



MINISTRY OF HEALTH MALAYSIA

# OTORHINOLARYNGOLOGY SERVICE OPERATIONAL POLICY

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**SURGICAL & EMERGENCY MEDICINE UNIT  
MEDICAL DEVELOPMENT DIVISION  
MINISTRY OF HEALTH MALAYSIA**

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# **OTORHINOLARYNGOLOGY SERVICE**

*OPERATIONAL POLICY*

This document was developed and reviewed by the Drafting Committee for Operational Policy: Otorhinolaryngology Service and the Surgical and Emergency Medicine Unit, Medical Development Section of the Medical Development Division, Ministry of Health Malaysia.

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# FOREWORD



## DIRECTOR GENERAL OF HEALTH MALAYSIA

Otorhinolaryngology (ORL) services are essential services provided by the Ministry of Health. The ORL service has started back in 1958 with only one centre at General Hospital of Kuala Lumpur and has since then rapidly progressed and expanded to 38 major hospitals throughout the country.

Advancement in ORL has also led to the development of ORL subspecialties such as Otology, Rhinology, Head & Neck Surgery and Paediatric ORL in MOH. The presence of the Audiology and Speech–Language Therapy services within the fraternity enable the ORL management to be more holistic. ORL services have expanded to various activities such as Neonatal Hearing Screening Programme, Cochlear Implant Programme, ORL Sleep Service, Vertigo and Balance Clinic, Tinnitus Clinic, Voice and Swallowing Clinic and Allergy Clinic.

MOH ORL Specialists have long contributed locally and internationally as trainers, faculty members, examiners and researchers. I am also proud to note of the existing collaboration with other international prestigious training centres such as Massachusetts Eye and Ear Infirmary, Boston Children Hospital, Harvard Medical School, Princess Margaret Hospital for Children Perth, Great Ormond Street Hospital London, National Cancer Institute Netherlands and many others. ORL Service has also been working closely with WHO in adopting Ear and Hearing Care Programme.

This Operational Policy shall serve as a guide for developing a structured and coordinated ORL service. This in turn should provide better quality of service for patients. By adhering to this policy, patients will be managed in a uniform manner, thus giving an efficient, safe and quality care. As the specialty demands heavily on instruments and technology, I ensure the ministry will continue to support the needs and requirement.

I would like to congratulate the Medical Development Division and the ORL Service Operational Policy Drafting Committee for initiating and coordinating this effort. I hope that the quality of our medical services will continue to improve in tandem with the Ministry's mission to provide the country with the healthcare at par with international standard.

Thank you



Datuk Dr Noor Hisham Bin Abdullah  
Director General of Health Malaysia



## DIRECTOR OF MEDICAL DEVELOPMENT DIVISION

Quality healthcare has always been demanded by the people of a nation as one of the basic rights of its citizen. As we strive towards becoming a developed nation, the Ministry of Health has always put the health of its people in its core centre.

The ORL services in Malaysia has grown from its infancy and progressed by leaps and bounds over the years. I am proud to have witnessed this change and progress.

However, equal rights to quality healthcare still remains a concern due to a lack in the standardization of its delivery. I am encouraged with this momentous effort by our ORL services in initiating and completing this Operational Policy. I would like to congratulate all who have contributed in making this effort a success.

This Operational Policy shall form a guide and base for which the ORL services in this country could continue to strive for further growth and progress. With the support of the Ministry of Health, I am confident of the future prospects of this crucial service to our beloved nation.

I am further encouraged to see the development of your subspecialties programme as we expand our services. Delivering the best should and will always form the pride of the Ministry of Health as we project to the world our capabilities. Be assured of the continued support from the Ministry in this effort.

Finally, as the Director of Medical Development, I look forward to further such initiatives from your fraternity. Congratulations and thanks again for a job well done.




Dato' Dr Hj Azman Bin Hj Abu Bakar Director  
Medical Development Division

## HEAD OF SERVICE - OTORHINOLARYNGOLOGY SERVICE

ORL services have become one of the main medical services provided by the Ministry of Health. There is a dire need for our services to be delivered in an efficient, structured and uniform manner in view of high disease burden, public awareness and expectations. Thus a systematic and standardized policy need to be established in our service which is outcome-oriented, quality driven, practical, evidence based and above all suit the needs and interest of our nation.

I am proud to share this ORL Service Operational Policy which is an essential guide in ORL management and the provision of its services. The objective of this policy is to provide a safe and optimum standard of care in managing patients with ear, nose, throat, head and neck diseases. This policy also encompasses aspects pertaining to prevention, diagnosis and rehabilitation of hearing and vestibular problems. Conditions related to speech, language, communication, swallowing and feeding disorders are also addressed.

I would like to thank and congratulate the drafting committee for their tireless effort, commitment and enthusiasm in completing this policy within a constraint time amid their busy schedule. I would also like to extend my gratitude to Dr Patimah Amin and Medical Development Division for the vision, guidance and assistance. My sincere thanks to all members of ORL fraternity which include ORL Specialists, Audiologists and Speech Language Therapists in making this document a reality.



Dato' Dr Siti Sabzah Bt Mohd Hashim  
Head of ORL Service Ministry of Health



# POLICY



## LIST OF ABBREVIATION:

APGAR	Appearance, Pulse, Grimace, Activity, Respiration
CME	Continuous medical education
CPAP	Continuous positive airway pressure
CPD	Continuous professional development
EXIT	Ex-utero Intrapartum Treatment
FEES	Functional endoscopic evaluation of swallowing
FPP	Full paying patient
FT	Federal Territories
HRNHS	High risk neonatal hearing screening
IGS	Image guided system
KPI	Key Performance Indicator
LASER	Light Amplification by Stimulated Emission of Radiation
MOH	Ministry of Health
NICU	Neonatal Intensive Care Unit
ORL	Otorhinolaryngology
OSA	Obstructive Sleep Apnoea
PICU	Paediatric Intensive Care Unit
POMR	Perioperative Mortality Review
RAST	Radioallergosorbent test
SLT	Speech-Language Therapist
SPT	Skin Prick Test
UNHS	Universal Neonatal Hearing Screening
VFSS	Video Fluoroscopic Swallowing Study

## LIST OF GLOSSARY:

**Anaesthesia** - A state of temporary induced loss of sensation or awareness.

**Anaesthesiologist** - A specialist who practices anaesthesiology.

**Anesthesiology** - The practice of medicine dedicated to the relief of pain and total care of the surgical patient before, during and after surgery.

**Audiology** - A health profession that involves the assessment, prevention, and nonmedical management of hearing impairment and associated disorders of communication, vestibular and balance.

**Audiologist** - A health professional whom engage in a practice to promote healthy hearing, communication competency, and quality of life for persons of all ages through the prevention, identification, assessment, rehabilitation and research of hearing, peripheral or central auditory function, vestibular, balance, and other related systems.

**Clinical Psychologist** - A professional that specialises in diagnosing and treating diseases of the brain, emotional disturbance and behavioural problems.

**Cochlear Implant** - A surgically implanted electronic device that provides a sense of sound to a person who is profoundly deaf or severely hard of hearing in both ears.

**CPAP** - A form of positive airway pressure ventilator, which applies mild air pressure on a continuous basis to keep the airways continuously open in people who are able to breathe spontaneously on their own.

**Dietician** - An expert in human nutrition and the regulation of diet.

**Dysphagia** - Difficulty in swallowing.

**Dysphonia** - Difficulty in speaking due to a physical disorder of the mouth, tongue, throat, or vocal cords.

**Endoscopy** - A procedure that uses an endoscope to examine the interior of a hollow organ or cavity of the body.

**Gastroenterologist** - A physician that specialises in the branch of medicine focused on the digestive system and its disorders.

**Immunologist** - A physician specially trained to diagnose, treat and manage allergies, asthma and immunologic disorders including primary immunodeficiency disorders.

**Immunotherapy** - The treatment of disease by inducing, enhancing, or suppressing an immune response.

**Laryngology** - A branch of medicine that deals with disorders, diseases and injuries of the vocal apparatus, especially the larynx.

**Laryngoplasty** - A procedure that provides support to a vocal fold that lacks either the bulk or the mobility it once had.

**Neonate** - An infant less than four weeks old

**Neurologist** - A physician who specializes in treating diseases of the nervous system.

**Obstetrician** - A specialist who practices obstetrics

**Obstetrics** - The field of study concentrated on pregnancy, childbirth, and the postpartum period.

**Obstructive Sleep Apnoea (OSA)** - A relatively common condition where the walls of the throat relax and narrow during sleep, interrupting normal breathing.

**Occupational Therapist** - A health professional who works with a client to help them achieve a fulfilled and satisfied state in life through the use of “purposeful activity or interventions designed to achieve functional outcomes

**Otology** - A subspecialty of ORL which focuses on the diseases of the ear and connecting structures.

**Otologist** - ORL specialist who is expert in the field of otology.

**Otorhinolaryngology (ORL)** - A surgical subspecialty within medicine that deals with conditions of the ear, nose, and throat and related structures of the head and neck.

**Paediatric ORL** - A subspecialty of ORL that delivers comprehensive and personalized care for children with disorders of the ear, nose, throat and related structures.

**Paediatrics** - A branch of medicine that involves the medical care of infants, children, and adolescents.

**Paediatrician** - A specialist who practices paediatrics

**Paramedic** - A healthcare professional, predominantly in the pre-hospital and out-of-hospital environment, and working mainly as part of emergency medical services, such as on an ambulance.

**Physiotherapist** - A health care personnel that specialises in treating disease, injury or deformity by physical methods such as massage, heat treatment and exercise.

**Phonosurgery** - Surgical procedures that maintain, restore or enhance the human voice.

**Radioallergosorbent test (RAST)** - A blood test using radioimmunoassay test to detect specific IgE antibodies, to determine the substances that a subject is allergic to.



**Radiology** - The branch of medicine that uses medical imaging to diagnose and sometimes also treat diseases within the body.

**Radiologists** - A specialist in Radiology.

**Rhinology** - A subspecialty within the field of ORL focused on the treatment of diseases and disorders affecting the nasal cavity and sinuses.

**Rhinologist** - A specialist that is expert in the field of rhinology.

**Sialoendoscopy** - A minimally invasive technique that allows for salivary gland surgery for the safe and effective treatment of obstructive salivary gland disorders.

**Skin Prick Test** - A method for medical diagnosis of allergies that attempts to provoke a small, controlled, allergic response.

**Speech-Language Therapist** - A health professional who assesses, diagnoses and treat speech, language, communication, voice, fluency, feeding and swallowing disorders.

**Speech-Language Therapy** - A field of expertise that provides treatment, support and care for children and adults who have difficulties with communication, or with eating, drinking and swallowing.

**Tinnitus** - Perception of noise or ringing in the ears without an external cause.

**Tracheostomy** - A surgical procedure which consists of making an incision on the anterior aspect of the neck and opening a direct airway through an incision in the trachea.

**Vertigo** - A sensation of rotation or movement of one's self (subjective vertigo) or of one's surroundings (objective vertigo) in any plane.

# 1. INTRODUCTION

Otorhinolaryngology (ORL) services are among the major specialty services provided by many Ministry of Health ( MOH ) hospitals. To date there are 38 MOH hospitals that provide ORL services throughout Malaysia.

Rapid advancement in ORL has led to the development of its subspecialties namely Otology, Rhinology, Head & Neck Surgery and Paediatric ORL. This is further enhanced by the support of Audiology and Speech-Language Therapy services.

ORL services have also expanded into the field of sleep disorders especially in obstructive sleep apnoea ( OSA ). The increased caseload of OSA patients has prompted ORL specialists to actively participate in this field of medicine.

This policy aims to provide health care providers, policy makers and hospital directors on the latest development and implementation of ORL services in MOH hospitals.

It also provides information regarding other important areas in ORL services such as organizations, training, researches and quality improvement initiatives.

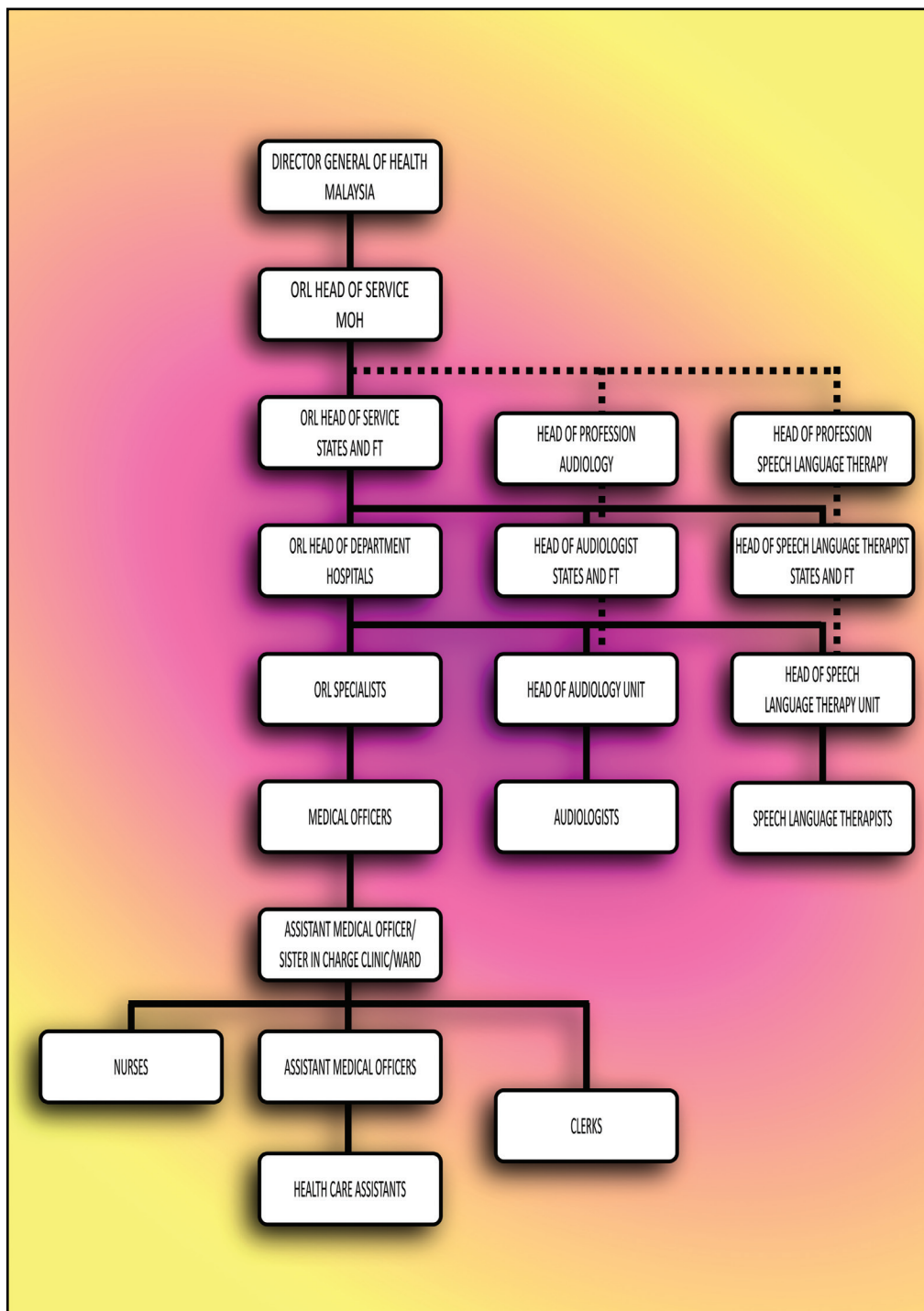
This document also provides latest updates on all programmes provided by ORL services in MOH such as Neonatal Hearing Screening, Cochlear Implant Program, Ear and Hearing Care, ORL Sleep service and Allergy clinic.

The document shall be reviewed and updated in every 5 years or earlier when the need arises.

## 2. ORGANISATION

- 2.1 The ORL services in MOH are headed by MOH ORL Head of Service appointed by the Director General of Health Malaysia.
- 2.2 The ORL services in each state shall be headed by ORL State Head of Service appointed by the State Health Director
- 2.3 ORL departments in state hospitals shall be headed by a senior consultant appointed by the Hospital Director.
- 2.4 ORL departments in major specialist hospitals shall be headed by an ORL consultant/specialist appointed by the Hospital Director.
- 2.5 All ORL departments shall have Audiology Unit and headed by senior audiologist, appointed by ORL Head of Department
- 2.6 All ORL departments shall have Speech-Language Therapy Unit, headed by senior speech-language therapist, appointed by ORL Head of Department.
- 2.7 The organisational chart of ORL services in MOH, state and hospital departmental level are as follows.

## MOH Organizational Chart of ORL Services



### **3. OBJECTIVES OF SERVICE**

- 3.1 To provide a safe and optimum standard of care to patients with ear, nose, throat, head and neck diseases.
- 3.2 To provide service for prevention, diagnosis, treatment and rehabilitation of hearing and vestibular problems.
- 3.3 To diagnose and provide rehabilitation for individuals with speech, language, communication, swallowing and feeding disorders through early intervention, counselling and educational programmes.
- 3.4 To foster public awareness in ORL diseases through screening and prevention programmes to improve quality of life.
- 3.5 To provide systematic training programmes for professionals and support service personnel.
- 3.6 To collaborate with institutes of higher learning in post-graduate training.

## 4. GENERAL STATEMENTS

- 4.1 Clinical governance and delivery of ORL services should be carried out by adequately trained and credentialed ORL specialists, medical officers, audiologists, speech-language therapists (SLTs), paramedics and other allied health professionals.
- 4.2 To ensure optimal standard of patient care according to clinical privileges and available resources.
- 4.3 The department should be well-equipped to deliver safe and adequate care.
- 4.4 There shall be appropriate space and facilities in the department for administrative, clinical and non-clinical function. These include consultation rooms, procedure rooms, sound proof and sound treated rooms, meeting rooms and on-call rooms.
- 4.5 There shall be an efficient inventory management system for stock keeping of assets, consumables and drugs.
- 4.6 Referral of ORL cases from other health facilities shall be made to the nearest specialist hospital with appropriate level of care.
- 4.7 All categories of staff shall be credentialed and privileged to perform procedures appropriate to their level of skill and competency.
- 4.8 All ORL Specialists shall be privileged to perform core procedures as listed by MOH.  
  
(Refer to *Core Procedure Skills Upon Completing Specialist Training in Otorhinolaryngology*)
- 4.9 ORL Specialist with subspecialty training is required to manage at least 40% of general otorhinolaryngology cases.
- 4.10 Each subspecialty service shall be guided by the general policies and procedures pertaining to the respective subspecialty. (Refer to *Specialty & Subspecialty Framework of Ministry of Health Under 11<sup>th</sup> Malaysia Plan, 2016-2020*)
- 4.11 Communication between disciplines shall be effective and professional to ensure optimal patient care.
- 4.12 Effective communication with patients and their family members is important. There should be full disclosure of any unexpected incidences and adverse outcomes.

- 4.13 All ORL equipment shall be maintained in good working conditions with regular planned preventive maintenance and shall be handled by trained personnel.
- 4.14 ORL Assets may be transferred between hospitals/ORL departments if needed (by following standard procedures), based on ORL assets auditing and reports, to ensure optimal use of the assets.

(Refer to “*Tatacara Pengurusan Aset Alih Kerajaan KP 2/2013*”)

- 4.15 All equipment beyond 5-10 years of acquisition will need a systematic evaluation and consideration of phasing out. This is to ensure cost effectiveness, safety, uninterrupted services and its relevance to current needs and technology.
- 4.16 The department shall support all the existing MOH policies and initiatives including the Full Paying Patient (FPP) programme, Hospital Cluster concept, LEAN Health care, Safe Surgery Saves Lives (SSSL) and Saturday elective list.
- 4.17 Public awareness programmes, such as National ‘**WHO** Hearing Care Day’ and ‘*Better Hearing and Speech Month*’ shall be held at regular basis at national and state levels.
- 4.18 The department shall adhere to the latest National Antibiotic Guidelines on antibiotic usage.

(Refer *National Antibiotic Guidelines 2014, 2<sup>nd</sup> Edition*)

## 5. SCOPE OF SERVICE

- 5.1 Provide comprehensive care for patients with ear, nose, throat, head and neck diseases using up-to-date diagnostic and therapeutic tools.
- 5.2 Provide audiology services which include screening, prevention, diagnosis and (re)habilitation of hearing and peripheral vestibular disorders.
- 5.3 Provide speech and language therapy services for those with speech and language, communication, voice, feeding and swallowing disorders.
- 5.4 Provide training for professionals and paramedics.

## 6. COMPONENTS OF SERVICE.

### 6.1 Outpatient

The ORL clinic is a referral-based clinic, which provides services to patients with ORL related diseases using up-to-date diagnostic and therapeutic tools. It shall be established in all state and major hospitals. (Refer to *Specialty & Subspecialty Framework of Ministry of Health Hospital Under 11<sup>th</sup> Malaysia Plan, 2016-2020*)

#### 6.1.1 Objectives;

- 6.1.1.1 To ensure that all patients receive optimal investigations, treatments and rehabilitation.
- 6.1.1.2 To ensure office based procedures are done appropriately and safely.
- 6.1.1.3 To facilitate day of surgery admission and day care surgery.
- 6.1.1.4 To refer all pre-operative patients undergoing general anaesthesia to anaesthesiology clinic (refer to individual hospital policy).
- 6.1.1.5 To educate patients regarding ORL diseases and other related procedures.
- 6.1.1.6 To make appropriate referrals to the relevant disciplines as necessary.

6.1.2 ORL clinic shall be supported by adequate manpower and ORL equipment.

6.1.3 The Clinic shall be attended by adequate medical and nursing staff;

- 6.1.3.1 A specialist shall be available for consultation.
- 6.1.3.2 The number of doctors, allied health professionals, paramedics and supporting staff shall increase with increasing demand.



- 6.1.3.3 The services of Audiology and Speech-Language Therapy are integrated with the ORL outpatient service.
- 6.1.3.4 All referral cases to Audiologist and SLTs shall be seen by ORL medical officer/ specialist.

## **6.2 Inpatient**

The ORL inpatient care is for patients that require inpatient management and investigation based on assessment by medical officer or ORL specialist. The inpatient care may be preventive, curative, rehabilitative or palliative, and may include the use of anaesthesia, surgery, medication, supportive therapies or a combination of these approaches. It shall be established in all state and major hospitals. This care shall also be offered in cluster hospitals designated by MOH.

### **6.2.1. Objectives:**

- 6.2.1.1 To ensure that all patients receive optimal investigations, treatments, surgical intervention, rehabilitation and proper follow-up.
- 6.2.1.2 To ensure care of ORL emergencies are timely and appropriate.
- 6.2.1.3 To ensure inpatient procedures are done safely.
- 6.2.1.4 To refer patients to the relevant discipline when necessary.
- 6.2.1.5 To educate patients regarding ORL diseases and other related procedures.
- 6.2.1.6 To obtain consent for inpatient procedures.  
*(refer to Otorhinolaryngology Patient Leaflet, 2015).*
- 6.2.1.7 To facilitate elective and emergency surgeries and their peri-operative care.
- 6.2.1.8 In paediatric cases, parents/guardians need to be counselled on nature of disease and their involvement in the decision making and management of the patient.

- 6.2.2 The patients shall be admitted by a medical officer or specialist.
- 6.2.3 A record system shall be created to document the details of the inpatient care.
- 6.2.4 The patient's record shall be made available to all relevant health professionals who are authorized to have access to its contents.
- 6.2.5 Medical, nursing, pharmaceutical, allied health professional, rehabilitation and other types of healthcare providers shall have a clear role in inpatient care. Credentialing/privileging, registration, law and regulation will determine their role.
- 6.2.6 ORL inpatient care shall be supported by adequate manpower and ORL equipment.
- 6.2.7 The patients' vital signs shall be monitored and documented regularly.
- 6.2.8 The patients' treatment, medication, procedures, response to treatment and their complications shall be documented.
- 6.2.9 Regular schedule of ward rounds by medical officers or specialists is compulsory.
- 6.2.10 ORL medical officer and specialist shall be available for consultation when needed.
- 6.2.11 The appropriate number of doctors, nurses and supporting staff required shall be in tandem with the patient loads.
- 6.2.12 Clinical practice guidelines, relevant to the patient's condition shall be used to guide the inpatient care and services.
- 6.2.13 There shall be a systematic process for discharging patients. The patients shall have their follow-up instructions and medications upon discharge.

### **6.3 Daycare Surgery**

(Refer to Daycare Surgery. Standard Operating Procedure, August 2016).

## **6.4 Operation**

- 6.4.1 The medical officer or ORL specialist shall verify the identity of the patient, the planned surgical procedure and the site of surgery beforehand.
- 6.4.2 All patients shall be assessed pre-operatively by a medical officer or ORL specialist.
- 6.4.3 Skilled paramedics, if available shall assist in every surgery.
- 6.4.4 All surgical equipment shall be maintained in good working conditions with regular planned preventive maintenance.
- 6.4.5 Safety precaution shall be implemented accordingly.
- 6.4.6 Complete operative notes, findings and post-operative care plan shall be documented by medical officer/ORL specialist. The outcomes including complications should be recorded. The available data can be used for the purpose of KPI measurement and audit.
- 6.4.7 To ensure the safety of a surgical procedure and good communication between the teams involved in the surgical management, the ORL team shall be guided by the *Safe Surgery Saves Lives Initiatives (SSSL); Implementation Guideline, MOH 2009*.

## **6.5 Neonatal Hearing Screening**

- 6.5.1 Neonatal hearing screening in ORL is implemented with an objective to detect hearing loss in the newborn. With early detection and diagnosis, neonates with hearing loss will be aided and habilitated optimally. (*refer to Guidelines for Neonatal Hearing Screening. Sept 2014*)
- 6.5.2 Neonatal hearing screening comprises of Universal Neonatal Hearing Screening (UNHS) and High Risk Neonatal Hearing Screening (HRNHS). The option of the programme implementation will depend on the availability of manpower and equipment in each of the hospital involved.
  - 6.5.2.1 Universal Neonatal Hearing Screening (UNHS)  
Hearing screening is offered to all babies delivered in the respective hospitals.

- 6.5.2.2 High Risk Neonatal Hearing Screening (HRNHS)  
Hearing screening is performed on neonates who are born with high risk factors associated with congenital or acquired hearing loss.

(Refer Appendix 1 for updated list of hospitals)

6.5.3 Objectives of UNHS:

- 6.5.3.1 To screen babies by one month of age.
- 6.5.3.2 To diagnose any hearing loss by 3 months of age.
- 6.5.3.3 To provide appropriate intervention by 6 months of age.
- 6.5.3.4 To facilitate early cochlear implantation in identified children.
- 6.5.4 The hearing screening shall involve a multidisciplinary team of professionals with well-defined roles and responsibilities.
- 6.5.5 The programme shall be supported by adequate manpower, equipment, consumables, material and space for hearing screening.
- 6.5.6 Paediatric team shall identify infants with high risk of hearing loss (HRNHS) and refer to the ORL team. There shall be a list of conditions associated with hearing loss for guidance.

(Refer Appendix 2 - List of conditions)

- 6.5.7 ORL specialists shall collaborate with other clinical disciplines to provide comprehensive management of the neonatal hearing screening programme.
- 6.5.8 Obstetric/Paediatric team shall ensure all new born undergo hearing screening prior to discharge (UNHS).
- 6.5.9 Audiology team shall coordinate the neonatal hearing screening programme development, management, quality assessment and service.
- 6.5.10 Screening personnel (paramedics) shall be trained adequately and privileged for neonatal hearing screening procedures.
- 6.5.11 Results from the hearing screening shall be recorded into the Hearing Screening Database.
- 6.5.12 Neonates with 'REFER' result shall be given an early appointment for audiological diagnostic assessment.

**Note:**

Systematic hearing screening and monitoring program will be implemented in collaboration with primary healthcare facility. Hearing monitoring of the children shall be continued using appropriate techniques and equipment by trained personnel through the MOH Growth and Child Development Assessment Programme. An early referral shall be made to ORL team for further intervention and habilitation.

(Refer to “*Program Penilaian Pertumbuhan dan Perkembangan Kanak-Kanak umur 0-6 tahun KKM*”)

**6.6 Cochlear implant**

6.6.1 Cochlear implantation is a service provided by a team consists of trained ORL specialists, audiologists and SLTs for hearing impaired patients requiring cochlear implant.

6.6.2 National Cochlear Implant Program has been implemented with the support of Medical Development Division, Ministry of Health Malaysia, since 2007 through New Policy 2007/08.

6.6.3 Cochlear Implant Service Operational Policy was put in place since 2009 (revised edition 2017) to ensure a standard practice.

(Refer to *Cochlear Implant Service Operational Policy- Nov 2017*)

**6.7 ORL Sleep Services**

6.7.1 OSA Clinic provides a comprehensive evaluation and management of patients with obstructive sleep apnoea through a multidisciplinary team approach which involves ORL specialist with special interest in sleep medicine, dietitian, medical assistant or staff nurse with training in sleep medicine and CPAP focusing on patient care, education, medical and surgical management.

6.7.2 The scope of the service includes:

6.7.2.1 Patient assessment, history taking, confirmation of diagnosis of OSA and complications of OSA.

6.7.2.2 Provide in-hospital sleep study test (at least level 2 sleep study) and also CPAP titration therapy.

6.7.2.3 Provide in hospital surgical management of OSA patients.

(Refer to *Standards Of Sleep Facilities in Ministry of Health, Malaysia, 2011*)

## 7. SUBSPECIALTY

Subspecialty ORL practice demands special requirements unavailable in hospitals which are not dedicated for subspecialty care. Therefore, it is prudent to develop a policy, which describes overview of subspecialty management to ensure procedures are carried out uniformly aiming to achieve efficiency and thus lessen the mismanagement during routine practice.

The list of subspecialties available in ORL:

- Paediatric ORL
- Otology
- Head and Neck Surgery
- Rhinology

### 7.1 PAEDIATRIC ORL

Most of ORL disorders seen in children can be treated safely by any ORL specialist/ trained medical officer. However, this policy is designed to emphasize on more important aspects of the management in a systematic manner.

#### 7.1.1 Objectives:

- 7.1.1.1 To provide comprehensive and quality care to the children from newborn till the age of 12 years old. Combined management of Paediatric ORL with other subspecialties and disciplines may be required.
- 7.1.1.2 To provide an individualized and comprehensive management that involves the patient's family.

## **7.1.2 Scope of Services:**

- 7.1.2.1 Outpatient
- 7.1.2.2 Inpatient
- 7.1.2.3 Day care
- 7.1.2.4 Operations and procedures

*(Refer Handbook and Guidelines Paediatric ORL Subspecialty Training)*

- 7.1.3 All ORL specialists (with subspecialty training or otherwise) involved in managing paediatric ORL shall work within the limits of their professional competence.
- 7.1.4 Paediatric ORL procedures that are performed by medical officers should be appropriately supervised by a specialist. The level of supervision shall vary according to their ability, complexity of the procedure, presence of any relevant co-morbidity and age of the child.
- 7.1.5 Parents/guardians should be involved in all aspects of the decisions affecting the care of their children peri-operatively.
- 7.1.6 Parents/guardians shall be counselled on nature of disease and their involvement in decision-making and management of the patient is crucial.
- 7.1.7 Parents education on tracheostomy care is essential to be provided by the managing team to prevent complications.
- 7.1.8 Specific requirements for paediatric ORL airway procedures include:
  - 7.1.8.1 Availability of appropriate equipment to be used in infants and children (age-adjusted).
  - 7.1.8.2 NICU or PICU is required in most cases of airway procedures or observation at acute cubicle in the ward.
- 7.1.9 Collaboration with obstetrician, anaesthesiologist and paediatrician is essential while performing EXIT procedure.
- 7.1.10 Paediatric ORL airway team will provide service to the surrounding hospitals when available. This service will be expanded in the future with the availability of manpower and equipment.

## 7.2 OTOTOLOGY

### 7.2.1 OTOTOLOGY SERVICE

Otology service is a specialist based service. Hospitals designated as otology centres shall be staffed by ORL specialist trained in otology and credentialed to perform advanced otological procedures. In facilities without resident otologist, surgical procedure shall be limited to uncomplicated otology surgery as listed in core procedures for ORL specialist in MOH guidelines. (Appendix 3)

#### 7.2.1.1 Objective:

To provide safe and effective management of ear diseases in all patients presented to otology services either as outpatient or inpatient. These also include patients who have hearing problems, imbalance and tinnitus.

#### 7.2.1.2 The scope of services:

- 7.2.1.2.1 Outpatient otology clinic will be conducted by a team headed by an otologist. The area of clinical services involves both diagnostic as well as therapeutic components. The service shall deal with all ear diseases, hearing problem and imbalance.
- 7.2.1.2.2 Inpatient service is provided for those who are admitted due to ear diseases. Admission to ORL ward or any interdepartmental referral to otology team shall follow respective hospital guidelines.
- 7.2.1.2.3 All otological patients planned for operation will be seen and counselled by the otology team. Before subjecting to surgery, all patients must be thoroughly investigated, consented, undergone hearing assessment, and understood the risks of the surgery.
- 7.2.1.2.4 Cochlear implantation service is offered for those who have fulfilled the criteria following MOH Cochlear Implant Programme. Upon approval from MOH Central Cochlear Implant Committee, the surgery shall be conducted at one of the satellite hospitals, while post-operative rehabilitation/habilite can be performed at either satellite or non-satellite hospitals.

*(Refer Cochlear Implant Service Operational Policy MOH Nov 2017)*



- 7.2.1.3 In patients with hearing and speech problem, the otology team should also involve audiologist and SLT as necessary. The procurement of hearing amplification devices shall be made according to the existing policy.

(Refer to “*Polisi Operasi Pemerolehan Alat Bantu Pendengaran, 2016*”)

- 7.2.1.4 Outpatient clinic and operation theatre shall be equipped with adequate instruments that are needed for otological procedures. These include diagnostic and operating microscopes, ORL treatment units, micro-instruments, high speed drills and facial nerve monitor.

## **7.2.2 TINNITUS CLINIC**

Tinnitus clinic provides comprehensive evaluation and management of patients with tinnitus through a multidisciplinary team approach which involves ORL specialist/medical officer, audiologist, occupational therapist and clinical psychologist (whenever available), focusing on patient care, education and research.

### **7.2.2.1 Objective:**

To manage patients with objective and subjective tinnitus either through medical and/or surgical intervention and followed by rehabilitation.

### **7.2.2.2 The scope of the service:**

- 7.2.2.2.1 Patients with tinnitus shall be managed by a multidisciplinary team encompassing a thorough clinical assessment, audiological, laboratory and radiological investigations.

- 7.2.2.2.2 Rehabilitation for tinnitus patients shall be conducted by an audiologist trained in tinnitus management.

(Refer to “*Prosedur Operasi Standard Penjagaan Pesakit Tinnitus – 2014*”)

## **7.2.3 VERTIGO AND BALANCE CLINIC**

Vertigo and balance clinic provides a comprehensive evaluation and management of patients with vestibular and balance disorders through a multidisciplinary team approach which involved ORL specialist/medical officer, neurologist, audiologist, physiotherapist, occupational therapist and clinical psychologist (whenever available). This clinic specializes in vestibular and balance assessment, treatment, rehabilitation and vestibular research.

(Refer to *Specialty & Subspecialty Framework of Ministry of Health Under 11<sup>th</sup> Malaysia Plan, 2016-2020*)

### **7.2.3.1 Objectives**

- 7.2.3.1.1 To evaluate patients with vertigo and balance disorders
- 7.2.3.1.2 To establish diagnosis of vestibular and balance problems
- 7.2.3.1.3 To provide comprehensive management for patients with vertigo and balance disorders
- 7.2.3.1.4 To provide patient with customized vestibular and balance rehabilitation program
- 7.2.3.1.5 To improve patient's quality of life
- 7.2.3.1.6 To participate in vestibular and balance research

### **7.2.3.2 Scope of Service**

- 7.2.3.2.1 Vestibular and balance assessments
- 7.2.3.2.2 Diagnostic vestibular and balance tests
- 7.2.3.2.3 Providing various therapeutic modalities

### **7.2.3.3. Requirement for Vertigo and Balance Clinic Services**

- 7.2.3.3.1 Space for the vertigo and balance clinic needs to be adequate in order to perform neuro-otology examination and balance assessment for safety of patient.
- 7.2.3.3.2 The clinic should be well equipped for examination and assessment.
- 7.2.3.3.3 Resuscitation and monitoring equipment shall be available and accessible for any emergency events.

- 7.2.3.3.4 The vestibular test and audiology assessment shall be in accordance with the Standard Operational Procedures for Vestibular and Balance Patient Care (2014).
- 7.2.3.3.5 Patients must be accompanied by an able adult during clinic visit.

## **7.3 HEAD & NECK SERVICE**

### **7.3.1 HEAD AND NECK SURGERY**

Pathology of the Head and Neck region constitutes a significant burden of disease to our society in terms of its related morbidity and mortality. This policy is designed to provide a standard of care ensuring timely and effective treatment for patients to achieve the best possible outcome.

The service includes management of benign and malignant conditions in the head and neck region.

#### **7.3.1.1 Objective**

- 7.3.1.1.1 To manage diseases related to the upper airway, voice and swallowing disorders and head & neck tumours.
- 7.3.1.1.2 To perform surgeries related to pathologies of the head & neck region.
- 7.3.1.1.3 To participate in the rehabilitation of patients' recovery towards a better quality of life.
- 7.3.1.1.4 To provide palliative care for patients with advanced disease or severe co-morbidities

#### **7.3.1.2 Scope of Service:**

- 7.3.1.2.1 Head & Neck Surgery and Reconstruction
- 7.3.1.2.2 Phonosurgery and voice rehabilitation
- 7.3.1.2.3 LASER surgery
- 7.3.1.2.4 Upper Airway Obstruction surgery
- 7.3.1.2.5 Sialoendoscopy
- 7.3.1.2.6 Swallowing management for SLTs,

(Refer to *Standard Operating Procedures – Patient Management with Swallowing Disorder 2014*)

7.3.1.2.7 Combine multidisciplinary management of complex cases.

**7.3.1.3 Activities:**

- 7.3.1.3.1 Prevention and early identification of Head & Neck Cancers
- 7.3.1.3.2 Coordination of available resources for radiological, pathological diagnosis and cancer staging to hasten the cancer treatment.
- 7.3.1.3.3 Provide comprehensive service for all patients with head and neck cancers.
- 7.3.1.3.4 Evaluate, advise and counsel on the options of treatment to the patients and caregivers.
- 7.3.1.3.5 Provide appropriate surgery, reconstruction or non-surgical treatment.
- 7.3.1.3.6 Provide a multidisciplinary team approach.
- 7.3.1.3.7 Ensure close surveillance of outcomes and complications.
- 7.3.1.3.8 Establish a link to other centres to assist in the management of diagnostically complex cases.
- 7.3.1.3.9 Engage with local and national Head & Neck Cancer research initiatives. All cancer cases shall be notified in National Cancer Registry.
- 7.3.1.4 A patient suspected to have a Head & Neck Cancer shall be first seen by an ORL doctor within 7 working days upon receiving the referral.
- 7.3.1.5 Initial assessment should include a thorough history, physical and endoscopic examination.
- 7.3.1.6 Further investigation should be based on the initial clinical finding.

## 7.3.2 LARYNGOLOGY & VOICE CLINIC SERVICES

Laryngology is subspecialty/area of interest in ORL Head and Neck Surgery. The service encompasses management of patients with voice, airway and swallowing disorders.

### 7.3.2.1 Objectives

- 7.3.2.1.1 To provide comprehensive and efficient laryngology and voice clinic services.
- 7.3.2.1.2 To perform detailed assessment to achieve an accurate diagnosis.
- 7.3.2.1.3 To facilitate voice therapy techniques and other vocal exercises to improve voice quality.
- 7.3.2.1.4 To establish treatment options and rehabilitation through a multidisciplinary and comprehensive approach.
- 7.3.2.1.5 To provide training for the MOH professionals and staffs

### 7.3.2.2 Scope of Services

- 7.3.2.2.1 Management of dysphonia
- 7.3.2.2.2 Management of laryngo-tracheal stenosis/reconstruction
- 7.3.2.2.3 Management of laryngopharyngeal tumours

### 7.3.2.3 Activities

- 7.3.2.3.1 The role of ORL specialist is to provide medical and surgical management for patients with voice disorders.
- 7.3.2.3.2 SLT plays a vital role in diagnosing and facilitating the identification of appropriate management strategies.

*(Refer to “Prosedur Operasi Standard: Penjagaan Pesakit dengan Kecelaruan Suara”, KKM, Jilid 1, 2014”)*

- 7.3.2.3.3 Provides a Combined Voice Clinic, which consists of the Laryngology Specialist and SLT co-managing the patient with voice disorders. The aim of this clinic is to avoid repetitions of clinical assessment, better planning of patient management and early initiation of treatment.
- 7.3.2.3.4 Office-based procedures are performed in this clinic. These

include biopsy, injection laryngoplasty and intralesional steroid injection to laryngotracheal stenosis.

### **7.3.3 SWALLOWING MANAGEMENT SERVICES**

Swallowing disorder may lead to life threatening consequences and an impaired quality of life. It usually results from a neurological or physical impairment of the oral, pharyngeal or oesophageal mechanism.

Management of swallowing disorder often requires multidisciplinary approach and may involve Speech and Language Therapist (SLT), ORL specialist, gastroenterologist, dieticians, radiologists, paediatricians and occupational therapists.

#### **7.3.3.1 Objectives**

- 7.3.3.1.1 To provide detailed assessment to achieve an accurate diagnosis.
- 7.3.3.1.2 To ensure safety (reducing or preventing aspiration) with regards to swallowing function to improve quality of life.
- 7.3.3.1.3 To rehabilitate children and adults with swallowing disorder using various procedures.

#### **7.3.3.2 Scope of Services**

- 7.3.3.2.1 Dysphagia Screening shall be performed by trained paramedics, medical officers or allied health professionals.
- 7.3.3.2.2 Clinical Swallowing Examination and Blue Dye Test by SLTs.
- 7.3.3.2.3 Instrumental Swallowing Assessments (FEES & VFSS – if available) by multidisciplinary team members such as SLTs, ORL surgeons, dietitians and radiologists.
- 7.3.3.2.4 Dysphagia Rehabilitation is performed by trained SLT.  
  
(refer to “Prosedur Operasi Standard: Penjagaan Pesakit dengan Kecelaruan Penelanan”, KKM, Jilid 1, 2014 ”)
- 7.3.3.2.5 Medical & surgical intervention shall be provided by respective specialty.

## **7.4 RHINOLOGY SERVICES**

### **7.4.1 RHINOLOGY**

The nose is the primary organ of smell which also functions as part of body respiratory systems; for breathing and resonance of sound. It also serves as one of the aesthetic components of the face.

The rhinology services include the treatment of diseases affecting the nasal cavity and sinuses. Common problems include allergy, nasal obstruction, sinusitis, tumour of sinuses, anterior skull base lesion and nasal deformity.

#### **7.4.1.1 Objectives**

- 7.4.1.1.1 To provide a standard quality of care for patients.
- 7.4.1.1.2 To provide safe and effective management of nasal diseases in all patients presented to rhinology services. These also include patients who have allergy, sinonasal diseases, anterior skull base lesion and nasal deformity.
- 7.4.1.1.3 To conduct continuous medical education programme and research in rhinology.

#### **7.4.1.2 Scope of service:**

- 7.4.1.2.1 Outpatient rhinology clinic shall be conducted by a team headed by a rhinologist. The service involves both diagnostic and therapeutic components dealing with sinonasal diseases including allergy testing.
- 7.4.1.2.2 Inpatient
- 7.4.1.2.3 Day care
- 7.4.1.2.4 Operations/procedures
- 7.4.1.3 Hospitals with rhinologist or privileged ORL specialists shall manage advanced and complicated rhinology cases.
- 7.4.1.4 In hospitals without rhinologists or privileged ORL specialist, elective surgery should be limited to core rhinology procedures (Refer Appendix 3).
- 7.4.1.5 The process of pre-operative assessment, consent taking and pre-operative instructions for the rhinology patient shall be the same as for any other surgical procedures.

- 7.4.1.6 All equipment such as video camera systems, telescope of various sizes and angles, headlight, microdebrider and Image Guided System (IGS) system shall be maintained in good working conditions.

## **7.4.2 ALLERGY CLINIC**

Allergy Clinic provides comprehensive allergy care for patients.

### **7.4.2.1 Objectives:**

- 7.4.2.1.1 To manage patients with allergies by establishing diagnosis and providing counseling with appropriate treatment.
- 7.4.2.1.2 Patients with allergy shall be managed by a dedicated team comprising of ORL specialist, medical officers, immunologist (where available), assistant medical officers and staff nurses.

### **7.4.2.2 Scope of Services:**

- 7.4.2.2.1 Allergy Outpatient Clinic
- 7.4.2.2.2 'Skin Prick Test' (SPT)
- 7.4.2.2.3 Radioallergosorbent test (RAST)
- 7.4.2.2.4 Immunotherapy.
- 7.4.2.3 The day-to-day management of the service is under the responsibility of an ORL specialist, medical officer and immunologist (where available).
- 7.4.2.4 Skin Prick Test shall be performed by trained and privileged paramedics and are required to have Basic Life Support (BLS) certification.
- 7.4.2.5 Resuscitation equipment must be readily available in cases of emergency.



## 8. TRAINING AND EDUCATION

- 8.1 Staff training and education is crucial and a continuous process to ensure an up to date service is always maintained without disruption.
- 8.2 The department shall define the level of knowledge, skills and training required for all its personnel.
- 8.3 The staff shall have access to appropriate educational programme to maintain their professional competency.
- 8.4 All staff is required to participate in the Ministry's e-CPD to ensure continuous monitoring and attendance in training and education activities.
- 8.5 Continous medical education and training to healthcare providers is fundamental to ensure ongoing high quality care. Therefore adequate support including funding from relevant stakeholders is required to meet the needs.
- 8.6 To collaborate with Ministry of Education to provide a comprehensive training module for undergraduate and postgraduate programme in the field of ORL and its related subspecialties.
- 8.7 To facilitate teaching and training of undergraduate medical students allied health students from public and private universities which have Memorandum of Understanding (MOU) with Ministry of Health.
- 8.8 Training programmes available in ORL service are as listed below;
  - 8.8.1 ORL Master Programme to train new specialists.  
*(Refer to "Garis Panduan Program Sarjana Perubatan Bagi Pegawai Perubatan Kementerian Kesihatan Malaysia, 2017")*
  - 8.8.2 Gazettment for new ORL Specialists.  
*(Refer to guidelines from "Unit Pewartaan, Credentialing and Privileging Kementerian Kesihatan Malaysia")*
  - 8.8.3 Subspecialty Training for ORL Specialist - Head & Neck Surgery/Laryngology, Paediatric ORL, Otology, Rhinology.  
*(Refer to website "Bahagian Pengurusan Latihan" <http://ehlp.moh.gov.my/>)*

- 8.8.4 Master classes of all 4 ORL subspecialties (starting 2018).
- 8.8.5 Training in Sleep Medicine.
- 8.8.6 Paramedic Post Basic Training (6 months duration) – “Sijil Pengkhususan Perawatan Otorinolaringologi”  
  
(Refer to “*Garis Panduan Pelaksanaan Kursus Lanjutan Kementerian Kesihatan Malaysia*”, 2017)
- 8.8.7 Postgraduate Training for Audiology & Speech-Language Therapy.  
  
(Refer to website “*Bahagian Pengurusan latihan*” <http://ehlp.moh.gov.my/>)
- 8.8.8 Postgraduate Training for Speech-Language Therapy  
  
(Refer to “*Garis Panduan Pembangunan dan Perkembangan Kerjaya Profesion Pegawai Pemulihan Perubatan Pertuturan*”, 2014)
- 8.8.9 Training for Hearing Screening Personnel  
  
(Refer to *Guidelines for Neonatal Hearing Screening 2015*)
- 8.8.10 Training for Swallowing Screening Personnel.  
  
(Refer to *Clinical Observational Dysphagia Assessment (CODA) / Water Swallow Test by SLT for paramedics, doctors & allied health professionals*)
- 8.9 Annual Scientific Symposium and National ORL symposium as a platform for ORL Specialists in MOH to discuss and obtained updates regarding the latest management of various ORL disease.

## 9. QUALITY AND RESEARCH

### 9.1 Quality

- 9.1.1 There shall be a continuous process of collection and compilation of clinical data to establish the changing pattern in clinical practice, morbidity and mortality.
- 9.1.2 These data shall be collected using a standard procedure or format throughout the Ministry of Health hospitals for the purpose of comparison and analysis.
- 9.1.3 Audit findings are to be used effectively to ensure on-going improvement of patient care.
- 9.1.4 To achieve the above objectives, the department shall participate in the following existing Ministry of Health quality initiatives:
  - 9.1.4.1 Incident Reporting
  - 9.1.4.2 Perioperative Mortality Review (POMR)
  - 9.1.4.3 Key Performance Indicators (KPI) (*See Table 1*)
  - 9.1.4.4 National Cancer Registry
  - 9.1.4.5 National ORL Registry - Hearing and Otology Related Disease/Cochlear Implant
- 9.1.5 In addition to the above, the department shall also conduct hospital or department specific quality improvement studies and participate in clinical audits initiated at national level.

### 9.2 Research

- 9.2.1 The department shall work closely with the hospital Clinical Research Centre (CRC) and other relevant bodies for example universities to conduct research activities in accordance to MOH policy and guidelines.
- 9.2.2 The department shall support research activities by facilitating funding (research grant) application and provide adequate facilities as well as protected time for the researcher.
- 9.2.3 The department shall participate in multi-centre clinical trials if opportunity arises.

# APPENDIX



## **LIST OF APPENDIX AND TABLE:**

**Appendix 1:** List of Hospitals with UNHS and HRNHS

**Appendix 2:** List of conditions associated with high risk neonatal hearing loss

**Appendix 3:** Core Procedure Skills Upon Completing Specialist Training in Otorhinolaryngology

**Appendix 4:** Special Equipment Requirements for ORL Subspecialties

**Table 1:** Key Performance Indicators ( KPIs ) for ORL

## **Appendix 1:**

### **A. HOSPITALS WITH UNIVERSAL HEARING SCREENING ( UNHS )**

1. HOSPITAL KUALA LUMPUR
2. HOSPITAL PUTRAJAYA
3. HOSPITAL SUNGAI BULOH, SELANGOR
4. HOSPITAL SULTANAH BAHYIAH, KEDAH
5. HOSPITAL LANGKAWI, KEDAH
6. HOSPITAL SULTAN ABDUL HALIM, KEDAH
7. HOSPITAL TAIPING, PERAK
8. HOSPITAL PULAU PINANG
9. HOSPITAL BUKIT MERTAJAM, PULAU PINANG
10. HOSPITAL TUANKU FAUZIAH, PERLIS
11. HOSPITAL RAJA PEREMPUAN ZAINAB II, KELANTAN
12. HOSPITAL SULTAN ISMAIL, JOHOR
13. HOSPITAL TUANKU AMPUAN NAJIHAH, NEGERI SEMBILAN
14. HOSPITAL MIRI, SARAWAK
15. HOSPITAL SIBU, SARAWAK
16. HOSPITAL WANITA & KANAK-KANAK LIKAS, SABAH

### **B. HOSPITALS WITH HIGH RISK HEARING SCREENING ( HRHS )**

1. HOSPITAL SELAYANG, SELANGOR
2. HOSPITAL TENGKU AMPUAN RAHIMAH, SELANGOR
3. HOSPITAL SERDANG, SELANGOR
4. HOSPITAL AMPANG, SELANGOR

5. HOSPITAL SHAH ALAM, SELANGOR
6. HOSPITAL RAJA PERMAISURI BAINUN, PERAK
7. HOSPITAL TELUK INTAN, PERAK
8. HOSPITAL KULIM, KEDAH
9. HOSPITAL KUALA KRAI, KELANTAN
10. HOSPITAL SULTANAH NUR ZAHIRAH, TERENGGANU
11. HOSPITAL KEMAMAN, TERENGGANU
12. HOSPITAL TENGKU AMPUAN AFZAN, PAHANG
13. HOSPITAL SULTAN AHMAD SHAH, PAHANG
14. HOSPITAL SULTANAH AMINAH, JOHOR
15. HOSPITAL PAKAR SULTANAH FATIMAH, JOHOR
16. HOSPITAL SULTANAH NORA ISMAIL, JOHOR
17. HOSPITAL SEGAMAT, JOHOR
18. HOSPITAL MELAKA
19. HOSPITAL TUANKU JAAFAR, NEGERI SEMBILAN
20. HOSPITAL UMUM SARAWAK
21. HOSPITAL DUTCHESS OF KENT, SABAH
22. HOSPITAL TAWAU, SABAH



## Appendix 2:

### List of Conditions Associated with High-Risk Neonatal Hearing Loss

1. Family history of hereditary childhood sensorineural hearing loss
2. In-utero infection such as cytomegalovirus, rubella, syphilis, herpes and toxoplasmosis
3. Craniofacial anomalies including those with morphological abnormalities of the pinna and ear canal
4. Birth weight less than 1,500 grams (1.5kg)
5. Hyperbilirubinemia at a serum level requiring exchange transfusion
6. Ototoxic medications including but not limited to the aminoglycosides, used in multiple courses or in combination with loop diuretics
7. Bacterial meningitis
8. APGAR scores of 0–4 at 1minute or 0–6 at 5 minutes
9. Mechanical ventilation lasting 5 days or longer
10. Stigmata or other findings associated with a syndrome known to include a sensorineural and/or conductive hearing loss

## Appendix 3:

### Core Procedure Skills Upon Completing Specialist Training in Otorhinolaryngology

- i. Submucous diathermy of inferior turbinates
- ii. Antral washout
- iii. Antrostomy
- iv. Intranasal polypectomy
- v. Trimming inferior turbinates
- vi. Nasopharyngoscopy
- vii. Foreign body removal from upper aerodigestive tract
- viii. Oesophagoscopy
- ix. Direct laryngoscopy
- x. Tracheotomy
- xi. Aural polypectomy
- xii. Myringotomy
- xiii. Grommet insertion
- xiv. Tonsillectomy/adenoidectomy
- xv. Excision of head & neck cyst and sinuses
- xvi. Tympanoplasty procedures
- xvii. Meatoplasty
- xviii. Mastoidectomy (cortical , modified radical, radical)
- xix. Bronchoscopy
- xx. Parotidectomy (superficial& total)
- xxi. Salivary gland surgery
- xxii. Oral surgery (including glossectomy)
- xxiii. Ethmoidectomy (intranasal & external)
- xxiv. Frontal sinus trephination
- xxv. Lateral rhinotomy
- xxvi. Rhinoplasty
- xxvii. Septorhinoplasty
- xxviii. Caldwell Luc & transantral procedures
- xxix. Maxillectomy (partial, total, with orbital exenteration)
- xxx. Laryngectomy (partial & total)
- xxxi. Endoscopic laryngeal microsurgery
- xxxii. Neck Dissections (all types)
- xxxiii. Lateral pharyngotomy
- xxxiv. Facial fracture reduction
- xxxv. Flaps and reconstructions
- xxxvi. Endoscopic Sinus Surgery

## Appendix 4:

### A. Basic ORL Equipment

Clinic examination room	Wall Mounted Otoscope
	Ent Treatment Unit Set With Integrated Headlight And Camera With Patient Chair
	Basic Ent Instruments For Use With Working Trolley
	Orl Workstation
	Portable Otoscope
Procedure Room	Medical Supply Cart (1 to 1)
	Basic Ent Instruments For Use With Working Trolley
	Portable Headlight
	Rigid Endoscope With Light Cable:
	1. 0 Degree Adult (4MM)
	2. 30 Degree Adult (4MM)
	3. 70 Degree Adult (4MM)
	4. 0 Degree Paediatric (2.7MM)
	5. 70 Degree Paediatric (2.7MM)
	Fibreoptic Nasopharyngolaryngoscopy (Fnpls) Set Adult
	Fibreoptic Nasopharyngolaryngoscopy (Fnpls) Paediatric
	Light Source For Rigid And Fibreoptic Scopes Xenon 175 Watts With Universal Adaptor
	Microscope Diagnostic
	Hd Camera System Set , Video And Image Capture With Monitor And Light Source
	Ent Patients Chair , (Recline To 90°)
	Surgeons Stool
	Autoclave Machine (Clinic)
	Portable Camera System With Rigid And Flexible Scope
	Incision And Drainage Set
	Portable Suction Machine
	Dinamap
	Defibrillator Machine (Ward/Clinic)
	Otoscope
	Resus Trolley With Instruments
	Nasal Packing Set
	Foreign Body Nose Set

	Foreign Body Ear Set
	Stainless Steel Dressing Trolley
	Tracheostomy Set (Paeds)
	Orl Workstation
	Portable/Ceiling Mounted Light
	T & S Set
	Portable Suction Machine
	Dressiing Set
	Frenzel Glass
	Wall Mounted Otoscope
	Adjustable Patient Bed
Ward	Ecg Machine (Share)
	Otoscopy Set
	Portable Headlights
	Spo2 Monitoring (Share)
	Ent Treatment Unit Set With Integrated Headlight And Camera System With Patient Chair
	Portable Suction Machine (Share)
	Attended Full Psg Set /Dedicated Room Cpap
Operation Theatre	Camera System Set
	Facial Nerve Monitor
	Microdebrider Set With Mastoid Drill & Oscilating Saw
	Operating Microscope (High End)
	Functional Endoscopic Sinus Surgery Set (Fess)
	Nasal Packing Set
	Nasal Bone Reduction Set
	Septoplasty Set
	Foreign Body Ear Set
	Basic Head & Neck Set
	Tonsillectomy Set
	Elms
	Rigid Oesophagoscope Set
	Rigid Bronchoscope Set With Accessories
	Middle Ear Set/Myringoplasty
	Rigid Endoscope With Light Cable:
	<ol style="list-style-type: none"> <li>1. 0 Degree Adult (4MM)</li> <li>2. 30 Degree Adult (4MM)</li> <li>3. 70 Degree Adult (4MM)</li> <li>4. 0 Degree Paediatric (2.7MM)</li> <li>5. 70 Degree Paediatric (2.7MM)</li> </ol>

	CO 2 Laser
	Xenon Headlight With Cable And Light Source
	Mastoidectomy Set

## **B. Equipment Requirement for ORL Subspecialties**

### **i) Head and Neck surgery services:**

- High Speed Drill with Saw And Drilling System
- HD Camera And Recording System
- Head and Neck Surgery Set
- Operating Microscope With Xenon Light
- Adult ELMS and Bronchoscopy Set
- Rigid Oesophagoscopy With Accessories
- CO<sub>2</sub> Laser With Accessories
- Stroboscope - Rigid and Flexible Scope with Recording System
- Plating System
- Ultrasound
- Sialoendoscopy Set
- Endoscopy Holder with Accessories
- Radiofrequency with Accessories Set
- Microvascular Set
- Coagulation and Vessel Sealer System

### **ii) Paediatric ORL services:**

- Paediatrics Flexible Nasopharyngoscope
- Paediatrics ELMS set
- Paediatric Oesophagoscopy and Bronchoscopy Set
- Foreign Body Forceps
- Suction Diathermy
- Suction Plastic Set + Retractor
- Paediatrics Tracheostomy Set
- Paediatric Otology Set
- Paediatric Cochlear Implant set
- Paediatric FESS Set
- Paediatric EDCR Set
- Paediatric Head and Neck set
- Paediatric Coblator

### **iii) Otolaryngology Services:**

- Operating Microscope ( High End )
- Full HD Endoscopy with Recording System
- Endoscopy Adaptor
  - Mastoidectomy Set
  - Video Otoscope
  - Myringotomy Set
  - Otoplasty Set
  - Cochlear Implantation Set
  - Middle Ear Surgery, Tympanoplasty and Stapedotomy Sets
  - Special Set For Lateral Skull Base Surgery
  - Basic Set For Ear Micro Surgery
  - Instrument Set For Pediatric Tympanoplasty
  - Instrument Set For Endoscopic Ear Surgery

### **iv) Rhinology Services:**

- Septoplasty Set
- FESS Set
- Rhinoplasty Set
- Frontal Sinus Set
- Endoscopic Dacryocystorhinotomy Set
- Anterior Skull Base Set
- Image Guided System
- HD Camera and Recording System
- Rigid Endoscope ( Full range )
- Microdebrider With Intergrated High Speed Drill System
- Radiofrequency Set with Accessories
- Skin Prick Test Set

### **v) ORL Sleep Service**

- Full Sleep Lab
- Partial Polysomnograph ( PSG )
- CPAP Titration

### C. Audiology Equipment

### D. Speech Language Therapy Equipment

Table 1 :

#### Key Performance Indicators ( KPIs ) for ORL

No	Indicator	Dimension	Standard	Reporting Frequency
1	Percentage of patients with waiting time of $\leq 90$ minutes to see the doctor at Otorhinolaryngology Clinic	Customer	$\geq 90\%$	Monthly
2	Percentage of patients with waiting time of less than 3 months for elective surgery	Customer	$\geq 90\%$	Monthly
3	Incidence of post-tonsillectomy haemorrhage	Safety	$< 5\%$	Monthly
4.1	Percentage of complication following; Mastoidectomy: Facial nerve injury	Safety	$< 10\%$	6 Monthly
4.2	Percentage of complication following; Functional endoscopic sinus surgery (FESS): Eye injury / Cerebro-spinal fluid (CSF) leak	Safety	$< 10\%$	6 Monthly
4.3	Percentage of complication following; Superficial parotidectomy: Facial nerve injury	Safety	$< 10\%$	6 Monthly
5.1	Success rate following surgery; Myringoplasty: Closure of perforation.	Effectiveness	$\geq 70\%$	6 Monthly
5.2	Success rate following surgery; Septal related surgery: No septal perforation	Safety	$\geq 95\%$	6 Monthly



5.3	Success rate following surgery; Head and neck surgery: Wound healing with primary intention	Effectiveness	≥ 95%	6 Monthly
6.1	Percentage of ; Oesophageal perforation following elective diagnostic rigid oesophagoscopy	Safety	≤2%	6 Monthly
6.2	Percentage of ; Pneumothorax in elective paediatric tracheostomy procedure	Safety	≤2%	6 Monthly
6.3	Percentage of ; Perforation and pneumothorax in elective paediatric bronchoscopy procedure	Safety	≤2%	6 Monthly

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