Respiratory tract

Common cold and flu

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Lecture No. 2

Objectives

1. **Remembering**

Students will be able to **recall** the common symptoms, causes, and typical duration of coughs and colds.

2. Understanding

Students will be able to **explain** the differences between the symptoms of a cold, flu, and COVID-19.

3. Applying

Students will be able to **apply** their knowledge to recommend appropriate OTC treatments for managing cough and cold symptoms.

4. Analyzing

Students will be able to **analyze** patient case studies to determine the necessity for further medical intervention or referral.

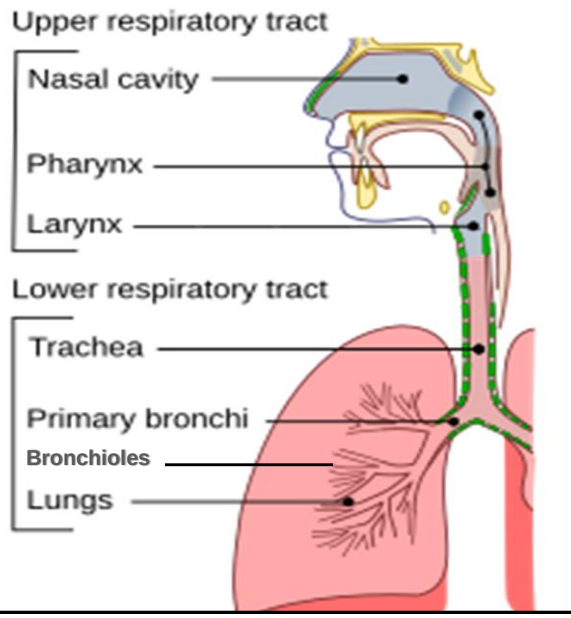
5. Evaluating

Students will be able to **evaluate** the appropriateness of antibiotic use in patients presenting with coughs and colds, considering the risks of overprescription.

6. Creating

Students will be able to **create** effective patient education plans that promote self-management and proper use of OTC medications, while also considering potential drug interactions and contraindications.

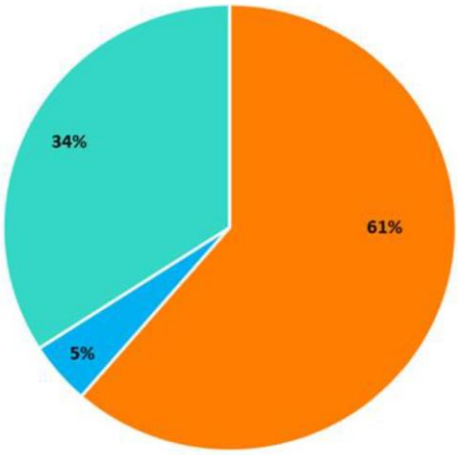
Respiratory Tract anatomy



- **Nose** - الأنف
- **Nasal cavity** - التجويف الأنفي
- **Pharynx** - البلعوم
- **Larynx** - الحنجرة
- **Trachea** - القصبة الهوائية
- **Bronchi** - القصبات الهوائية
- **Bronchioles** - القصيبات الهوائية
- **Alveoli** - الحويصلات الهوائية
- **Lungs** - الرئتين
- **Diaphragm** - الحجاب الحاجز

Respiratory Tract infections

- Respiratory tract infection comprise largely of **a mixture of viral infections** and to less extend **bacteria**, **fungi**, and, less commonly, **parasites**.
- The symptoms **colds, flu and SARS-CoV-2 (COVID19)** infections are similar.
- All patients meeting certain diagnostic criteria should consider **staying at home** during the pandemic.



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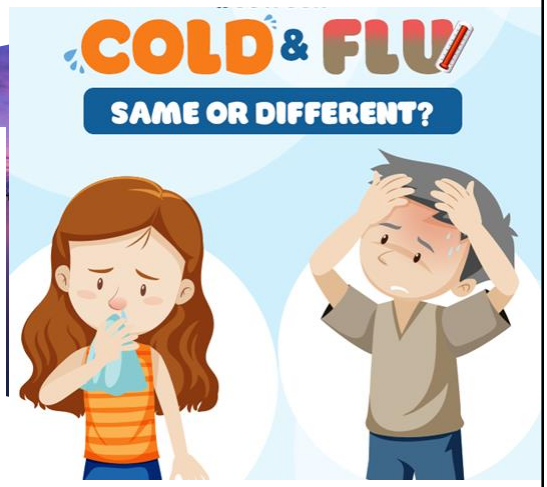
Respiratory Tract infections

- It is commonly **self-limiting**.
- OTC medicines used for **symptomatic relief**.
- Some OTC remedies may **interact with prescribed therapy**, occasionally with **serious consequences**. Therefore, careful attention to be given to taking a **Medication History** and providing **Patient Education**.

- **NSAID (Naproxen) + ACEI** or ARBs--------Reduce the antihypertensive effects, renal dysfunctions, may increase BP
- **Naproxen + Amilorid** …increase BP, Hyperkalaemia, nephrotoxicity

1-Common Colds and Flu

- **Two most common upper respiratory tract conditions** –
- The common cold and influenza exhibit **similar symptoms** and are often confused by patients.



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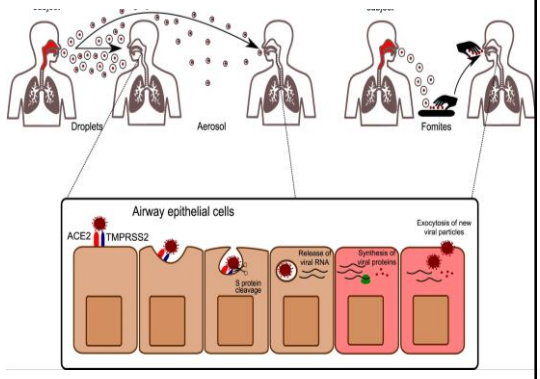
1-Common Colds and Flu

Aetiology

- Virus **invades** the nasal and bronchial **epithelia**, **attaching** to specific **receptors** and causing **damage** to the **ciliated** cells.
- This results in the **release** of **inflammatory** mediators, and inflammation of the tissues lining the nose.
- **Permeability** of capillary cell walls **increases**, resulting in **oedema**, which is experienced by the patient as **nasal congestion and sneezing**.
- Fluid might drip down the back of the throat, spreading the virus to the throat and upper chest, causing cough and sore throat.
- Colds are **most contagious** during the first **1 to 2 days of symptoms.**



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Significance Of Questions And Answers

What you need to know

Age (approximate)	Onset and Duration of symptoms	Symptoms	Previous history	Present Medication
• Child • Adult	• Gradual • Rapid	• Runny/blocked nose • Sneezing/Cough • Generalised aches /headache, • High temperature • Facial pain/frontal headache • Earache • Loss of taste and/or smell • Sore throat, • Flu, • Summer cold	• Asthma, • Allergic rhinitis • Bronchitis • Heart disease	

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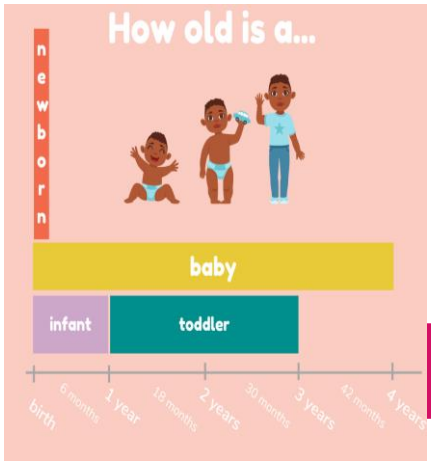
Significance Of Questions And Answers

I- Age

- The age will influence decision for referral and/or choice of treatment.
- **Infants and Children** are more susceptible to complications (bronchiolitis, pneumonia and croup)
- **Elderly** with comorbidities (e.g. diabetes), at risk of developing complications (e.g pneumonia), serious illness and death.



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Significance Of Questions And Answers

II- Onset and Duration of symptoms

Rapid onset of symptoms (hours)	**Flu or COVID19**	**Information's and patients history**
A gradual onset over a day or two	**Common cold**	
The symptoms of the **common cold**	usually last for 7–14 days.	**Patients Education**
Some symptoms, such as a **cough**,	may persist for 3 weeks.	

III- Symptoms of common cold

1. Runny/blocked nose

- Most patients will experience a runny nose (i.e. **rhinorrhoea**).
- **Rhinorrhoea** is initially a **clear watery fluid**, which later becomes a **thicker** and more **tenacious**, often **coloured**, mucus.
- Nasal congestion occurs because of **dilatation** of blood vessels, which leads to **swelling** of the lining surfaces of the nose and can cause discomfort. This swelling **narrows** the nasal passages that are further blocked by **increased mucus production**.

III- Symptoms of common cold

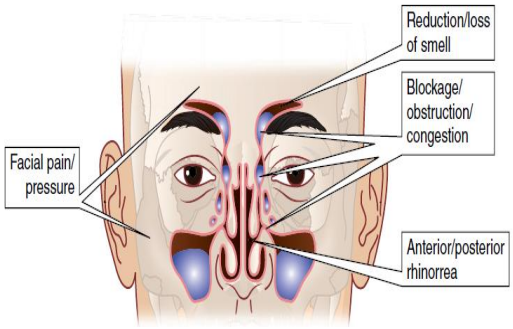
2. Sneezing/coughing

- **Sneezing** occurs because the **nasal passages** are **irritated** and **congested**.
- A **cough** may be present either because the **pharynx** is irritated (producing a dry, tickly cough) or as a result of irritation of the **bronchus** due to postnasal drip.

III- Symptoms of common cold

3. Aches and pains/headache

- **Headaches** may be experienced because of inflammation and congestion of the nasal passages and sinuses.
- A **fever** may also cause headache.
- A **persistent** or **worsening frontal headache** (pain above or below the eyes) may be due to **sinusitis**.
- People often report **muscular and joint aches** and these are more likely to occur with **flu and COVID-19** than with the common cold.



Sinusitis
التهاب الجيوب الأنفية

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III- Symptoms of common cold

4. High temperature

- In general, a high temperature (e.g. exceeding 38°C) **will not be present**.
- The **presence of fever** may be an indication that the patient has **flu or COVID-19** rather than a cold.

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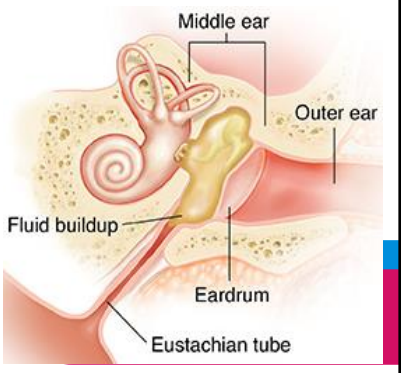
III- Symptoms of common cold

5. Earache/otalgia

- Nasal mucus and congestion blocks the eustachian tube leads to **earache** is a common, especially in children
- The patient may **feel uncomfortable** and **deaf**.
- It often resolves **spontaneously**, but decongestants and inhalations can be helpful.
- The situation worsens the ear becomes acutely painful (**otalgia**).
- This ear pain is common in young children and usually the **best treatment is pain-relief medicine**. A secondary infection with inflammation may follow and when this occurs, this is called **acute otitis media** (AOM).



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Sore قرحة

III- Symptoms of common cold

5. Earache/otalgia

- **Evidence** from clinical trials shows that **without antibiotic treatment**, symptoms will **improve within 24 h in 60% of children** and will settle spontaneously **within 3 days in 80% of children**.
- Antibiotics have been shown to increase the risk of vomiting, diarrhoea and rashes.
- Antibiotics are most useful in children **under 2 years of age** who have pain in both ears or a painful ear with discharge from that ear (i.e. otorrhoea);
- In summary, a painful ear can initially be managed by the pharmacist. There is evidence that ***paracetamol*** and ***ibuprofen*** are effective treatments for both otalgia and AOM. However, if pain persists or is associated with an unwell child (e.g. high fever, very restless or listless, and vomiting), then refer to the GP practice.

Sore قرحة

III- Symptoms of common cold

6. Facial pain/frontal headache

- Facial pain or frontal headache may signify **sinusitis**.
- During a cold, their lining surfaces become **inflamed** and **swollen**, producing mucus. The secretions drain into the nasal cavity. If the **drainage passage becomes blocked**, fluid builds up in the sinus, which causes pain from pressure and is called **acute sinusitis**. It can become secondarily (bacterially) infected, but this is rare.
- A systematic review indicated only a small benefit from antibiotics even in **acute sinusitis** that had lasted for longer than 7 days.

III- Symptoms of common cold

6. Facial pain/frontal headache

- However, **antibiotics may be recommended**

✓ if the symptoms persist for > 10 days or

✓ Symptoms are severe with fever (>38°C),

✓ Severe local pain and discoloured or purulent nasal discharge, or

✓ if a marked deterioration in sinusitis symptoms develops following a recent cold that had started to settle (so-called '**double sickening**').

- These may be reasons to direct patients for further assessment.

III- Symptoms of common cold

6. Facial pain/frontal headache

- **Treatment Options include:**

✓ ***Paracetamol*** or *ibuprofen* to reduce pain;

✓ An intranasal **decongestant** (for a maximum of 1 week, in adults only)

✓ Steam **inhalation** or nasal **irrigation** with saline are advised for painful sinuses.

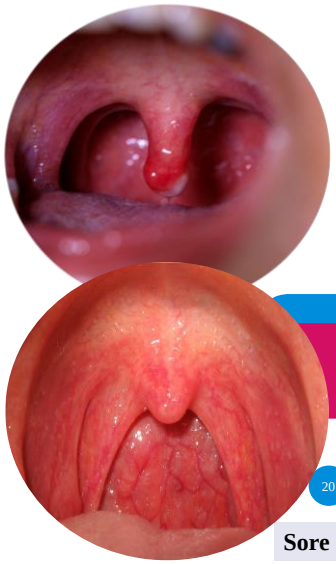
✓ **Sitting in the bathroom** with a running hot shower is a safer option.

✓ **Drinking adequate fluids** and **rest** will generally help.

III- Symptoms of common cold

7. Sore throat

- The patient often feels their **throat** is **dry and sore** during a cold and this may sometimes be **the first sign that a cold is imminent.**
- A sore throat can be a prominent feature in colds and flu, and it is often treated **erroneously** as a **throat infection**.
- Sore throat can also be a feature of **COVID-19**



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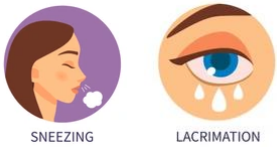
Sore قرحة

III- Symptoms of common cold

8. Summer colds



- The **main symptoms** of summer colds are :
- ✓ **Nasal Congestion**,
- ✓ **Sneezing** And
- ✓ **Irritant Watery Eyes**
- Similar symptoms are commonly caused by **allergic rhinitis.**

Differentiating between colds and influenza

Influenza (flu) is generally considered to be likely, if:

1. **Temperature** is 38°C or higher (37.5°C in the elderly).
2. A minimum of **one respiratory symptom**, such as cough, sore throat, nasal congestion or rhinorrhoea, is present.
3. A minimum of **one constitutional symptom**, such as headache, malaise, myalgia, sweats/chills or prostration, is present.

Symptoms of Influenza

Infection with the influenza virus usually

1. Starts **abruptly** with **sweats and chills, muscular aches and pains in the limbs**,
2. **Dry sore throat**, **cough** and **high temperature**.
3. Someone with flu may be **bedbound**.
4. There is often a period of generalised weakness and malaise and this may last a week or more.
5. A dry cough may also persist for some time.

Influenza complications

- Flu can cause secondary lung infections, such as **pneumonia**.

High-risk groups	• Young babies with undeveloped immunity. • Elderly and frail individuals with impaired immune responses. • People with pre-existing conditions, such as heart disease, asthma, or COPD. • Individuals with kidney disease, weak immune systems, or diabetes.
Signs of pneumonia	• Severe or productive cough. • Persistent high fever. • Pleuritic chest pain. • Delirium.

- Antibiotics may be needed but should be reserved for confirmed cases to avoid antibiotic resistance.

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IV- Previous History

People with COPD (chronic bronchitis or emphysema) may need referral.

COPD considered in patients over 35 years old	• long-term smokers • Shortness of breath during exercise. • Persistent cough. • Regular sputum production. • Frequent winter bronchitis or wheeze.
Warning signs of COPD exacerbation	• Worsening cough. • Purulent sputum. • Increased shortness of breath.

- COPD patients should ideally receive an annual flu vaccination.
- Doctors may increase bronchodilator doses, prescribe oral steroids, and antibiotics during exacerbations.
- Certain OTC medications should be avoided by those with heart disease, hypertension, and diabetes.

IV- Previous History

- **Asthma**
- Exacerbations of asthma can be triggered by **respiratory viral infections**.
- Most people with asthma learn to **start or increase their usual medication** to prevent such an occurrence. However, if these measures fail, **referral is needed**.

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V- Present Medication

- The pharmacist must ascertain if any medicines are being taken by the patient. It is important to remember that **interactions** might occur with some of OTC medicines.
- **If** medication has already been tried for relief of respiratory virus symptoms with **no improvement**, and if the remedies tried were **appropriate** and used for a **sufficient** amount of time, **referral for primary care assessment might occasionally be needed**. However, in **most cases** of colds and flu, treatment with OTC medicines will be **appropriate**.

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COMPARISON

	Common cold (infectious rhinitis)	Influenza
Symptoms	• **Onset is gradual**, with • Initially a discomfort in the eyes, nose and throat • **Mild fever in children**, but it is uncommon in adults • Symptoms are **mild to moderate**. • There is **sneezing** and **nasal discharge** (rhinorrhoea), usually followed by **congestion.** • There may be **sore throat** and **cough** due to irritation of the pharynx and mucus dripping down from the nasopharynx into the bronchus • **Recovery** is within **4–10 days** • Complications – **laryngitis**, **sinusitis** and **otitis media**	• **Onset is rapid**. • Initially shivering, headache, myalgia, vertigo and back pain. • **There is always fever** • **Severe** symptoms last up to 4–5 days. • **Dry cough**, **nasal congestion** and **sore throat** • Anorexia, depression, nausea and vomiting • **Recovery** is complete in **7–10 days**, but lassitude, fatigue and depression can persist for several weeks • Secondary bacterial complications may lead to **pneumonia**

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Warning that **pneumonia complications** are developing may be given by a severe or productive cough, persisting high fever, pleuritic-type chest pain or delirium.

Comparison

	Common cold (infectious rhinitis)	Influenza
Causes	• A viral infection of **the nose, nasopharynx and upper respiratory tract**. • > 100 causative viruses, of which **rhinoviruses** (40%) and **coronaviruses** (10%) are the most common. • Immunity to each is specific with little cross-protection; a vaccine is therefore impossible.	• An acute infection of the respiratory tract • It is caused by three types of **myxovirus (Influenza A, B, C)**. • A vaccine is available, which is reformulated each year to keep up with antigenic shift in the viruses.
Transmission	• Nasopharyngeal **droplets**, released by sneezing and coughing	• **Droplet** inhalation; it is highly contagious
Epidemiology	• Adults suffer 2–4 colds per year • Children up to 12 per year • Incidence is mainly in **autumn** and **winter**	• Up to 15% of the population may develop influenza in any one year • It occurs in epidemics every 3 years; and pandemics every 10 years • It normally occurs in the winter months

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Symptoms and circumstances for Referral

1. In the **very young and very old** patients
2. In those with **heart or lung disease**, e.g. COPD, kidney disease, diabetes and a compromised immune system
3. **Persistent or Night cough, or wheezing** in children (asthma)
4. **Dyspnoea** in elderly (cardiac failure)
5. **Severe pain** on coughing (pulmonary embolism)
6. Suspected **adverse drug reactions**, e.g. dry cough (ACEI), sore throat a sign of drug-induced blood dyscrasias
7. **Yellow/green/brown sputum** (bacterial infection)
8. **Blood sputum** (tuberculosis, carcinoma)
9. **Fever > 48 hours**
10. **Sore throat** >1 week's duration, and/or persistent hoarseness, and/or dysphagia
11. **Dysphagia**, and/or rash, and/or neck stiffness (meningitis)
12. **Earache**. Pain usually means bacterial infection of middle ear (otitis media).
13. Patients developed **delirium**

Prevention of colds and flu

A Flu Pandemic

- **A flu pandemic** is an epidemic of an influenza virus that spreads on a worldwide scale and infects a large proportion of the population.
- There were **three flu pandemics** in the last century, occurring in **1918**, **1957** and **1968**.

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Prevention of colds and flu

Flu immunisation – adults

- Flu vaccinations are offered to individuals at high clinical risk, including those with:

1. Chronic respiratory (e.g., Asthma), heart, renal, neurological disease.
2. Diabetes mellitus or immunosuppression
3. Pregnant women.
4. Residents of long-stay care facilities.
5. Primary carers for older or disabled persons
6. Health or social care workers, including pharmacy staff.

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Prevention of colds and flu

Flu immunisation – Children

- Flu immunisation for children is updated annually, similar to adults.

1. The nasal spray flu vaccine is provided for all children aged 2 to 15 years.
2. Children aged 16 or 17 years at **high clinical risk** should also receive the nasal spray instead of an injection.
3. Children aged 6 months to 2 years in high-risk groups will be offered a flu vaccine injection, as the nasal spray is not licensed for this age group.

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Reducing transmission – hand hygiene and face masks

Good hygiene practice and social distancing, prevent transmission of respiratory viruses

- Viruses can survive for up to 72 h on hard surfaces and for several hours on the skin.
- **Handwashing** with soap and water for at least 20 s or Ethanol-based hand sanitisers
- People should be **advised not to touch** their eyes, nose or mouth
- **Use tissues** to cover their mouth and nose when coughing or sneezing,
- Wearing of a **face mask**
- Keeping a **distance** (2 metres or more).
- **Ventilation** (opening windows, doors and air vents)

Management

OTC cough and cold remedies **are not recommended** for children **under the age of 6 years**:

1- Antitussives: Dextromethorphan (for children > 12 years only) and pholcodine

2- Expectorants: Guaifenesin and Ipecacuanha

3- Nasal decongestants: Ephedrine, oxymetazoline, phenylephrine, pseudoephedrine and xylometazoline

4- Antihistamines: chlorphenamine, diphenhydramine, promethazine and triprolidine

Children aged between 6 and 12 years can use these preparations, not > **5 days**.

Simple cough remedies (glycerine, honey or lemon) are used in children.

Remember that all aspirin-containing products are contraindicated in all children under the age of 16 years.

Management

- **Antibacterial** are **not appropriate** as infections are viral.
- Patients with suspected bacterial secondary **infection should be referred to a doctor.**
- **Antivirals**: zanamivir, oseltamivir and amantidine may be used as prophylaxis and treatment, it may reduce the severity and duration of symptoms, but are not a cure.
- Once the pharmacist has recommended symptomatic treatment, the patient should be **advised to consult doctor in 1-3 weeks if the symptoms does not improved.**

Management

Nonpharmacological therapy measures:
Although evidence of efficacy is **lacking**, include:

1. **Fluid intake**
2. **Rest**
3. **Nutritious diet and** tea with lemon and honey, chicken soup are soothing.
4. **Saline nasal sprays or drops** moisten irritated mucosal membranes and loosen encrusted mucus;
5. **Salt gargles** may ease sore throats.
6. **Medical devices**, (Breathe Right nasal strips).
7. **Humidification** with steamy showers, vaporizers (Vicks (camphor 6.2%), or humidifiers. **Aromatic oil** (camphor, menthol, and eucalyptus) products such as Theraflu Vapor Patch (ages ≥ 12 years) and Vicks VapoRub (ages ≥ 2 years) ease nasal congestion and improve sleep by producing a soothing sensation.

Management

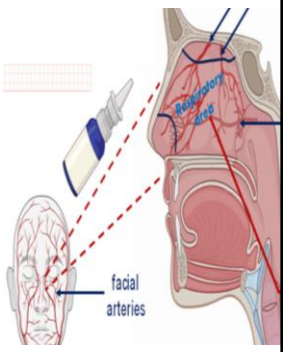
Nonpharmacological therapy measures for infants :
Although evidence of efficacy is **lacking**, include:

- **Upright positioning to enhance nasal drainage**.
- Because children typically cannot blow their own noses until about 4 years of age, carefully clearing the nasal passageways with a **bulb syringe** to remove mucus accumulation which interferes with sleeping or eating.

Management

1. Decongestants (Sympathomimetics)

- Decongestants specifically treat sinus and nasal congestion.
- Decongestants are **adrenergic agonists** (sympathomimetics). Stimulation **α adrenergic receptors** constricts blood vessels, thereby **decreasing** sinusoid vessel engorgement and mucosal edema.
- The nasal membranes are effectively shrunk; therefore, **drainage** of mucus and **circulation** of air is improved, and the **nasal stuffiness** is relieved.
- These medicines can be given **orally** or applied **topically**. **Tablets** and **syrups** are available, as are **nasal sprays** and **drops**.



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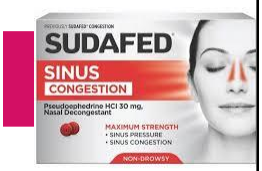
Management

1. Decongestants (Sympathomimetics)

- There are three types of decongestants.

1. **Direct acting** (e.g., phenylephrine, oxymetazoline, and tetrahydrozoline) bind directly to adrenergic receptors.
2. **Indirect acting** displace norepinephrine from storage vesicles in prejunctional nerve terminals and tachyphylaxis can develop as stored neurotransmitter is depleted.
3. **Mixed decongestants** (e.g., ephedrine, pseudoephedrine) have both direct and indirect activity.



Management

1. Decongestants (Sympathomimetics)

A- Systemic nonprescription decongestants include **pseudoephedrine** and **phenylephrine**, when taken **orally**,

1. Stimulate CNS and may cause insomnia
2. Stimulation of the heart and an increase in BP
3. Affect diabetic control because they can increase blood glucose levels.

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Management

1. Decongestants (Sympathomimetics)

- Systemic decongestants are rapidly metabolized by MAO in the gastrointestinal mucosa, liver, and other tissues.
- Pseudoephedrine is well absorbed after oral administration;
- Phenylephrine has a low oral bioavailability (about 38%).
- Both pseudoephedrine and phenylephrine have short halflives (pseudoephedrine, 6 hours; phenylephrine, 2.5 hours), and peak concentrations for both drugs occur at 0.52 hours after oral administration.

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Management

1. Decongestants (Sympathomimetics)

B. Topical, Intranasal nonprescription decongestants include:

I. **The short acting** ephedrine, naphazoline, phenylephrine,

II. **The long acting** xylometazoline (10 hours) and oxymetazoline (12 hours).

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Management

Topical, Intranasal nonprescription decongestants

- **Topically applied nasal sprays/drops**, not to be used > 7 days. Why ?
- **Rebound congestion** (i.e. rhinitis medicamentosa) can occur with **topically applied** sympathomimetics, but **not** with orally given ones.
- **Nasal sprays** used for **adults and children > 6 years** because it has a faster onset of action and cover a large surface area.
- **Nasal drops** used for children **aged < 6 years** because their nostrils are not sufficiently wide to allow effective use of sprays. (But the drops cover a limited surface area and easily swallowed which increase the possibility of systemic effects.

Management

1. Decongestants (Sympathomimetics)

- **A combination topical product** containing **xylometazoline** and **ipratropium** in a nasal spray for the symptomatic treatment **of nasal congestion** and **rhinorrhoea** (runny nose) in adults aged **18 years and above**.
- Use should **not exceed 7 days**.
- Ipratropium is an **antimuscarinic/anticholinergic** drug that helps to reduce mucus secretion.

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Management

Dosage of some topical nasal decongestants

Drug	Conc.	Age	Dose (Drop) in each nostril
Naphazolin	0.05%	> 12	1-2, QID
	0.025%	6-12	1-2, QID
Oxymetazoline (Nazordine®)	0.05%	>12	2-3, BID
	0.025%	6-12	2-3, BID
Xylometazoline (Otrivine®)	0.01%	>12	2-3, TID
	0.05%	6-12	1-2, BID

Management

Adverse effects of decongestants

- **Cardiovascular stimulation** (e.g., Elevated BP, tachycardia, palpitation, or arrhythmias)
- **CNS stimulation** (e.g., Restlessness, insomnia, anxiety, tremors, hallucinations).
- **Children and older adults** are more likely to experience adverse effects.
- Adverse effects are more common with **systemic decongestants** because topical decongestants are minimally absorbed.
- However, **accidental ingestion of decongestants** can cause nausea, vomiting, hypotension, hyperthermia, lethargy, and coma.
- Adverse effects specifically related to **topical decongestants** include burning, stinging, sneezing, or local dryness. It also cause Rhinitis medicamentosa (RM; i.e., rebound congestion).

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Management

Rebound congestion (i.e. Rhinitis Medicamentosa)

- **Treatment of RM consists of:**

1. Slowly **withdrawing the topical decongestant** (one nostril at a time);
2. Replacing **the decongestant with topical normal saline**, which soothes the irritated nasal mucosa
3. Using **topical corticosteroids and systemic decongestants**.

- Two to 6 weeks of withdrawal measures may be necessary before mucous membranes return to normal

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Management

Contraindication of decongestants

- Decongestants are **contraindicated**
- **MAO inhibitors (MAOIs).** (The interaction between sympathomimetics and MAOIs is potentially extremely serious. the interaction can induce a hypertensive crisis and several deaths have occurred)

MAOI
Phenelzine (Nardil)
Tranylcypromine (Parnate)
Isocarboxazid (Marplan)
Selegiline (Emsam)

- **These drugs should NOT be used in people with :**

1. Glaucoma
2. BPH
3. DM
4. Heart disease
5. Hypertension
6. Hyperthyroidism

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Management

2- Antihistamines

- Antihistamine can reduce some of symptoms of a cold: runny nose (rhinorrhoea) and sneezing but are not so effective in reducing nasal congestion.
- There is no evidence that any antihistamine is preferable to another in the treatment of rhinorrhoea . although individual response to specific drugs varies widely.
- **Mechanism of actions :**
- Antihistamines compete with histamine at central and peripheral histamine1 (H1) receptor sites, preventing the histamine receptor interaction and subsequent mediator release.
- In addition, second generation antihistamines inhibit the release of mast cell mediators and may decrease cellular recruitment.

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Management

Classifications of Antihistamines

- **Antihistamine can be classified into:**

A-Sedating Antihistamine:

- chlorphenamine (chlorpheniramine), dexchlorpheniramine , clemastine, triprolidine, promethazine and diphenhydramine.
- **Side effects**:
- Anticholinergic activity (dry mouth, blurred vision, constipation and urinary retention).
- **Drowsiness** **(what to advice the patients?)**
- These effects will be increased if the patient is already taking another drug with anticholinergic effects (e.g. tricyclic antidepressants, neuroleptics)
- Accordingly they are **not recommended**: **Glaucoma**, or **prostate hy** in **elderly patients**.

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Management

Classification of Antihistamines

B-Non-Sedating Antihistamine:

- Loratadine, acrivastine and cetirizine.
- Adult dose of loratadine: 10 mg once daily.
- Antimuscarinic adverse effects are not a significant problem with the non sedating antihistamines.
- **Note**: although the drowsiness is rare, but the warning that these drugs may affect driving and skilled tasks is still present.

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Management

Antihistamines	Dosing frequency
Cetirizine 10mg Loratadine 10mg Fexofenadine 180mg	Once daily (every 24 hours)
Brompheniramine Chlorpheniramine Dexchlorpheniramine Diphenhydramine Triprolidine	every 4-6 hours
Clemastine	Bid

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Management

3- Combination products

- **Sympathomimetics** (for congestion) + **antihistamine** (for rhinorrhoea and sneezing):
- The antihistamine is usually combined with sympathomimetics because :

1. Suppression of rhinorrhea can provokes congestion so the sympathomimetics will offset this effect.
2. Sympathomimetics may also help to counteract sedation caused by antihistamines (because the sympathomimetics cause CNS stimulation).

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Management

4- Analgesics, antipyretics:

- Paracetamol, aspirin and ibuprofen can be used to reduce fever, if present, and ease headache and muscle pains in influenza and general discomfort with colds.
- Aspirin is restricted in its use by its pronounced side-effect profile, and may not be **given to children under 16 years because of its association with Reye's syndrome**, a rare but occasionally fatal encephalopathy in children.

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Management

5- Others

Inhalants:

- Preparations containing **volatile substances for inhalation**, either directly or via **steam**, produce a sensation of clearing the nasal passages and are used for the relief of cold symptoms. They have few, if any, contraindications.

Vitamin C in common cold:

- Vitamin C **does not prevent colds** and **even high-dose** vitamin C (over 1 g/day) produce **minimum benefits.**
- In case of vitamin **C effervescent tablets**, large quantities of **sodium bicarbonate** are required in this formulation, which could disturb the electrolyte balance of patients with **cardiovascular diseases** , especially those whose sodium intake is restricted

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THANK YOU!