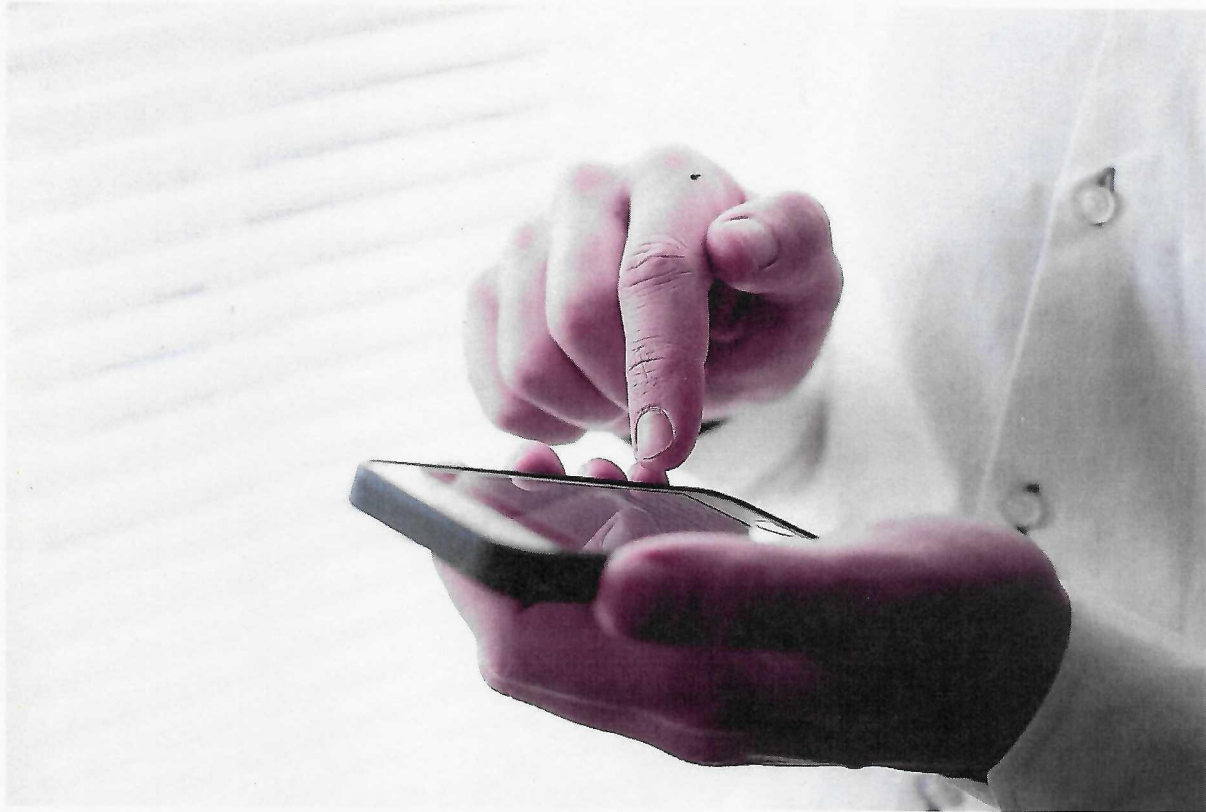


Syllabus for MS (Otorhinolaryngology) Programme



Guru Gobind Singh Indraprastha University

A State University established by the Govt. of NCT of Delhi

University School of Medicine and Allied Health Sciences

MS Oto-rhino-larygology

Programme Objectives

At the end of postgraduate training the student should be able to:-

- ❖ Practice his speciality ethically
- ❖ Demonstrate sufficient understanding of basic sciences related to his speciality.
- ❖ Diagnose and manage majority of conditions I his speciality (clinically and with the help of relevant investigations)
- ❖ Plan and advise measures for the prevention and rehabilitation of patients belonging to his speciality
- ❖ Play the assigned role in the implementation of National Health Programs
- ❖ Demonstrate competence in basic concepts or research methodology
- ❖ Develop good teaching skills

Specific learning objectives

- a) **Theoretical knowledge:** A student should have fair knowledge of basic sciences (Anatomy, Physiology, Biochemistry, Microbiology, Pathology and Pharmacology) as applied to his speciality. He/she should acquire in-depth knowledge of his subject including recent advances. He should be fully conversant with the bedside procedures (diagnostic and therapeutic) and having knowledge of latest diagnostics and therapeutics available.
- b) **Clinical / Practical skills:** A student should be expert in good history taking, physical examination, providing basic life support and advanced cardiac life support, common procedures like FNAC, Biopsy, aspiration from serous cavities, lumbar puncture etc. He/she should be able to choose the required investigations.
- c) **Research:** He/she should know the basic concepts of research methodology, plan a research project and should know how to consult library. Basic knowledge of statistics is also required.
- d) **Teaching:** Should learn the basic methodology of teaching and develop competence in teaching medical / paramedical students.

Postgraduate Training program

Didactic lectures are of least importance; seminar, journal clubs, symposia, reviews and guest lectures should get priority for theoretical knowledge. Bedside teaching, grand rounds, interactive group discussions and clinical demonstrations should be



the hallmark of clinical / practical learning. Student should have hand-on training in performing various procedures (medical / surgical concerning his subject) and ability to interpret various tests / investigations. Exposure to newer specialized diagnostic / therapeutic procedures concerning his subject should be given.

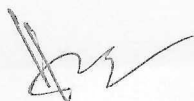
Clinical Postings

FIRST YEAR

- Spends 6 (six) months in orientation programme including exposure to Speech and Audiology Section and Vestibular Laboratory;
- Learn bedside history taking in ward, OT exposures, casualty, ICU requirement and their visit to related disciplines such as Neurosurgery/Anaesthesia.
- Care of indoor (Medical; preoperative and postoperative) patients for a minimum period of 6 months.
- Attends operation theatre and emergency operations for acclimatization.
- Assists ward rounds and visit other wards with senior colleagues to attend call consultations from other deptt.
- Participate in the teaching sessions in ward for bedside clinical aspect in the weekly after noon Seminar/Journal Club.

After 6 months of orientation during two and a half yrs.

- Attends ENT OPD
- Discusses problematic cases with the consultant(s) in OPD/ward
- Attends Operation Room/theatre
- Attends morning rounds
- Looks after minor OT by rotation in the OPD area for minor procedures.
- Care of the indoor patients on beds allotted to him/her.
- Attends the weekly Journal Club and seminar and presents the same by rotation.
- Attends Vertigo Clinic, Rhinology Clinic and Tumour Clinic and presents cases, participates in discussions including therapy planning etc.
- During the 2 and a half years, the resident must attend the combined Teaching Programme of the Department of Surgery, Neurosurgery and Medicine i.e. Clinical meetings, CPC'S of students and staff of the whole hospital.



- Surgicopathological conference in Pathology Department, with surgeons.
- All kinds of specially prepared lectures by deptt. Faculty or from R.T./Plastic or Neurosurgery deptt.
- Visits by rotation the Rural Clinic for community exposures/work experience
- Does 12 hours emergency duty twice a week as per Roaster of the deptt.
- Attends lectures by visiting faculty to the deptt./college from India/abroad
- Attends/participates/presents papers in State/Zonal/National conferences.
- Actively participate/help in organization of Department Workshop, Courses

In specialized areas like FESS/Otology, Rhinoplasty, Neurotology and Head-Neck Oncology form time to time.

Research Methology/Reporting on research: Learns the basics in research methodology and make the thesis protocol within 4 months of admission.

- Problem oriented record keeping including use of computer (Wherever feasible/available)
- Use of Medical literature search including through Internet use, in the Library.
- Attends biostatistics classes by arrangement.
- Research Report – writing including preparation of protocol for Research/Thesis.
- Writing an abstract/shot paper/presentation style (Slide-making & audiovisual aids).
- Preparation of a report on a research project/Thesis.
- Humanity/Ethics:
- Lectures on humanity including personality development, team spirit and relations, by Psychologist and public relation officers are to be arranged by the deptt./college.

Presentations for the Thesis work




- a. Selection of thesis Topic: Subject of thesis will be selected by the candidate under guidance of Faculty which will be approved by the department guide and other faculty. The Candidate will be asked to submit the protocol within 4 (Four) approved by the Central thesis committee of the Institute/College if such committee does exist, and the ethical considerations are also discussed in such Research Programme committee.
- b. Once the thesis protocol is approved the candidate starts his research work under direct supervision of guide and co guides.
- c. Three/six monthly progress of the thesis will be checked to know the outcomes/or difficulties faced by the candidate.
- d. Candidate will be asked to submit the thesis 6 months before the final exams.

TEACHING METHODS:-

The following learning methods are to be used for the teaching of the postgraduate students:-

1. Journal Club
2. Paper presentation/discussion
3. Seminar: Lecture/discussion: Lectures on newer topics by Faculty, in place of seminar/as per need.
4. Case presentation in the ward
5. Afternoon Special clinics (such as vertigo/otology Tumour clinics).
6. Surgicopathological Conference: special emphasis is made on the surgical pathology and the radiological aspect of the case in the pathology deptt. Such exercises help the ENT/Pathology/Radiology Residents.
7. Combined Round/Grand Round: These exercises are to be done for the hospital once/wk or twice/month involving presentation of unusual or difficult patients. Presentations of cases in clinical combined Round and a clinical series/research data on clinical materials for benefit of all clinicians/Pathologists/other related disciplines once in week or fortnightly in the Grand round.
8. Community camps: For rural exposure and also for experience in preventive aspect in rural situation/Hospital/School, Patient care camps are to be arranged 2-3/year, involving Residents/Junior faculty.
9. Emergency situation: Casualty duty to be arranged by rotation among the PGs with a faculty cover daily by rotation.

Afternoon Clinics:



1. Vertigo Clinic: All the patients of vertigo attending ENT OPD/ referred cases are worked up in details by the Junior Residents and are discussed with one/two Faculty and treatment decided upon.
2. Tumour clinic/Head-neck Cancer Clinic: In collaboration with the Radiotherapy Department, the patients with head and neck cancer in the field of ENT and Head and Neck are worked up by the Junior Resident and discussed about the their management by the ENT as well as Radiotherapy Consultants and treatment decision, made.
3. Rhinology Clinic: For patients with sinus diseases and nasal deformity for rhinoplasty-presented and discussed. Decision for FESS/Rhinoplasty or only other treatment taken.
4. Otology Clinic:- The ear cases are thoroughly investigated and are discussed by the Junior
5. Residents with the faculty for their management/discussions are made after each case is presented. Audiologist also participates in this clinic.

Bedside clinical training for patient care management and for bedside manners:

Daily for half to one hour's duration during ward round with faculty and 1-2 hours in the evening by senior resident/faculty on emergency duty, bedside patient care discussions are to be made.

Faculty should take a Teaching Rounds by Rotation

Death Cases

The records of such cases are presented by the Senior Residents. The Junior Residents are encouraged to participate actively in the discussion in the presence of Faculty of ENT and hospital administration. This programme helps to take corrective measures as well as to maintain accountability in patient management.

Clinical Teaching: In OPD, Ward rounds, Emergency, ICU and the Operation Theatres: Residents/Senior Residents and Faculty on duty in Respective places-make discussion on clinical diagnosis/surgical procedures/treatment modalities, including post operative care and preparation discharge slip.

Clinical interaction with audiologists/speech therapist: Clinical interactions with audiologist/speech therapist pertaining to management of the patients with audiological/speech problems are to be made/discussion arranged. Audiologic methods and therapy strategies are to be made known to Resident doctors.

Research Methodology: Courses and Lectures are to be arranged for the residents for language proficiency by humanity teachers besides few lectures on human values and ethical issues in patient care.



Writing Thesis: Thesis progress is presented periodically and discussion made in the deptt. Guides/co-guides are to hear the problems of the candidate; can provide assistance to the student. Progress or any failure of the candidate may be brought to the notice of college Dean/Principal.

Cadaveric dissection Lab: Cadaveric temporal bone. Nose & Paranasal Sinuses and head & neck dissections must be arranged in the Departmental Lab and/or in the anatomy department for learning surgical anatomy by dissection as well as for learning different operative procedures under faculty supervision and independently (for middle ear operations using operating microscope and for other head and neck surgical procedures including endoscopic (FESS) sinus surgery using endoscopes during 2nd & 3rd year of Residency on a regular basis before/during exposure of particular batch of students to real operative procedures in patients.

PAPER (Theory)

- 1 Basic Sciences related to Otolaryngology
- 2 Principles and Practices of Otolaryngology
- 3 Recent Advances in Otolaryngology and Head Neck Surgery
- 4 General Surgical Principles and Head Neck Surgery

Practical Examination

- a) Identification of Surgical Pathology, excised specimens & discussion, Reading X-rays & CT Scan/MRI/

Identification of Instruments & discussion, interpretation as audiovestibular investigations such as audiogram, ABAR, ENG etc. simulated surgical situation/steps of operative procedures, required instruments/discussion.

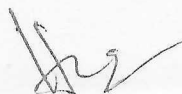
- b) Clinical Patient presentation/discussion:

- i. One long case: The long case will be structured, comprising-history taking, clinical examination, investigations, decision making, proposed treatment modalities, ethical justification and personal attributes.
- ii. Two short cases: The short cases will also be structured in which only one particular system may be considered and therapy decision, made.

Note: Modifications may be made in the method of practical examination to bring about objectivity in the exam and an attempt may be made to eliminate individual bias in the conduction of the exam.

COURSE CONTENT

Paper I



Physiology- Mechanism of perception of smell and taste, mechanism of breathing and voice production, lacrimation, deglutition and salivation. Functional tests of the nose and para nasal sinuses, Mechanism of cough and sneezing.

Physics of sound, theories of hearing, mechanism of perception of sound and speech production, physiology of equilibrium & cerebral function. Physiology of brain in connection with hearing, speech, smell and phonation. Audiologic tests like audiometry, impedance, evoked potentials, OAE, Speech audiometry.

Physiology of larynx, tracheobronchial tree & oesophagus – Histology of mucous membranes, internal ear and other associated organs and structures, nose, PNS NPX, Larynx, Tracheo-Bronchial tree, Lymphopithetical system. Mechanism of immune system/immunology and genetics.

Anatomy-Embryogenesis of ear, nose and throat including palate and the larynx, Oesophagus, trachea and lungs, tongue, salivary gland Head & Neck & skull base etc.

Parapharyngeal spaces in the neck including connective tissue barriers of larynx. Applied anatomy of the skull bones, accessory sinuses, external, middle and inner ears, nose, PNS, nasopharynx, meninges, brain, pharynx, larynx, trachea and bronchi, lungs, pleurae oesophagus and the mediastinum.

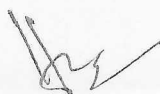
Anatomy of all cranial nerves with their functions.

Paper II

1. Clinical Methodology as applied to ORL HN diseases in adult & children and the accessory sinuses, diagnosis and surgical treatment of diseases of nose, throat and ear in adult and children. Prevention and treatment, infectious diseases of Otolaryngology and Head Neck region. Circulatory and nervous disturbances of the nose, throat and ear and their effects on other organs of the body. Deformities, injuries sinus infections, polyps and the tumours of the nose, and paranasal sinuses.

Examination of the ear, deafness and allied diseases, complications of diseases of the ear. Injuries, tumor, nervous and circulatory neurological disturbances of the ear. Diagnosis and treatment of tinnitus and vertigo. Diagnosis and rehabilitation of the Hearing handicapped including, dispensing of hearing aid other vibrotactile aids.

- Surgical pathology of Otolaryngology and Head Neck region.
- Basis knowledge of anaesthesia as related to ENT.
- Examination of diseases of children (Paediatric ORL) in connection with throat and larynx. Neurological and vascular disturbances. Congenital and neonatal stridor.



- Pathology of various diseases of the larynx and throat, trachea bronchial tree and their causative organisms.
- Indications and various techniques of direct laryngoscopy, nasal endoscopy. Bronchoscopy and oesophagoscopy, including microlaryngoscopic procedures.
- Reading of radiograms, scans, audiograms, nystagmograms and tympanograms in connection with ENT diseases/disorders.
- Special apparatus for the diagnosis and treatment of the diseases of ear, nose and throat including audiometer, BERA, ENG, Speech analyser etc.

Paper III

The recent developments in the diagnosis pathogenesis treatments of the ENT diseases.

The knowledge of the frontiers of the oto-laryngology and lateral skull base surgery.

Rhinoplasty, endoscopic sinus surgery, and anterior cranial fossa surgery.

Knowledge of LASERS and fibre optics.

Other methods of managing Hearing loss.

Implantable hearing aids cochlear implants.

Phonosurgery

Etiology and Managements of sleep apnoea/snoring,

Hypophysectomy and optic nerve decompressions.

Immunotherapy and modalities of the gene therapy

Newer techniques for Radiotherapy including, use of gamma knife for treatment of

Intracranial tumors and other malignancy.

Chemotherapy of cancer.

Paper IV (General Surgery Principles & Head Neck Surgery)

General Surgery, Head & Neck oncology, & Medicine as applicable to the ENT disorders/oesophagus. Surgery of congenital deformities of nose, ear (Pinna) & trachea/oesophagus etc.

Radiology, Imaging – computed tomography and magnetic resonance imaging, (MRI) and intervention radiology, and angiography as related to ENT.

General Pathologic aspects such as wound healing and also pathology and Pathogenesis of ENT diseases, Pharmacology, molecular biology, genetics, cytology, haematology, and immunology as applicable to otolaryngology.

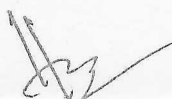
General Principles of faciomaxillary traumatology and neck injury.

Plastic Surgery as applicable to Otolaryngology.

COURSE CONTENTS (Component of Curriculum)

A.

- Anatomy & Physiology of Ear, Nose & Throat, Trachea and esophagus.
- The ears and nasal sinuses in the aerospace environment
- Physiological consideration of pressure effects on the ear and sinuses in deep water diving
- The generation and reception of speech
- Radiographic anatomy of the ear, nose, throat and imaging.
- Bacteriology in relation to Otorhinolaryngology
- Allergy and rhinitis
- The principles of cancer immunology with particular reference to head and neck cancer
- Principles of chemotherapy in head and neck cancer
- Haematology in relation to Otolaryngology
- Anaesthesia for Otolaryngology
- Pharmacology of drugs used in ENT
- Electrolyte, fluid balance/shock conditions
- Use of teaching aids
- Routine blood, urine testing
- Preparation of slides
- Facial nerve stimulation test
- Audiometric test like pure tone Audiometry, Beckesy's Audiometry, Impedance Audiometry, Free field Audiometry, Specialized test of hearing including SISI, Tone decay, ABLB, Speech discrimination score etc.



- Vestibular test like caloric testing (Water & air) stopping test, Fukuda's test, cranio corpography recording of nystagmus by ENG and its interpretation.
- Evoked response audiometry.

EAR

- The physical and functional examination of the ear
- The functional and physical examination of the vestibular system.
- Tinnitus
- Affections of external ear
- Repair of deformities of the middle ear cleft
- Congenital conditions of the middle ear cleft
- Traumatic conductive deafness
- Acute inflammation of the middle ear cleft
- Non-suppurative otitis media
- Chronic suppurative otitis media
- Management of chronic suppurative otitis media
- Complications of infections of middle ear.
- Tumors of the middle ear cleft and temporal bone
- Diseases of the otic capsule-otosclerosis
- Diseases of the otic capsule-other diseases
- The deaf child
- Traumatic lesions of the inner ear
- Inflammatory lesions of the vestibular and auditory nerve
- Acoustic neuroma
- Ototoxicity
- Presbycusis
- Vascular lesions of the inner ear
- Diagnosis and management of sudden and fluctuant sensorineural hearing loss




- Meniere's disease
- Neurologic aspects of vertigo
- Facial paralysis
- Rehabilitation of adults with acquired
- Hearing loss-Hearing aids
- The cochlear Implants
- Nystagmus and Electronystagmography
- Skull base/Neurologic surgery

NOSE

- Examination of the noses
- Conditions of the external nose
- Injuries of the facial skeleton
- Cosmetic surgery of the nose
- The nasal septum
- Foreign bodies in the nose, rhinolith
- Epistaxis
- Acute chronic inflammations of the nasal cavities
- Vasomotor rhinitis-allergic and non-allergic
- Nasal polyposis
- Abnormalities of smell
- Acute sinusitis
- Chronic sinusitis
- Nasal Allergy/Fungal allergic sinusitis
- Complications of acute and chronic sinusitis
- Non healing granuloma of the nose
- Tumors of nose and sinuses
- Facial pains
- Trans-ethmoidal hypophysectomy

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- Surgery of the pterygo palatine fossa.
- FESS/LASER Surgery

THROAT

- Method of examination of the mouth and pharynx
- Diseases of the mouth
- Diseases of the salivary glands
- Pharyngeal lesions associated with general diseases
- Diseases of the tonsils and adenoids (excluding neoplasms)
- Tumors of the pharynx
- Hypopharyngeal diverticulum (Pharyngeal Pouch)
- Oesophageal conditions in the practice of ear, nose and throat surgery
- Methods of examining and larynx and tracheobronchial tree
- Congenital diseases of the larynx
- Laryngeal disorders in singers and other voice users
- Neurological affections of larynx and pharynx
- Disorders of speech
- Intubation of the larynx, laryngotomy and tracheostomy
- Cervical node dissection
- Skin grafts in Otolaryngology
- Lower respiratory conditions in Otolaryngology
- Micro laryngeal surgery/thyroplasty

MISCELLANEOUS (HEAD AND NECK)

a)

- Functional Anatomy of cerebellum and brainstem
- Cranial nerves
- Raised intracranial tension-causes, diagnosis, management with particular reference to otitis hydrocephalus
- Head injuries and I.C. Haemorrhage

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- Pituitary gland, anatomy, physiology hypo and hyper pituitarism, new growths.
- Intracranial venous sinuses and their affections

b)

- Osteology: skull, mandible cervical and thoracic vertebral sternum
- Cervical fascia, facial spaces in neck, retro pharyngeal and parapharyngeal Abscesses
- Anatomy and physiology of thyroid gland, goiter, diseases of the thyroid and carcinoma of thyroid
- Anatomy of mediastinum, large blood vessels in neck, thoracic duct development of major cervical and thoracic blood vessels.
- Pleura, plural cavity, bronchopulmonary segments and their clinical importance
- Facial plastic surgery
- Head and neck reconstructive surgery.

GENERAL

- Physiology of circulation, regulation of blood pressure, reactions of body to haemorrhage, pathophysiology of shock, fluid balance, blood transfusion and its hazards, fluid replacement therapy, burns.

DRUGS USED IN THE ENT

- Antihistaminic
- Nasal vaso constrictors
- Local anaesthetics
- Cortico steroids
- Cyto-toxic agents
- Antibiotics
- Radioactive isotopes
- Antifungal agents
- Vasopressive and other agents used in shock like states.