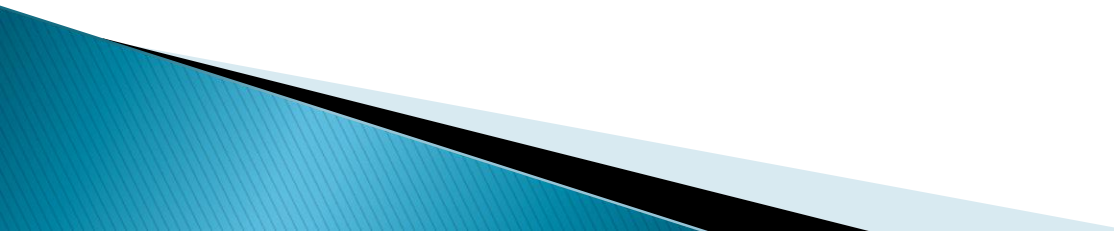


Preliminary Audiological Assessment

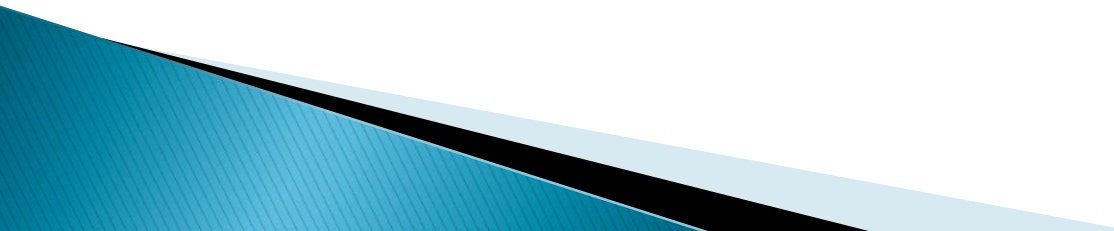


Case History

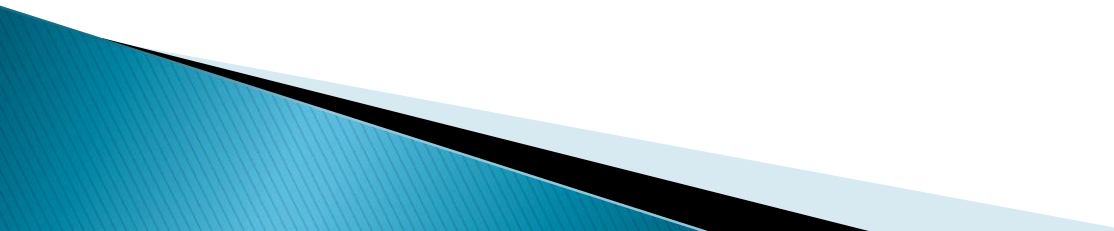
► Types of patients in audiology clinic

1. General Hearing assessment.
 2. Hearing Aids patients (Rehab, CI/ BAHA assessment)
 3. Diagnostic patients (site of lesion testing).
 4. Medico-legal.
 5. Paediatric patients.
- 

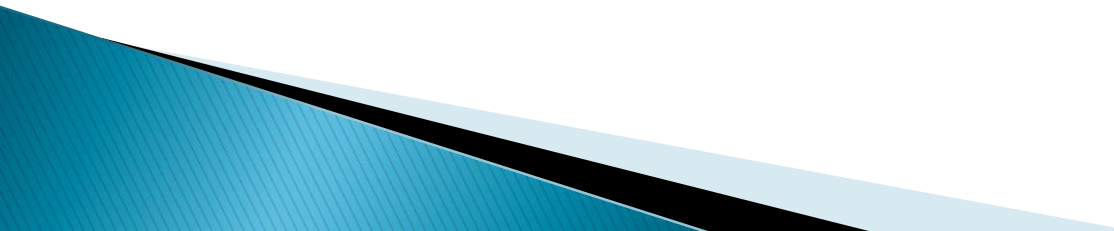
Aims of case history

- To gain information on symptoms profile for diagnosis and management of the patient.
 - To determine what tests need to be administered.
 - To understand hearing needs of the patient, only then effective management can be planned
- 

Requisites for taking a good case history

- Skills (listening and analytical), listen not hear!
 - Patience.
 - Knowledge.
 - ❖ do not forget to write everything in patient notes ... if you did not record, it didn't happen!
- 

Case history tools

- Interviews.
 - **Questionnaires:** Written, computer or verbal.
 - **SOAP:** Subjective, Objective, Assessment and plan.
- 

Cont. case history tools

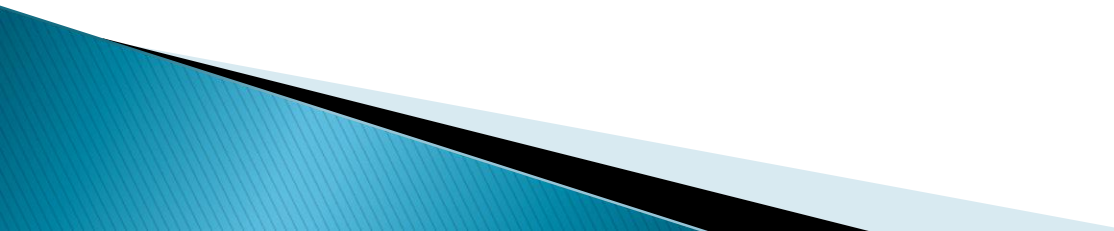
- ❖ These tools can be either used in tandem (side –bye-side) or as preferred by audiologist depending on the patient.
- ❖ Any way, it gives the opportunity to identify the red flags.

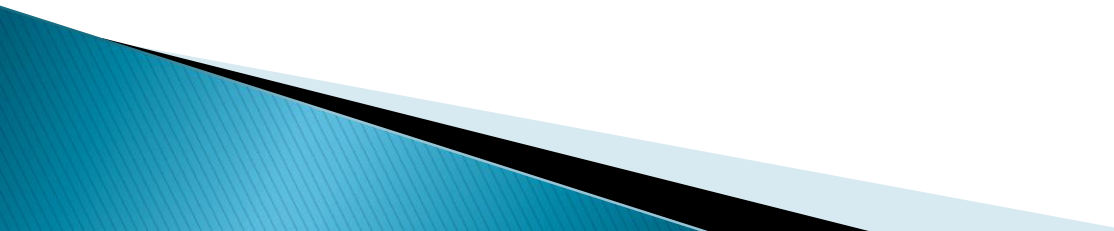


Audiological red flags


- Sudden hearing loss
- Bleeding or draining ear.
- Unilateral hearing loss or tinnitus.
- Dizziness.

Interview

- Sit at a good distance from you patient, about 3 feet.
 - Well lit room.
 - Face the patient.
 - Beware of ambient noise, most people you see will have hearing loss.
- 

- Have your patient full attention, family members and children distracters.
 - Show you are listening.
 - Don't be afraid to paraphrase if you are not sure.
- 

Questionnaires

- Ensure that patient can read and write.
 - Availability in other languages.
 - Multiple choice Vs Written answers.
 - It could be via the internet before the appointment, but beware of data protection (confidentiality).
 - Standardized Vs custom.
- 

SOAP

- Beware of using abbreviations that may not be known !!!
- Problem is that it focuses on the chief complaint and miss the big picture.

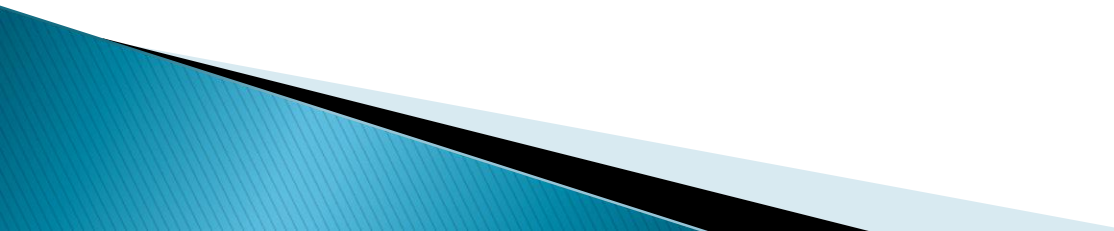
Summary of how to write a SOAP:

- ▶ **Subjective:** Signalmen, History, non-measurable parameters
- ▶ **Objective:** Measurable parameters and diagnostics: TPR, PE, CBC, Chem, UA etc.
- ▶ **Assessment** = Problem list, differential diagnoses
- ▶ **Plan** = Further treatment and/or diagnostics, surgery if any and client education.

<http://www.bangavet.com/soap.htm>

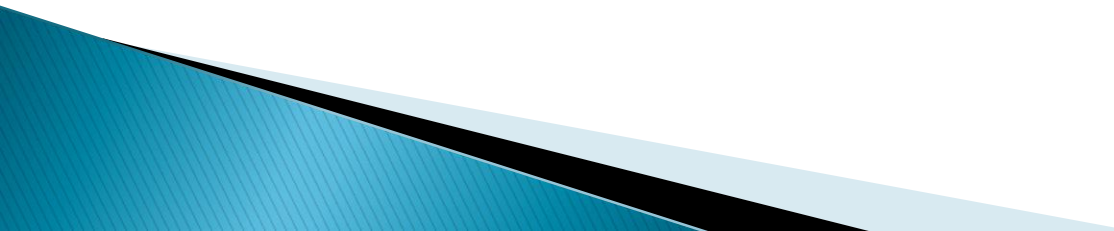
Accessed at October 12, 12.05 pm

➤ Examples for some used abbreviations,

- TCU (To Contact Us).
 - NAD (No Abnormality Detected)
 - C/O (Complaining Of).
 - WNL (Within Normal Limits).
 - RTA (Road Traffic Accident).
 - NAA (Next Available Appointment)
- 

Case history main sections:

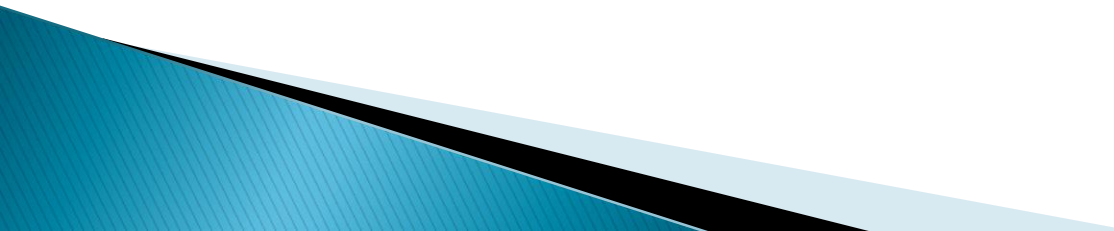
1-Demographics:

- Name.
 - Age. (otosclerosis 2nd to 3rd decade while presbycusis later).
 - Occupation (risk factors or noise exposure).
 - Impact in quality of life.
- 

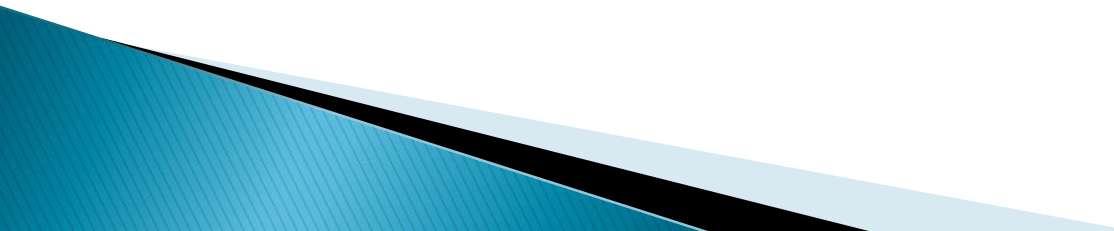
2- Main complaint:

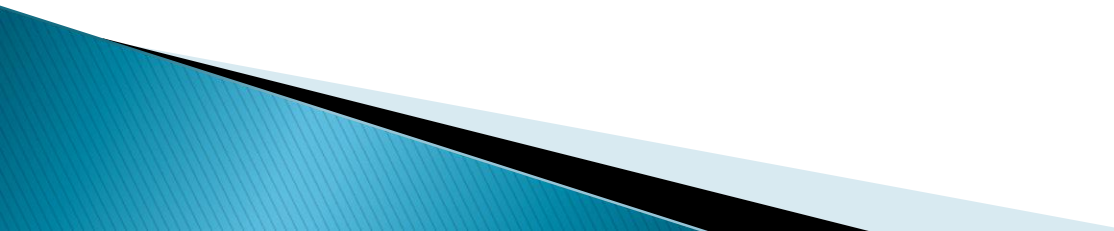
- Why is the patient here, pain, swelling, discomfort, imbalance, difficulty in hearing, tinnitus, trauma.

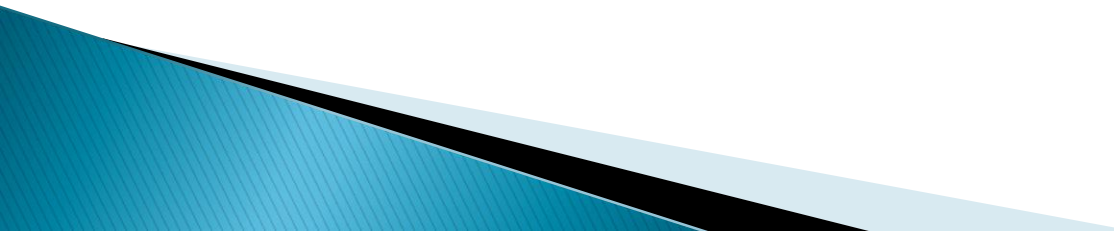
3- past history:

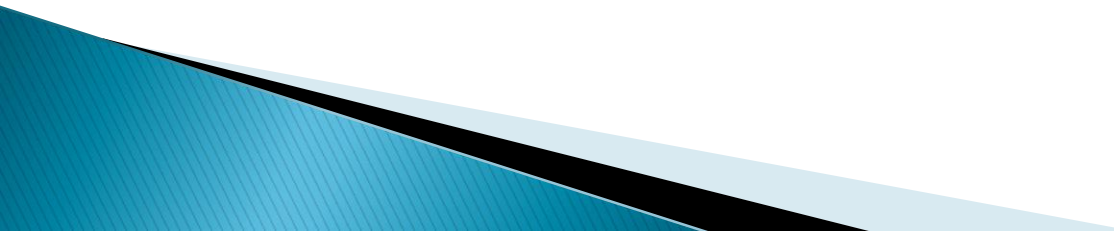
- Any previous surgery, conditions, hearing aids, general medical conditions, trauma.
- 

4- Family history:

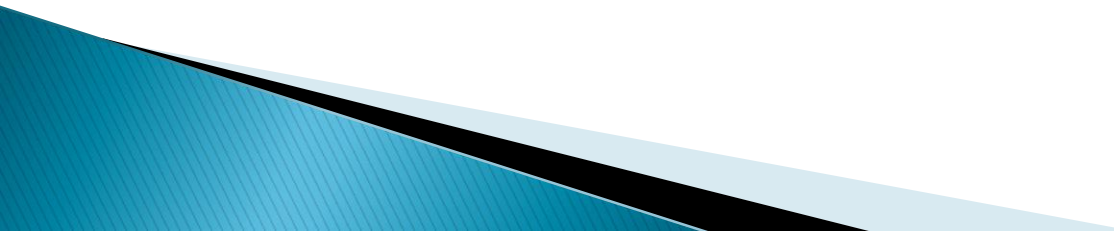
- Any family history of hearing loss, congenital and systemic diseases associated with hearing loss, consanguinity.
 - It accounts for over 50% of the hearing loss in early life.
 - May be autosomal dominant, autosomal recessive or X-linked (take all hereditary forms).
- 


- Risk increases if parents are relatives.
 - It could occur alone or as part of syndrome.
 - SNHL or CHL.
 - It may be present at birth or has delayed onset.
- 

- ▶ Questions to be asked on any disease or complaint and used to evaluate the symptoms:
 - ▶ **Laterality (location)** >> Right/ Left or both ears.
 - ▶ **Disease onset** >> Acute or chronic.
 - ▶ **Duration** >> sudden/ progressive/ period of time.
 - ▶ **Severity/ intensity.**
- 

- **Patterns** >> consistent/ fluctuating/ worse at night.
 - **Aggravating and relieving factors**>> some things increase or decrease the symptoms.
 - **Associated symptoms** >> fever, vomiting.. etc
 - Any medication used.
- 


Some important practical issues:

- ▶ Use the referral source to guide you into a good history.
 - Include “ significant other”, if relevant.
 - Touch on each point.
 - Think about how to phrase questions.
- 

- Use terms patient understand.
 - Ask open ended questions.
 - Be non-judgmental about patient's responses.
 - Be flexible.
 - Use history form with points to be covered. If the case history has been taken properly, the formulated test battery will be appropriate.
- 

- ▶ **But** before testing the patients, don't forget the clinical examination.

Clinical examination

- ▶ Visual inspection of patient walking into test room.
 - ▶ Visual inspection of external ear.
 - ▶ Hair, hands, eyes (any syndrome).
 - ▶ Body language.
 - ▶ **Otoscopy**
- 

Otoscopy

- ▶ It's an examination that performed using an instrument known as an otoscope.
- ▶ It's a test that used to examine the external auditory canal (the canal that connects the external ear, auricle, to ME) and to assess the Tympanic membrane.

- ▶ It should be performed by a competent examiner or under the supervision of competent examiner.

Types of otoscope

1. Hand-held otoscope.
2. Pneumatic otoscope.
3. Video otoscope.

▶ Handheld otoscope



▶ Pneumatic otoscope



▶ Video otoscope



Parts of otoscope

▶ There are 3 main parts for the otoscope:


1. **Handle** (where the battery built in).
2. **Neck**, connects the handle to the head.
3. **Head**, that contains the magnifying lens and the light bulb (fiber optic to produce the light).

- ▶ There is one more additional (disposable part) known as **ear speculum**,
- ❖ it's a cone shape tool with different sizes and can deeply inserted into the ear canal for better viewing.

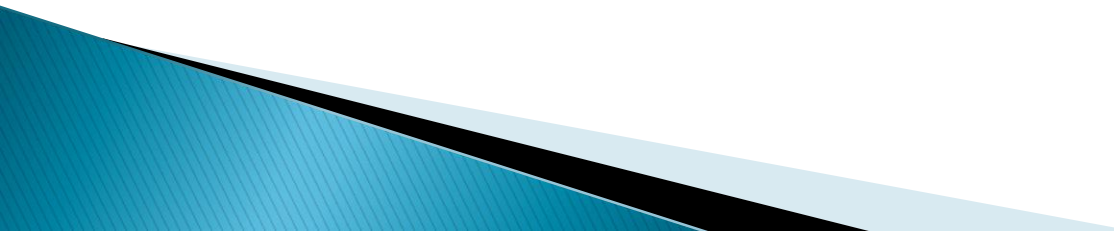
- ▶ In **Pneumatic otoscope**, there is an external rubber bulb (pressure pump) connected to the otoscope and allows the tester to check the tympanic membrane mobility by creating puff of air into the ear.

- ▶ In **video otoscope** ,there is a video camera attached to the otoscope and connected to a colored monitor to allow
- ✓ the online viewing of the TM and external ear and the patient can watch too.
- ✓ Also it allows pictures and videos saving for documentation.

General hygiene and infection control in performing otoscopy:

- Hand-cleaning before and after examination.
 - Covering any breaks in the skin.
 - Avoiding direct contact with body fluids.
 - Cleaning or using disposable specula.
 - Avoid using the same speculum for both ears of the same patient if there is any possibility for infection transfer.
- 

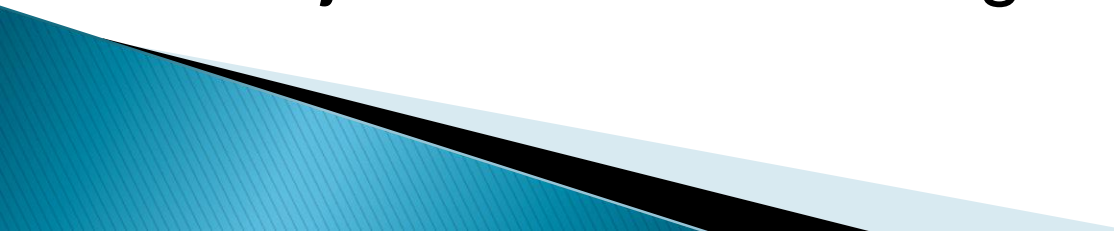
preliminary steps for otoscopy:

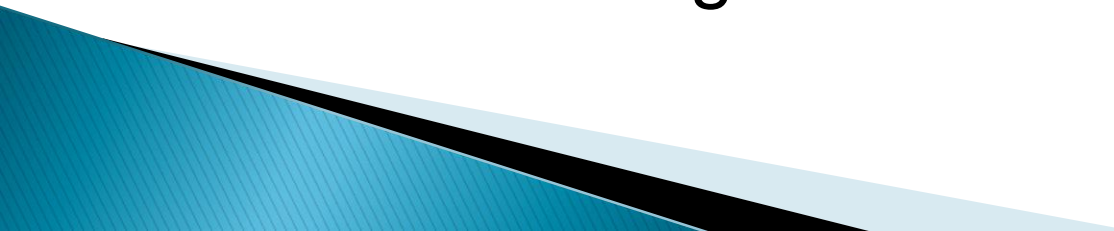
- Effective communication tactics should be established and adopted by the clinician and the patient with the respect of patient's age, status and mental condition.
 - Clinician face needs to be visible during the examination time.
- 

- ▶ Attention should be paid toward any information presented by the patient and everything need to be recorded
- ▶ Recorded data need to be protected, confidential and used as a future reference,

Test steps

1- subject preparation

- Some questions need to be asked at the beginning like (ear discomfort, pain or discharge, any previous ear related surgeries, any additional symptoms).
 - The examiner shall explain the procedure and demonstrates it whenever needed to the subject or his/her caregiver.
- 

- ▶ Verbal informed consent should be obtained.
 - ▶ The subject should be seated comfortably and motionless during examination time.
 - ❖ **For young children**, they should be seated sideways on an adult's lap, their hands secured by one hand and the child head held against the chest with other hand.
 - ▶ Any interfering objects should be removed like the hearing aids.
- 

Instructions

- ▶ Patients should remain still and motionless.
- ▶ Patient should be instructed to report any pain or discomfort.

Important things to consider

- ▶ It's usually preferable to start with ears that seems with the least abnormality (the healthier ear).
- ▶ Test could be stopped at any time if persistent pain, discomfort reported by the patient, bleeding or any related signs and symptoms appeared during the examination time.
- ▶ Instant medical attention may be required.

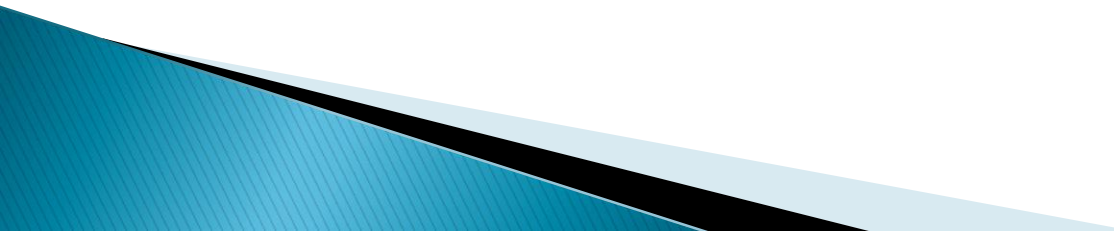
Ear Examination steps

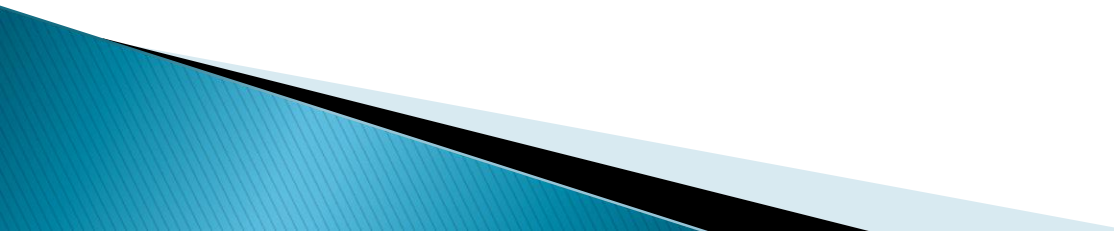
- 1- examine the pinna and adjacent features (**without otoscope**)
 - Start the examination with the skin around, behind, and adjacent to the pinna.
 - Then, the pinna needs to be checked thoroughly including the top, the rear and it's entrance to the ear canal.
 - At this stage use of magnification is not required, just some extra light source might be helpful.

Otoscopy

2- Ear canal and tympanic membrane examination.

- otoscope used at this stage.
- First, before use the examiner shall ensure that the otoscope is working (battery not dead).
- The appropriate speculum size for patient ear shall be chosen and securely attached the otoscope.

- The examiner shall take a stable position to avoid harming the patient. Sitting on a chair or kneeling but not bending if needed.
 - **Adults** are usually examined from below, pinna is pulled up and back to straighten the ear canal.
 - **Infants and children** are usually examined from above the head, pinna pulled down and back or just back as they have straight or slightly slope to downward ear canal.
- 

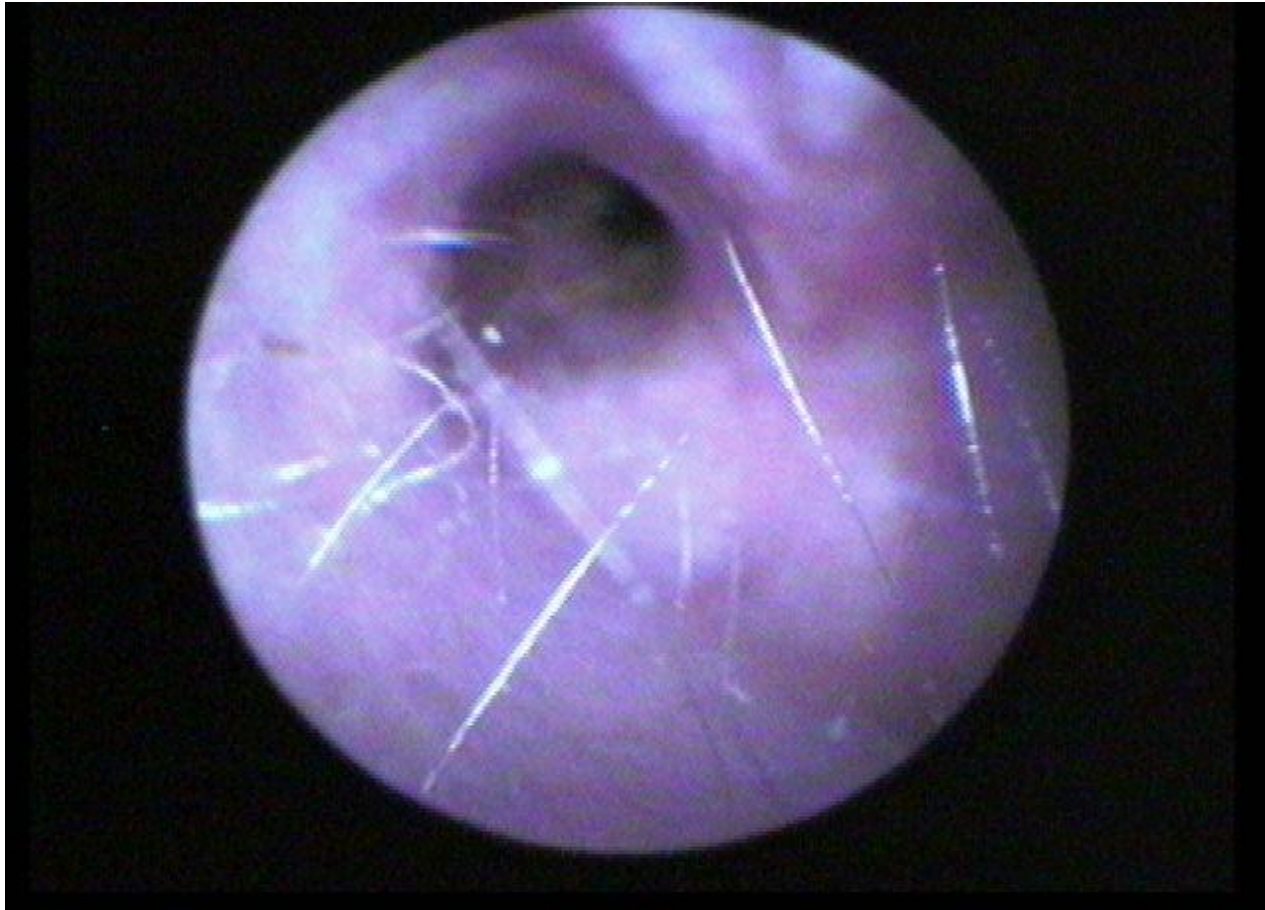
- Use right hand to test the right ear and left hand for left ear.
 - Examiner fingers should be braced against patient head to avoid injury from any unexpected (sudden) patient movement.
- 

What normal findings possibly seen?

- ▶ **External auditory canal (EAC)** >>
 - it's with small amount of hair and cerumen.
- ▶ **TM**, land marks could be seen:
 - It's pinkish- gray in color.
- Neutral position.
- Translucent (semi-transparent).

- Cone of light (reflected light from the TM directed inferiorly and anteriorly).
- Pars-tensa and pars- faccida of TM.
- Umbo, the tip of the handle of the malleus, the greatest retraction point on the TM.

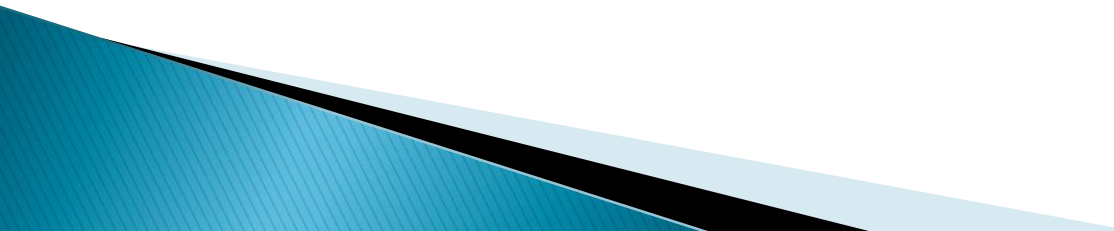
Normal external ear canal

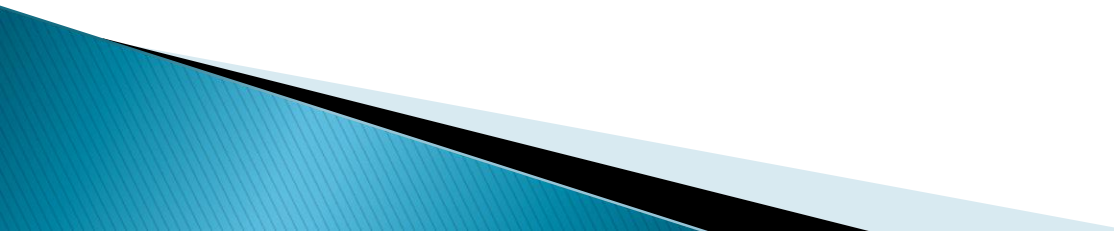


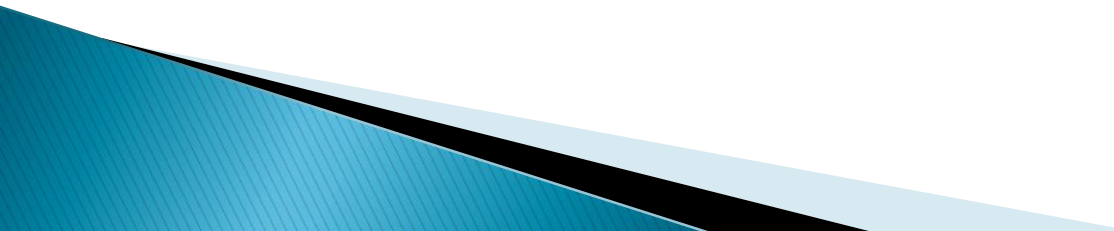
Normal TM



Abnormalities may seen

- ▶ Small , missing or malformed auricle.
Microtia.
 - ▶ **Aresia**, absence of EAC.
 - ▶ **Stenosis**, narrowing of EAC.
 - ▶ Otitis externa.
- 

- ▶ Otitis media.
 - ▶ Ear discharge.
 - ▶ Bony growths.
 - ▶ Foreign bodies.
- 

- ▶ Excessive cerumen.
 - ▶ TM perforation.
 - ▶ **Tympanosclerosis**, scars on TM.
 - ▶ VT in TM.
 - ▶ Traumatic injury.
- 

Otitis externa



Excessive cerumen



Otitis media



Retracted TM



Scar on the TM



perforation



Small perforation



Big perforation

