Acute Otitis Media

التهاب الأذن الوسطى

General Principles:

- ✓ Otitis media: an inflammation of the middle ear

- ✓ Bacteria: > 70- 90% of cases, common: S. pneumoniae, H. Influenzae, M. catarrhalis

Rhinosinusitis ← نفس البكتيريا المسببة لـ

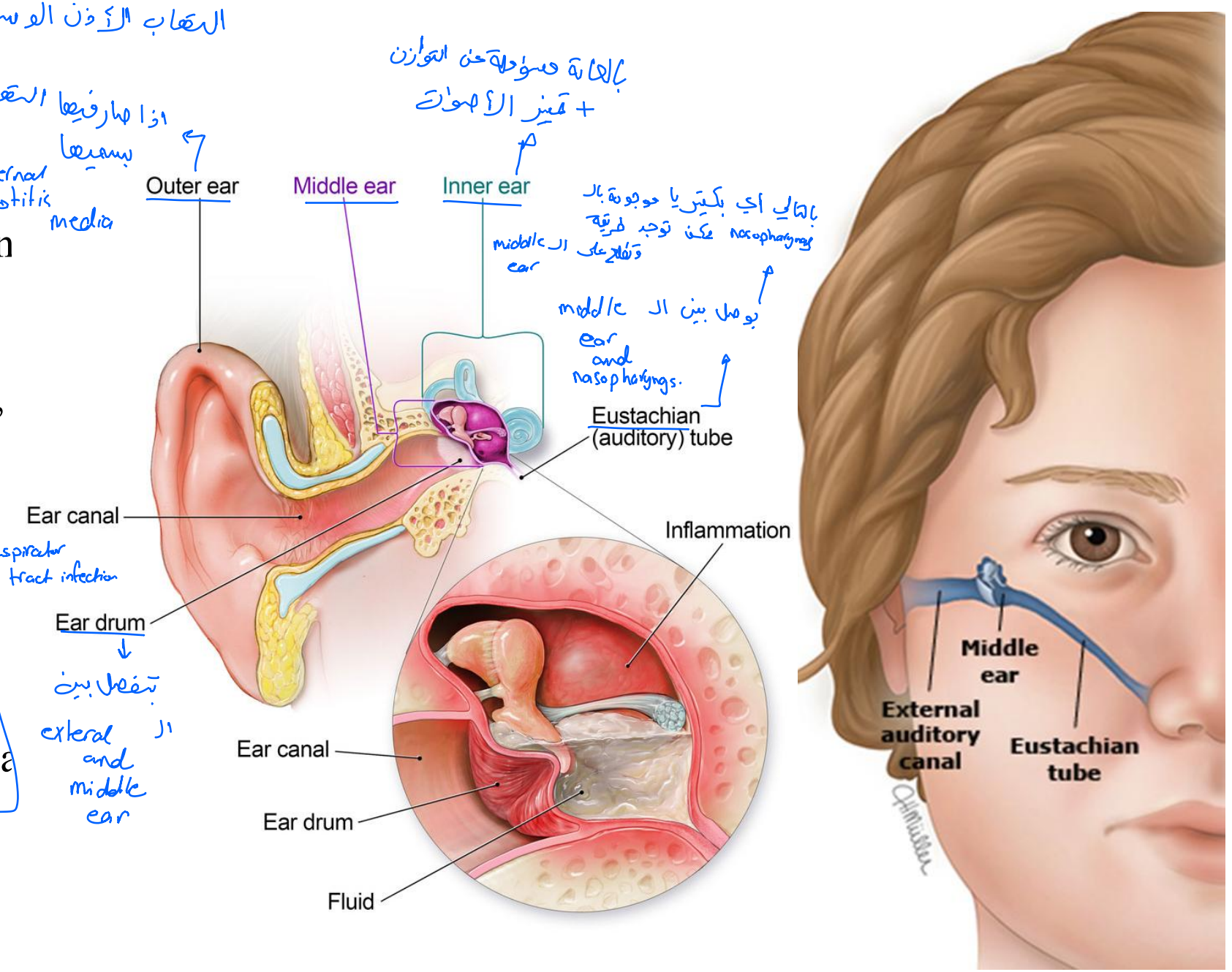
- ✓ Usually follows a viral URI that impairs the mucociliary apparatus & causes Eustachian tube dysfunction in the middle ea

← وسيلة دفاع اذا صار فيها مشكلة ممكن

nasopharyngs البكتيريا تطلع من الـ

infection وتسبب

upper respiratory tract infection



external otitis media ← اذا صار فيها التهاب بسميها

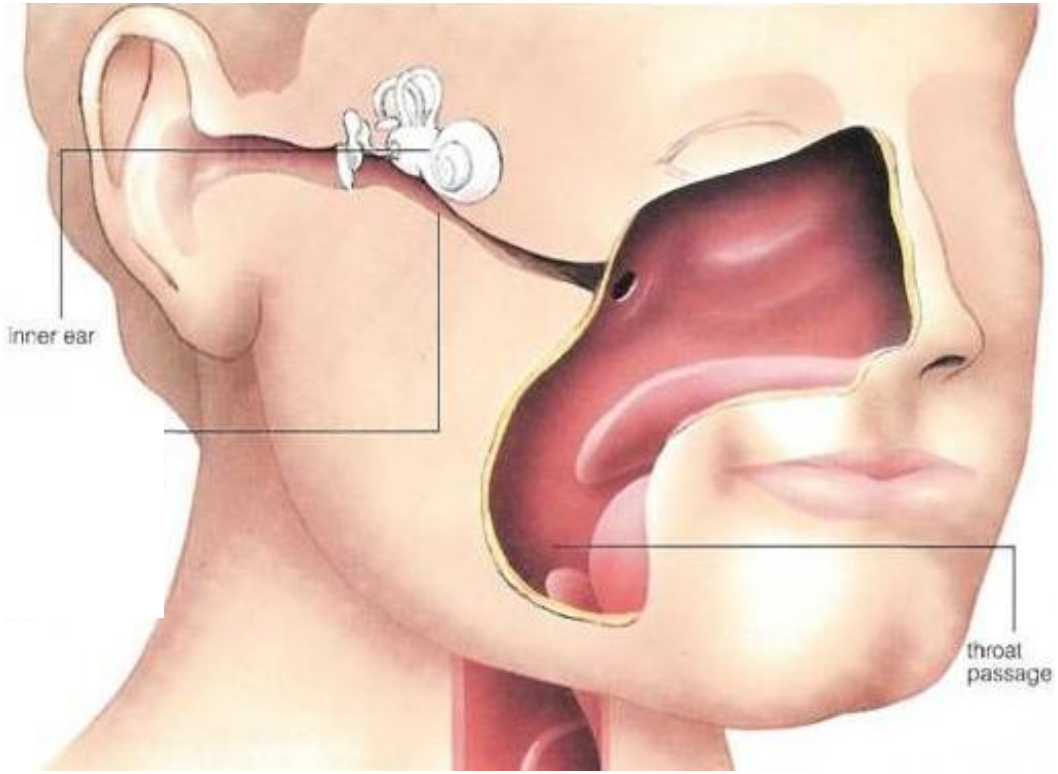
بالإضافة مسؤولة عن التوازن + تمييز الأصوات

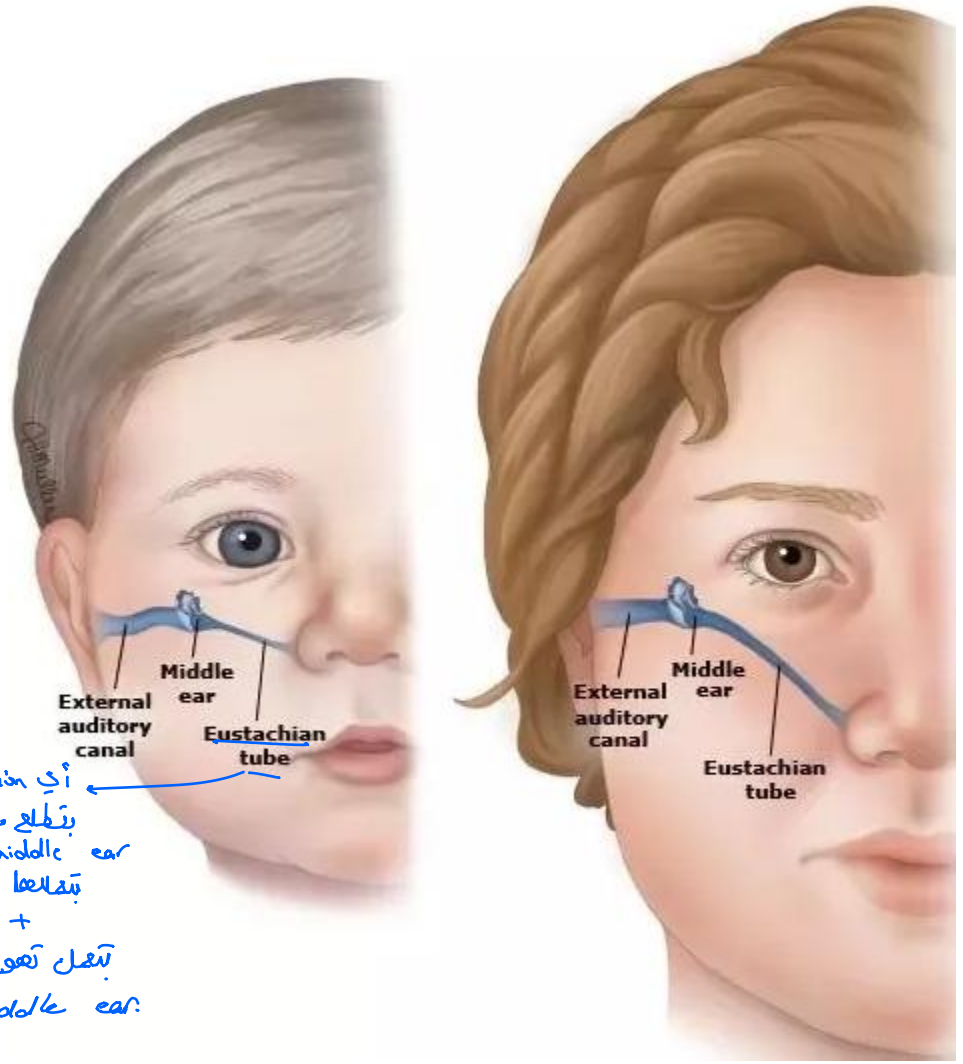
middle ear ← بالتالي اي بكتيريا موجودة بال وتطلع على ال

nasopharyngs ممكن توجد طريقة

middle ear and nasopharyngs. ← يوصل بين ال

external and middle ear ← تفصل بين ال





سكرتين أي
بتطلع من ال
middle ear
بتعالجها تصريف
+
بتعمل تهوية لل
middle ear

***

Children tend to be more susceptible to otitis media than adults because the anatomy of their Eustachian tube is shorter and more horizontal, facilitating bacterial entry into the middle ear.

Risk factors of otitis media:

1. age → from 6 months to 2 years more susceptible.
2. pacifier
3. day care attendance
4. poor air quality. EX: second and third hand smoke.
5. Breast feeding.
كل ما كان أكثر كل ما صارت ال risk أقل.

Type of middle otitis media:

1. Acute → في role واضح لاستخدام antibiotic
2. chronic → في role واضح لاستخدام Antibiotic
3. otitis media with effusion → fluids متجمعة في الأذن ما في pus والsecreations
ما في pain ولا fever or infection
ممكن المريض يعرف انه عنده هاي الحالة بوجود pressure.

✗ ليش الأطفال أكثر عرضة لل Acute otitis media: قناة استاكيوس اللي بتربط بين الأذن الوسطى مع الأنف بالأطفال بتكون أصغر + أقصر كمسافة بالتالي سهل البكتيريا توصل للأذن من البالغين + بتكون more horizontal position ← يعني flat. الزاوية بتكون 15° بينما في البالغين 45°
↳ بينما هون في ميلان بالتالي أصعب انها تمر للأذن من الأنف

Diagnosis:

- ✓ Clinical Presentation:
  - Acute onset of otalgia (ear pain)
  - For parents of young children, irritability and tugging on the ear are often the first clues that a child has acute otitis media.

+fever +pus from ear.

CLINICAL PRESENTATION — Acute Otitis Media

General

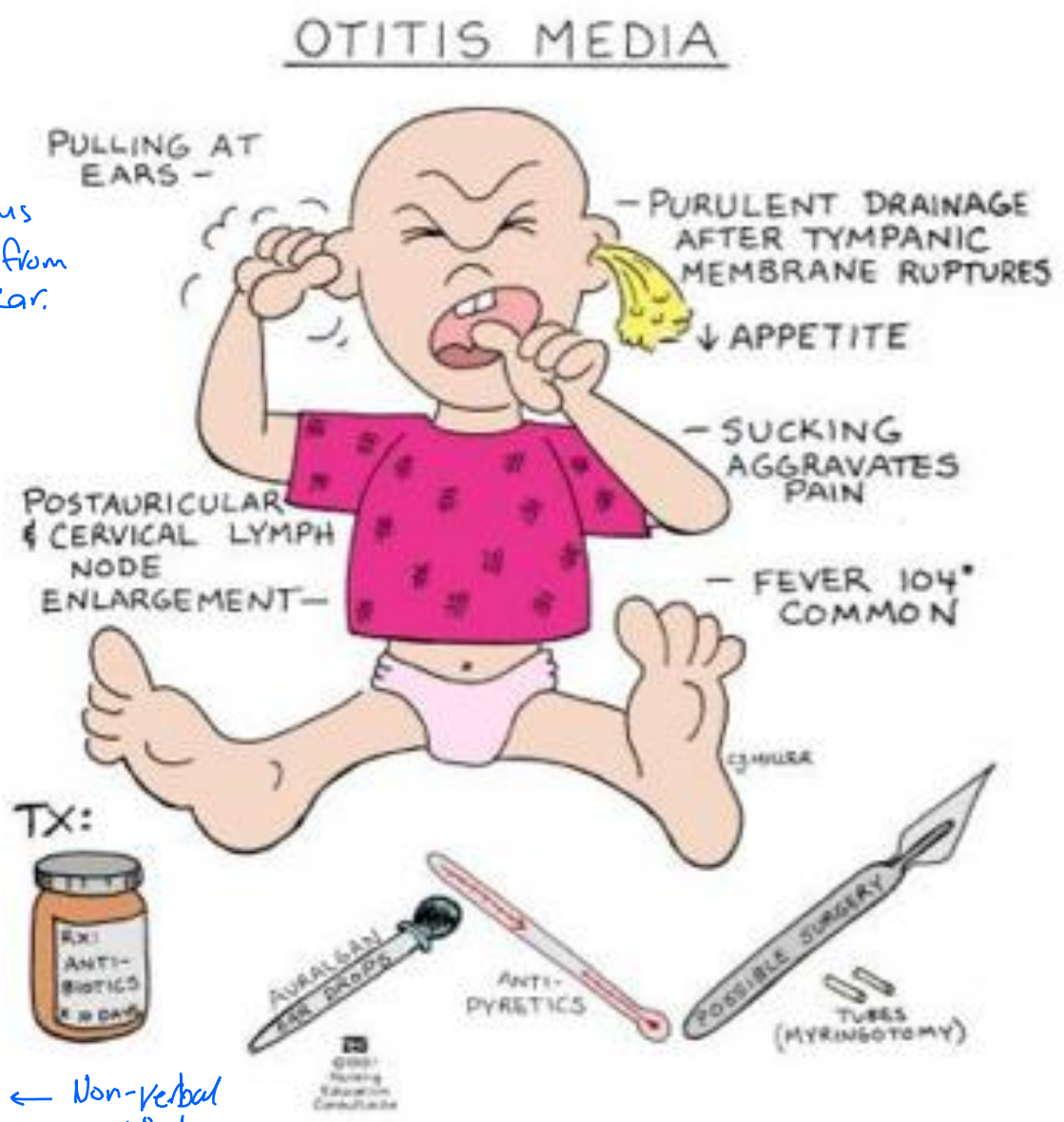
- Cases of acute otitis media often follow viral upper respiratory tract infections. Nonverbal children with ear pain might hold, rub, or tug their ear. Infants might cry, be irritable, or have difficulty sleeping.

Signs and Symptoms

1. Bulging of the tympanic membrane
2. Otorrhea (pus or secretion from ear)
3. Otalgia (considered to be moderate or severe if pain lasts at least 48 hours)
4. Fever (considered to be severe if temperature is 39°C [102.2°F] or higher)

الـ infant ← غير قادرين على التعبير بالتالي بلاحظ انه عندهم AOM من طريق البكاء + ما بشرب الحليب + ما بنام منيح

Non-verbal children ← غير قادر على التحدث ل غير الأعراض يلي فوق بس الطفل ممكن أو يمسك الأذن.



Symptoms

The most common symptoms of acute otitis media include:

- Ear pain (otalgia): This is often the primary symptom, especially in older children and adults (considered to be moderate or severe if pain lasts at least 48 hours).
- Fever: Typically low-grade, occurring in about two-thirds of patients (considered to be severe if temperature is 39°C [102.2°F] or higher).
- Irritability: Particularly common in infants and young children.
- Sleep disturbances: Trouble sleeping or restlessness.
- Hearing difficulties: Patients may have trouble hearing or responding to sounds.
- Ear tugging: Young children may pull or tug at the affected ear.

Additional symptoms may include:

1. Anorexia (loss of appetite)
2. Vomiting
3. Diarrhea
4. Headache
5. Balance problems

Presentation in Different Age Groups

In infants and young children:

1. May be fussy or irritable
2. Crying more than usual
3. Trouble sleeping
4. Pulling at ears
5. Fever
6. Fluid drainage from the ear (otorrhea)

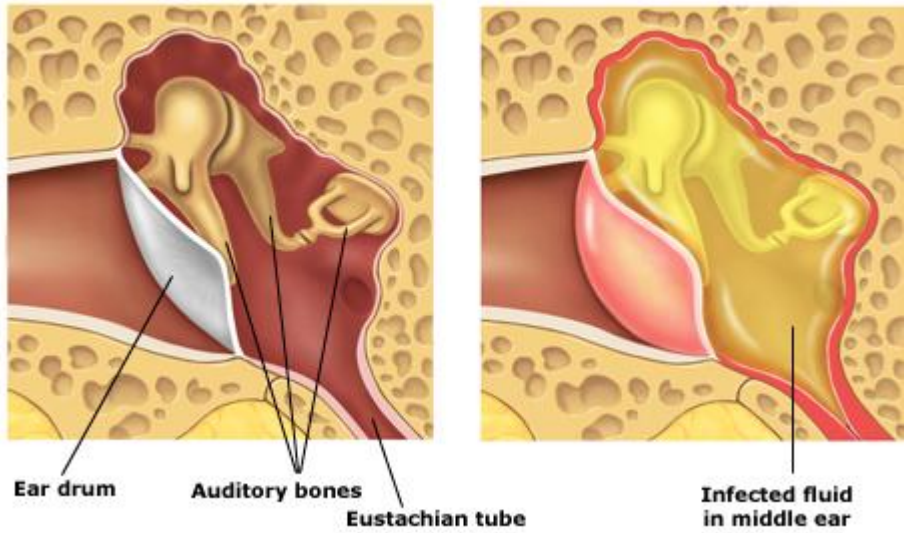
In older children and adults:

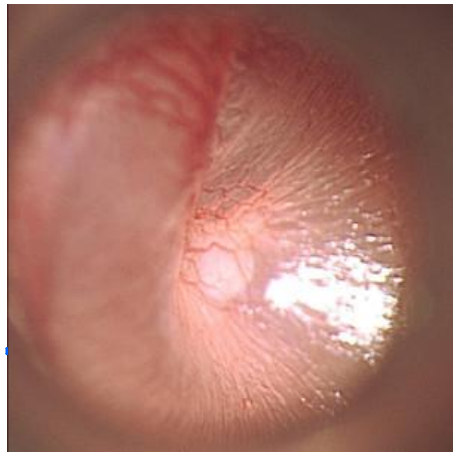
1. Ear pain
2. Feeling of fullness or pressure in the ear
3. Hearing impairment
4. Fluid drainage if eardrum ruptures
5. Other signs reported include vertigo, nystagmus, and tinnitus

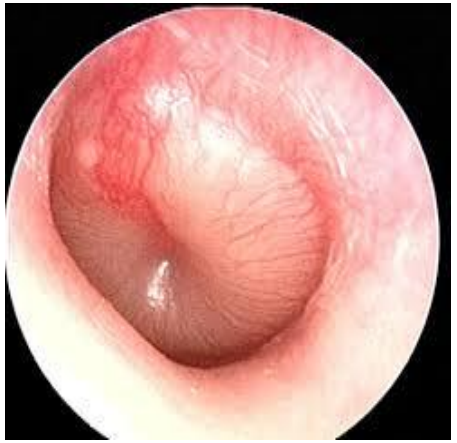
- ✓ Diagnostic Testing:
- Middle ear effusion identified based on Pneumatic otoscopy and/or tympanometry & either:

1) moderate-to-severe bulging of the TM or new onset otorrhea or

2) mild bulging of the tympanic membrane with recent onset of ear pain (within the last 48 hours) or intense erythema of the tympanic membrane.



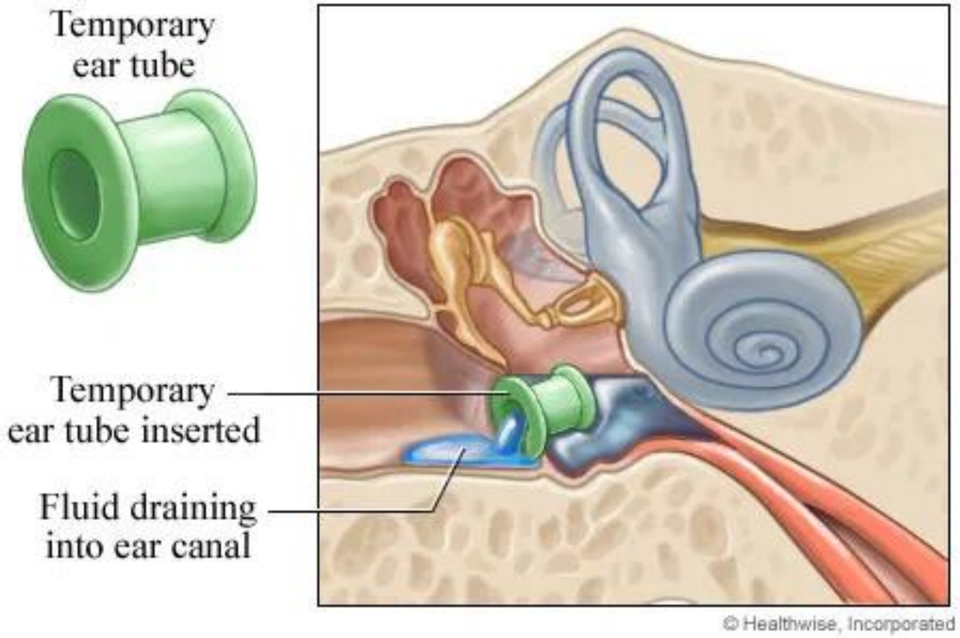


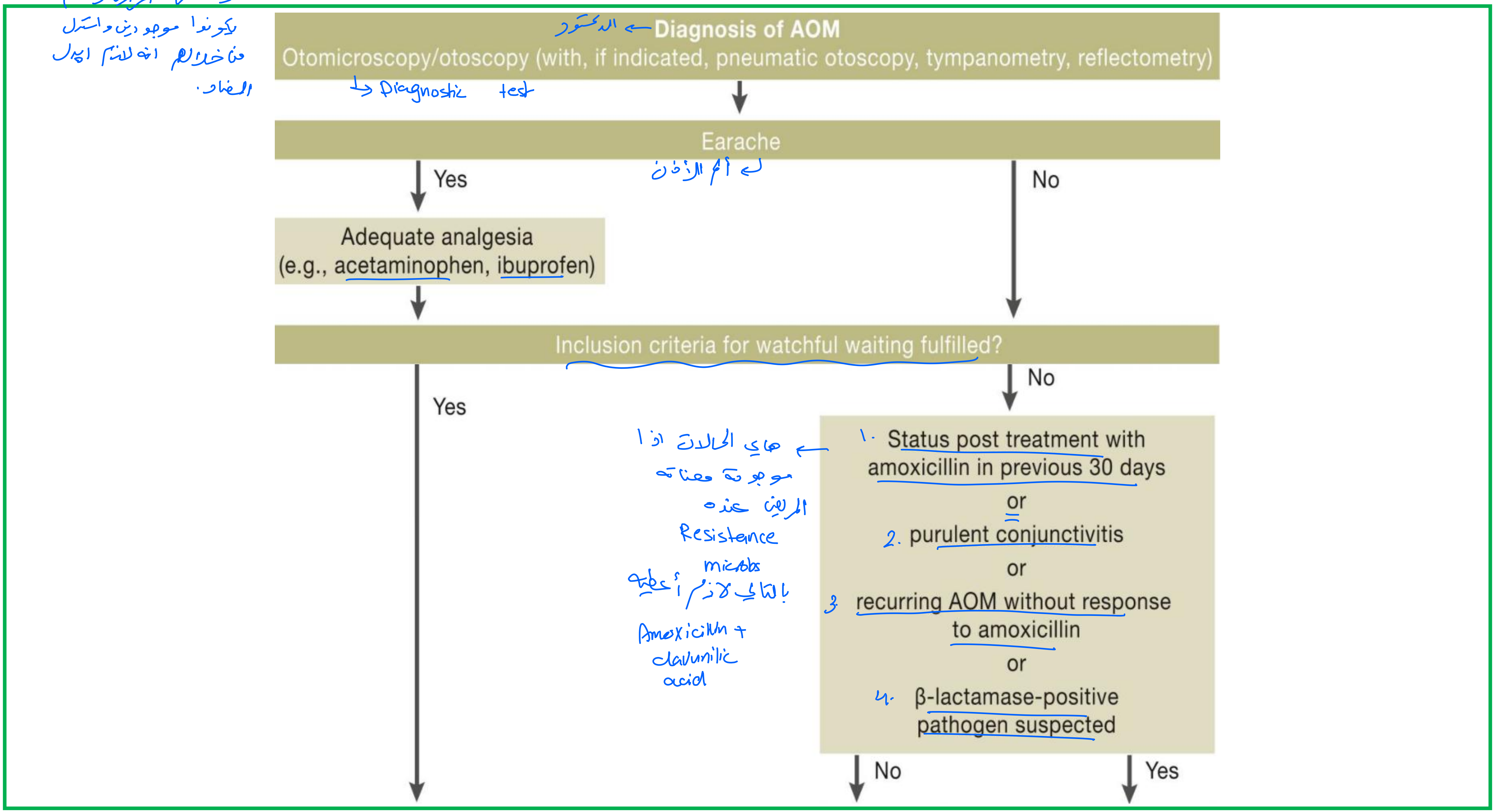


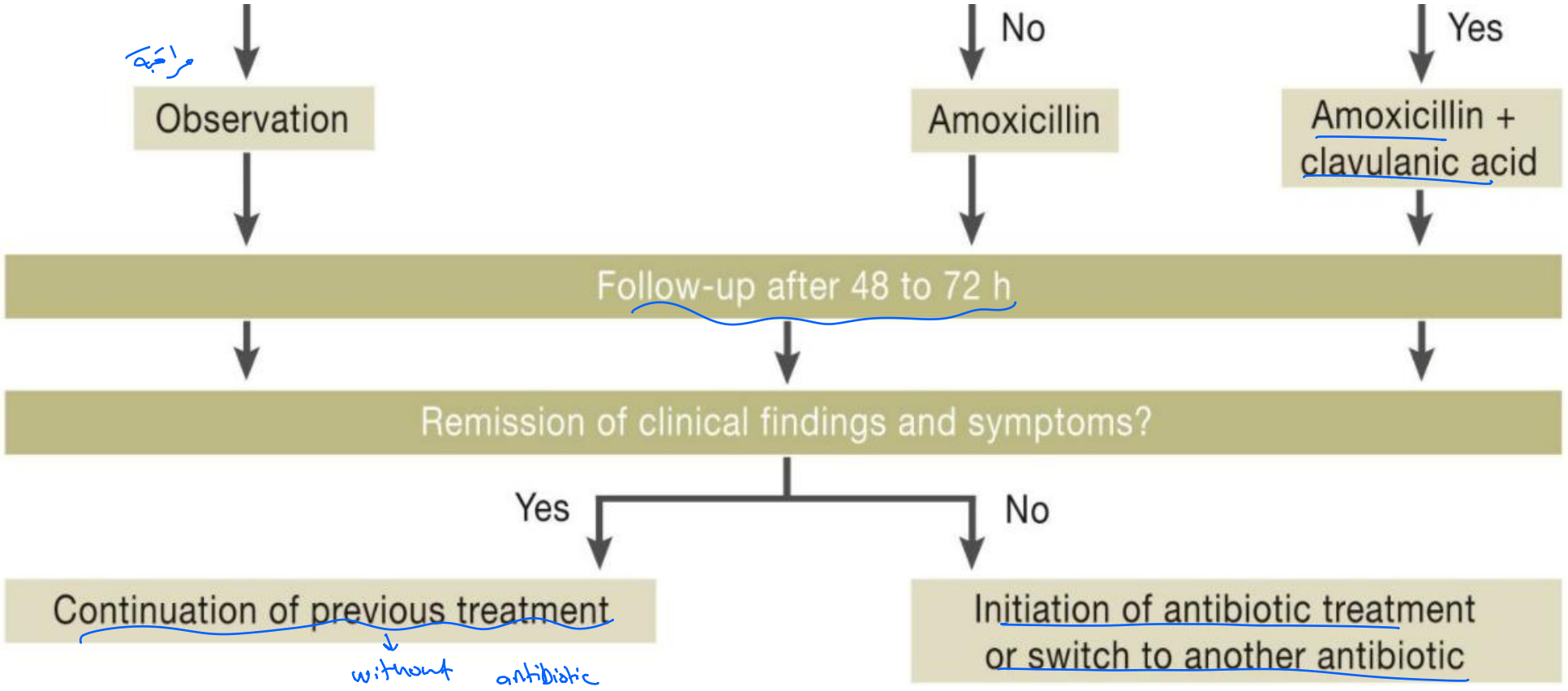
Treatment:

- ✓ Consider primary prevention of acute otitis media through the use of bacterial and viral vaccines.
- ✓ Recommended: pneumococcal conjugate vaccine & annual influenza vaccine to all children
- ✓ The central principle is to administer antibiotics quickly when the diagnosis is certain. Amoxicillin is the mainstay of therapy for most children.
- ✓ Exceptions include: children who have received amoxicillin in the last 30 days, have concurrent purulent conjunctivitis, or have a history of recurrent infection unresponsive to amoxicillin.
- ✓ These patients should receive amoxicillin-clavulanate instead of amoxicillin.
- ✓ The therapeutic strategy should be changed if complications develop or if symptoms fail to resolve within 3 days.

- ✓ Short-course treatment (5-7 days) is not recommended in children younger than 2 years of age.
- ✓ In children at least 6 years of age who have mild-to-moderate acute otitis media, a 5- to 7-day treatment course may be used.
- ✓ Recurrent acute otitis media is defined as at least three episodes in 6 months or four episodes in 1 year, with one episode in the preceding 6 months.
- ✓ Recurrent episodes are of concern because children younger than 3 years of age are at high risk for hearing loss and language and learning disabilities.
- ✓ Clinicians should not prescribe antibiotics as prophylaxis against recurrent episodes, but they may offer tympanostomy tubes (T tubes).
- ✓ Antibiotics do not reduce pain in the first 24 hrs so acetaminophen and ibuprofen to reduce pain.




Diagnosis of AOM
Otomicroscopy/otoscopy (with, if indicated, pneumatic otoscopy, tympanometry, reflectometry)
Diagnostic test
Earache
Yes
No
Adequate analgesia
(e.g., acetaminophen, ibuprofen)
Inclusion criteria for watchful waiting fulfilled?
Yes
No
Status post treatment with amoxicillin in previous 30 days
or
purulent conjunctivitis
or
recurring AOM without response to amoxicillin
or
β-lactamase-positive pathogen suspected
No
Yes
Resistance
Amoxicillin + clavulinic acid



Reference: Thomas JP, Berner R, Zahnert T, Dazert S. Acute otitis media--a structured approach [published correction appears in Dtsch Arztebl Int. 2016 Feb 19;113(7):113]. Dtsch Arztebl Int. 2014;111(9):151-160. doi:10.3238/arztebl.2014.0151

✓ Therapeutic strategy based on: depending on ① severity (otorrea, fever ≥ 39, ear pain ≥ 48 h) ② unilateral or bilateral ③ age.

- Severe S & S → Uni or bilateral & children ≥ 6 months → **Antibiotic**
- Non-severe S & S → Bilateral & children 6-23 months → **Antibiotic**
- S & S with otorrhea → Uni or bilateral & children ≥ 6 months → **Antibiotic**
- Adults → **Antibiotic**

- Non-severe S & S without otorrhea → Unilateral & children ≥ 6 mo → **Watchful waiting**
- Non-severe S & S without otorrhea → Bilateral & children ≥ 2 years → **Watchful waiting**

✓ Watchful waiting based on joint decision-making with the parents.

يلي عليهم سهم احمر الجرعات مطلوبة

TABLE 126-1 Antibiotics and Doses for Acute Otitis Media

Antibiotic	Brand Name	Dose	Comments[a]
Initial Diagnosis			
Amoxicillin	Amoxil®	80-90 mg/kg/day orally divided twice daily	First line
Amoxicillin-clavulanate	Augmentin®	90 mg/kg/day orally of amoxicillin plus 6.4 mg/kg/day orally of clavulanate, divided twice daily	First line if certain criteria are present[b]
Cefdinir, cefuroxime, cefpodoxime	Omnicef®, Ceftin®, Vantin®	cefdinir (14 mg/kg/day orally in 1-2 doses), cefuroxime (30 mg/kg/day orally in two divided doses), cefpodoxime (10 mg/kg/day orally in two divided doses)	Second line or nonsevere penicillin allergy
Ceftriaxone (1-3 days)	Rocephin®	50 mg/kg/day IM or IV for 3 days	Second line or nonsevere penicillin allergy
Failure at 48-72 Hours			
Amoxicillin-clavulanate[b]	Augmentin®	90 mg/kg/day orally of amoxicillin plus 6.4 mg/kg/day orally of clavulanate, divided twice daily	First line
Ceftriaxone (1-3 days)	Rocephin®	50 mg/kg/day IM or IV for 3 days	First line or nonsevere penicillin allergy

IM, intramuscular; IV, intravenous; po, orally.

[a]Amoxicillin-clavulanate 90:6.4 or 14:1 ratio is available in the United States; 7:1 ratio is available in Canada (use amoxicillin 45 mg/kg for one dose, amoxicillin 45 mg/kg with clavulanate 6.4 mg/kg for second dose).

[b]If a patient has received amoxicillin in the last 30 days, has concurrent purulent conjunctivitis, or has a history of recurrent infection unresponsive to amoxicillin.

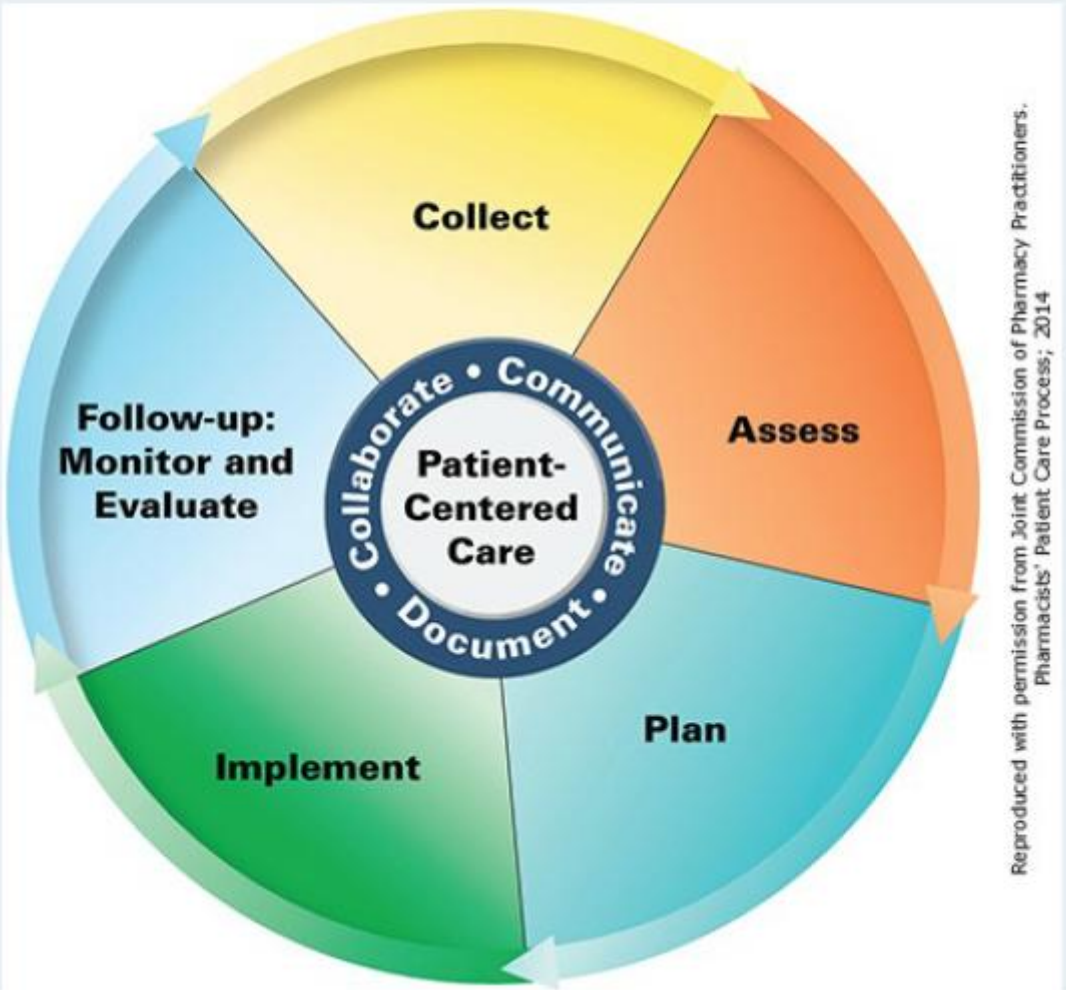
Data from Reference 5.

يعطيكم العافية جميعا ولا تنسوني من صالح دعائكم
زميلتكم مرام الزيادي 💙🫶

قراءة ذاتية وحكت مطلوب

Patient Care Process

Patient Care Process for Acute Otitis Media



Collect

- Patient characteristics (eg, age, weight)
- Patient history (eg, past infections, current and past antibiotic/antiviral use noting previous failures, medication allergies)
- Determine whether the patient has concurrent purulent conjunctivitis
- Objective data:
    - Temperature
    - Signs and symptoms (see "Clinical Presentation")
    - Presence of congestion, fullness, purulent discharge, or pain in the ear
    - Presence of redness, fullness, bulging, or limited/absent mobility of the tympanic membrane

Assess

- Infection status, including presence of signs and symptoms
- Determine which symptoms may need additional therapy (eg, ongoing ear pain)

- Use information collected, patient factors (eg, patient age, symptom severity, laterality)
- If appropriate, consider joint decision-making with parents/caregivers to determine whether antibiotics are needed
- If antibiotics are appropriate, determine proper choice of antibiotic, dose, duration, and dosage form
    - Determine if the patient meets criteria for high-dose amoxicillin-clavulanate

Plan

- Select a drug therapy regimen including specific antibiotic, dose, route, frequency, and duration; specify the continuation and discontinuation of existing therapies (see Table 135-1)
- Monitor efficacy (eg, temperature, pain), safety (eg, medication-specific adverse effects), and time frame
- Educate patient and/or caregiver (eg, purpose of treatment, drug therapy) emphasizing adherence to treatment regimen

Implement*

- Provide patient education regarding the infection and elements of treatment plan
- Use motivational interviewing and coaching strategies to maximize adherence
- Schedule follow-up, when indicated
- Recommend measures to reduce ear pain if present

Follow-up: Monitor and Evaluate

- Improvement/resolution of signs and symptoms; reassess the plan if the child's symptoms worsen or decline within 48 to 72 hours of symptom onset
- Presence of adverse effects, particularly allergic reactions, and diarrhea
- Patient adherence to treatment plan using multiple sources of information
- Recommend PCV and annual influenza vaccination

**Collaborate with patient, caregiver(s), and other healthcare professionals.*