantation.
- K. Describe mechanisms of hearing loss after temporal bone trauma.

3. Surgical:

- A. Compare and contrast materials and types of middle ear implants.
- B. Describe indications for middle ear reconstruction versus amplification.
- C. Discuss management of postoperative complications related to middle ear reconstruction.

Competency-Based Performance Objectives:

1. Clinical:

- A. Demonstrate proper technique for hearing assessment with tuning forks:
 - 1. Weber and Rinne.
- B. Demonstrate ability to perform tympanometry.
- C. Demonstrate ability to perform comprehensive audiometry on normal hearing individuals.
- D. Interpret auditory evoked potential test results and their application in auditory function.

2. Surgical:

- A. Perform ossicular chain reconstruction on cadaver and live patients.
- B. Demonstrate surgical approach for Cochlear implantation on cadaveric specimens.

2.1.2

Otology - Acute Inflammatory Disease of the Ear:

Competency-Based Knowledge Objectives:

1. Basic Science:

- A. Identify the anatomy and explain the physiology of the external and middle ear.
- B. Describe the microbiologic and pathologic basis of acute infections of the external and middle ear.
- C. Discuss the pathophysiology of the acute inflammatory diseases as they affect the auricle, external canal, middle ear and mastoid.
- D. Discuss the pathophysiology of the acute inflammatory diseases of the auricle, external canal, middle ear and mastoid on auditory function.
- E. Describe effect of classes of pharmacologic agents on Acute inflammatory diseases of the auricle, external canal, middle ear and mastoid.
- F. Describe treatment through pharmacologic agents of acute Otitis Externa.
- G. Describe appropriate surgical intervention for acute inflammatory diseases of the auricle, external canal, middle ear and mastoid.

2. Clinical:

- A. Summarize the pathological findings in the focused history and physical examination of a patient with Acute Otitis Media or Externa.
- B. Discuss the changes found in audiometric evaluation and interpret results in patients with acute inflammatory pathology.
- C. Describe the pathophysiology of intracranial and extracranial complications.

3. Surgical:

- A. List indications for medical and surgical treatment options.
- B. Describe the risk and complications of all surgical interventions used to treat Acute Otitis Media.
- C. Explain peri-surgical management of patients with surgical Acute Otologic disease.

Competency-Based Performance Objectives:

1. Clinical:

- A. Demonstrate ability to diagnose Acute Inflammatory Otologic disease based on synthesis of data from a focused history and physical exam and audiometric testing.
- B. Discuss the changes found in audiometric evaluation and interpret results in patients with acute inflammatory pathology.
- C. Demonstrate proper selection of pharmacologic agents based on unique patient situations.
- D. Demonstrate awareness associated and list conditions of impending complications in the success or failure of treatment related to acute otologic disease through the recognition of:
 - a. Intratemporal.
 - b. Extratemporal.
 - c. Intracranial.
- E. List conditions associated with the success and failure of medical treatment of acute otologic disease.
- F. Demonstrate ability to manage acute Otitis Externa.

2. Surgical:

- A. Ability to clean and debride the external auditory canal for a patient with acute external otitis.
- B. Demonstrate ability to perform drainage and ventilation for all forms of acute inflammation of the middle ear.
- C. Perform appropriate skills related to drainage of acute mastoid abscess on anatomical specimens.
- D. Perform simple mastoidectomy, from start to finish without error, on appropriately identified patient.

2.1.3

Otology - Chronic Inflammatory Disease of the Ear:

Competency-Based Knowledge Objectives:

1. Basic Science:

- A. Identify the anatomy of the temporal bone.
- B. Describe the physiology of the mastoid and pathophysiology in chronic inflammatory disease states.
- C. Explain from memory theories of how Cholesteatomas form including common routes of spread.
- D. Explain the electrophysiologic principals and indications for intra-operative facial nerve monitoring.

2. Clinical:

- A. Summarize the pathological findings in the focused history and physical examination of a patient with Chronic Otitis Media.
- B. Describe the medical management of a patient with Chronic Otitis Media with and without Cholesteatoma.
- C. Describe the pathophysiology and management of complications that may develop from Chronic Otitis Media and Cholesteatomas.
- D. Explain indications for temporal bone imaging and pathologic changes that suggest Chronic Otitis Media.

3. Surgical:

- A. List indications for medical and surgical treatment of Chronic Otitis Media.
- B. Describe the risk and complications of all surgical interventions used to treat Chronic Otitis Media.
- C. Explain peri-surgical management of patients with Chronic Otologic disease.
- D. Describe post-op management and minor complications after surgical treatment of Chronic Otitis Media.
- E. Explain technical and physiologic differences of canal wall up verses canal wall down mastoid surgery.
- F. Categorize tympanoplasty by various standards of classification systems.

Competency-Based Performance Objectives:

1. Clinical:

- A. Demonstrate ability to diagnose Chronic Inflammatory Otologic disease based on synthesis of data from a focused history and physical exam, audiometric testing, and ancillary test results.
- B. Demonstrate skills used for oto-microscopic examination of Chronic Otitis media with Cholesteatoma.
- C. Demonstrate proper selection of pharmacologic agents based on unique patient situations.
- D. Demonstrate awareness of and vigilance for signs of impending complications of Chronic Otologic Disease.
- E. List conditions associated with the success and failure of medical treatment of Chronic Otologic Disease.

2. Surgical:

- A. Perform simple tympanoplasty, from start to finish without error, on appropriately identified patient.
- B. Perform appropriate skills related to Chronic Middle Ear and Mastoid disease including removal of Cholesteatoma on anatomical specimens.
- C. Perform canal wall up and canal wall down mastoidectomy, from start to finish without error, on appropriately identified patient.
- D. Demonstrate proper application use and monitoring of intra-operative facial nerve monitor.

2.1.4

Otology - Neurotology

Unit Objectives:

Demonstrate knowledge of anatomy, physiology, and pathophysiology of neurotologic disease pertinent of general otolaryngology.

Demonstrate the ability to manage clinically and surgically patients with neurotologic diseases.

Competency-Based Knowledge Objectives:

1. Clinical:

- A. Outline the clinical evaluation of a patient with suspected neurotologic disease.
- B. Summarize the pathological findings in the focused history and physical examination of a patient with neurotologic disease:
 - 1. Acoustic neuroma.
 - 2. Glomus tumors.
 - 3. Temporal bone malignancy.
- C. Discuss the changes found in audiometric evaluation and interpret results in patients with neurotologic disease.
- D. Demonstrate knowledge of radiographic anatomy of the temporal bone, adjacent skull base structures, and the cerebello-pontine angle using CT and MRI.
- E. Identify pathology of the temporal bone in radiographic studies.
- F. Discuss nonsurgical options to the treatment of patients with neurotologic diseases:
 - 1. Clinical observation.
 - 2. Gamma knife.
 - 3. Chemotherapy.

2. Surgical:

- A. Demonstrate knowledge of surgical anatomy for the temporal bone and anatomical relationships of vital structures of the internal auditory canal, skull base and cochlea.
- B. Summarize the indications and considerations for surgical removal of acoustic neuromas.
- C. Describe the perioperative management of patients undergoing major neurotologic procedures.

- D. Outline the procedural steps in a posterior fossa approach to the internal auditory canal.
- E. Outline the procedural steps in a temporal bone resection.

Competency-Based Performance Objectives:

1. Clinical:

- A. Perform an advanced history and physical exam specific to the neurotologic patient including a focused neurological examination.

2. Surgical:

- A. Perform a transmastoid labyrinthectomy in the temporal bone lab without complications.
- B. Perform a Translabyrinthine and transcochlear approach to the internal auditory canal in the temporal bone lab.
- C. Perform a middle cranial fossa approach to the internal auditory canal in the temporal bone lab.

2.1.5

Otology - Vertigo:

Unit Objectives:

Demonstrate knowledge of anatomy, physiology, and pathophysiology of Otology related to Vertigo.

Demonstrate ability to manage clinically and surgically patients with Vertigo.

Competency-Based Knowledge Objectives:

1. Basic Science:

- A. Identify the anatomy and explain the neurophysiology of the vestibular system.
- B. Describe the pathology and pathophysiology of Vestibular Disorders.
- C. Describe the effect of pharmacologic agents and toxic conditions on vestibular function.

2. Clinical:

- A. Summarize essential components of a focused history and physical examination of Vestibular function.
- B. Discuss components of ENG testing and interpret results of pathologic function.
- C. Describe from memory clinical findings of central vs. peripheral origin of vertigo.
- D. Summarize the natural history of common disorders causing dysfunction of the labyrinth, that include:
 - 1. Benign Positional Vertigo.
 - 2. Labyrinthitis.
 - 3. Vestibular neuronitis.
 - 4. Meniere's syndrome.
 - 5. Vascular loop syndrome.
 - 6. Migraine associated vertigo.
- E. Explain the principles of Vestibular rehabilitation and indications to consider this therapy.
- F. Demonstrate the Canalith repositioning maneuver and appropriate indications for use.
- G. Outline a medical treatment plan for patients with labyrinthitis and vestibular neuronitis.

- H. Summarize current concepts of the pathophysiology of Meniere's syndrome.
- I. Outline the medical treatment options you would recommend for patients diagnosed with Meniere's syndrome.
- J. Describe medical treatment options for patients with migraine-associated vertigo.

3. Surgical:

- A. Describe indications for surgical intervention in vertiginous patients with pathologies other than Meniere's syndrome.
- B. Be able to compare indications and results of destructive and nondestructive surgical treatments for Meniere's syndrome.
- C. Explain peri-surgical management of patients with surgical vestibular disorders.
- D. Summarize the operative and postoperative complications associated with surgical procedures for vestibular disorders.

Competency-Based Performance Objectives:

1. Clinical:

- A. Perform and record a focused history and physical examination of the Vestibular system.
- B. Perform and document a Canalith repositioning maneuver.
- C. Diagnose the etiology of dizziness including vertigo.
- D. Manage a patient with new onset of vertigo.
- E. Evaluate a patient with vestibular disorder for serologic and metabolic etiologies.
- F. Appropriately inform and discuss with a patient the expected outcomes with various treatment options for vestibular disorders.
- G. Identify changes on MRI that would suggest a diagnosis of vascular loop syndrome.

2. Surgical:

- A. Demonstrate ability to describe and perform appropriate skills related to peripheral vertigo through the use of anatomical specimens.
- B. Endolymphatic sac decompression.
- C. Labyrinthectomy that includes:
 - 1. Repair of oval and round window fistula.
 - 2. Vestibular nerve section.
- D. Demonstrate ability to describe and perform appropriate skills related to middle ear infusion of aminoglycosides and steroids using anatomical specimens.

2.1.6

Otology - Facial Nerve:

Unit Objectives:

Demonstrate knowledge of anatomy, physiology, and pathophysiology of neuro-otologic disease pertinent of the facial nerve.

Demonstrate the ability to manage clinically and surgically patients with facial nerve disorders.

Competency-Based Knowledge Objectives:

1. Basic Science:

- A. Identifies the anatomy and explain the physiology of the facial nerve.
- B. Describe pathology, pathophysiology, of facial nerve disorders.
- C. Describe pharmacologic agents, metabolic, and toxic conditions affecting facial nerve function.

2. Clinical:

- A. Summarize essential components of a focused history and physical examination of facial nerve.
- B. Compare modalities that test the electrophysiologic functioning of the facial nerve.
 - 1. EnoG.
 - 2. Max Stim Testing.
 - 3. Min Stim Testing.
- C. Describe from memory House-Brackmann or AAO-HNS Facial Nerve Function grading scale.
- D. Compare classifications of temporal bone fractures and effects related to facial nerve injury.
- E. Compare and contrast signs of benign and malignant neoplasms of the facial nerve.

3. Surgical:

- A. Describe indications for facial nerve decompression.
- B. Be able to compare results to determine surgical vs. medical management of diseased facial nerve.
- C. Explain peri-surgical management of patients with surgical facial nerve disorders.

- D. Demonstrate knowledge of facial nerve reanimation procedures through verbal and/or written examination.

Competency-Based Performance Objectives:

1. Clinical:

- A. Perform and record a focused history and physical examination of the facial nerve.
 - 1. Assess level of weakness using House-Brackmann or AAO-HNS Facial Nerve Function grading scale.
- B. Perform and document a maximal stimulation test of the facial nerve.
- C. Diagnose etiology of facial nerve paralysis.
- D. Manage a patient with acute idiopathic facial nerve paralysis.
- E. Evaluate a patient with facial nerve disorder for serologic and metabolic etiologies.
- F. Appropriately interpret imaging studies of the temporal bone for facial nerve pathology.
- G. Appropriately inform and discuss with patient the probability of favorable outcome with various treatment options for facial nerve disorders.

2. Surgical:

- A. Demonstrate the ability to perform appropriate skills related to facial nerve decompression through the use of anatomical specimens.
- B. Demonstrate the ability to perform appropriate skills related to repair of idiopathic facial nerve injury including grafting.
- C. Demonstrate the ability to perform appropriate skills related to facial nerve monitoring (Nerve Integrity Monitor).
- D. Demonstrate the ability to use appropriate surgical skills related to facial nerve reanimation and perform skills on appropriate anatomical specimen.

2.2

Rhinology

Unit Objectives:

Demonstrate knowledge of anatomy, physiology, and pathophysiology of the Rhinogal Structure.

Demonstrate ability to manage patients both clinically and surgically with Rhinogal diseases and disorders.

2.2.1

General Rhinology

Competency-Based Knowledge Objectives:

1. **Basic Science:**

- A. Describe from memory the anatomy and physiology of the nose, paranasal sinuses and orbits.
- B. Describe from memory the physiology of the nose and paranasal sinuses related to both respiration and olfaction.
- C. Describe the blood supply and innervations of the nose, paranasal sinuses and orbits.
 - 1. Describe the neurophysiologic pathways of olfaction.
 - 2. Describe the embryologic development of the nose and paranasal sinuses.

2. **Clinical:**

- A. List the essential components of a complete focused exam of the nose and paranasal sinuses.
- B. List indications to perform an extended exam of the nose with nasal endoscopes.
- C. Describe signs and symptoms of anterior and posterior epistaxis.
 - 1. Describe the clinical use of pharmacologic agents and their effects on the nasal mucosa that include:
 - a. Decongestants.
 - b. Antihistamines.
 - c. Topical anesthetics.

d. Topical steroids.

D. Describe the nasal cycle and conditions that will cause dysfunction.

E. Discuss the diagnosis and causes of nasal obstruction that includes:

1. Anatomic.
2. Physiologic.
3. Foreign bodies.

F. Outline the microbiology and treatment of local nasal infections including

1. Bacterial infections.
2. Granulomatous.
3. Fungal.

3. Surgical:

A. List the potential complications from use of cautery in the nose and describe the management options for each.

B. Outline treatment for septal perforation.

C. Describe all materials used for anterior and posterior nasal packing that includes:

1. Discussion of the pros and cons for each material.
2. Discussion of prevention and management of complications from anterior and posterior nasal packing.

D. Explain all the steps of septoplasty and submucosal resection in detail.

E. List all potential complications from septal surgery and describe their management.

F. Summarize methods to reduce the inferior turbinates and discuss the advantages of each of the following:

- a. Cautery.
- b. Submucosal resection.
- c. Partial resection.

G. Outline options for repair of nasal valve collapse including the steps of the following procedures:

1. Open approaches.
2. Closed approaches.

- H. Describe the procedures and indications for maxillary artery ligation.
- I. Summarize the procedure septoplasty / dermatoplasty and perioperative management.
- J. Summarize the procedure for excision of rhinophyma.

Competency-Based Performance Objectives:

1. Clinical:

- A. Perform a focused history and physical exam of the nose and paranasal sinuses.
- B. Demonstrate proficiency in the use of nasal endoscopes in the office setting.
- C. Properly assess olfaction by simple and comprehensive methods.
 - 1. Treat a patient with anosmia.

3. Surgical:

- A. Perform simple nasal cautery for control of anterior epistaxis.
- B. Perform both anterior and posterior nasal packing using a variety of packing materials.
- C. Perform septoplasty or submucous resection on 5 live patients without assistance.
- D. Demonstrate proficiency in removing nasal foreign bodies.
- E. Reduce a concha bullosa with endoscopic technique.
- F. Perform turbinate reduction using at least 3 different methods.
- G. Perform maxillary artery ligation by endoscopic and transantral approach on cadaveric specimens.

2.2.2

Inflammatory Rhinology:

Unit Objectives

Demonstrate knowledge of anatomy, physiology, and pathophysiology of Rhinologic Inflammatory disease.

Demonstrate the ability to manage clinically and surgically patients with Rhinologic Inflammatory disorders.

Competency-Based Knowledge Objectives:

1. Basic Science:

- A. Diagram the acute inflammatory response including all biochemical mediators and their effect on the target organs.
- B. Present a review of pharmacological agents used to suppress the acute inflammatory response:
 - 1. Antihistamines.
 - 2. Steroids.
 - 3. Leukotriene inhibitors.
 - 4. Mast cell stabilizers.

2. Clinical:

- A. Describe the causes and pathophysiology of acute Rhinitis:
 - 1. Viral.
 - 2. Bacterial.
 - 3. Invasive fungal.
- B. Describe the causes and pathophysiology of chronic Rhinitis:
 - 1. Allergic.
 - 2. NARES.
 - 3. Hormonal.
 - 4. Vasomotor.
 - 5. Bacterial.
 - 6. Medicine induced.
 - 7. Rhinitis medicamentosa.
 - 8. Rhinitis of pregnancy.

- C. Discuss the precipitating causes and pathophysiology of acute bacterial rhinosinusitis, chronic sinusitis and sinonasal polyposis.
- D. List the micro-organisms responsible for acute bacterial rhinosinusitis and chronic sinusitis with appropriate discussion of antibiotic resistance.
- E. Discuss empiric choice of antibiotics for the treatment of acute bacterial rhinosinusitis and chronic sinusitis.
- F. List medicines used in conjunction with antibiotic therapy in the treatment of acute bacterial rhinosinusitis, chronic sinusitis and sinonasal polyposis.
- G. Discuss the use of CT scanning in the diagnosis of acute bacterial rhinosinusitis, chronic sinusitis and sinonasal polyposis.
- H. Describe the complications of sinusitis including mechanism and treatment options:

1. Local:

- a. Osteomyelitis.
- b. Mucocele.

2. Orbital:

- a. Cellulitis.
- b. Abscess.

1. Reproduce in writing Chandler's classification of orbital complications from sinusitis.

- c. Cavernous sinus thrombosis.

3. Intracranial:

- a. Meningitis.
- b. Subdural abscess.
- c. Brain abscess.

- b. List the infectious organisms and treatment considerations for local nasal infections such as bacterial granulomatous fungal.

1. **Surgical:**

- A. Describe and discuss theory of functional sinus surgery.
- B. List the indications for functional endoscopic sinus surgery.
- C. Discuss the perioperative management of patients undergoing functional endoscopic sinus surgery.
- D. Summarize modifications in endoscopic surgical technique and theory in treating pediatric sinusitis.
- E. Explain the role of adenoidectomy in treatment of pediatric sinusitis.

- F. List indications for external approach to sinus surgery and outline the main steps for each procedure:
 - 1. Caldwell-Luc antrostomy.
 - 2. External ethmoidectomy.
 - 3. Frontal trephine.
 - 4. Osteoplastic flap with or without fat obliteration.
- G. Outline the steps to perform lateral canthotomy and inferior cantholysis in management of orbital complications of sinus surgery.
- H. Describe the principles and components of image guided sinus surgery.
- I. List indications for the use of image guided assistance in sinus surgery.
- J. Summarize principles and risks of endoscopic sinus surgery for treatment of nasal polyps.

Competency-Based Performance Objectives:

1. Clinical:

- A. Perform a focused history and physical exam on patients with acute sinusitis, chronic sinusitis and nasal polyps.
- B. Perform a nasal smear.
- C. Perform postoperative care for 3 patients after endoscopic sinus surgery.
- D. Review 10 CT scans of the paranasal sinuses and correctly diagnose a variety of pathology.

2. Surgical:

- A. Perform bilateral sphenoethmoidectomy on patients with and without image guided assistance.
- B. Perform endoscopic intranasal polypectomy on patient.
- C. Perform Caldwell-Luc antrostomies on patients.

2.2.3

Rhinologic Congenital Disorders:

Unit Objectives:

Demonstrate knowledge of anatomy, physiology, and pathophysiology of Rhinologic Congenital disorders.

Demonstrate the ability to manage clinically and surgically patients with Rhinologic Congenital disorders.

Competency-Based Knowledge Objectives:

1. Basic Science:

- A. Summarize the embryological development of the nose and paranasal sinuses.

2. Clinical:

- A. Describe causes of nasolacrimal duct obstruction in the newborn.
- B. Describe signs and symptoms of unilateral and bilateral choanal atresia.
- C. List congenital anomalies associated with choanal atresia:
 - 1. Charge association.
- D. Describe techniques for diagnosis of choanal atresia:
 - 1. Transnasal catheter.
 - 2. Imaging.
- E. List a differential diagnosis of a congenital nasal mass.
 - 1. Nasal dermoid.
 - 2. Gliomas.
 - 3. Encephaloceles.
 - 4. Cysts:
 - a. Rathke's pouch.
 - b. Globulomaxillary.
 - c. Thornwaldt's.
- F. Describe imaging techniques appropriate for diagnosis of congenital nasal masses and the expected findings for each pathology.

3. Surgical:

- A. Summarize procedures for dacryocystorhinostomy.
- B. Outline the approaches and steps in each procedure for correction of choanal atresia:
 - 1. Transnasal.
 - 2. Transpalatal.
- C. Describe the essential considerations in the surgical excision of congenital nasal masses.

Competency-Based Performance Objectives:

1. Clinical:

- A. Perform a focused history and physical exam on patients with congenital anomalies of the nose.
- B. Review and correctly interpret imaging of patients with congenital nasal anomalies.

2. Surgical:

- A. Pass a transnasal catheter on an infant to diagnose choanal atresia.
- B. Participate in the surgical planning and correction of a patient with choanal atresia.
- C. Participate in the surgical planning and correction of a patient with a congenital nasal mass.

2.2.4

Neoplastic Rhinology:

Unit Objectives:

Demonstrate knowledge of anatomy, physiology, and pathophysiology of Neoplastic Rhinology.

Demonstrate the ability to manage clinically and surgically patients with Neoplastic Rhinology.

Competency-Based Knowledge Objectives:

1. Basic Science:

A. Describe the pathologic characteristics of benign and malignant neoplasms of the nose and paranasal sinuses:

1. Nasal polyps.
2. Papillomas.
3. Inverting Papilloma.
4. Squamous Cell Carcinoma.

2. Clinical:

- A. Summarize the differences in clinical presentation of patients with Papillomas versus nasal polyps.
- B. List the essential steps in the evaluation of a patient with a nasal mass.
- C. Review and describe pathological changes seen on imaging studies of patients with nasal masses.
- D. Describe nonsurgical treatment options for patients with papillomas of the nose and paranasal sinuses.
- E. List factors from a patient's history that are associated with development of malignant nasal and paranasal sinus tumors.
- F. Describe from memory the TNM staging for malignant nasal and paranasal sinus tumors.
- G. Describe nonsurgical treatment options for patients with malignant nasal and paranasal sinus tumors.

3. Surgical:

A. Summarize the essential steps in the following surgical procedures:

1. Medial maxillectomy.
2. Resection of nasal septum.
3. Lateral rhinotomy.

4. Partial and total radical maxillectomy.
 5. Partial and total rhinectomy.
 6. Excision of nasopharyngeal tumors.
- B. List the potential complications of surgical procedures for excision of nasal tumors.
 - C. Describe the perioperative management of patients scheduled for surgical excision of nasal tumors.
 - D. Discuss the surgical approaches for excision of pituitary tumors.

Competency-Based Performance Objectives:

1. Clinical:

- A. Perform a focused history and physical examination of a patient with a nasal mass.
- B. Perform a nasal endoscopic examination of a patient with a nasal mass under topical anesthesia.

2. Surgical:

- A. Perform a biopsy of a nasal mass using endoscopic or anterior rhinoscopy.
- B. Perform a medial maxillectomy with assistance.
- C. Perform a lateral rhinotomy with assistance.
- D. Assist with planning and performance of a maxillectomy.

2.2.5

Rhinological Trauma:

Unit Objectives:

Demonstrate knowledge of anatomy, physiology, and pathophysiology of a patient with Rhinological Trauma.

Demonstrate the ability to manage clinically and surgically patients with Rhinological Trauma.

Competency-Based Knowledge Objectives:

1. Clinical:

- A. Describe the appropriate evaluation of a patient after trauma to the nose.
- B. Describe the use of plain film and CT imaging in the evaluation of patients with facial trauma including:
 - 1. Nasal fractures.
 - 2. Nasoethmoidal complex fractures.
 - 3. Frontal sinus fractures.
 - 4. Maxillary sinus fractures.
 - 5. Fractures of the anterior skull base.
- C. Summarize techniques used to identify CSF rhinorrhea.

2. Surgical:

- A. Explain the management of septal hematoma, including the procedure for drainage.
- B. Summarize the essential steps in the surgical repair of the following nasal and paranasal sinus fractures.
 - 1 Reduction of nasal bone fractures - open and closed technique.
 - 2 Nasoethmoidal complex fractures.
 - 3 Frontal sinus fractures – anterior and posterior wall.
 - 4 Maxillary sinus fractures.
 - 5 Fractures of the anterior skull base.
- D. Describe the perioperative management of patients scheduled for surgical repair of nasal and paranasal sinus fractures.
- E. Describe surgical options for the management of CSF rhinorrhea after nasal trauma.

Competency-Based Performance Objectives:

1. **Clinical:**

- A. Perform a focused history and physical examination on a patient with nasal and paranasal sinus trauma.
- B. Correctly identify a variety of nasal and paranasal sinus fractures on plain films or CT scans.

2. **Surgical:**

- A. Perform the closed reduction of a nasal fracture on an appropriately selected patient.
- B. Assist in the planning and surgical repair of the following nasal and paranasal sinus fractures.
 - 1. Open reduction of nasal bone fractures.
 - 2. Nasoethmoidal complex fractures.
 - 3. Frontal sinus fractures – anterior wall.
 - 4. Maxillary sinus fractures.

2.3

Laryngology

Unit Objectives:

Demonstrate knowledge of anatomy, physiology, and pathophysiology of the larynx in relation to laryngeal disorders and diseases.

Demonstrate ability to manage clinically and surgically patients who exhibit laryngeal disorders and diseases.

2.3.1

Laryngology – Voice

Unit Objectives:

Demonstrate knowledge of anatomy, physiology, and pathophysiology of the larynx in relation to voice disorders and diseases.

Demonstrate ability to manage clinically and surgically patients who exhibit appropriate voice disorders and diseases.

Competency-Based Knowledge Objectives:

1. Basic Science:

- A. Describe the measurements of sound, pitch and intensity, especially as it relates to voice.
- B. Describe the anatomy of the larynx including the following:
 - 1. Laryngeal cartilages.
 - 2. Intrinsic muscles.
 - 3. Extrinsic muscles.
 - 4. Ligaments.
 - 5. Nerve supply.
 - 6. Blood supply.

2. Clinical:

- A. Discuss the essential anatomic components in the production of voice.

- B. List important milestones in the development of speech.
- C. Describe the etiologies of hoarseness that include:
 - 1. Inflammatory.
 - 2. Mass lesions.
 - 3. Stiffness disorders.
- D. Outline treatment options for patients with hoarseness.
- E. Describe symptoms and signs of laryngotracheal reflux.
- F. Describe methods to definitively diagnose reflux disease in adults.
- G. Outline a progressive approach to the medical treatment of reflux disease affecting the larynx.
- H. Explain the effects of damage to the recurrent laryngeal nerve and the superior laryngeal nerve on the clinical position and function of the vocal cords.
- I. Outline the evaluation of a patient with unilateral vocal cord paralysis.

3. **Surgical:**

- A. Summarize the essential steps in performing a thyroplasty for unilateral vocal cord paralysis.
- B. List the perioperative and long-term complications of thyroplasty for vocal cord paralysis.

Competency-Based Performance Objectives:

1. **Clinical:**

- A. Perform a focused history and physical exam on a patient with hoarseness.
- B. Demonstrate expertise in examination of the larynx using a laryngeal mirror.
- C. Perform a direct nasopharyngoscopy using topical anesthesia in an office setting.

2. **Surgical:**

- A. Perform a thyroplasty for unilateral vocal cord paralysis with the assistance of an attending physician.

2.3.2

Congenital Laryngology

Unit Objectives:

Demonstrate knowledge of anatomy, physiology, and pathophysiology of the larynx in relation to congenital disorders and diseases.

Demonstrate ability to manage clinically and surgically patients who exhibit appropriate congenital laryngeal disorders and diseases.

Competency-Based Knowledge Objectives:

1. Basic Science:

- A. Summarize the embryologic development of the larynx, including anatomy and physiology, in writing.
- B. Demonstrate an understanding of the common congenital laryngeal diseases and disorders.

2. Clinical:

- A. Discuss the presenting symptoms of patients with congenital lesions in the larynx including:
 - 1. Atresia.
 - 2. Web.
 - 3. Laryngomalacia.
 - 4. Subglottic hemangiomas.
 - 5. Vocal cord paralysis.
 - 6. Subglottic stenosis.
- B. Recite from memory, the classification of laryngeal atresias.
- C. Describe the appropriate evaluation of a neonate with symptoms of laryngeal atresia.
- D. Describe the epidemiology and etiology of laryngomalacia.
- E. Outline the natural history of subglottic hemangiomas.
- F. Describe the medical and surgical treatment options in a neonate with a symptomatic subglottic hemangioma that include:
 - 1. Steroids.
 - 2. Laser.
 - 3. Tracheostomy.

G. Summarize the etiology of subglottic stenosis in the neonate.

1. Congenital.
2. Acquired.

3. Surgical:

- A. Describe the surgical treatment options and procedural details for patients with laryngeal webs.
- B. Summarize the surgical options and procedural details for treatment of laryngomalacia, that include:
 1. Supraglottoplasty.
 2. Tracheostomy.
- B. Be able to discuss the unique challenges that are associated with tracheostomy on a neonate with upper airway obstruction.
- C. Summarize the essential steps in laryngotracheal reconstruction procedure.
- D. Summarize the essential steps in an Anterior cricoid split procedure.
- E. Describe the operative and postoperative complications of open laryngeal surgery for a neonate.

Competency-Based Performance Objectives:

1. Clinical:

- A. Perform a focused history and physical examination on a neonate with presenting symptoms of inspiratory or biphasic stridor.
- B. Assist in the perioperative management of a neonate scheduled for open laryngeal surgery.
- C. Perform the postoperative care and patient education associated with pediatric tracheostomy.

2. Surgical:

- A. Perform laryngoscopy and bronchoscopy in the operating room setting to evaluate laryngeal pathology in a neonate.

2.3.3

Neoplastic Laryngology

Unit Objectives:

Demonstrate knowledge of anatomy, physiology, and pathophysiology of the larynx in relation to neoplastic repair.

Demonstrate ability to manage clinically and surgically patients who are in need and have undergone neoplastic laryngeal procedures.

Competency-Based Knowledge Objectives:

1. Basic Science:

- A. Demonstrate an understanding of the basic anatomical and physiological structures of the larynx.
- B. Demonstrate an understanding of the common laryngeal diseases and procedures that would require neoplastic intervention.

2. Clinical:

- A. Summarize the presenting symptoms and evaluation of patients with benign lesions of the larynx.
 - 1. Nodules.
 - 2. Polyps.
 - 3. Papilloma.
 - 4. Granulomas.
 - 5. Saccular cysts.
 - 6. Laryngocele.
- B. Describe the pathologic changes noted on CT imaging in patients with saccular cysts and laryngoceles.
- C. Describe the differences in presentation and treatment for internal and external laryngocele.
- D. List adjuvant treatment options such as interferon for patients with laryngeal papillomas.
- E. Outline the role of speech therapy and indications for referral after endoscopic removal of laryngeal lesions.
- F. Describe the epidemiologic factors related to malignancies of the larynx.
- G. Summarize the pathology of common malignancies of the larynx including common routes of spread including:
 - 1. Squamous cell.
 - 2. Verrucous squamous cell.

- 3. Fibrosarcoma.
- 4. Lymphoma.

- H. Describe the evaluation, including imaging, of patients with suspected malignant laryngeal lesions.
- I. Write from memory the TNM staging classification of carcinomas of the larynx based on anatomical sites.
- J. Outline a standard evaluation for metastatic, metachronous and synchronis lesions in a patient diagnosed with laryngeal malignancy.
- K. Summarize medical treatment options for laryngeal malignancies including chemotherapy and radiation therapy.
- L. Outline options for voice rehabilitation after total laryngectomy.

3. Surgical:

- A. Discuss the perioperative management including the operative and postoperative complications of patients scheduled for laryngoscopy and endoscopic excision of laryngeal lesions.
- B. Outline the essential steps to endoscopically remove benign lesions of the larynx with and without the use of laser.
- C. Outline the essential steps in the surgical excision of a laryngocele.
- D. Summarize considerations in choosing partial versus total laryngectomy in the treatment of laryngeal malignancies.
- E. Outline the essential steps in performing a total laryngectomy.
- F. Outline the essential steps in performing a partial laryngectomy.
- G. Discuss the perioperative management including the operative and postoperative complications of patients scheduled for partial and total laryngectomy.

Competency-Based Performance Objectives:

1. Clinical:

- A. Perform a focused history and physical examination of a patient with benign and malignant laryngeal lesions of the larynx.
- B. Demonstrate proficiency in the use of a laryngeal mirror for examination of the larynx.
- C. Correctly evaluate multiple patients using a nasopharyngoscope.
- D. Demonstrate the ability to manage the postoperative care of a patient after laryngeal surgery.

2. Surgical:

- A. Perform a direct micro laryngoscopy for both diagnosis and excision of laryngeal lesions.
- B. Assist in the planning and surgery of a patient scheduled for total laryngectomy.
- C. Assist in the planning and surgery of a patient scheduled for partial laryngectomy.
- D. Perform a tracheoesophageal puncture for voice restoration after laryngectomy.

2.3.4

Laryngeal - Trauma

Unit Objectives:

Demonstrate knowledge of anatomy, physiology and pathophysiology of laryngeal trauma.

Demonstrate ability to manage clinically and surgically patients with laryngeal trauma.

Competency-Based Knowledge Objectives:

1. Basic Science:

2. Clinical:

- A. Describe common mechanisms of injury to the larynx in blunt and high-speed motor vehicle trauma.
- B. Summarize options for management of the airway in patients who have sustained blunt or penetrating trauma to the larynx.
- C. Describe diagnostic techniques, including endoscopy and imaging, in patients subjected to laryngeal trauma.
- D. List the anticipated pathologic findings during endoscopic examination of the larynx after blunt trauma and explain their significance.
- E. Outline a medical treatment plan for a patient with nonsurgical trauma to the larynx.
- F. List signs and presenting symptoms of children and adults with airway foreign bodies.
- G. Describe imaging techniques appropriate for diagnosing foreign body in the airway.

3. Surgical:

- A. List the indications for surgical exploration of the larynx after trauma.
- B. Summarize the principles of surgical exploration of the larynx after trauma.
- C. Describe the indications and techniques for stenting of the larynx after surgical repair of traumatic injuries.

- D. Describe advantages of rigid and flexible bronchoscopy in the treatment of airway foreign bodies.
- E. Summarize strategies for removing sharp foreign bodies, such as a safety pin, from the airway.

Competency-Based Performance Objectives:

1. Clinical:

- A. Perform a focused history and physical exam on a real or simulated patient with potential laryngeal trauma.**

2. Surgical:

- A. Perform 5 tracheostomies in appropriately selected patients.**

2.4

Head and Neck Surgery

Unit Objectives:

Demonstrate knowledge of anatomy, physiology, and pathophysiology of the Head and Neck.

Demonstrate ability to manage patients clinically and surgically with Head and Neck diseases and disorders. This should include; congenital disorders, neoplastic disorders, malignancies, inflammatory diseases and trauma.

2.4.1

Head and Neck - Benign Neoplasms

Competency-Based Knowledge Objectives:

1. Basic Science:

- A. Discuss the histology of the salivary glands.
- B. Discuss the histology of the thyroid gland.

2. Clinical:

- A. Describe the natural history of the following benign neck masses.

1. Soft Tissues:

- a. Lipoma.
- b. Epidermal cysts.
- c. Benign skin tumors.
- d. Keloids.

2. Salivary glands:

- a. Pleomorphic adenoma.
- b. Adenolymphoma (Warthins tumor).
- c. Oncocytoma.

3. Thyroid Gland:

a. Adenoma.

4. Glomus Tumors:

- a. Glomus Vagaliae.
- b. Carotid body tumors.

5. Osseous

- a. Odontogenic Cysts.
- b. Ameloblastoma.
- c. Odontoma.
- d. Mandibular Osteoma.
- e. Exostoses.
- f. Fibrous Dysplasia.

- B. Describe the abnormal history and physical findings for each of the benign neck masses.
- C. Summarize the evaluation, including imaging studies, needed to diagnose a benign neck mass.
- D. Discuss the medical treatment options for each benign neck mass.
- E. List and describe benign neck masses that have potential for malignant transformation.

3. **Surgical:**

- A. Describe and diagram various skin rotation flaps used in closure of defects after excision of skin tumors.
- B. Summarize the essential steps of a thyroidectomy procedure.
- C. Describe important landmarks for identifying the recurrent laryngeal nerve during thyroidectomy.
- D. Outline the procedure for autotransplantation of parathyroid tissue.
- E. Summarize the essential steps in the surgical treatment of various glomus tumors.
- F. Summarize the essential steps in the surgical treatment of various benign osseous masses.
- G. Describe important landmarks for identifying the facial nerve during parotidectomy.
- H. Discuss the intraoperative and postoperative complications for the following procedures including their management.

- 1. Superficial Parotidectomy.
- 2. Thyroidectomy.
- 3. Excision of carotid body tumor.
- 4. Excision of Odontogenic cyst.

Competency-Based Performance Objectives:

1. Clinical:

- A. Perform a history and physical exam on multiple patients with neck masses of various etiologies.
- B. Demonstrate ability to identify pathologic changes on imaging studies for neck masses.

2. Surgical:

- A. Demonstrate proficiency at biopsy of skin lesions using a variety of techniques.
- B. Perform excision of skin lesions of the head and neck requiring closure by multiple techniques including rotational flaps.
- C. Perform an excision of the Submandibular gland.
- D. Perform a superficial Parotidectomy.
- E. Perform a total Thyroidectomy.

2.4.2

Head and Neck - Malignant Neoplasms

Competency-Based Knowledge Objectives:

1. Clinical:

- A. Describe the epidemiology and natural history of the following malignant tumors arising in the head and neck.
 - 1. Squamous cell carcinoma.
 - 2. Lymphoma.
 - 3. Mucoepidermoid carcinoma.
 - 4. Adenoid cystic carcinoma.
 - 5. Adenocarcinoma.
 - 6. Malignant mixed cell carcinoma.
 - 7. Papillary thyroid carcinoma.
 - 8. Follicular thyroid carcinoma.
 - 9. Hurthle cell thyroid carcinoma.
 - 10. Medullary thyroid carcinoma.
 - 11. Anaplastic Carcinoma.
- B. Summarize in writing the staging of malignancies of the head and neck by site of origin.
- C. Describe from memory the staging of the neck in cancers originating from the head and neck.
- D. Describe the common routes of spread and appropriate metastatic evaluation for each malignant neoplasm in the head and neck.
- E. Summarize the common chemotherapeutic agents and basic principals of their use in treating head and neck malignancies.
- F. Summarize the basic principles of radiation therapy in treating head and neck malignancies.
- G. Summarize the use of radioiodine ablation in the treatment of thyroid malignancies.
- H. Outline the treatment options for nasopharyngeal carcinoma.

2. Surgical:

- A. Discuss the advantages and disadvantages of fine needle aspiration in evaluation of neck masses.
- B. Outline the essential steps in performing a deep lobe Parotidectomy.
- C. List the indications for segmental resection of the facial nerve during Parotidectomy.
- D. Outline the intraoperative and postoperative complications of Parotidectomy.

- E. Outline techniques for repairing the facial nerve after resecting a segment of nerve.
- F. Outline the essential steps in performing a Thyroidectomy.
- G. Outline the intraoperative and postoperative complications of Thyroidectomy.
- H. Outline the essential steps in performing a partial pharyngectomy in treatment of head and neck malignancies.
- I. Outline the intraoperative and postoperative complications of pharyngectomy.
- J. Outline the essential steps in performing a partial glossectomy in treatment of head and neck malignancies.
- K. Outline the intraoperative and postoperative complications of partial glossectomy.
- L. Discuss indications for speech therapy evaluation after partial pharyngectomy and partial glossectomy.
- M. Summarize indications to perform a neck dissection as part of treatment for head and neck malignancies.
- N. Describe the classification of neck dissections and describe the differences.
- O. Outline the intraoperative and postoperative complications of neck dissection.
- P. Summarize the management options in the nutritional therapy of a patient after a major head and neck resection.

Competency-Based Performance Objectives:

1. Clinical:

- A. Perform a focused history and physical exam on patients being evaluated for head and neck malignancies.
- B. Demonstrate proficiency in managing the pre and postoperative care of patients treated surgically for major head and neck malignancies.
- C. Perform the nutritional management of a patient after head and neck resection.
- D. Correctly manage the thyroid hormone replacement of a patient after Thyroidectomy.

2. Surgical:

- A. Demonstrate ability to correctly perform a direct micro laryngoscopy for the diagnosis and treatment planning of a patient with a head and neck malignancy.
- B. Demonstrate ability to correctly perform a bronchoscopy for the diagnosis and treatment planning of a patient with a head and neck malignancy.

- C. Demonstrate ability to correctly perform an esophogoscopy for the diagnosis and treatment planning of a patient with a head and neck malignancy.
- D. Demonstrate ability to correctly perform both radical and conservative neck dissections in patients with a head and neck malignancy.
- E. Assist in the planning and surgery of a patient scheduled for Parotidectomy.
- F. Assist in the planning and surgery of a patient scheduled for Thyroidectomy.
- G. Assist in the planning and surgery of a patient scheduled for partial pharyngectomy.
- H. Assist in the planning and surgery of a patient scheduled for partial glossectomy.

2.4.3

Head and Neck - Congenital

Competency-Based Knowledge Objectives:

1. Basic Science:

- A. Describe the embryology of the neck including all structures associated with branchial clefts, pouches and the thyroid gland.

2. Clinical:

- A. Describe the natural history of the following congenital neck masses:
 - 1. Thyroglossal duct cysts.
 - 2. Branchial cleft anomalies.
 - 3. Ranula.
 - 4. Congenital torticollis.
 - 5. Thymoma.
 - 6. Cystic Hygroma.
 - 7. Dermoid Cysts.
 - 8. Teratoma.
- C. List the expected history and physical findings associated with congenital neck masses.
- D. Summarize the evaluation of congenital neck masses including appropriate imaging studies.
- E. Discuss the medical management of congenital masses that arise in the neck.

3. Surgical:

- A. List indications for surgical interventions for congenital neck masses.
- B. Discuss the potential for intraoperative and postoperative complications from surgical excision of congenital neck masses.
- C. Diagram the anatomic course of all types of branchial cleft fistulas.
- D. Outline the essential steps in surgical excision of branchial cleft anomalies.
- E. Describe the Sistrunk procedure.
- F. Summarize the essential steps in surgical excision of a Cystic Hygroma.
- G. Describe the different type of ranulas.
- H. Summarize the essential steps in the surgical excision of a Ranula.

Competency-Based Performance Objectives:

1. Clinical:

- A. Perform a focused history and physical exam on a patient with a congenital neck mass.
- B. Demonstrate the ability to manage the postoperative care of patients after removal of a congenital neck mass.

2. Surgical:

- A. Perform an excision of a branchial cleft cyst.
- B. Perform a Sis-trunk procedure.

2.4.4

HEAD AND NECK: INFLAMMATORY DISEASE

Competency – Based Knowledge Objectives:

1. Basic Science:

A. Describe the anatomic location of the following fasciae

1. Superficial fascia.
2. Superficial layer deep fascia (SLDF).
3. Middle layer deep fascia (MLDF).
4. Deep layer deep fascia (DLDF).
5. Alar fascia (AF).
6. Prevertebral fascia (PF).
7. Buccal pharyngeal fascia (BF).

B. Describe the anatomic boundaries for the following spaces.

1. Superficial space (space no. 1 of Grodinsky and Holyoke).
2. Parapharyngeal spaces: retropharyngeal, lateral pharyngeal, and sublingual spaces.
3. Anterior visceral (pretracheal or prevascular) space.
4. Posterior visceral retropharyngeal, retrovascular, or retroesophageal (space) [posterior part of space no. 3 of Grodinsky and Holyoke].
5. Danger space (space no. 4 of Grodinsky and Holyoke).
6. Prevertebral space (space no. 5 of Grodinsky and Holyoke).
7. Visceral vascular space.

2. Clinical:

A. Summarize the course of unopposed infection in the following stages.

1. Cellulitis stage.
2. Abscess stage.

B. Outline the principles of inflammatory response associated with chronic inflammatory disease.

C. Describe the progression of acute infection involving the following structures:

1. Palatine tonsil, peritonsillar abscess.
2. Major salivary gland/ducts.
 - a. Viral.
 - b. Bacterial.
 - c. Sialolithiasis.
3. Epiglottitis.
4. Skin/subcutaneous glands.

- E. Describe the clinical symptoms and pathophysiology of acute bacterial infection involving each of the neck spaces.
- F. Describe clinical diseases caused by granulomas of the following structures:
 - 1. Lymph nodes / lymphatic structures of the neck.
 - 2. Larynx.
- G. Summarize the clinical symptoms and pathophysiology of Ludwig's angina.
- H. Summarize the clinical symptoms and pathophysiology of Sjogren's disease.
- I. Describe the diagnoses related to laryngopharyngeal reflux in the head and neck.
- J. Describe decision – making and choices in selecting antibiotics for bacterial infections involving:
 - 1. Skin.
 - 2. Major salivary glands.
 - 3. Tonsil.
 - 4. Peritonsillar abscess.
 - 5. Neck space abscess.
 - 6. Supraglottitis (epiglottitis).

3. Surgical:

- A. Outline the decision process leading to Incision and Drainage of the below.
 - 1. Neck space.
 - 2. Parotid gland.
 - 3. Ludwig's angina.
- B. List the indications for tonsillectomy.
- C. List the indications for major salivary gland resection.
- D. List the indications for supraglottitis intervention including intubation and tracheotomy.
- E. List indications for Ludwig's angina intervention including intubation and tracheotomy and dental extraction.

Competency – Based Performance Objectives:

1. Clinical:

- A. Participate in the diagnosis and management of cellulites or abscess of the following structures.

1. Skin.
2. Neck spaces.
3. Major salivary glands.
4. Tonsils.
5. Paratonsillar cellulitis/abscess.
6. Supraglottitis.
7. Ludwig's angina

B. Participate in the diagnosis and management of chronic inflammatory / granuloma's disease of the head and neck.

C. Demonstrate ability to manage laryngopharyngeal reflux – related disease.

2. Surgical:

A. Demonstrate ability to perform Incision and Drainage of the following.

1. Skin – related abscess.
2. Neck space abscess.
3. Parotid abscess – malignant external otitis.

B. Assist in performing a dental extraction.

2.4.5

HEAD AND NECK: TRAUMA – ADULT AND PEDIATRIC

Competency – Based Knowledge Objectives:

1. Basic Science:

- A. Describe anatomic features and components of the facial bones, mandible, cervical spine, larynx and esophagus.
- B. Describe the neural / vascular supply of the facial bones, mandible, cervical spine, larynx and esophagus.

2. Clinical:

- A. Outline the of the spinal injured patient
 - 1. Describe the “ABC” Approach to the trauma patient.
 - 2. List and discuss the indications for radiologic procedures and studies of the trauma patient.
 - 3. Outline the management of the trauma patient with C-spine injury including techniques for stabilization.
- B. Outline the principles of airway management in the trauma patient.
 - 1. Discuss techniques and procedures for evaluating the airway.
 - 2. Outline all the available techniques to procure an airway in a trauma patient
- C. Summarize the management of penetration neck wounds.
 - 1. Describe the factors of significance in deciding whether surgical exploration is elective or required in a trauma patient with a penetrating neck wound.
 - 2. Describe the physiologic difference between high velocity and low velocity projectile injury to the neck.
- D. Outline the principles in management of a trauma patient with vascular injuries to the neck.
 - 1. Describe the significance of vascular injuries related to mortality.
 - 2. Describe the anatomy and associated consideration for exploration in Zones I, II and III.
- E. Outline the principle in management of Orbital injuries
 - 3. Describe the evaluation of the orbit and periorbital tissues.
 - 4. Describe the evaluation of the lacrimal duct.
 - 5. Describe the indications and technique for testing visual acuity.
- F. Summarize the management of Orbital Blowout fractures.
 - 1. List the categorization of orbital blowout fractures.
 - 2. Describe the preoperative functional evaluation of patients with blowout fractures.
- G. Summarize the management of panfacial fractures

1. List the three zones of the face.
 2. Describe the LeForte classification system for maxillary fractures.
 3. Outline special considerations in airway management in patients with panfacial trauma.
 4. List expected physical exam findings of patients with various LeForte fractures.
- H. Outline the principles in the management of patients with mandibular fractures.
1. List areas of weakness in the normal mandible anatomy.
 2. Discuss factors effecting the direction of fracture lines in mandibular trauma.
 3. Describe favorable and unfavorable fractures of the mandible.
 4. Describe the physical exam and the expected findings of patients with a traumatized mandible.
 5. List the possible post operative complications associated with mandibular fractures.

3. **Surgical:**

- A. Outline the principles of airway management in the trauma patient.
1. Describe the available techniques for achieving orotracheal intubation.
 2. Describe the technique for insertion of an esophageal obturator airway.
 3. List the essential steps in performing the following surgical airway techniques.
 - a. Trans-tracheal ventilation
 - b. Cricothyrotomy
 - c. Emergency Tracheotomy
- B. Summarize the surgical techniques for exploration of the neck in patients with penetrating neck wounds.
- C. Outline techniques and surgical approaches to each of the three vascular zones of the neck
- D. Outline the principles in the surgical management of Orbital injuries.
1. Describe the key points in the repair of upper and lower lid injuries.
 2. Describe the key points in the repair of the medial canthal ligament.
 3. Describe the key points in repair of the injured lacrimal duct.
 4. Describe the key points in the surgical repair of orbital floor fractures.
- E. Summarize the surgical management of laryngeal fractures.
1. Outline the essential steps of surgical exploration and repair of laryngeal fractures.
 2. Outline the essential steps of surgical management of esophageal injuries associated with laryngeal fractures.
- F. Discuss the surgical management of panfacial fractures.
1. Describe the priority for fixation of intraoral and extraoral fractures.
 2. Outline the essential steps in repair of LeForte I, II and III fractures

- H. Outline the principles in the surgical management of patients with mandibular fractures.
 - 1. List the essential steps in the closed reduction of a mandibular fracture.
 - 2. List the essential steps in the open reduction of mandibular fractures using wire, plates and lag screws.
 - 3. Describe techniques for fixation of a mandibular fracture by both internal and external approaches.

Competency – Based Performance Objectives:

1. Clinical:

- A. Perform a focused history and physical examination on multiple trauma patients including the following.
 - 1. Orbital fractures
 - 2. Laryngeal fractures
 - 3. mandibular fractures
 - 4. panfacial fractures
 - 5. evaluation of the airway
 - 6. penetrating neck wounds
- B. Correctly identify head and neck trauma on radiographic studies.
- C. Identify and discuss the common causes and treatments of potential intraoperative and postoperative complications in the trauma patient.
- D. Correctly manage the postoperative course of a trauma patient.

2. Surgical:

- A. Perform orotracheal intubation for an elective surgery or if possible for a traumatized patient
- B. Participate in the planning and surgery of patients with the following traumas.
 - 1. Penetrating neck wounds.
 - 2. Vascular injuries of the neck.
 - 3. Laryngeal fracture.
 - 4. Periorbital injuries.
 - 5. Lacrimal duct injuries.
 - 6. Orbital blow out fractures.
 - 7. Patients with multiple facial fractures.
 - 8. Trimalar fractures.
 - 9. Mandibular fractures.

2.4.6

HEAD AND NECK : ESOPHAGEAL DISORDERS

Competency-Based Knowledge Objectives:

1. Basic Science:

- A. Diagram the embryologic development of the esophagus.
- B. Outlining the anatomy and neural / vascular supply of the esophagus.

2. Clinical:

- A. Describe the four phases of swallowing.
- B. Describe the anatomy and physiology of the esophageal sphincters.
- C. Describe the pathophysiology and medical treatment options for each of the following esophageal disorders.
 - 1. GERD.
 - 2. Laryngopharyngeal Reflux.
 - 3. Crycopharyngeal dysfunction.
 - 4. Diverticular disease
 - 5. Esophageal webs and rings.
 - 6. Diffuse esophageal spasm.
 - 7. Esophagitis.
 - 8. Achalasia.
 - 9. Scleroderma.
- D. Summarize the treatment options of benign and malignant tumors of the esophagus.
- E. Outline the indications, technique and likely results of diagnostic studies used for esophageal disorders.
 - 1. Rigid and Flexible eirect esophagosgcopy
 - 2. Barium esophagram
 - 3. Modified barium esophagoscopy
 - 4. CT Scan

2. Surgical:

- A. Describe techniques gor obtaining biopsies of the esophagus using rigid and flexible esophagoscopes.
- B. Outline techniques used to control hemorrhage resulting from esophageal biopsy.
- C. Summarize the procedure for removal of esophageal tumors benign and malignant.
- D. Summarize options for reconstruction of esophageal defects after resection of tumors.

Competency-Based Performance Objectives:

1. Clinical:

- A. Perform a focused history and physical exam identifying key points significant for the diagnosis of esophageal disorders.
- B. Correctly review and interpret diagnostic studies of the esophagus.
- C. Review histiologic exam and correctly identify esophageal tumors.

2. Surgical:

- A. Demonstrate ability to perform rigid and flexible esophagoscopy
- B. Demonstrate ability to perform biopsy of esophageal lesions.
- C. Participate in the planning and surgery of a patient with an esophageal tumor.

2.5

Facial Plastic and Reconstructive Surgery:

2.5.1

Facial Plastic and Reconstructive Surgery - General

Unit Objectives:

Demonstrate an understanding of the nature and principles of correction and reconstruction of congenital and acquired defects of the face, head, and neck.

Demonstrate the ability to manage the treatment of acute, chronic, and neoplastic defects not requiring complex reconstruction.

Competency-Based Knowledge and Objectives:

1. Basic Science:

- A. Discuss and compare skin and connective tissue according to:
 - 1. Anatomy.
 - 2. Normal Physiology and Biochemistry.
 - 3. Pathophysiology of benign and malignant skin disorders.
 - 4. Unique pathophysiology of connective tissue disorders.
- B. Categorize the pathophysiology of thermal, chemical, and electrical burns, including the consideration of:
 - 1. Systemic pathophysiology.
 - 2. Local pathophysiology.
 - 3. Cardiac depression.
 - 4. Pulmonary compromise.
- C. Summarize the pathologic features of a patient with congenital or acquired deformity.

2. Clinical:

- A. Outline the components of a comprehensive focused history and physical examination pertinent to the evaluation and correction of congenital or acquired defects under the realm of facial plastic and reconstructive surgery.

- B. Explain the basic technique for surgical repair of superficial incisions and lacerations of the face, head, and neck to include the following considerations:
1. Skin.
 2. Subcutaneous tissue.
 3. Superficial muscle and fascia.
 4. Dressings.
 5. Suturing and knot tying.
 6. Scarring.
- C. Summarize the evaluation of patients with skin cancers and develop a treatment plan according to the following criteria:
1. Location of the lesion.
 2. Size of the primary lesion.
 3. Presence of metastatic disease.
- D. Outline appropriate diagnostic studies needed to supplement the physical examination when developing a treatment plan for:
1. Facial fractures.
 2. Congenital structural anomalies of the head and neck.
- E. Summarize the pathologic features in the focused history and physical examination of a patient with congenital or acquired deformity in the following categories:
1. Normal anatomy.
 2. Common congenital anomalies.
 3. Evolution of neoplastic disease.
- F. Explain the assessment of facial skeletal trauma according to the following systems:
1. LeFort I, II, and III classification of maxillary fractures.
 2. Nasoethmoidal disruption classification.
 3. Zygomatic, orbit, orbital blowout fractures and mandibular fractures.
 4. Disruption classification.
- G. Describe the “classical” chemical agents causing burns; list their antidotes.
- H. Define the tumor, node, and metastases (TNM) classification system as used for neoplasms of skin, soft tissue, and head and neck.

- I. Discuss the epidemiology, risk factors, treatment, and prevention of cutaneous malignancies in the patient, including:
 1. Skin cancer rates (basal cell carcinoma [BCC], squamous cell carcinoma[scc]).
 2. Average age of onset for BCC/SCC.
 3. Etiology of BCC/SCC.
 4. Usual modes of treatment for BCC/SCC (Mohs Technique, radiation, chemotherapy).
 5. Prevention using medications (isotretinoin, beta-carotene).
- J. Summarize the evaluation of patients with head and neck cancer, and develop a treatment plan according to the following criteria:
 2. Location of the lesion.
 3. Size of the primary lesion.
 4. Presence of metastatic disease.
- K. Discuss the reconstructive ladder (including skin grafts, local flaps, and regional and free microvascular flaps) in the definitive management of traumatic or excised wounds.
- L. Assess burns in regards to extent and severity
- M. Describe considerations of fluid management of severely burned patient.
- N. Demonstrate knowledge of relaxed skin tension lines of the face and neck by diagramming incisional cuts to various facial lines.

3. **Surgical:**

- A. Describe the physiology of various techniques of skin and composite tissue transplantation with particular regard to component tissue circulation:
 1. Skin grafts (split vs. full thickness).
 2. Bone (cartilage grafts).
 3. Composite grafts.
 4. Skin flaps.
 5. Muscle flaps.
 6. Myocutaneous flaps.
 7. Bone flaps.
 8. Random-Pattern Flaps.
 9. Axial-Pattern flaps.
 10. Vascularized versus nonvascularized flaps.
 11. Neurocutaneous flaps.
- B. Summarize the available options of implants to reconstruct the orbital floor.
- C. Summarize the available options of implants for facial augmentation.

D. Demonstrate knowledge of various implant and plating techniques with respect that includes:

1. Size.
2. Material makeup.

E. Discuss the surgical treatment of:

1. Common injuries and tumors.
2. Surgical repair of facial trauma, soft tissue, and bony defects.
3. Resection and reconstruction of the simple, soft tissue defects following resection of neoplasms of the head and neck.
4. Resection of skin and soft tissue neoplasms requiring complex reconstruction.
5. Reconstruction of congenital craniofacial defects.

F. Explain treatment options for the comprehensive care of the patient with burns of the head and neck, including:

1. Excision of burn.
2. Homografting.
3. Xenografting.
4. Autografting.
5. Tissue engineering and prefabrication.

G. Summarize currently accepted surgical techniques for treating the following:

6. Correction of congenital lesions of the head/neck.
7. Craniofacial anomalies, including cleft lip and palate.
8. Reconstruction and ablative head and neck surgery.
9. Aesthetic rejuvenation of the face.

H. Explain the methods for performing incisional and excisional biopsies of the oral cavity.

I. Describe the physiology of local and general anesthetics in these categories:

1. Narcotics.
2. Sedatives.
3. Analgesics.

Competency-Based Performance Objectives:

1. Clinical:

- A. Complete a comprehensive physical examination and clinical data history, including pertinent diagnostic laboratory and radiographic findings.
- B. Evaluate and treat simple and intermediate abrasions and burns of the face.
- C. Provide treatment plans for superficial incised and lacerated wounds of the head and neck.
- D. Summarize functions affecting wound healing in repair of simple lacerations or surgical wounds.
- E. Participate in the perioperative evaluation and management of congenital or acquired defects.
- F. Apply and remove dressings of the head and neck, including:
 - 1. Occlusive.
 - 2. Non-occlusive.
 - 3. Wet to dry.
 - 4. Casts.
 - 5. Alginate.
 - 6. Colloidal.

2. Surgical:

- A. Debride and suture major non-facial wounds and burns.
- B. Participate in the acute and resuscitation, evaluation, and initial treatment of a burn patient.
- C. Harvest and apply split-thickness skin grafts.
- D. Perform simple, localized skin flaps for wound coverage.
- E. Under the direction of a plastic surgeon, assist in the planning and performance of reconstructive operations that include:
 - 1. Mandibular defects.
 - 2. Defects of the facial skeleton.
 - 3. Raise muscle and skin flaps.
- F. Reconstruct defects with random flaps, composite flaps, and grafts.
- G. Act as first assistant and attending-supervised surgeon for major resectional and reconstructive surgery of the head and neck.
- H. Participate in assessment and repair for the following:
 - 1. Complex soft tissue injury.
 - 2. Fractures requiring operative and non-operative reduction.
 - 3. Vascular injuries.

- I. Perform simple incisional and excisional biopsies on the skin and subcutaneous tissues.
- J. Apply surgical plates to stabilize various facial fractures in cadaveric and/or appropriately identified patients.

2.6

Pediatrics Otorhinolaryngology:

Unit Objectives:

Demonstrate knowledge of anatomy, physiology, and pathophysiology of pediatric disease.

Demonstrate the ability to manage clinically and surgically pediatric patients with diseases.

2.6.1

General Pediatric Otolaryngology:

Unit Objectives:

Demonstrate knowledge of anatomy, physiology, and pathophysiology of general pediatric Otolaryngologic diseases.

Demonstrate the ability to manage clinically and surgically pediatric patients with general Otolaryngologic diseases.

Competency-Based Knowledge Objectives:

1. Basic Science:

A. Describe the anatomy of the pharynx, including:

1. Waldeyer's ring.
2. Tubal tonsils of Gerlach.
3. Arterial and venous supply.
4. Lymphatic drainage.

B. Describe the anatomy of the hard and soft palate.

C. Outline the embryology of the palate and oral cavity.

2. Clinical:

A. Outline the pathogens of acute and chronic adenotonsillitis

1. Viral.
2. Bacterial.

- B. Describe the diagnosis and treatment options for patients with acute and chronic tonsillitis.
- C. List the potential complications of acute tonsillitis:
 - 1. Acute airway compromise.
 - 2. Peritonsillar abscess.
 - 3. Parapharyngeal and retropharyngeal abscess.
 - 4. Rheumatic fever.
 - 5. Glomerulonephritis.
 - 6. Sepsis.
 - 7. Scarlet fever.
- D. Describe the diagnosis and treatment of obstructive adenotonsillar hypertrophy.
- E. Describe the signs, symptoms and clinical relevance of a submucous cleft palate.
- F. Summarize the diagnosis and treatment options of ankyloglossia.
- G. Define the defects in the following palatal clefts:
 - 1. Unilateral and bilateral median.
 - 2. Complete or incomplete.
 - 3. Primary or secondary.
- H. Outline the feeding options for a newborn with cleft palate.
- I. Summarize the complications associated with cleft palate and their etiologies:
 - 1. Otologic:
 - a. Eustachian tube dysfunction.
 - 2. Speech:
 - a. Velopharyngeal insufficiency.

3. **Surgical:**

- A. List the indications for adenotonsillitis.
- B. Describe the perioperative care of patients scheduled for adenotonsillectomy.
- C. Summarize the essential steps and differences and differences in technique for adenotonsillectomy performed by the following methods:
 - 1. Cold.
 - 2. Hot.
 - 3. Laser.
 - 4. Harmonic scalpel.

5. Subcapsular ablation.

D. Outline the treatment options for a child with cleft lip:

1. Millard repair.
2. Bardach.
3. Salyer.
4. Randall-graham.

E. Outline the treatment options for a child with cleft palate:

1. V-Y pushback.
2. Two flap palatoplasty.
3. Rour flap palatoplasty.
4. Rurlow palatoplasty (Z-plasty).

Competency-Based Performance Objectives:

1. Clinical:

- A. Perform a focused history and physical exam and correctly diagnose acute and chronic adenotonsillitis.
- B. Perform a focused history and physical exam and correctly diagnose obstructive adenotonsillar hypertrophy.
- C. Participate in the clinic evaluation and treatment of children with cleft lip and palate.

2. Surgical:

- A. Perform adenotonsillectomy using a variety of techniques.
- B. Perform an incision and drainage of a peritonsillar abscess.
- C. Perform a frenulectomy.
- D. Assist in the planning and surgical repair of a child with cleft lip and palate.

2.6.2

Pediatric Head and Neck

Unit Objectives:

Demonstrate knowledge of anatomy, physiology, and pathophysiology of pediatric head and neck diseases.

Demonstrate the ability to manage clinically and surgically pediatric patients with pediatric specific head and neck diseases.

Competency-Based Knowledge Objectives:

1. Basic Science:

A. Describe the embryologic development of the neck and larynx.

2. Clinical:

A. Airway:

1. Explain the difference between stridor and stertor and the clinical significance of each.
2. Describe the classification of laryngomalacia.
3. Outline the diagnosis and treatment of pediatric Gastro-esophageal reflux disease.
4. Outline the signs, symptoms, bacteriology and treatment options for the following laryngeal infections:
 - a. Laryngo-tracheal bronchitis (croup).
 - b. Epiglottitis.
 - c. Bronchitis.
5. Describe the pathognomonic signs of epiglottitis and laryngo-tracheal bronchitis on plain film neck xrays in the pediatric patient.

- B. Describe the defect and embryologic etiology of laryngeal clefts in a newborn.
- C. Describe the etiologic factors and clinical evaluation of a child with suspected tracheo-esophageal fistula.
- D. Describe the etiology and diagnosis of laryngeal stenosis in an infant.
- E. Demonstrate the pathological findings on imaging studies of patients with laryngeal stenosis, laryngeal clefts and laryngeal webs.

- F. Outline the management and indications for surgical intervention in an infant with laryngeal stenosis.
- G. Describe the etiology and diagnosis of pediatric head and neck malignancies.
 - 1. Lymphoma.
 - 2. Rhabdomyosarcoma.
 - 3. Neuroblastoma.
 - 4. Malignant teratoma.
- H. Outline the treatment options for children with head and neck malignancy.
 - 1. Lymphoma.
 - 2. Rhabdomyosarcoma.
 - 3. Neuroblastoma.
 - 4. Malignant teratoma.

3. Surgical:

- A. Describe the perioperative management of a neonate requiring laryngotracheal surgery.
- B. Summarize the essential steps and potential intraoperative complications in the following procedures:
 - 1. Cricoid split.
 - 2. Epiglottoplasty.
 - 3. Laryngotracheal reconstruction.
 - 4. Crico-tracheal resection.
- C. Demonstrate understanding of the risks and complications of major laryngeal and head and neck surgery in the pediatric patients.

Competency-Based Performance Objectives:

1. Clinical:

- A. Perform a focused history and physical exam on a pediatric patient presenting with stridor.
- B. Correctly interpret the imaging studies of patients with symptoms of upper airway disease including epiglottitis.
- C. Manage the postoperative care of a pediatric patient after a major head and neck procedure.

2. Surgical:

- A. Perform a tracheostomy on a pediatric patient.
- B. Assist in the planning and performance of major neck surgery on pediatric patients.
- C. Perform a direct micro laryngoscopy on a pediatric patient with vocal cord pathology.
- D. Assist in the planning and performance of therapeutic and diagnostic bronchoscopy in a pediatric patient.

2.6.3

Pediatric Laryngology:

See Under Head and Neck : Laryngology 2.3

Section 3

3.0

Osteopathic Philosophy and Manipulative Medicine

These knowledge and performance activities are designed to assist the resident in preparing for post-residency. This unit is presented to assist the resident in his/her transition to private practice. This curriculum is intended to provide the trainee with a developmental approach to Otolaryngologic/Facial Plastics OMM from basic to the journeyman level.

3.1

Osteopathic Principles and Practices:

Unit Objective:

After completion of an approved program in Otolaryngology/Facial Plastics Surgery, the resident will be able to integrate Osteopathic Principles and Techniques into his/her private practice.

Competency-Based Knowledge Objectives:

1. Junior Level:

- A. Define and Explain the basic precepts of Osteopathy through:
 - 1. The body as an integrated whole.
 - 2. The body's structure and function that cannot be separated.
 - 3. Disease processes that can only be present if structural dysfunction is present on:
 - a. Macroscopic level.
 - b. Microscopic level.
 - c. Biochemical level
- B. Disease processes that can be treated by normalizing the body's structure and allowing normal function to proceed.
- C. Proper application of Osteopathic Manipulative Medicine along with Surgery and Medical therapies can restore normal body structure and function.

D. List and Explain how Osteopathic Principles relating to structure correlate the following regional disease states:

1. Otologic disease.
2. Rhinological disease.
3. Oral and Pharyngeal diseases.
4. Laryngological disease.
5. Head and Neck Cancer.

E. List and Explain basic Osteopathic patient treatment plans and their rationale:

1. General full-body treatment algorithms.
2. Region specific algorithms.

F. Explain how the basic Osteopathic patient treatment plans above work in conjunction with Medical and Surgical therapies

2. Senior Level:

A. Define and Discuss the hypothesized physiology underlying the five basic treatment modalities:

1. HVLA (High Velocity- Low Amplitude Techniques)
2. Muscle Energy techniques.
3. Cranial Concept and techniques.
4. Direct and Indirect Myofascial- Ligamentous, Articular Release techniques.
5. Counterstrain techniques.

B. List the general indications and contraindications for each of the above treatment modalities.

C. Formulate and Document an Osteopathic treatment plan for the following specific disease states:

1. Acute and Chronic Otitis media.
2. Acute and Chronic Rhinosinusitis.
3. Allergic Upper Airways Disease.
4. Facial Nerve Paralysis.
5. Peripheral Vestibulopathy.
6. Acute and Chronic Adenotonsillitis.
7. Acute and Chronic Sialadenitis.
8. Acute and Chronic Laryngitis.
9. Functional Dysphonias.
10. Torticollis.
11. Thyroiditis.

12. Laryngopharyngeal Reflux.
13. Asthma.
14. Muscle Tension Cephalgia.
15. TMJ Syndrome.

D. Formulate and Document an Osteopathic treatment plan for the following pre and post-surgical states:

1. Tympanoplasty, mastoidectomy and/or middle ear surgery.
2. Endoscopic Sinus Surgery and/or Septoplasty.
3. Adenotonsillectomy.
4. Parotidectomy.
5. Submandibular Sialadenectomy.
6. ORIF Facial Bone Fractures.
7. Laryngeal/ Phonosurgery.
8. Thyroidectomy.
9. Branchial Cleft Excision.
10. Thyroglossal Duct Excision.
11. Laryngectomy.
12. Neck Dissection.

Competency-Based Performance Objectives:

1. Junior Level:

A. Perform and Document a basic general-body osteopathic evaluation in the following positions:

1. Supine.
2. Standing.
3. Seated.

B. Perform the following Basic Osteopathic Techniques, from start to finish without error:

1. Compression of the 4th Cranial Ventricle (CV-4 by any method).
2. Suboccipital Release (any method).
3. Cervical Direct Soft Tissue Technique.
4. General HVLA Cervical Spine.
5. Sinus Direct Effleurage.
6. Release of the Transverse Diaphragms using Indirect Technique.
7. Pelvic diaphragm.
8. Thoraco-abdominal diaphragm.
9. Thoracic inlet.
10. Tentorium cerebelli.
11. Lymphatic Pump (any technique).

2. Senior Level:

A. Perform and Document a specific Osteopathic Evaluation of the following sites:

1. Temporal Bones.
2. Facial Bones and Orbits.
3. Cranial Rhythmic Impulse (CRI) and Skull Base.
4. OA and AA Joints.
5. C3-7 levels.
6. Hyoid Complex and Larynx.

B. Perform the following Osteopathic Techniques, from start to finish without error:

1. Eustachian Tube indirect release under general anesthesia.
2. Spheno-basilar decompression (any method).
3. Indirect release of facial bone strains.
4. OA and AA HVLA and Muscle Energy techniques.
5. TMJ Muscle Energy and Indirect techniques.
6. Level specific HVLA of Cervical Spine.
7. First rib techniques (any method).
8. Rib Raising technique.
9. Hyoid and Laryngeal direct and indirect techniques.
10. Lumbo-sacral decompression (any method).

Section 4

CLINICAL RESEARCH/EPIDEMIOLOGY/ EVIDENCE-BASED MEDICINE

It is expected that residents will acquire knowledge and basic understanding of clinical research methodology in order to improve practice-based care. Although it is not expected the resident will know all of the following, it should be noted that residents should use Section 4 as a guide in order to better understand clinical research methods as it relates to patient care.

4.1

RESEARCH AND BIostatistical METHODS:

UNIT OBJECTIVES:

Demonstrate an understanding of research principles and their application to the practice of Otolaryngology/Facial Plastics.

Demonstrate knowledge about the use and application of study designs and statistical methods.

Demonstrate knowledge of the role of clinical databases in clinical research and patient care.

Demonstrate knowledge of the principles underlying evidence-based surgery.

Demonstrate the ability to critically evaluate the information provided by drug companies and medical instrument and equipment manufacturers.

COMPETENCY-BASED KNOWLEDGE OBJECTIVES:

1. Basic Knowledge:

A. Differentiate between the following study designs:

1. Descriptive or case-series.
2. Case control (retrospective).
3. Cross-sectional (prevalence).
4. Cohort (prospective/incidence).
5. Clinical trial.

6. Sequential (repeated measures).
7. Crossover.

B. Discuss the following concepts related to study design:

1. Internal versus external validity (generalizability).
2. Major threats to internal and external validity.
3. Randomization, random selection, random assignment.
4. Inclusion versus exclusion criteria.
5. Blinding, blocking, stratification.
6. Number needed to treat.
7. "Intention to Treat" principle.

C. Explain the differences between the following scales of measurement:

1. Nominal.
2. Ordinal.
3. Interval.

D. Distinguish between the following techniques/methods for exploring and presenting data:

1. Frequency distribution.
2. Bar chart.
3. Contingency table.
4. Histogram.
5. Frequency polygon.
6. Scatterplot.

E. Distinguish between the following statistics used to summarize or describe data:

1. Mean, mode, and median.
2. Range, standard deviation.
3. Percentile, interquartile range.
4. Proportion, ratio, rate.

F. Interpret the following vital statistics rates:

1. Mortality, morbidity, cause-specific mortality rates.
2. Prevalence, incidence.
3. Adjusted rates.

G. Distinguish between the following measures of relationship between two variables:

1. Pearson correlation coefficient.
2. Coefficient of determination.
3. Spearman rank correlation.
4. Relative risk, odds ratio.

H. Interpret the following terms and concepts related to drawing inferences from research data:

1. Population versus sample.
2. Population distribution, sampling distribution, standard normal distribution.
3. Standard error versus standard deviation.
4. Hypothesis testing, null and alternative (research) hypothesis.
5. Parametric versus nonparametric tests.
6. Confidence intervals, confidence limits.
7. One-tailed versus two-tailed tests.
8. Level of significance, alpha level, P value.
9. Type I error, type II error, power.

I. Identify the following tests of significance and concepts related to the comparison of means:

1. Independent and paired t -test (parametric tests).
2. One-way analysis of variance (ANOVA).
3. Two-way ANOVA.
4. Repeated measures ANOVA.
5. Statistical interaction.
6. Planned comparisons.

J. Identify the following tests of significance and concepts related to the comparison of proportions:

1. Z-approximation test.
2. Chi-square test.
3. Sample size and strength of association in the interpretation of the chi-square statistic.
4. Fisher's Exact Test.

K. Identify the following tests of significance and concepts related to investigating the relationship between two or more variables:

1. t -test for testing the significance of the correlation.
2. Fisher's Z transformation.
3. Confidence intervals for the relative risk and odds ratio.
4. Simple and multiple linear regression.
5. Standard error of estimate.
6. Confidence bands for a regression line.

7. Comparing two regression lines.

L. Identify the following concepts related to the analysis of survival data:

1. Actuarial or life table analysis versus Kaplan-Meier.
2. Comparing two survival curves using the Gehan or generalized Wilcoxon test, the log rank test, and the Mantel-Haenszel chi-square test.
3. Censored observations.
4. Cox regression.

M. Interpret the following concepts related to evaluating diagnostic tests and procedures:

1. Sensitivity and specificity – to gold standard.
2. Predictive value of a positive or negative test.
3. Index of suspicion or prior probability.
4. Likelihood ratio method.

N. Discuss the following procedures, principles, and concepts related to the ethics of medical research:

1. The Declaration of Helsinki (see Troidl reference).
2. Informed consent.
3. Institutional review boards and animal use review committees.
4. Ethical use of animals in research.
5. Confidentiality and anonymity concerns.
6. Truth and accuracy in the publication of research results

O. Explain the following procedures and concepts related to clinical databases:

1. Role of clinical databases in clinical research and outcomes research.
2. Database terminology such as field, record, query, report generation, ASCII file, computer file, and merging.
3. Data coding, data entry, and data verification.
4. Use of standardized databases such as hospital tumor registries or state trauma registries.
5. Database development.

P. Discuss the following principles, methods, and concepts related to evidence-based otolaryngology surgery:

1. Basic skills needed to critically evaluate the published evidence:
 - a. Defining the clinical question.

- b. Translating the question into searchable keywords.
 - c. Conducting the search.
 - d. Selecting the best articles.
2. Users' guides for selecting and evaluating articles about therapy, diagnosis, harm, and prognosis.
 3. Selection and evaluation of integrative articles such as review articles, meta-analyses, practice guidelines, and decision analyses.
 4. Use of administrative databases to link patient outcomes to costs related to producing these outcomes.
 5. Use of patient-reported outcome measures as another method for evaluating the success of surgical treatments.

COMPETENCY-BASED PERFORMANCE OBJECTIVES

1. Performance-Based:

- A. Critically evaluate the published evidence for a surgical therapy using a computer search engine such as MEDLINE, using the users' guide for evaluating therapy articles, and summarizing your findings in writing, to include your recommendation for surgical practice.
- B. Write a summary of the literature review, including a synthesis of the major findings and a recommendation for surgical practice.
- C. Develop and implement a computer-based clinical database using a software package such as EXCEL, ACCESS, SPSS, SAS, FileMaker, or other commercially available software.
- D. Identify and prepare a case study suitable for presentation or publication.
- E. Design and conduct a surgical research study, utilizing the following activities:
 1. Select/search for a researchable project, involving an attending or other clinician-mentor.
 2. Search and review the literature.
 3. Formulate hypotheses.
 4. Identify key variables (both predictor and outcome), decide on the optimal level of measurement, create operational definitions, and assess reliability.
 5. Develop a research design.
 6. Identify population and study sample.
 7. Develop sample selection procedures.
 8. Select or develop measures.
 9. Develop study protocol and prepare institutional review board (IRB) proposal.
 10. Collect and analyze data.
 11. Interpret results.

12. Identify various journal formats and related instructions to authors.
13. Review techniques for optimal presentation of papers and posters, including related media.
14. Convert paper into an appropriate presentation.
15. Deliver the presentation.

4.2

CLINICAL EPIDEMIOLOGY:

UNIT OBJECTIVE:

Demonstrate competency in clinical epidemiology through knowledge and performance-based measurable outcomes related to Otolaryngology/Facial Plastics Surgery.

4.2.1

CLINICAL EPIDEMIOLOGY:

UNIT OBJECTIVE:

Demonstrate understanding of the principles of clinical epidemiology and their application to the practice of Otolaryngology/Facial Plastics Surgery.

COMPETENCY-BASED KNOWLEDGE OBJECTIVES:

1. Basic Knowledge:

- A. Explain the discipline of clinical epidemiology to include the study of groups of people and the background evidence needed for clinical decisions in patient care.
- B. List the clinical events of primary interest in clinical epidemiology, including: death, disease, disability, discomfort, and dissatisfaction.
- C. Distinguish mass screening from case finding.
- D. Discuss the following criteria used to determine for which diseases people should be screened:
 - 1. Sensitivity.
 - 2. Specificity.
 - 3. Positive predictive value; negative predictive value.
 - 4. Number of false positives.
 - 5. Test factors (e.g., simplicity, cost, safety, patient acceptability).
- E. For a given disease/condition, compare the advantages and disadvantages of applying multiple diagnostic tests all at once versus consecutively.
- F. Discuss clinical decision analysis, including:
 - 1. Defining the problem, alternative actions, and possible outcomes.
 - 2. Developing a decision tree to assign probabilities for each outcome.

3. Assigning a value or utility for each outcome.
- G. Differentiate risk factors from prognostic factors for a given disease/condition (e.g., for acute myocardial infarction, older age and male gender are both risk factors *and* prognostic factors, whereas hypertension is a risk factor *but* hypotension is a prognostic factor).
- H. Discuss the following five rates commonly used to predict prognosis:
 1. Five-year survival.
 2. Remission.
 3. Case-fatality.
 4. Recurrence.
 5. Response.
- I. Identify locations of potential bias in randomized, controlled clinical trials, including:
 1. Patient selection.
 2. Patient allocation to study groups.
 3. Patient compliance.
 4. Definition of outcomes.
 5. Generalizability of results.
- J. Distinguish between clinical significance and statistical significance.
- K. Analyze the following situations in which a physician's personal experience is insufficient to establish a relationship between a disease and its cause. Personal experience is insufficient when:
 1. The disease is common.
 2. The disease has multiple causes.
 3. The disease has a low incidence.
 4. The disease has a long latency period.
- L. For non-experimental studies, define the following criteria for determining cause and effect:
 1. Temporality.
 2. Strength of the measure of association.
 3. Presence of a dose/response relationship.
 4. Consistency of results.
 5. Biological plausibility.
 6. Specificity of effect.

COMPETENCY-BASED PERFORMANCE OBJECTIVES:

1. Performance-Based:

- A. Recognize and appropriately apply a specific screening test in a case finding situation.
- B. Apply clinical decision analysis to the treatment of a given patient with a given disease.
- C. Estimate risk of disease development for a given patient given a history of exposure to specific risk factors.
- D. Decide whether a given association is one of cause and effect.

4.3

EVIDENCED-BASED MEDICINE/OUTCOMES RESEARCH:

Unit Objectives:

Appropriately understand, recognize and apply skills and methods related to outcomes research methodology.

COMPETENCY-BASED KNOWLEDGE OBJECTIVES:

1. Basic Knowledge:

- A. Explain the traditional negative clinical outcomes for a given surgical procedure, including death, disease, disability, and complications.
- B. Discuss the modern clinical outcomes for a given surgical procedure, including discomfort, dissatisfaction, quality of life, and cost-effectiveness.
- C. Identify the most frequently occurring negative outcome(s) of a given surgical procedure, (e.g., thrombosis following arterial venous prosthetic shunt formation).
 - D. Compare the following different ways of measuring outcomes for a given surgical procedure:
 - 1. Chart reviews.
 - 2. Clinical evaluations.
 - 3. Questionnaires.
- D. Discuss each of the following steps in conducting prospective outcomes research:
 - 1. Hypothesis formation.
 - 2. Computerized literature search.
 - 3. Selection of a study design.
 - 4. Estimation of sample size.
 - 5. Specification of inclusion and exclusion criteria.
 - 6. Allocation of patients to groups.
 - 7. Evaluating outcome(s).
 - 8. Analyzing data.
- E. Provide examples of potentially confounding patient variables, including age, sex, race, income, education, occupation, religion, marital status, residence, nationality, disease stage, co-morbidities, and complications.

- F. Provide examples of potentially confounding treatment variables, including extent of surgery, timing of surgery, anesthetic technique, post-surgical nursing care, drug therapy, chemotherapy, radiotherapy, physical therapy, and nutritional therapy.
- G. Describe the following common problems in collecting useful outcomes data:
 - 1. Inadequate sample size.
 - 2. Inaccurate characterization of patient population.
 - 3. Inappropriate comparison group.
 - 4. Uncontrolled patient variables.
 - 5. Uncontrolled treatment variables.
 - 6. Patient noncompliance.

COMPETENCY-BASED PERFORMANCE OBJECTIVES:

- 1. **Performance-Based:**
 - A. Demonstrate the ability to review the research, clinical and surgical literature critically.
 - B. Design a clinical outcomes research study using the AOCCOHNS guidelines as outlined in the Basic Standards Document.

Section 5

5.1

Common Procedures

Caseload to Minimal Competency

Surgical Case Area	Type of Case	Minimal # of Cases	Notes
Endoscopy	Direct Laryngoscopy	10	
	Bronchoscopy	10	
	Esophagoscopy	10	
General	Adenotonsillectomy	10	
Head & Neck	Neck Dissection	5	
	Cervical Node Biopsy	5	
	Laryngectomy	2	
	Thyroidectomy	5	
	Tracheostomy	5	
Otology	Myringotomy	10	
	Tympanoplasty	5	
	Mastoidectomy	6	
	Operations of the Middle Ear	5	
Plastics	Rhinoplasty	6	
	Blepharoplasty	3	
	Complex Lacerations	5	
	Facial Fractures Nasal	3	
	Facial Fractures Other	5	
	Flaps and Grafts	5	
Rhinology	Septoplasty	7	
	FESS	10	