

Clinical Practice Guideline: Otitis Media with Effusion (Update)



- This guideline developed by the American Academy of Otolaryngology—Head and Neck Surgery Foundation provides evidence-based recommendations to manage otitis media with effusion (OME), defined as the presence of fluid in the middle ear without signs or symptoms of acute ear infection.



- The target patient for the guideline is a child aged 2 months through 12 years with OME, with or without developmental disabilities or underlying conditions that predispose to OME and its sequelae.



DEFINITIONS:

- ▶ OME: the presence of fluid in the middle ear without acute signs or symptoms
- ▶ AOM: the presence of fluid in the middle ear with the acute onset of signs and symptoms of middle ear inflammation.



OME ETIOLOGY

- Upper respiratory infection
- Spontaneously because of poor eustachian tube function
- An inflammatory response following AOM



OME ETIOLOGY

- Most episodes of OME resolve spontaneously within 3 months,
- 30% to 40% of children have repeated OME episodes
- 5% to 10% of episodes last 1 year.



WHY DO WE NEED CPG?

- High prevalence of OME
- Difficulties in diagnosis and assessing duration
- Increased risk of CHL
- Potential impact on language and cognition
- Significant practice variations in management



DIAGNOSIS

- The clinician should document the presence of middle ear effusion with **pneumatic otoscopy** when diagnosing OME in a child.

Strong
recommendation



DIAGNOSIS

- The clinician should perform pneumatic otoscopy to assess for OME in a child with otalgia, hearing loss, or both

Strong
recommendation



- Accurate diagnosis is important to avoid false-negative findings because OME can be relatively asymptomatic and have a normal-appearing tympanic membrane



- pneumatic otoscopy can help avoid false-positive diagnoses caused by surface changes or abnormalities in the tympanic membrane without middle ear effusion



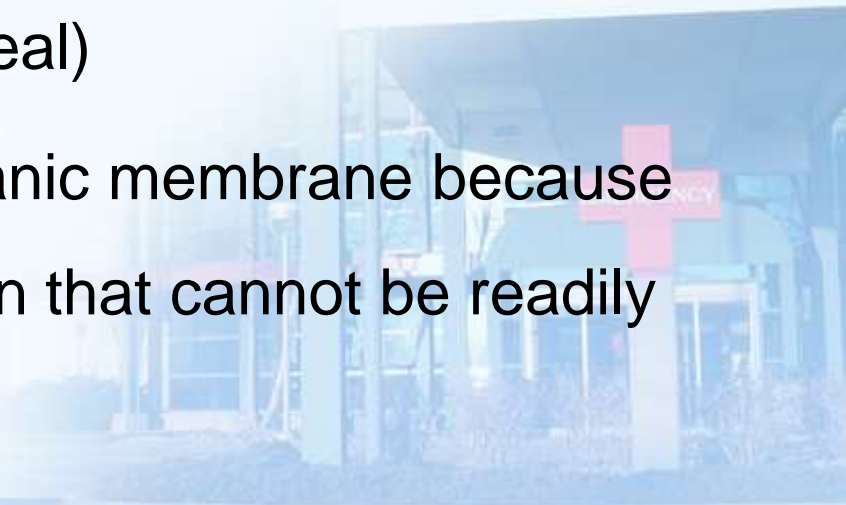
TYMPANOMETRY.

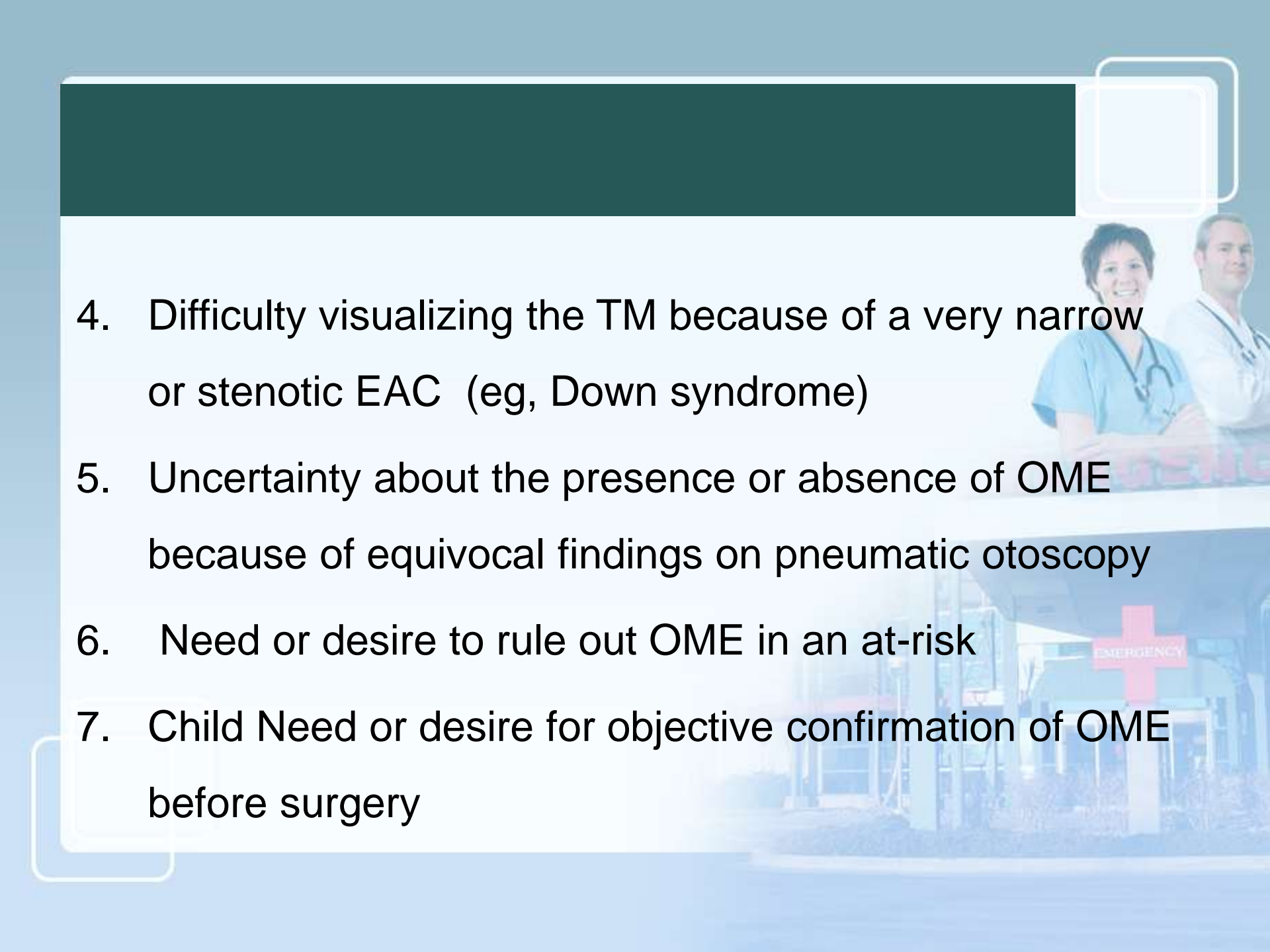


- Clinicians should obtain tympanometry in children with suspected OME for whom the diagnosis is uncertain after performing (or attempting) pneumatic otoscopy

Strong
recommendation

Indication

1. Child intolerance of pneumatic otoscopy
2. Inability to reliably perform pneumatic otoscopy because of training or equipment consideration (eg, inability to obtain an air-tight seal)
3. Difficulty visualizing the tympanic membrane because of partially obstructing cerumen that cannot be readily removed by the clinician






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- 4. Difficulty visualizing the TM because of a very narrow or stenotic EAC (eg, Down syndrome)
 - 5. Uncertainty about the presence or absence of OME because of equivocal findings on pneumatic otoscopy
 - 6. Need or desire to rule out OME in an at-risk
 - 7. Child Need or desire for objective confirmation of OME before surgery

FAILED NEWBORN HEARING SCREEN

- Counseling of parents of infants with OME who fail a newborn hearing screen regarding the importance of follow-up to ensure that hearing is normal when OME resolves and to exclude an underlying sensorineural hearing loss (SNHL)

Reccomendation

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- very small number of babies who fail will have permanent hearing loss

(2 or 3 of every 1000)

- Middle ear fluid is a very common cause of a failed newborn hearing screen

(6 of every 10)

Tube insertion

- For about 70% of children, hearing loss will go away right after the tubes are in place
- about 30% of children hearing improves several months



IDENTIFYING AT-RISK CHILDREN

- Clinicians should determine if a child with OME is at increased risk for speech, language, or learning problems from MEE because of baseline sensory, physical, cognitive, or behavioral factors

Recommendation

Risk Factors for Developmental Difficulties

- Permanent HL independent of OME
- Suspected or confirmed speech and language delay or disorder
- Autism spectrum disorder and other pervasive developmental disorders
- Syndromes (eg, Down) or craniofacial disorders that include cognitive, speech, or language delays
- Blindness or uncorrectable visual impairment
- Cleft palate, with or without associated syndrome
- Developmental delay



SCREENING HEALTHY CHILDREN

- Not routinely screen children for OME
- who are not at risk
- do not have symptoms such as hearing difficulties, balance(vestibular) problems, poor school performance, behavioral problems, or ear discomfort

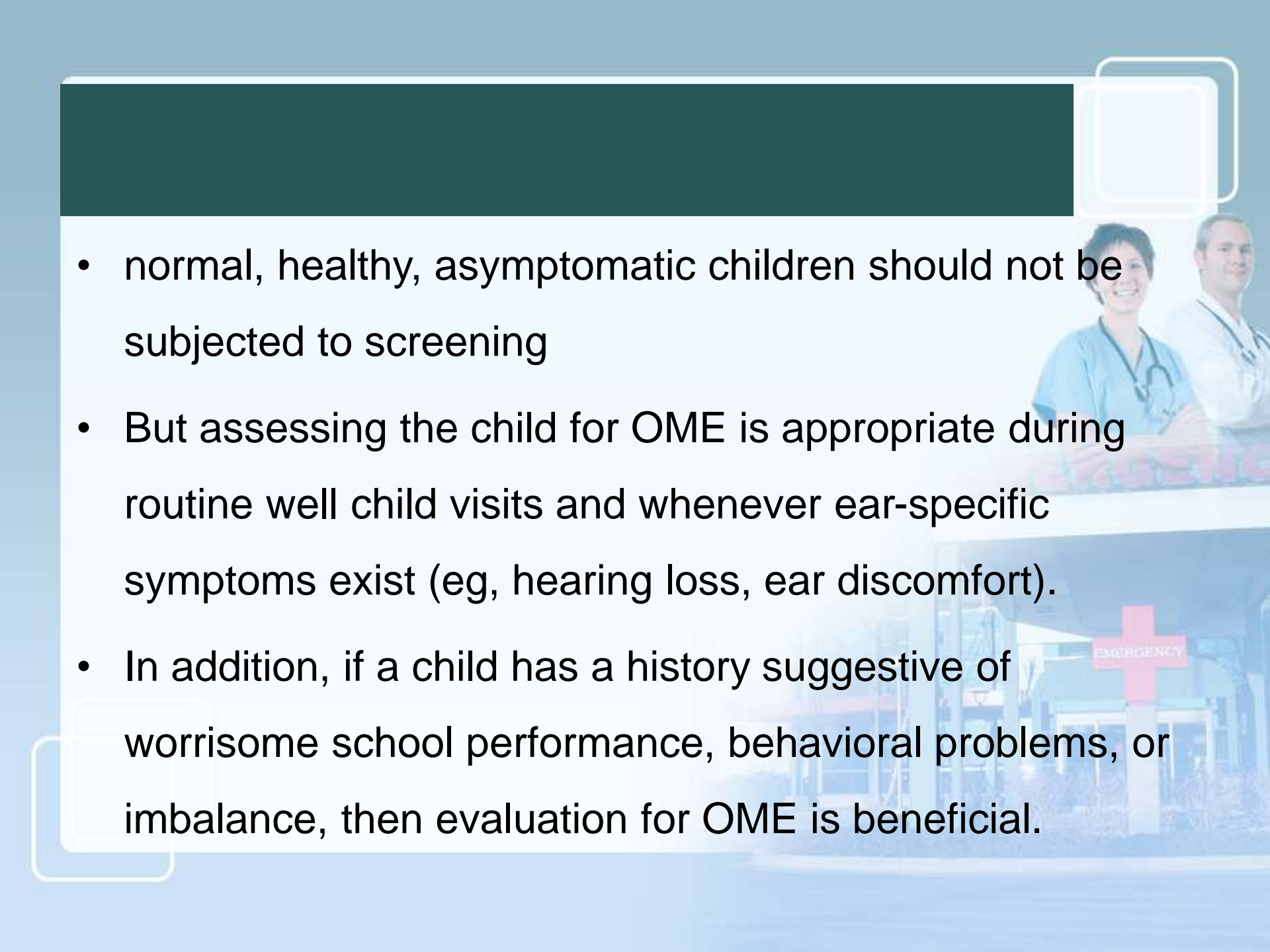


**Against
recomendation**

- there may be specific circumstances
- where screening is appropriate
- A child with a strong family history of otitis media or
- A child who is suspected to be at risk but does not yet have a formal at-risk diagnosis



- This statement does not apply to at-risk
- children (Table 3) or those with factors placing them at
- higher risk for otitis media, hearing loss, or both,



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- normal, healthy, asymptomatic children should not be subjected to screening
 - But assessing the child for OME is appropriate during routine well child visits and whenever ear-specific symptoms exist (eg, hearing loss, ear discomfort).
 - In addition, if a child has a history suggestive of worrisome school performance, behavioral problems, or imbalance, then evaluation for OME is beneficial.

PATIENT EDUCATION

- Clinicians should educate families of children with OME regarding:
- the natural history of OME
- need for follow-up
- The possible sequelae.

Recommendation



Risk factor

- Upper respiratory tract infection
- age
- passive smoking
- male sex
- attending day care
- major genetic component up to age 5 years.



Risk factor

- risk of OME **is less** when infants have been breast-fed, and this risk continues to decrease the longer the **duration of breast-feeding**.



Natural History of OME

- The spontaneous resolution depends on the **cause** and **onset**.
- when it follows an episode of AOM, **75%** resolve by 3 months.
- If the OME is spontaneous and the date of onset is unknown, the rate is lower, at **56%**.
- When the date of onset is known, however, this rate increases to **90%**.



- Children who are less likely to resolve the effusion spontaneously

- ❖ have onset during the summer or fall months
- ❖ a >30 -dB HL hearing loss
- ❖ history of prior tubes



Preventing OME

- breast-feeding
- removing tobacco smoke
- Good hand hygiene
- pneumococcal vaccination
- Limiting pacifier use in children >18 months old
- avoid supine bottle-feeding in infants to prevent otitis media (no well-designed studies to justify this claim)



WATCHFUL WAITING

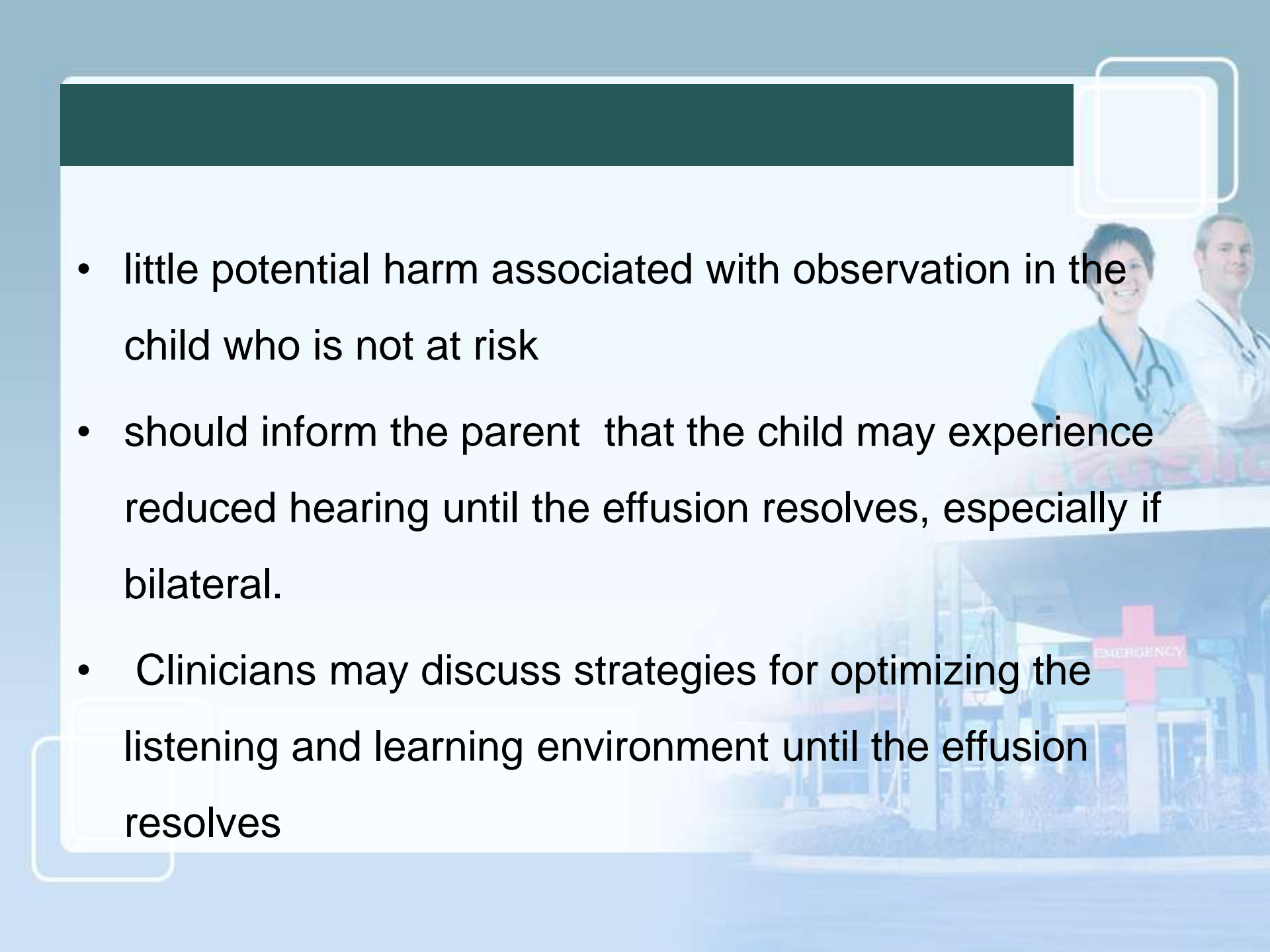
- Clinicians should manage the child with OME who is not at risk with watchful waiting for 3 months from the date of effusion onset (if known) or 3 months from the date of diagnosis (if onset is unknown)

Strong
recommendation

Exceptions

- At-risk children who may be offered tympanostomy tubes earlier than 3 months if there is a type B tympanogram in one or both ears



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- little potential harm associated with observation in the child who is not at risk
 - should inform the parent that the child may experience reduced hearing until the effusion resolves, especially if bilateral.
 - Clinicians may discuss strategies for optimizing the listening and learning environment until the effusion resolves

STERIODS:

- Clinicians should recommend against using intranasal steroids or systemic steroids for treating OME

Strong
recommendation
against

ANTIBIOTICS:

- Clinicians should recommend against using systemic antibiotics for treating OME.

Strong
recommendation
against

ANTIHISTAMINES OR DECONGESTANTS:

- Clinicians should recommend against using antihistamines, decongestants, or both for treating OME.

Strong
recommendation
against

Exceptions



- Patients in whom any of these medications are indicated for primary management of a coexisting condition with OME



Oral and Topical Steroids

- Topical steroids have limited side effects,
- there was no difference in the resolution of effusion or hearing loss over 3 months between children treated with nasal mometasone or Placebo
- economic disadvantage

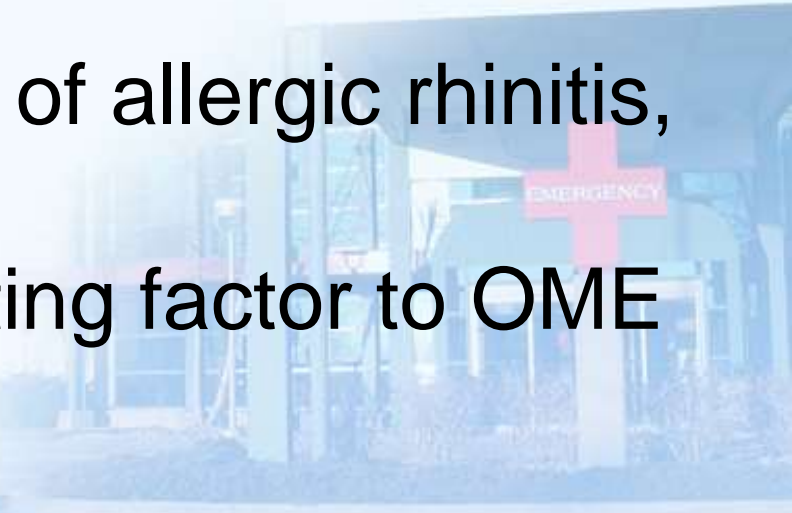


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- short-term benefit of topical intranasal steroids in children with adenoidal hypertrophy

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- magnitude of the effect is small

allergic rhinitis

- there may be a role for topical intranasal steroids, since they do target the inflammatory component of allergic rhinitis, which may be a contributing factor to OME



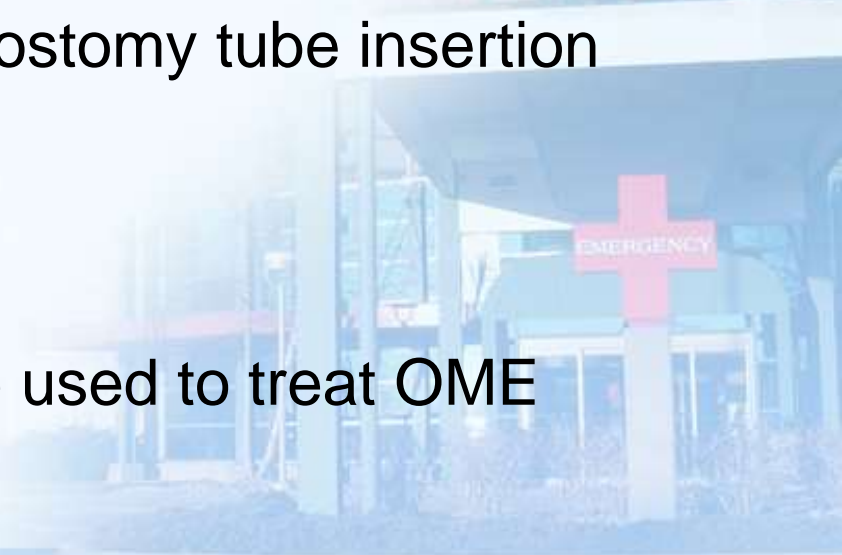
Antibiotics

- Antibiotic therapy did not have any significant impact on:

- ❖ HLs

- ❖ the rate of subsequent tympanostomy tube insertion

- Antibiotic therapy should not be used to treat OME



- Antibiotic therapy can be used when associated illnesses are present that would benefit from antibiotics, such as acute bacterial sinusitis or group A streptococcal infection.



Antihistamines and Decongestants

- No evidence was found of beneficial effects on hearing
- there may be some benefit in terms of improvement of nasal and ocular allergic symptomatology
- Montelukast was not found to be effective in the clearance of middle ear effusion



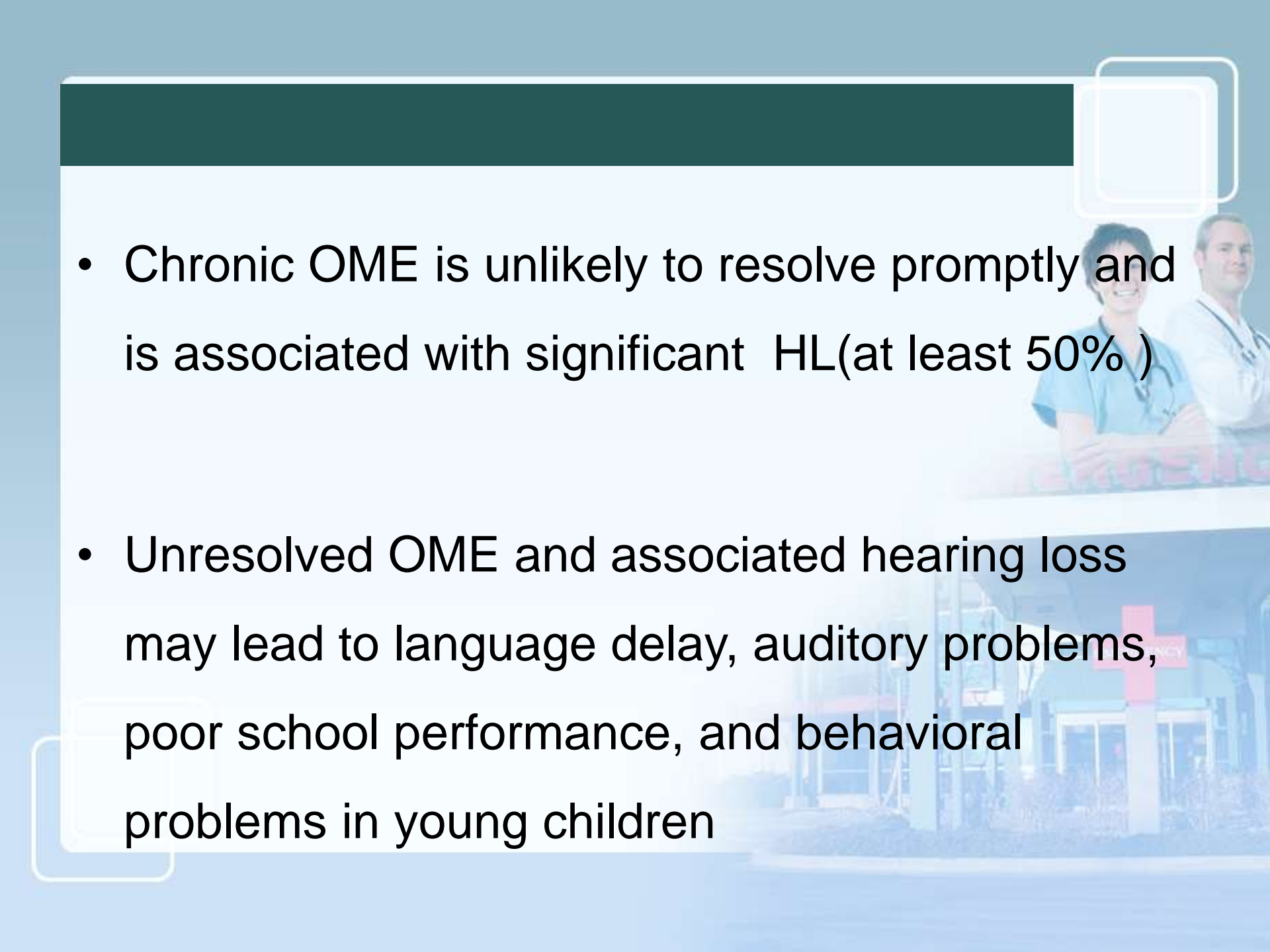
- there remains **insufficient evidence**
- from which to formulate a recommendation on the use of complementary and alternative medicine in the treatment of OME in children.

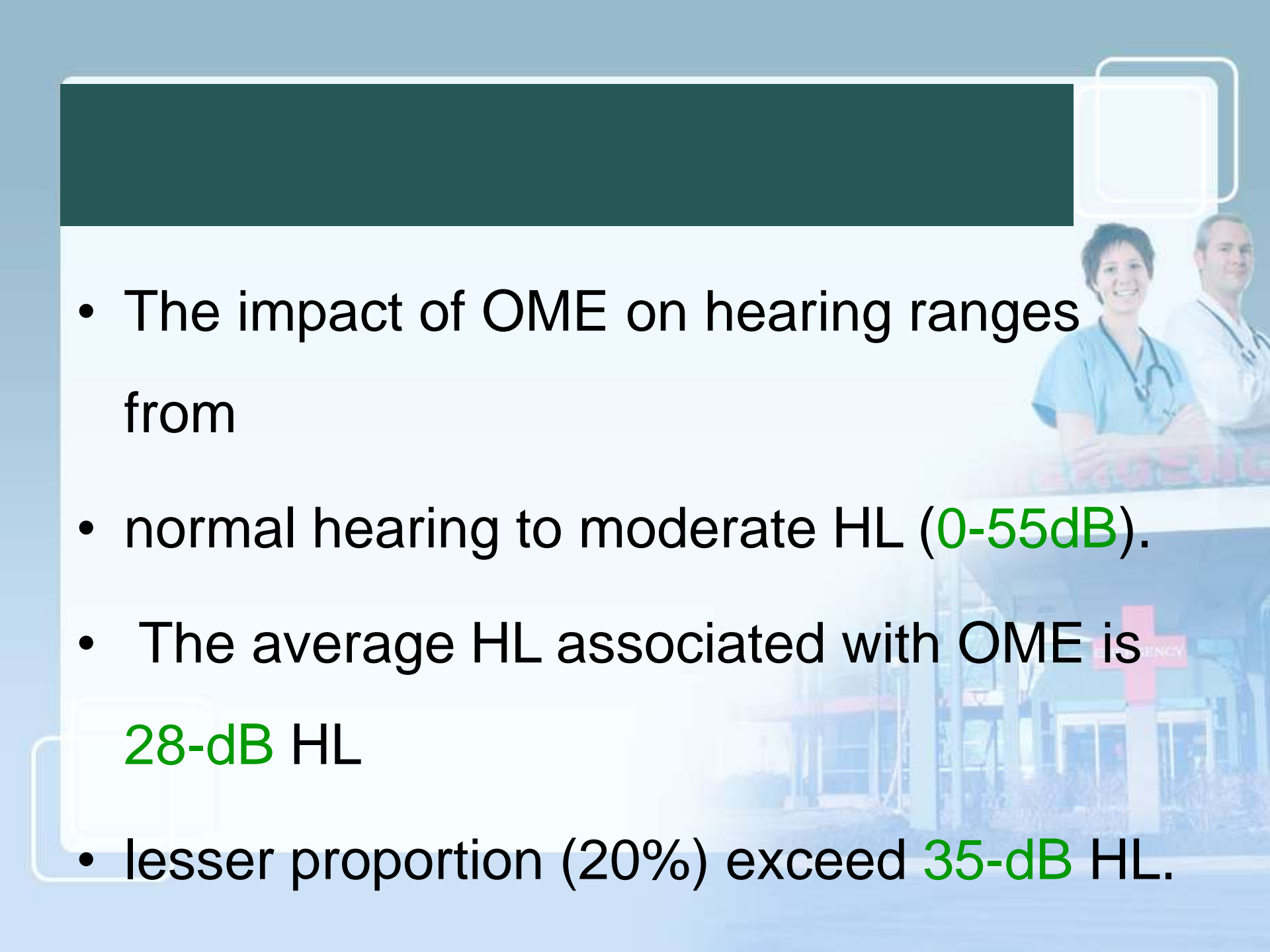


HEARING TEST

- Clinicians should obtain an age-appropriate hearing test if OME persists for 3 months OR for OME of any duration in an at risk child.

Recommendation

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- Chronic OME is unlikely to resolve promptly and is associated with significant HL(at least 50%)
 - Unresolved OME and associated hearing loss may lead to language delay, auditory problems, poor school performance, and behavioral problems in young children

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- The impact of OME on hearing ranges from
 - normal hearing to moderate HL (0-55dB).
 - The average HL associated with OME is 28-dB HL
 - lesser proportion (20%) exceed 35-dB HL.

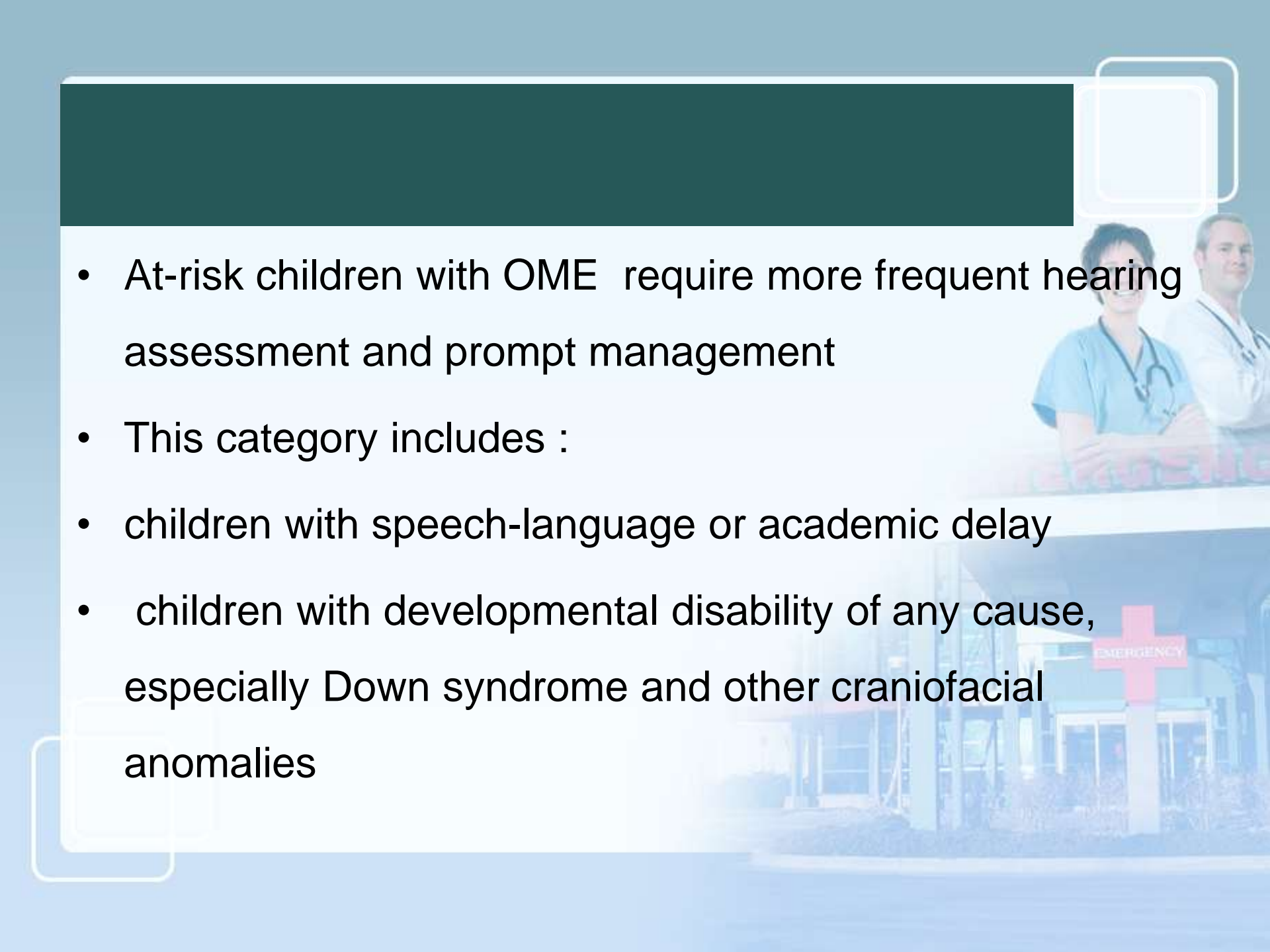
Methods of Hearing Testing

- **Visual response audiometry** is used to assess hearing in children aged 8 months to 2.5 years
- Children aged 2.5 to 4 years are assessed with **play audiometry**
- children aged ≥ 4 years may be sufficiently mature for conventional audiometry

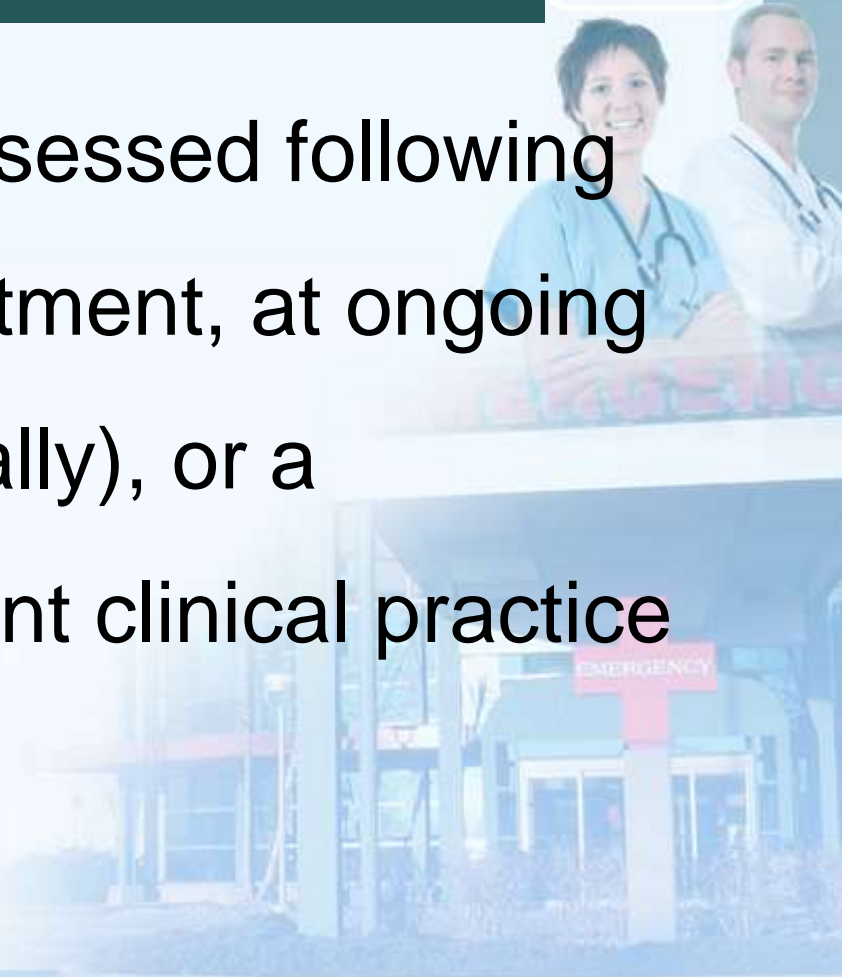


- any child with a detected hearing loss prior to tympanostomy tube insertion should have postoperative testing to confirm resolution of hearing loss that was attributed to OME and to assess for an underlying SNHL



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- At-risk children with OME require more frequent hearing assessment and prompt management
 - This category includes :
 - children with speech-language or academic delay
 - children with developmental disability of any cause, especially Down syndrome and other craniofacial anomalies

- Hearing should be reassessed following medical or surgical treatment, at ongoing intervals (at least annually), or as recommended in relevant clinical practice guidelines



SPEECH AND LANGUAGE

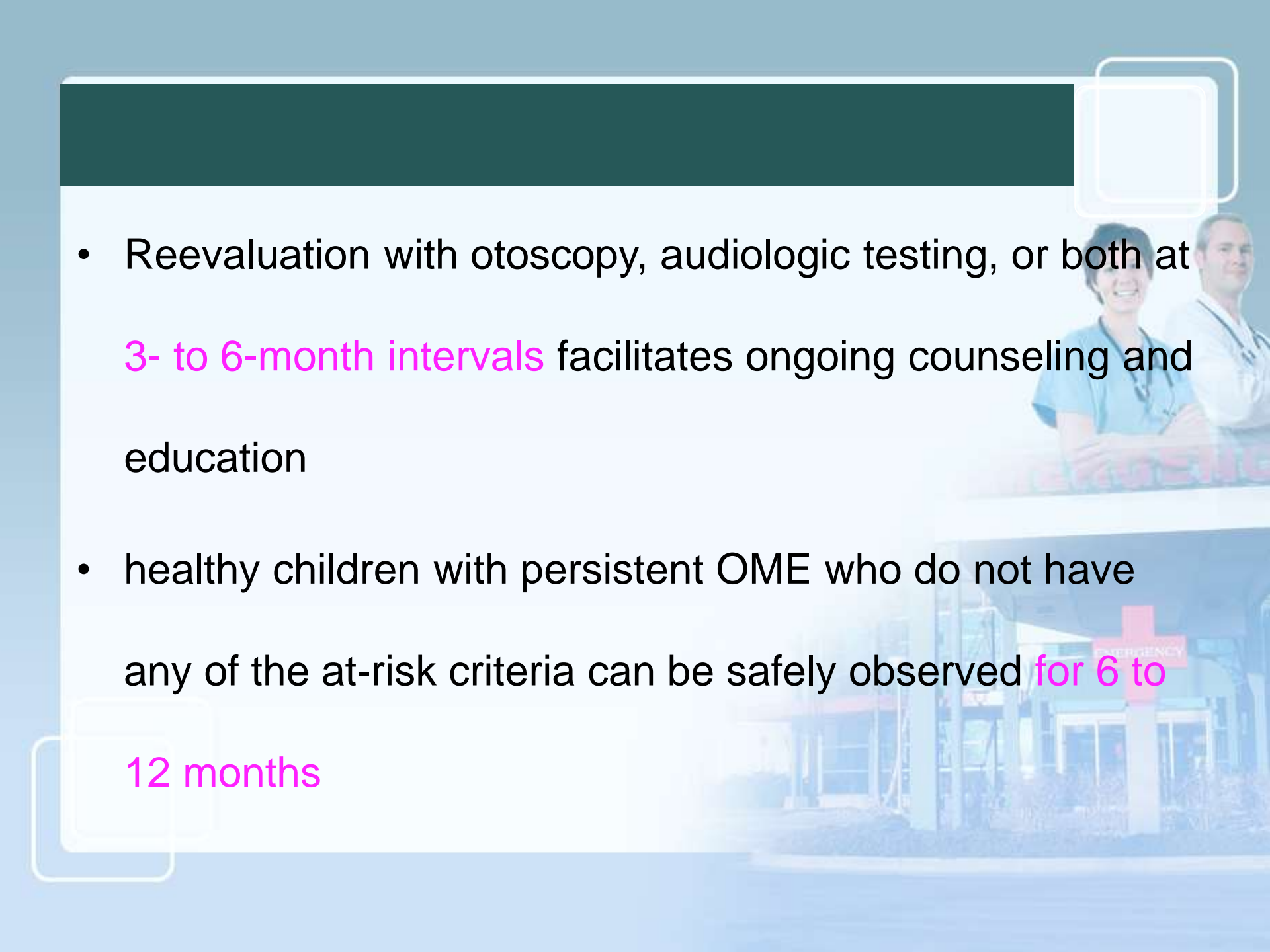
- Clinicians should counsel families of children with bilateral OME and documented HL about the potential impact on speech and language development

Recommendation

SURVEILLANCE

- Clinicians should reevaluate,
at 3- to 6-month intervals,
until the effusion is no longer present,
significant hearing loss is identified, or
structural abnormalities of the eardrum or
middle ear are suspected

Recommendation

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- Reevaluation with otoscopy, audiologic testing, or both at **3- to 6-month intervals** facilitates ongoing counseling and education
 - healthy children with persistent OME who do not have any of the at-risk criteria can be safely observed **for 6 to 12 months**

- For children who are at risk ,prolonged surveillance is not advised, and tympanostomy tubes may be performed when the OME is not likely to resolve promptly (type B tympanogram or persistence for ≥ 3 months).

- If OME is asymptomatic and is likely to resolve spontaneously, intervention is usually unnecessary, even if OME persists for >3 months.



- risk factors associated with reduced likelihood of spontaneous resolution of OME include:

1. onset of OME in summer or fall season,
2. hearing loss .30-dB HL in the better-hearing ear,
3. history of prior tympanostomy tubes
4. not having a prior adenoidectomy.



- Careful examination of the TM performed with a pneumatic otoscope for abnormalities :
 - ❖ retraction pockets
 - ❖ ossicular erosion
 - ❖ areas of atelectasis or atrophy
 - ❖ accumulation of keratin
 - ❖ focal signs of infection such as granulations or polyp.

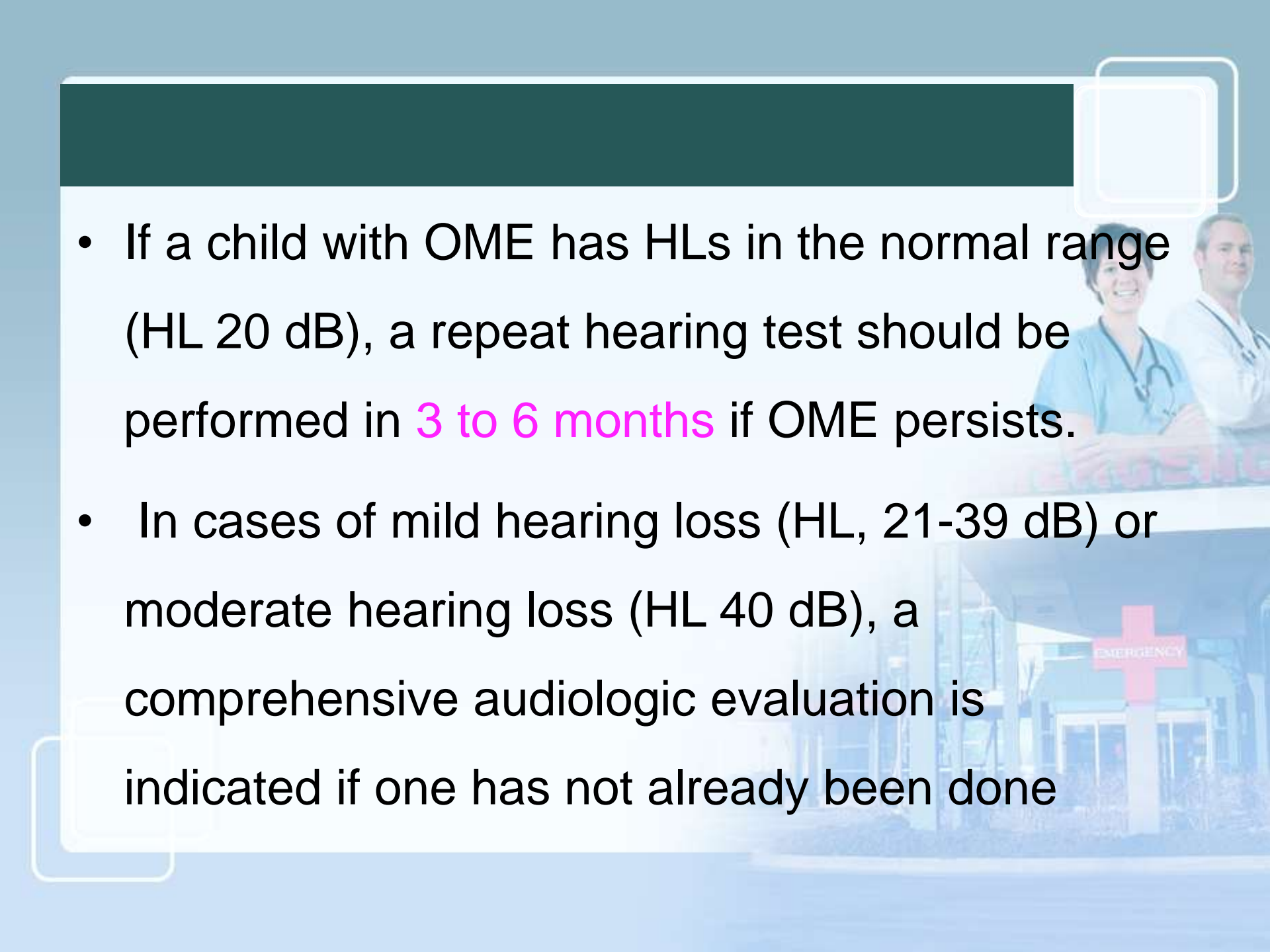


- All children with these TM conditions regardless of OME duration, should have a comprehensive audiologic evaluation (typically including AC and BC thresholds and speech audiometry).



- Conditions of the TM that benefit from tympanostomy tube insertion :
 - ✓ posterosuperior retraction pockets,
 - ✓ ossicular erosion
 - ✓ adhesive atelectasis
 - ✓ Retraction pockets that accumulate keratin debris



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- If a child with OME has HLs in the normal range (HL 20 dB), a repeat hearing test should be performed in 3 to 6 months if OME persists.
 - In cases of mild hearing loss (HL, 21-39 dB) or moderate hearing loss (HL 40 dB), a comprehensive audiologic evaluation is indicated if one has not already been done

SURGERY

- Clinicians should recommend tympanostomy tubes when surgery is performed for OME in a child < 4 years old;
- adenoidectomy should not be performed unless a distinct indication (eg, nasal obstruction, chronic adenoiditis) exists other than OME

Recommendation

SURGERY FOR CHILDREN 4 YEARS OLD

- Clinicians should recommend tympanostomytubes, adenoidectomy, or both when surgery is performed for OME in a child 4 years old or older



Recommendation

Tympanostomy tube placement alone

- most reliable short- and intermediate-term resolution of hearing loss associated with OME
- minor complications as noted above.
- tubes desirable for at-risk children



Adenoidectomy alone

- May have a less reliable impact in the short term.
- reduces the need for repeat surgery but has more complications than tubes alone
- some children with persistent OME despite adenoidectomy may need additional surgery for tympanostomy tube insertion.



Adenoidectomy plus myringotomy (without tubes),

- comparable to tubes with less otorrhea and TM sequelae
- Tympanostomy tube insertion:
- preferable to myringotomy when potential relapse of effusion must be minimized (eg, at-risk children) or when pronounced inflammation of the tympanic membrane and middle ear mucosa is present



Adenoidectomy plus tympanostomy tube placement

- reduce repeat surgery in children with a history of tympanostomy tube placement.
- This approach particular benefit in children with nasal obstruction or recurrent sinonasal infections

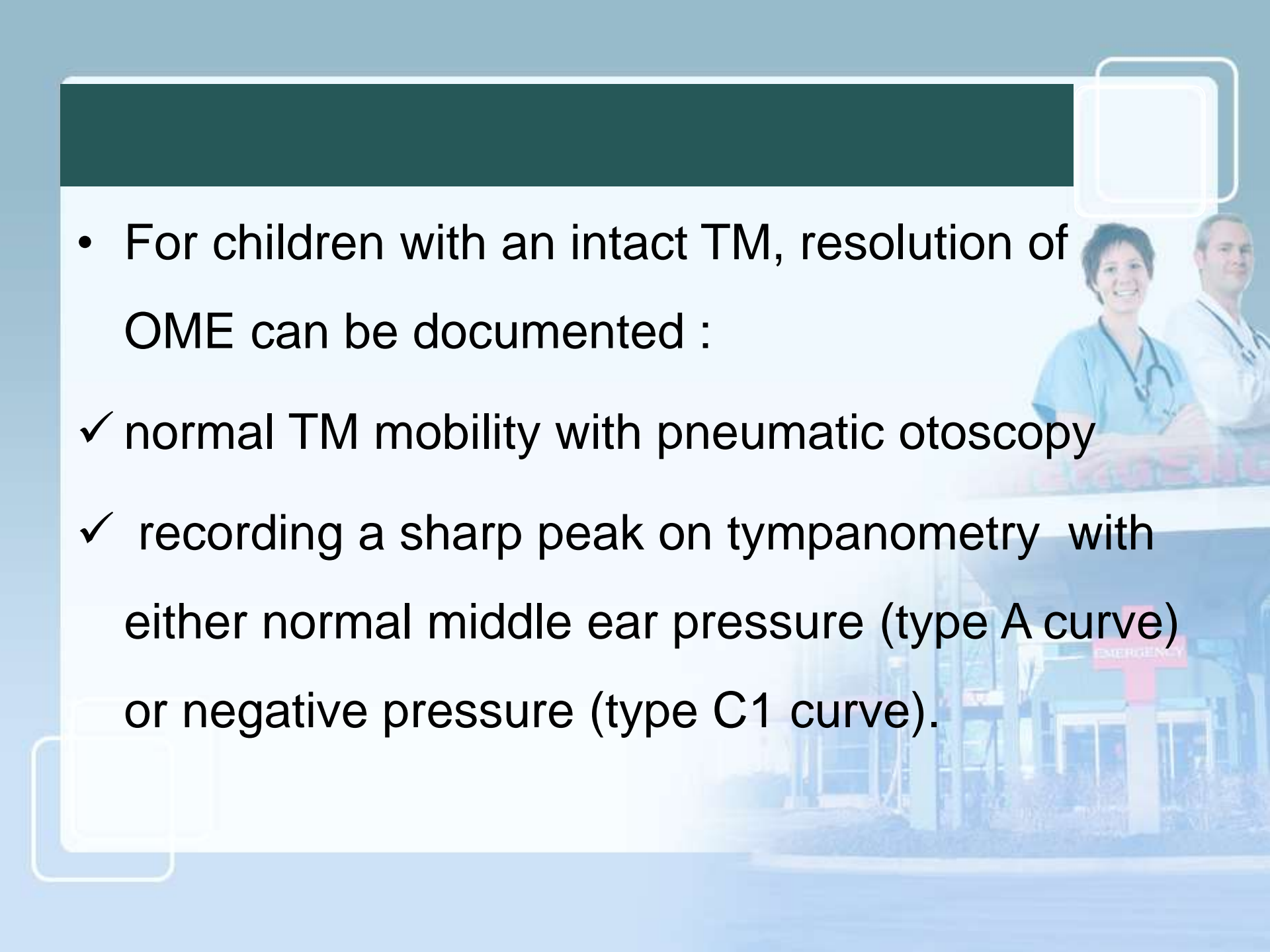


OUTCOME

- When managing a child with OME, clinicians should document in the medical record resolution of OME, improved hearing, or improved QOL.

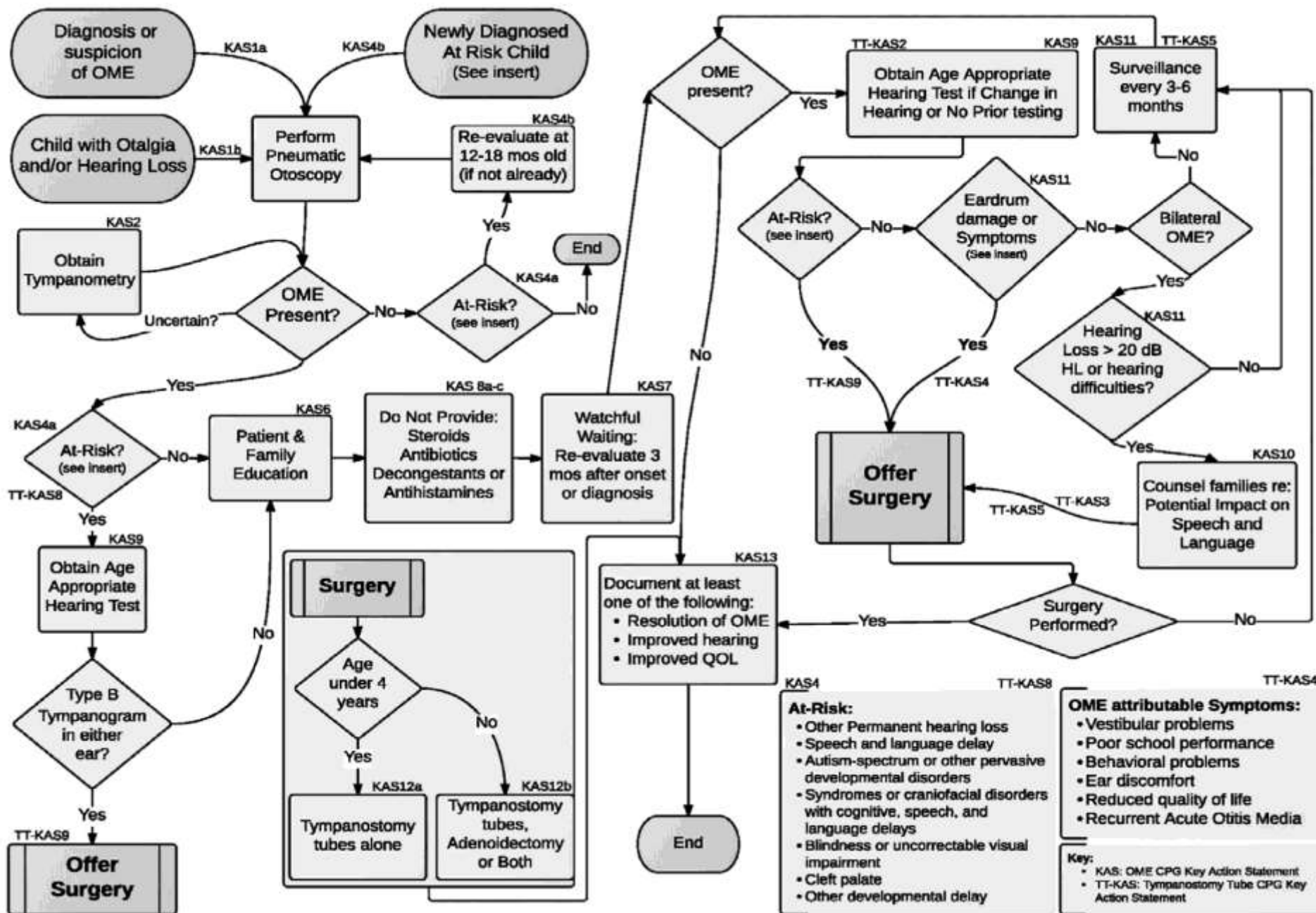


Recommendation

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- For children with an intact TM, resolution of OME can be documented :
 - ✓ normal TM mobility with pneumatic otoscopy
 - ✓ recording a sharp peak on tympanometry with either normal middle ear pressure (type A curve) or negative pressure (type C1 curve).

- children with tympanostomy tubes, resolution of OME can be documented :
 - ✓ intact and patent tube with otoscopy
 - ✓ recording a large ear canal volume with tympanometry.
- Improved hearing can be documented through age-appropriate audiometry





*Thank
You!*

