JKKP

GUIDELINE ON MANAGEMENT OF OCCUPATIONAL NOISE RELATED HEARING DISORDERS 202X

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OBJECTIVES

I. To guide Occupational Health Doctors (OHDs) in conducting workplace audiometric screening, diagnosing occupational noise related hearing disorders (ONRHDs), and notifying ONRHDs to the Department of Occupational Safety and Health (DOSH).

II. To provide OHDs a guide on the principle criteria of SOCSO compensation.

III. To supplement the Occupational Safety and Health (Noise Exposure) Regulations 2019 and the Industry Code of Practice for Management of Occupational Noise Exposure and Hearing Conservation 2019.

SCOPE

- This guideline is applicable to all activities conducted under the Occupational Safety and Health (Noise Exposure) Regulations 2019 and ICOP Noise 2019.

CONTENTS

CHAPTER 2: LEGAL PROVISIONS

OVERVIEW

- There are 5 main legal provisions related to occupational noise as listed below;
  - Occupational Safety and Health Act (OSHA) 1994
  - Occupational Safety and Health (Noise Exposure) Regulations 2019
  - Occupational Safety and Health Act (Notification of Accident, Dangerous Occurrence, Occupational Poisoning and Occupational Disease) (NADOPOD) Regulations 2004
  - Employees' Social Security Act 1969
  - Self-employment Social Security Act 2017

CHAPTER 3: ROLES OF OHD

OVERVIEW

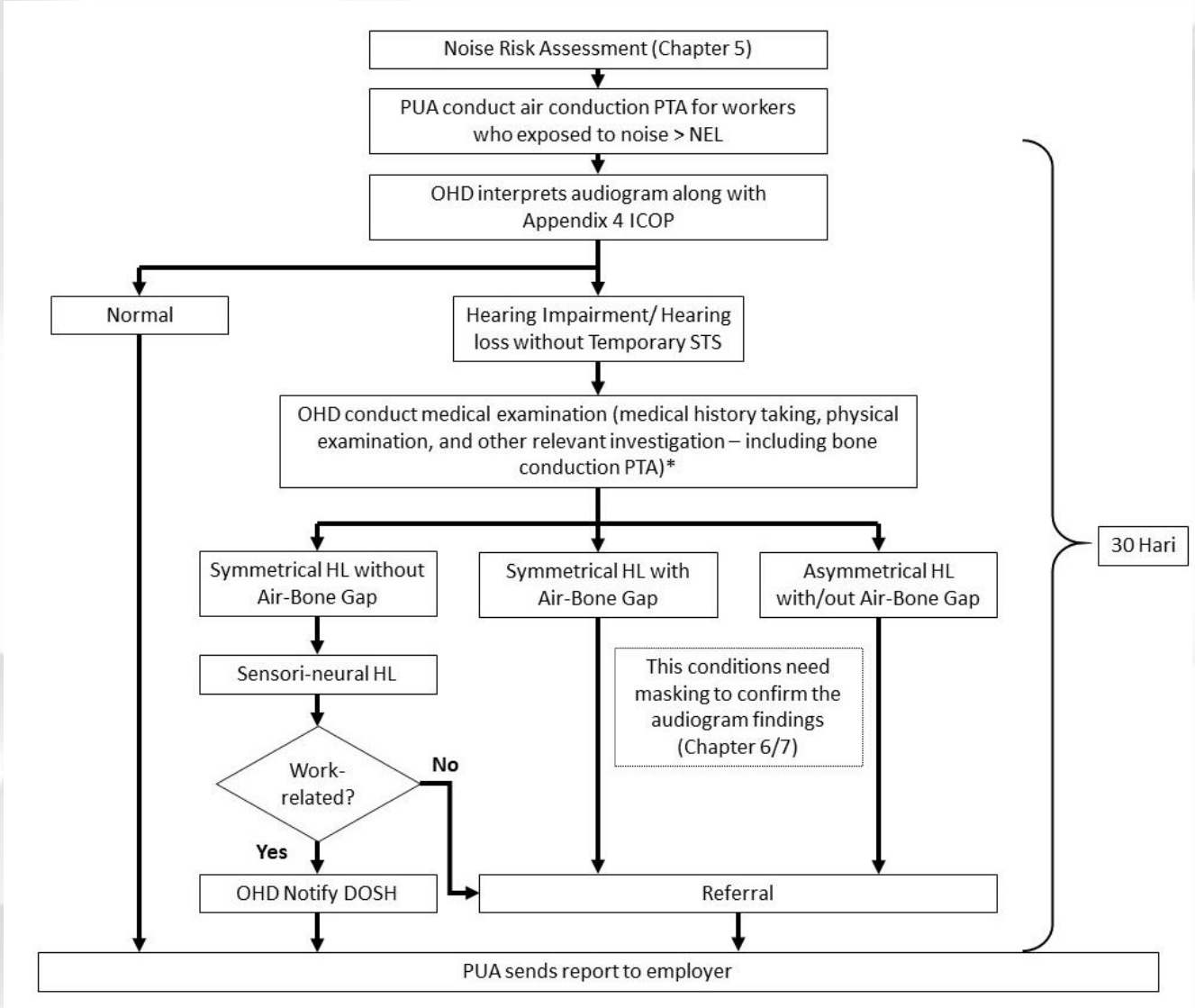
- Roles of OHD in managing Occupational Noise Related Hearing Disorders based on ICOP and to encourage OHD participation in HCP.
- Appointment of Occupational Health Doctor by an Audiometric Testing Centre (ATC)

CHAPTER 4: UNDERSTANDING THE AUDIOMETRIC TESTING FLOW CHART IN ICOP NOISE 2019

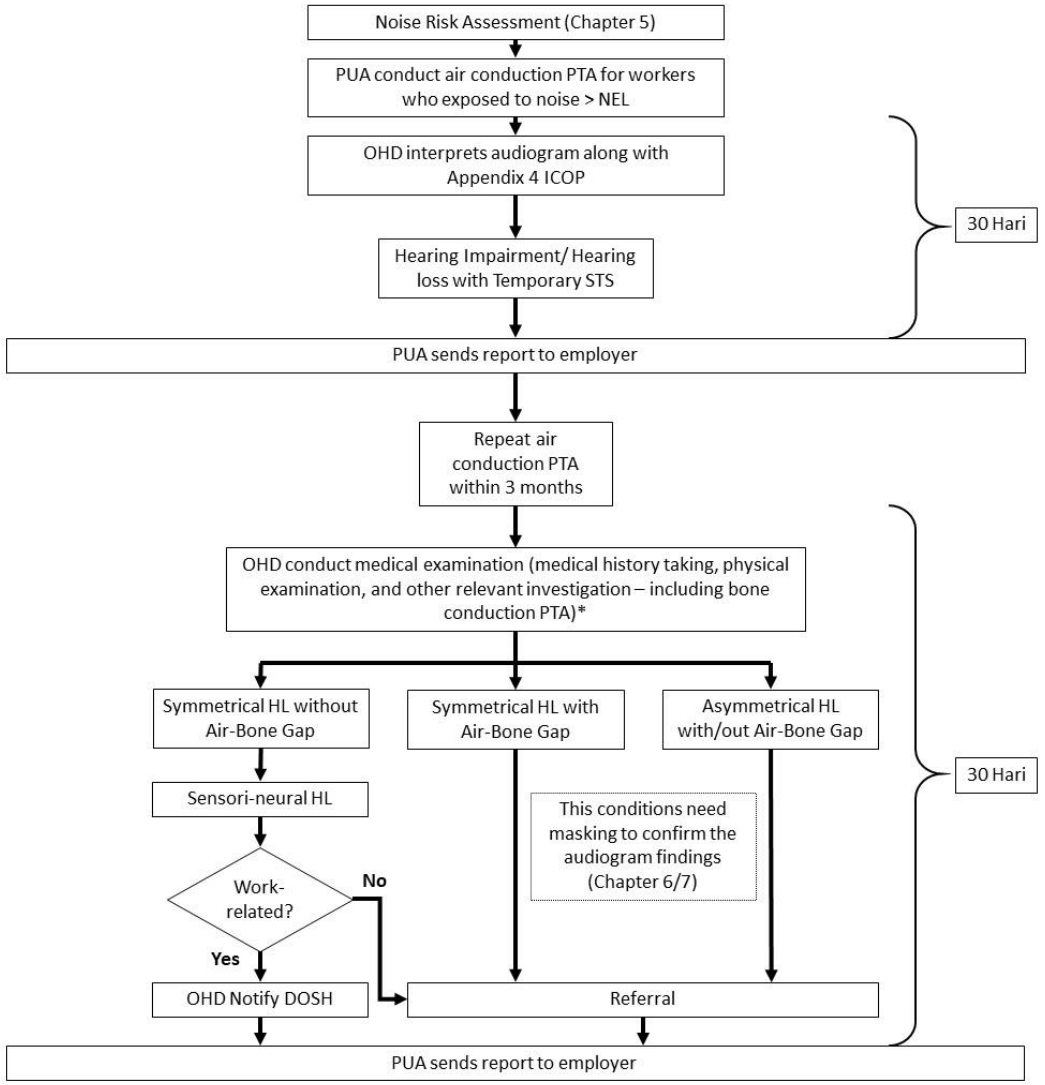
UNDERSTANDING THE AUDIOMETRIC TESTING FLOW CHART IN ICOP NOISE 2019

- For the purposes of this guideline, the ICOP flow chart has been added to and elaborated to further understanding of the flow chart.
- 3 flow charts are prepared to explain the process of audiometric testing based on screening audiometric testing outcome
  - Normal, Hearing Impairment/ Hearing Loss without temporary STS
  - Hearing Impairment/ Hearing Loss with temporary STS
  - Temporary STS only

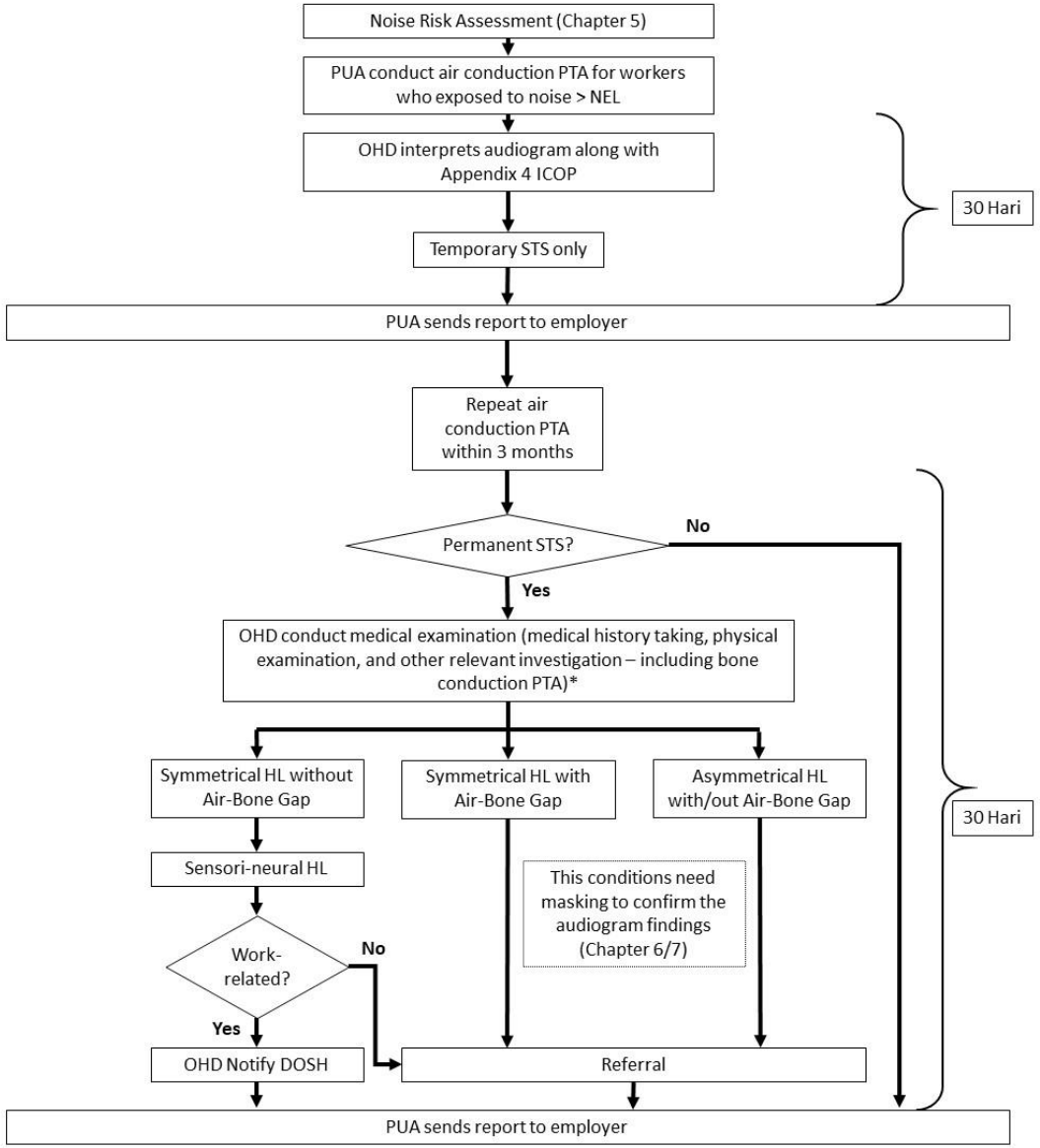
Normal, Hearing Impairment/ Hearing Loss without temporary STS



Hearing Impairment/ Hearing Loss with temporary STS



Temporary STS only



Appointing Audiometric Testing Centre

- All audiometric testing must be conducted at an approved Audiometric Testing Centre (ATC).
- ATC can be either static or mobile however the service provider will need to be registered with the Department of Occupational Safety and Health (DOSH).
- Employers are advised to get both quotations for screening audiometry and medical examination (including bone conduction PTA) from ATCs before deciding on which ATC to appoint.

BONE CONDUCTION PTA

- For employee with abnormal audiogram, OHD should instruct PUA to proceed with bone conduction PTA to confirm the sensorineural portion of hearing loss.
- The bone conduction PTA is considered as a part of 'medical examination' as prescribed in the regulation and ICOP.

"The medical examination shall include a medical history taking, physical examination and ***other relevant investigations to diagnose*** or rule out any *occupational or non-occupational auditory disorders"*

(Regulation 9 (5), Noise Regulation 2019)

SUGGESTED FORMAT FOR REPORTING AFTER OHD COMPLETED MEDICAL EXAMINATION

- This format is intended to be used by OHD in submitting summary report to ATC after completed medical examination

No.	Date of testing	Name	ID No.	Baseline Date		Normal	HL	PSTS/ TSTS	HI	For repeat test (date)	For medical examination (date)	Medical Examination Conclusion*	Diagnostic test result: SNHL, CHL, mixed	Work related Yes/ No	Notify DOSH Yes/ No	Notes/ Comment
				Left	Right											
1																
2																
3																
4																
5																
6																
7																
8																
9																
10																

*Refer for diagnostic test
Refer for ENT Specialist
Concluded

SUGGESTED CONTENT FOR FULL AUDIOMETRIC REPORT

- This format is intended to be used by ATC in preparing full audiometric report that need to be sent to employer.
- This report need to be sent to employer within 30 days for the testing date.
- The report should include:
  - Executive Summary
  - Objective of the report
  - Methodology used for audiometric testing
  - Summary of audiometry assessment result and conclusion
  - Discussions (to include any limitation faced by ATC during the audiometric testing)
  - Recommendations
  - Conclusions
  - Attached with:
    - Summary report that OHD sent to ATC after completed medical examination
    - compilation of individual audiometry report – Questionnaire Form For Audiometric Testing (appendix 4 ICOP), Audiogram and medical examination form (Appendix 6 ICOP)

Referral

- For cases requiring referral, a maximum period of six months from the date of initial testing is allowed in order to conclude these cases.

CHAPTER 5: UTILIZATION OF NOISE RISK ASSESSMENT REPORT

OVERVIEW

- Depending on the scope of the OHD's role assigned by the management, he may utilize the NRA report to:
  - Understand the noise exposure risk of the workplace.
  - Understand the SEG, (the task and noise level exposed) that needs to participate in the annual audiometric program.
  - Know the requirement of PHP.
  - Know the requirement of training.
- Some of the use of the information above are as below:
  - Determine the work relatedness of NHRD.
  - Understand the reasons for deterioration of the hearing of the workers with abnormal audiogram after analyzing the NRA report and the information gathered during the medical examination. Some of the usual reasons for the deterioration are inappropriate fit and wear of PHP, improper selection of PHP, and poor understanding of the risk due to insufficient training.
  - May provide recommendations to improve the HCP if requested by the company.

CHAPTER 6: AUDIOMETRIC TESTING

OVERVIEW

- Developed based on:
  - ISO 8253-1:2010 Acoustics — Audiometric test methods — Part 1: Pure-tone air and bone conduction audiometry
  - A guideline by British Society of Audiology on “Recommended Procedure: Pure-tone air-conduction and bone conduction threshold audiometry with and without masking” – August 2018

GENERAL ASPECTS OF AUDIOMETRIC MEASUREMENTS

- Requirements on audiometric equipment
  - Audiometers shall be constructed in accordance with IEC 60645-1 and calibrated in accordance with the requirements of the relevant part of ISO 389.
- Qualified tester
  - someone who has followed an appropriate course of instruction in the theory and practice of audiometric testing.
- Worker eligibility:
  - 14 hours silent period
  - has no conditions that may affect the test results
    (Example: cold, giddiness, tinnitus etc.)

PREPARATION AND INSTRUCTION OF TEST SUBJECTS BEFORE AUDIOMETRIC TESTING AND POSITIONING OF TRANSDUCERS

- Preparation of test subjects
  - If obstructing wax is found in the canal(s) of the outer ear it shall be removed and audiometry may be delayed for a suitable period.
  - Checked for the possibility of collapsing ear canals and appropriate action taken, if necessary.
- Instruction of test subjects
  - the response task;
  - the need to respond whenever the tone is heard in either ear, no matter how faint it may be;
  - the need to respond as soon as the tone is heard and to stop responding immediately once the tone is no longer heard;
  - the general pitch sequence of the tones;
  - the ear to be tested first.
- Placement of transducers
  - Remove spectacles and head ornaments.

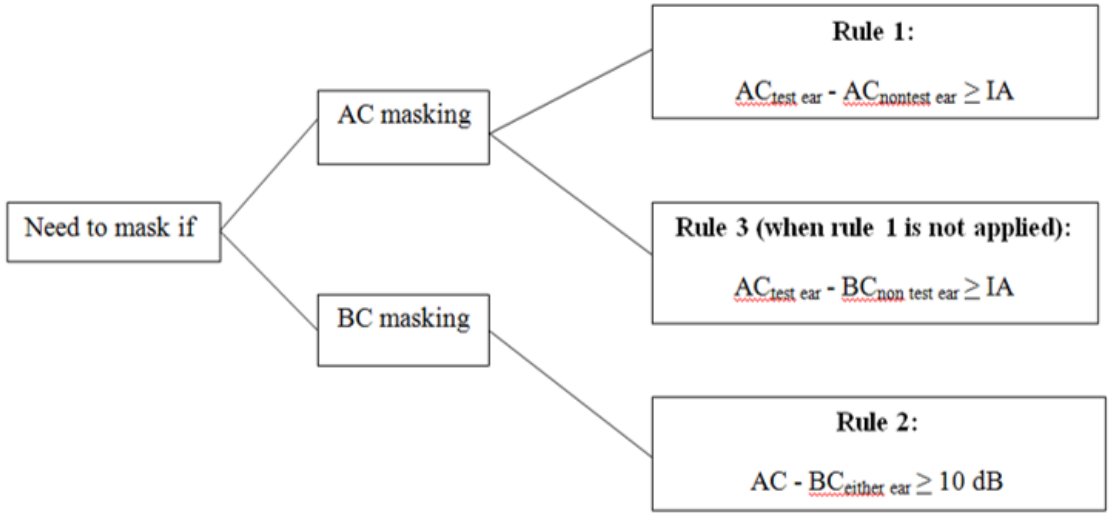
AIR CONDUCTION HEARING THRESHOLD MEASUREMENTS WITH AND WITHOUT MASKING

- Procedures for testing without masking
- Procedures for testing with masking
- Calculation of hearing threshold level

Bone conduction hearing threshold audiometry

- Testing procedure similar with air conduction
- This section will also explain on:
  - Occlusion effect
  - Airborne sound radiation from the bone vibrator
  - Vibrotactile sensation
  - Procedures for testing with masking in bone conduction audiometry

Cross-hearing and its prevention by masking



Stimulus	Transducer	Frequencies (Hz)					
		250	500	1000	2000	4000	8000
Air conduction	Supra- / Circum-aural earphones	40					
	Insert earphones	55					
Bone conduction	Bone vibrator	0					

Table showing interaural attenuation (IAA) value

CHAPTER 7: INTERPRETATION AND REVIEW OF AUDIOGRAMS

OVERVIEW

- When interpreting a pure tone audiogram, it is important that the description is standardized and must contain the types of hearing loss and the specific hearing threshold at each frequencies of both ears, or enumerating all these 4 (four) of the elements as such:
  - Type of hearing loss
  - Severity of hearing loss
  - Frequency of hearing loss
  - Site (left and right) of hearing loss

LEGAL INTERPRETATION OF AUDIOGRAM

- “standard threshold shift (STS)’” means an average shift of 10 dB or more at frequencies of 2000, 3000 and 4000 Hz compared to the baseline audiogram
- “baseline audiogram” means the audiogram against which future audiograms are compared
- “abnormal audiogram” means an audiogram that shows a hearing loss, hearing impairment or permanent Standard Threshold Shift (STS)
- “hearing impairment” means the arithmetic average of the permanent hearing threshold level of an employee at 500, 1000, 2000 and 3000 Hz which is shifted by 25 dB or more compared to the standard audiometric reference level
- “hearing loss” means partial or total inability to hear marked by a hearing threshold worse than 25 dB at any audiometric test frequency. Hearing loss may be mild (26 to 40 dB), moderate (41 to 70 dB), severe (71 to 90 dB) or profound (equal or more than 91 dB)
- “abnormal audiogram” means an audiogram that shows a hearing loss, hearing impairment or permanent Standard Threshold Shift (STS);

SEVERITY OF HEARING LOSS

Table 2: Classification of hearing loss (Source: ICOP Noise, 2019)

Hearing level dB (A)	Classification of hearing loss
26 – 40	Mild
41 – 70	Moderate
71 – 90	Severe
≥ 91	Profound

Any hearing level at 25 dB (A) or less is considered as normal.

FREQUENCY OF HEARING LOSS

- The interpreter must examine each frequency separately for hearing loss and describe the type of hearing loss (see below).
- Sometimes, the term “high frequency loss” is used especially when describing hearing loss related to noise. ‘High frequency” refers to the frequencies above 3000. “Low frequencies” refer to frequencies of 500 Hz or lower. 1000 and 2000 Hz are more often termed as the mid-frequencies.

TYPE OF HEARING LOSS

Type of hearing loss	Description	Note
Conductive	Hearing threshold for air conduction is more than 25 dB (A) at any frequency with normal bone conduction threshold	Conductive loss is due to problem transferring sound waves anywhere along the pathway through the outer ear, tympanic membrane (eardrum), or middle ear (ossicles). In "screening PTA" only conductive hearing loss is demonstrated
Sensorineural (SNHL)	Hearing threshold for bone conduction is more than 25 dB (A) at any frequency	Sensorineural hearing loss (SNHL) is a type of hearing loss in which the root cause lies in the inner ear or sensory organ (cochlea and associated structures) or the vestibulocochlear nerve. This is seen as absence of air-bone gap (i.e. the gap is < 10 dB (A)) in the audiogram
Mixed hearing loss	Hearing threshold for both air **and** bone conduction are more than 25 dB (A) at any frequency	Mixed hearing loss is due to problem transferring sound from outer, middle and inner ear. This is seen as presence of air-bone gap (i.e. the gap is ≥ 10 dB (A)) in the audiogram and both the air and conduction hearing loss are more than 25 dB

REVISED BASELINE

- ICOP Noise (2019, 13.3.7) has stated that the baseline audiogram shall be replaced by the annual or retest audiogram whenever there is presence of:
  - permanent STS; or
  - improved hearing threshold with respect to the baseline at two (2) or more test frequencies.

- While replacing the baseline is straightforward when the hearing threshold has improved as in (b), this might not be the case when dealing with STS. Following temporary STS (TSTS), the employee shall undergo a retest within three (3) months from the date of TSTS. If the TSTS is unilateral, then it seems appropriate that only the ear with TSTS is tested.
- However, in reference to best practices, both ears (rather than the affected ear) should be retested in same time and when the ear previously *without* TSTS is found to have significant threshold shift, the interpretation of retest result can be tricky. Therefore, case to case basis, OHD is advised to exercise his/her clinical judgement to trigger investigation and may acknowledge the threshold shift.

CHAPTER 8: MEDICAL EXAMINATION AND ESTABLISHING DIAGNOSIS

DIFFERENTIAL DIAGNOSIS

HEARING LOSS	
CONDUCTIVE	**SENSORINEURAL**
Earwax	Noise Exposure
Trauma	Meniere's Disease
Otitis Externa	Trauma/ Idiopathic (Temporal Bone Fracture, Head Injury)
Chronic Suppurative Otitis Media	Infections (Herpes, Meningitis, Mumps, Syphilis, Tuberculosis)
Middle Ear Effusion	Ototoxic substance (chemical, drugs)
Foreign Body in Ear	Neoplastic (Vestibular Schwannoma, Cerebellopontine Angle tumour)
	Systemic/ Autoimmune/ Endocrine (Paget's Disease, Diabetes mellitus. Thyrotoxicosis, SLE, Scleroderma)
	Presbycusis
MIXED HEARING LOSS	
Otosclerosis	

Approach to Workers with Abnormal Audiogram (1/3)

- Clinical History
  - Onset of hearing loss – sudden or gradual.
  - Pattern of the hearing loss: unilateral or bilateral, symmetrical or asymmetrical
  - Associated symptoms: tinnitus, aural fullness, vertigo, imbalance, otalgia, otorrhea.
  - Smoking habit
  - History of previous infections: systemic or ear only.
  - History of ear surgery or procedure, or previous intracranial surgery.
  - History of trauma to the ear or head, or barotrauma.
  - Family history of hearing loss or ear-related tumour.
  - Use of medications: Aminoglycosides, NSAIDs, Loop diuretics, Quinine, Antineoplastic (Cisplatin).
  - Occupational history (will be discussed in detail in Chapter 9).
  - Other medical diseases: metabolic or autoimmune disorders.
  - Hobbies: motorsports, hearing loud music or using earphones, weapon firing.
  - Assessing the usage, training on HCP and proper wearing and fit test of PHP.
  - Ascertain noise exposure level (NEL) from NRA report

Approach to Workers with Abnormal Audiogram (2/3)

- Physical Examination
  - General external ear examination
    - Any syndromic facies, white patch of hair, goitre
    - Auricles: Skin lesions, erythema, tenderness.
    - External auditory canals: tragal tenderness, lesion, ear discharge.
    - Mastoid tenderness / swelling
  - Other systems examination if indicated from the clinical history.
    - Cranial Nerves Examination
      - Examination of the related cranial nerves (e.g. vestibulocochlear nerve)
    - Cerebellar examinations
  - Head and neck examination
    - Nose
    - Oral cavity and throat
    - Anterior rhinoscopy
    - Neck
    - Lymph nodes
  - Otoscopy

OTOSCOPY

- Assess the external auditory canal, tympanic membrane and middle ear.
- Inspect the external auditory canal for cerumen impaction, foreign objects, canal oedema, erythema, and otorrhea.
- Inspect the tympanic membrane for colour, shape, light reflex, bulging, perforation, scarring and the presence or absence of normal landmarks:
  - Colour
    - A healthy tympanic membrane (TM) should appear pearly grey and translucent.
    - Erythema suggests inflammation of the TM which can occur in conditions such as acute otitis media.
  - Shape
    - A healthy TM should appear relatively flat.
    - Bulging of the TM suggests increased middle ear pressure, which is commonly caused by acute otitis media with effusion (there is often an associated visible fluid level).
    - Retraction of the TM suggests reduced middle ear pressure, which is commonly caused by pharyngotympanic tube dysfunction secondary to upper respiratory tract infections and allergies.
  - Light reflex
    - The light reflex (also known as the “cone of light”) is visible when a light is shone onto the TM.
    - If a TM is healthy, the cone-shaped reflection of light should appear in the anterior inferior quadrant.
    - Absence or distortion of the light reflex is associated with otitis media (due to bulging of the TM).
  - Perforation
    - Note the size (and shape) and the position of any perforation of the TM.
    - Causes of TM perforation include infection (e.g. otitis media with effusion), trauma (e.g. diving-related), cholesteatoma and insertion of tympanostomy tubes (also known as grommets).
  - Scarring
    - Scarring of the TM is known as tympanosclerosis and can result in significant conductive hearing loss if it is extensive.
    - Tympanosclerosis often develops secondary to otitis media or after the insertion of a tympanostomy tube (grommet).

Approach to Workers with Abnormal Audiogram (3/3)

- Specific test
  - Diagnostic audiometry
  - Tuning fork test
  - Tympanometry
  - Diagnostic imaging
  - Serology, Haematology or Biochemistry test
  - Electrophysiologic test

DIAGNOSTIC AUDIOMETRY

- In diagnostic audiometry, air conduction and bone conduction test will be performed, with masking done when necessary in order to determine the type of hearing loss.
- Audiometry test as prescribes in ICOP is limited to air conduction only, where conductive hearing loss cannot be differentiated from sensorineural hearing loss. The reliability and validity of the test also depend on the technician (tester) skills, worker's cooperation, test environment and equipment calibration.
- OHD needs to obtained the following information from a diagnostic PTA:
  - Type of hearing loss (conductive, sensorineural or mixed)
  - Side of hearing loss (right, left or bilateral)
  - Severity of hearing loss (mild, moderate, severe, profound)
  - Frequencies affected

TUNING FORK TEST

- Tuning fork test is a simple and brief test to establish the probable presence or absence of a significant conductive element to hearing loss and to provide some diagnostic information if audiometry is not available. It should not be the sole indicator on which a decision for further audiological assessment is based.
- The preferred tuning fork is a 512 Hz; done in a quiet room. Prior to the test, patient should be instructed accordingly.
- Limitation of Weber and Rinne Test
  - Rinne test is not sensitive in differentiating conductive and sensorineural loss.
  - False negative Rinne test may happen in patient with profound sensorineural hearing loss, as the sound transmits through the skull to the contralateral ear and the patient may unable to identify which ear they hear the sound.
  - The technique of performing the test vary among individuals.
  - Poor correlation between the air-bone gap and the tuning fork test result.
  - The tests cannot confirm normal hearing as they do not measure sound sensitivity in a quantitative manner.

TYMPANOMETRY

- Tympanometry (in this context screening tympanometry) is an investigation used to test the condition of the middle ear, the mobility of the eardrum, and the conduction bones (ossicles) by creating variations of air pressure in the ear canal.
- Tympanometry provides useful quantitative information about the presence of fluid in the middle ear, mobility of the middle ear system, and ear canal volume.
- In evaluating hearing loss, tympanometry assists in differentiating between sensorineural and conductive hearing loss.
- It is performed if there is any indication of middle ear problem from the clinical assessment, such as:
  - Suspected middle ear effusion
  - Perforation or impaired mobility of eardrums
  - Mobility of the ossicular chains
- Limitation of tympanometry
  - Test cannot be completed if a patient has a surgically altered or congenital ear canal problem.
  - Affected by movement, need cooperative patient
  - Old age may affect the result as they may have collapsed ear canal

CHAPTER 9: ESTABLISHING WORK RELATEDNESS OF NRHDs

Steps to determining work relatedness of NRHDs

1. Review the audiometric results
2. Review the medical history and perform evaluations
3. Review the history of exposures to occupational and non-occupational noise
4. Decide on work-relatedness

Review the audiometric results

- Determine if audiometric results are valid
  - All pre-audiometry criteria had been followed
  - Testing equipment are calibrated
  - Testing booth was approved
  - Audiology technician was suitable trained
  - Testing methodology was correct
- Review audiometric results
  - Determine the occurrence of NIHL
  - Determine the hearing impairment observed
- Review Baseline Testing Results
  - Consider the baseline testing results be it the original baseline or reviewed baseline
- Determine if there really is a Standard Threshold Shift (STS)
  - A difference of 10dB(A) or more in the calculation of the standard threshold will indicate the occurrence of the Standard Threshold Shift (refer Appendix 5 of the ICOP)
  - Review previous audiometric findings of the employee

Review the medical history and perform evaluations

- Review other medical history
  - History of intake of medication: salicylates, aminoglycosides, antineoplastic agents
  - History of exposure to chemicals outside work: n- Hexane, Toluene
  - History of head injuries and accidents
  - History of other relevant diseases.
- Refer for further assessment if necessary
  - If the OHD suspects an underlying medical problem, the employee should be referred for a further detailed evaluation to rule out the possible medical causes of hearing loss in the employee.
- Review all results to rule out any medical causes
  - The OHD should review all results obtained and decide on the contribution of medical causes to the hearing loss.

Review the history of exposures to occupational and non-occupational noise (1/2)

- Review history of exposure to noise at the workplace
  - The OHD should review history of exposure to noise at the workplace taking into consideration:
  - Duration of exposure (daily/weekly/ total)
  - Frequency of exposure
  - Duration of employment
- Review workplace noise exposure results
  - The OHD should review all noise monitoring results (NRA) obtained from the management including
    - Area Monitoring
    - Personal monitoring
  - The OHD should determine if the results are in line with each other and determine if noise exposure at work is the cause of the hearing loss.
  - Consider if other workers are similarly affected
- Obtain history of occupational exposure to chemicals
  - The OHD should also obtain history of possible chemical exposures at work that may cause Ototoxicity
- Review history of noise other than at work
  - The OHD should obtain history of exposure to noise in non-occupational situations. These include
    - Home
    - Second job
    - Hobbies
    - Daily travel
    - Chemical exposures

Review the history of exposures to occupational and non-occupational noise (2/2)

- Review Controls at Work and Out of Work
  - Review Hearing Conservation Programs (HCP's)
    - The OHD should obtain information on an HCP at the workplace of the employee looking into:
    - The presence of an HCP
    - The compliance of the employee to the HCP
    - Enforcement of the HCP by the management
- Review the use of PHP at the workplace
  - The OHD should review the usage of PHP by the employee at the workplace looking at
    - The provision of PHP (whether PHP is provided or not)
    - Training on the usage of PHP was given
    - The adequacy of PHP provided (sufficient, replaced when damaged)
    - Noise Reduction Rate (NRR)
    - Compliance of the employee to using the PHP as well as the correct usage of the PHP
- Review the use of PHP out of work if in noisy environment out of work If there is history of non-occupational exposure noise in the employee, the OHD should determine if any PHP was used and if so the type of PHP being used.

Decide on work-relatedness

- The OHD must take into consideration all findings of the above and make a determination of whether the hearing loss is occupational related. The case must be notified to DOSH as an Occupational Noise-Induced Hearing Loss
- OHD to ensure documentation of assessment findings.

CHAPTER 10: REFERRAL CRITERIA

OVERVIEW

- As stated in ICOP for Management of Occupational Noise Exposure and Hearing Conservation 2019, after examining the employee with abnormal audiogram, the OHD shall decide whether to refer for further management. Some conditions can be appropriately treated in a primary care setting (e.g. earwax, otitis externa, otitis media), while other condition such as tumour or hearing loss due to autoimmune/ systemic disease require a specialist care.
- The referral should be made to the relevant specialties accordingly.

RED FLAGS

- Some of the red flags that prompt the OHD for immediate referral to the appropriate specialists are:
  - History of pain, active drainage, or bleeding from an ear.
  - Sudden, fluctuating or rapidly progressive hearing loss.
  - Acute, chronic, or recurrent episodes of dizziness.
  - Evidence of congenital or traumatic deformity of the ear.
  - Visualization of blood, pus, cerumen plug, foreign body, or other material in the ear canal.
  - Unilateral or pulsatile tinnitus.
  - Hearing loss with cranial nerve involvements
  - Hearing loss with concurrent ear or head trauma

FOLLOW UP ON REFERRAL

- The OHD should ensure to follow-up each of the worker that has been referred. They should review the diagnosis and treatment of the worker and to recommend on prevention, training and notification to DOSH accordingly.

CHAPTER 11: NOTIFICATION

OVERVIEW

- As an OHD in his opinion after diagnosing that an occupational related permanent STS, Hearing Impairment or NIHL has occurred (must follow the diagnostic procedure as discussed in this guideline), he shall notify the Director General within seven (7) days using an approved form and at the same time inform the employer.
- An Employer after receiving the audiometric report shall notify any occupational related permanent STS, hearing impairment and NIHL by using an approved form to the nearest Department of Occupational Safety and Health (DOSH) office within seven (7) days.
- Notification is also required once PSTS is confirmed even if the hearing threshold is within the normal range.
- If the baseline audiometric test conducted within 3 months after employee commencing work which would expose him to Noise Exposure Limit (NEL), notification to DOSH is not required.
- Notification is required if the baseline audiometric test is conducted after 3 months the employee commencing the work which exposed them to NEL.
- If there is a significant change in worker's hearing threshold audiogram, repeated notification of diseases is required to DOSH. Significant change is marked by the presence of a permanent STS in the worker's audiograms.

CHAPTER 12: SOCSO COMPENSATION

LEGISLATION

- Compensation of occupational diseases is specified in the Employees' Social Security Act 1969 specifically in Section 28 and 32(A). Section 28 of the Act details the definition of occupational diseases while Section 32(A) describes the function and procedures of the Special Medical Board in determining occupational diseases and the subsequent impairment assessment related to the disease. The Fifth Schedule of the Act contains a list of compensable occupational diseases including Noise Induced Hearing Loss and Acoustic Trauma.

IMPAIRMENT ASSESSMENT OF HEARING LOSS

- Impairment assessment for hearing loss compensable under SOCSO Employment Injury Scheme is conducted by the Special Medical Board. The Special Medical Board for ONIHL consists of at least three doctors including the chairperson (usually the Hospital Director), a doctor trained in Occupational Health or Occupational Medicine and an ENT specialist.
- A basic requirement for impairment assessment is the concept of Maximal Medical Improvement (MMI). MMI is observed when the Insured Person's condition is stable and is not likely to change substantially within the next one year, with or without treatment. Insured Persons referred to the Special Medical Board must achieve MMI before impairment assessment can be performed.
- Insured persons may appeal the decision of the Special Medical Board if they are not satisfied with the decision within a period of 90 days. Appeal cases will be heard by the Appellate Medical Board consisting of a chairperson (State Health Director), an ENT specialist and a doctor trained in Occupational Health or Occupational Medicine. The decision of the Appellate Medical Board is final.

CHAPTER 13: POSSIBLE SCENARIOS DURING IMPLEMENTATION

OVERVIEW

- Based on feedbacks from Occupational Health Doctors (OHDs) and Audiometric Test Centres (ATCs), there are several scenarios that are not clearly described in the Industrial Code of Practice for Management of Occupational Noise Exposure and Hearing Conservation 2019 which often encountered during the audiometric testing. Thus, we have listed the scenarios and the possible approaches that can be used in that circumstances

Scenario 1

- For offshore workers, some companies allow their worker to undergo audiometric testing for a certain period of time (e.g.: workers are given option to come at any time between January till June in a particular year). Can such practice be allowed?
- Answer: Yes, such practice is allowed as long as; i) It does not affect the annual audiometric testing requirement for any worker; and ii) It fulfils the requirement for ATC to submit report to the employer within 30 days from the date of testing.

Scenario 2

- Does an employee with PSTS occurring within his normal hearing threshold (i.e. thresholds ≤ 25 dB) be notified to DOSH?
- Answer: Yes, an employee with PSTS that occurs within his normal hearing threshold shall be notified to DOSH. PSTS reflects worsening or improvement in hearing threshold and may happen within the normal hearing threshold of an employee. PSTS is also a useful indicator for monitoring the effectiveness of noise control at the workplace.

Scenario 3

- If an ATC appoints more than one OHD to interpret audiograms and conduct medical examination for employees with abnormal audiograms from a company, should the audiometric report be separated according to the attending OHD?
- Answer: No, the ATC is not required to separate the audiometric report according to the attending OHD. The audiometric report is based on the date of testing conducted for a particular company. Although an ATC may appoint more than one OHD, the audiogram interpretation and medical examination of an employee shall be carried out by the same OHD.

Scenario 4

- If an OHD, during his medical examination found that a worker has ONRHD but does not belong to a SEG with noise exposure more than NEL; 1) can the OHD recommend the employer to re-assess the workplace? 2) Should ATC include the worker result in audiometric report? 3) Shall OHD notify the case to DOSH?
- Answer:
    1) Yes, OHD may recommend the employer to re-assess the workplace.
    2) Audiometric report prepared under the Noise Exposure Regulations 2019 is only for workers who are exposed to noise more than NEL. Thus, if the employer sends workers who are not exposed to noise more than NEL for audiometric testing, ATC is advised to prepare separate report for those workers.
    3) Yes, as per NADOPOD. However, OHD shall exercise due diligence to determine diagnosis of NRHDs including work relatedness of the case as per this document. Whenever determination of diagnosis not possible, OHD to proceed with the notification as per NADOPOD requirement accordingly.

Scenario 5

- Regarding fitness to work for workers who are already deaf, can they work in work area that will exposed them to noise > NEL?
- Answer: The decision whether to allow hearing-impaired worker/ deaf worker to work in certain area is based on company's policy or any standard set by specific industries.

Scenario 6

- Are hearing-impaired workers/ deaf workers exempted from the requirements of the Noise Regulations 2019?
- Answer: There is no exception for these workers in complying to the Noise Regulations 2019.

Scenario 7

- An employer sent his workers for annual audiometric testing for the year 2020. During testing, Employee A was identified to have temporary Standard Threshold Shift (STS) which warrants for repeat audiometric testing within 3 months from the annual audiometric testing. However, the employer refused to send the worker for repeat audiometric testing although being advised by Occupational Health Doctor (OHD).
- On 2021, the employer sends Employee A for another annual audiometric. During testing, he is once again identified to have Standard Threshold Shift (STS). The questions are;
- 1) Could the '2021 OHD' conclude the case as Permanent Standard Threshold Shift directly without repeating audiometric testing?
- 2) Do the '2021 OHD' needs to report to DOSH on the non-compliance?
- Answer:
  - 1) No
  - 2) OHD is encouraged to report any non-compliance to DOSH.

THANK YOU