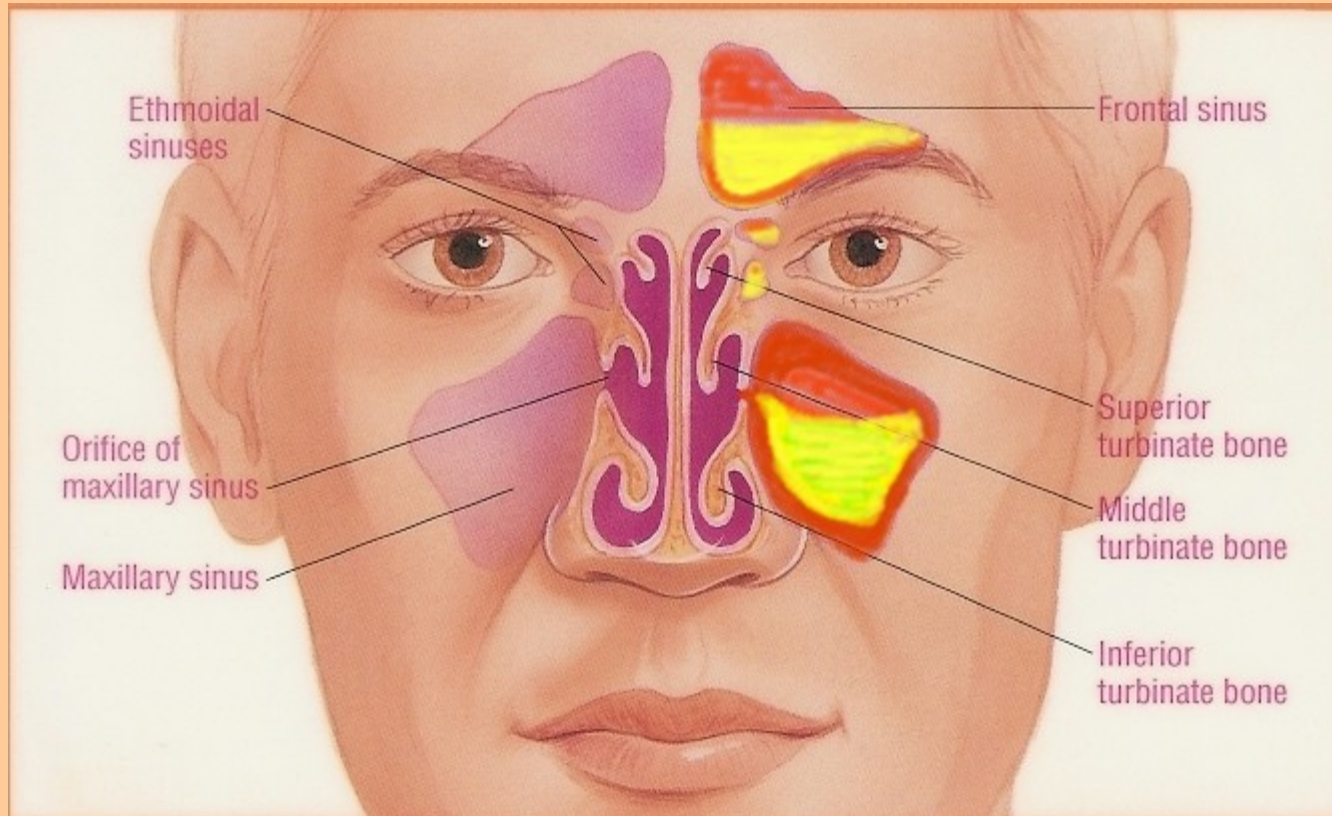


# SINUSITIS By Doc GP



- David has asked me to submit a ppt on sinusitis because of the prevalence of this malady in Barbados today.
- Before I start below are the two slides that are used to teach Medical Students in the USA in Review Lectures in Pharmacology for the USMLE Step 1 Exams by one of the more popular companies for this purpose

- It has been necessary to bring this information to medical students recently because of the upsurge of herbs in North America.
- Note that St John's wort is NOT prescribed by doctors in Barbados or North America.
- Note that the top notch Pharmacologists that wrote the Review Manual even doubt the **clinical efficacy of** St John's wort in the indication for which it is touted for use.
- Note also that they are unsure about its mechanism of action, but they have determined that it **induces P450 enzymes, leading to ↓ effects of multiple drugs.**

**Table XI-1-4. Characteristics of Selected Herbals**

<b>Name</b>	<b>Medicinal Use(s)</b>	<b>Possible Mechanism(s)</b>	<b>Side Effects</b>
Echinacea	↓ Cold symptoms	↑ ILs and TNF	GI distress, dizziness, headache
Garlic	Hyperlipidemias, cancer (evidence is weak)	Inhibits HMG-CoA reductase and ACE	Allergies, hypotension, antiplatelet actions; use caution when used with anticoagulants
Ginkgo	Intermittent claudication; Alzheimer disease (evidence is weak)	Antioxidant, free radical scavenger, ↑ NO	Anxiety, GI distress, insomnia, antiplatelet actions; <b>use caution when used with anticoagulants</b>
Ginseng	Possible ↑ in mental and physical performance (evidence is weak)	Unknown	Insomnia, nervousness, hypertension, mastalgia, vaginal bleeding
Saw palmetto	Symptomatic treatment of BPH	5'-reductase inhibitor and androgen receptor antagonist	GI pain, decreased libido, headache, hypertension
St. John's wort	Depressive disorder (variable evidence for clinical efficacy)	May enhance brain 5HT functions	Major drug interactions: <b>serotonin syndrome</b> with SSRIs; induces P450, leading to ↓ effects of multiple drugs

# Natural Medicines

Name	Medicinal Use(s)	Possible Mechanism(s)	Side Effects
<b>St. John's wort</b>	Depressive disorder <b>(variable evidence for clinical efficacy)</b>	May enhance brain 5HT functions	<b>Major drug interactions: serotonin syndrome with SSRIs; induces P450, leading to ↓ effects of multiple drugs</b>

- **What and where are the sinuses?**

# Upper Respiratory System

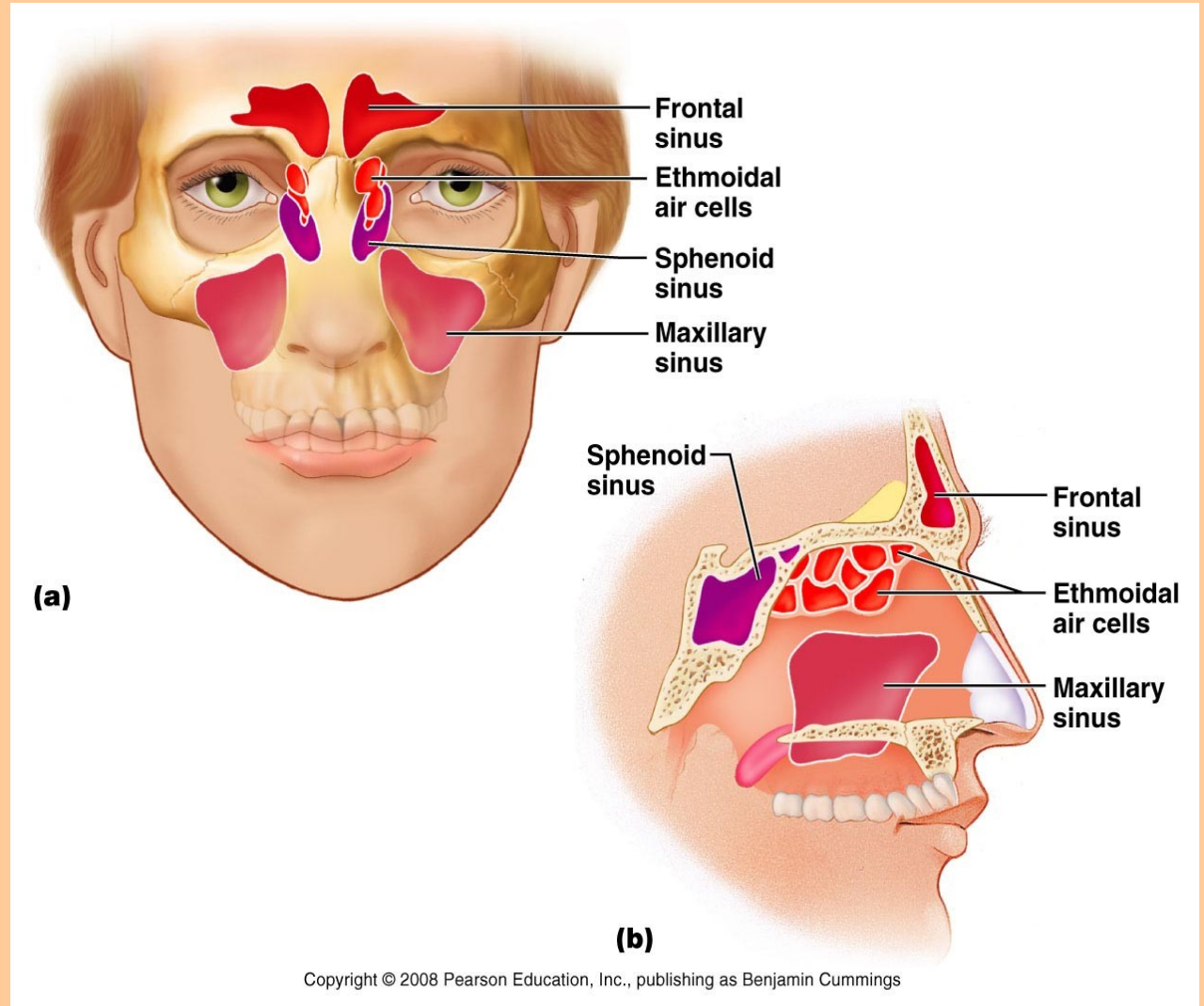
1. Nose
2. Nasal Cavity
3. **Paranasal sinuses**
4. Pharynx



# Upper Respiratory System

## Paranasal Sinuses

- Named after their bones
  - Frontal
  - Ethmoid
  - Sphenoid
  - Maxillary



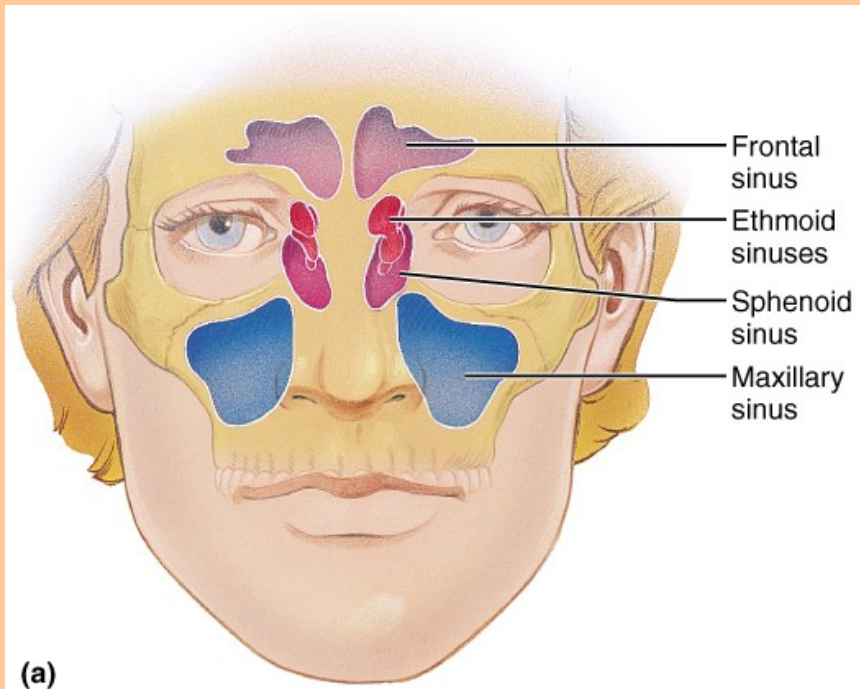
# Paranasal Sinuses

- Cavities within bones surrounding the nasal cavity
  - Frontal bone: 2
  - Sphenoid bone: 1
  - Ethmoid bone: 3
  - Maxillary bones: 1 each

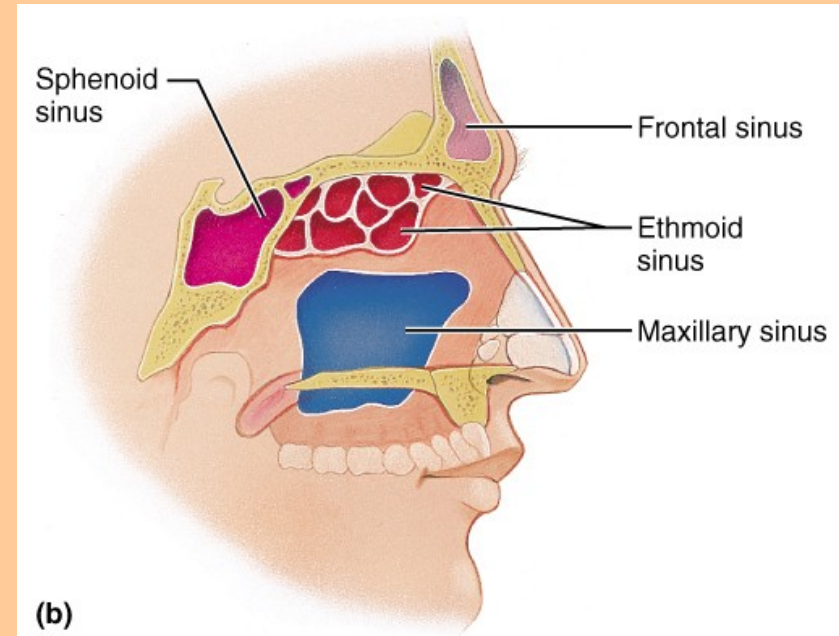
# Paranasal Sinuses

- Function of the sinuses
  - Lighten the skull
  - Act as resonance chambers for speech
  - Produce mucus that drains into the nasal cavity

# The Paranasal Sinuses



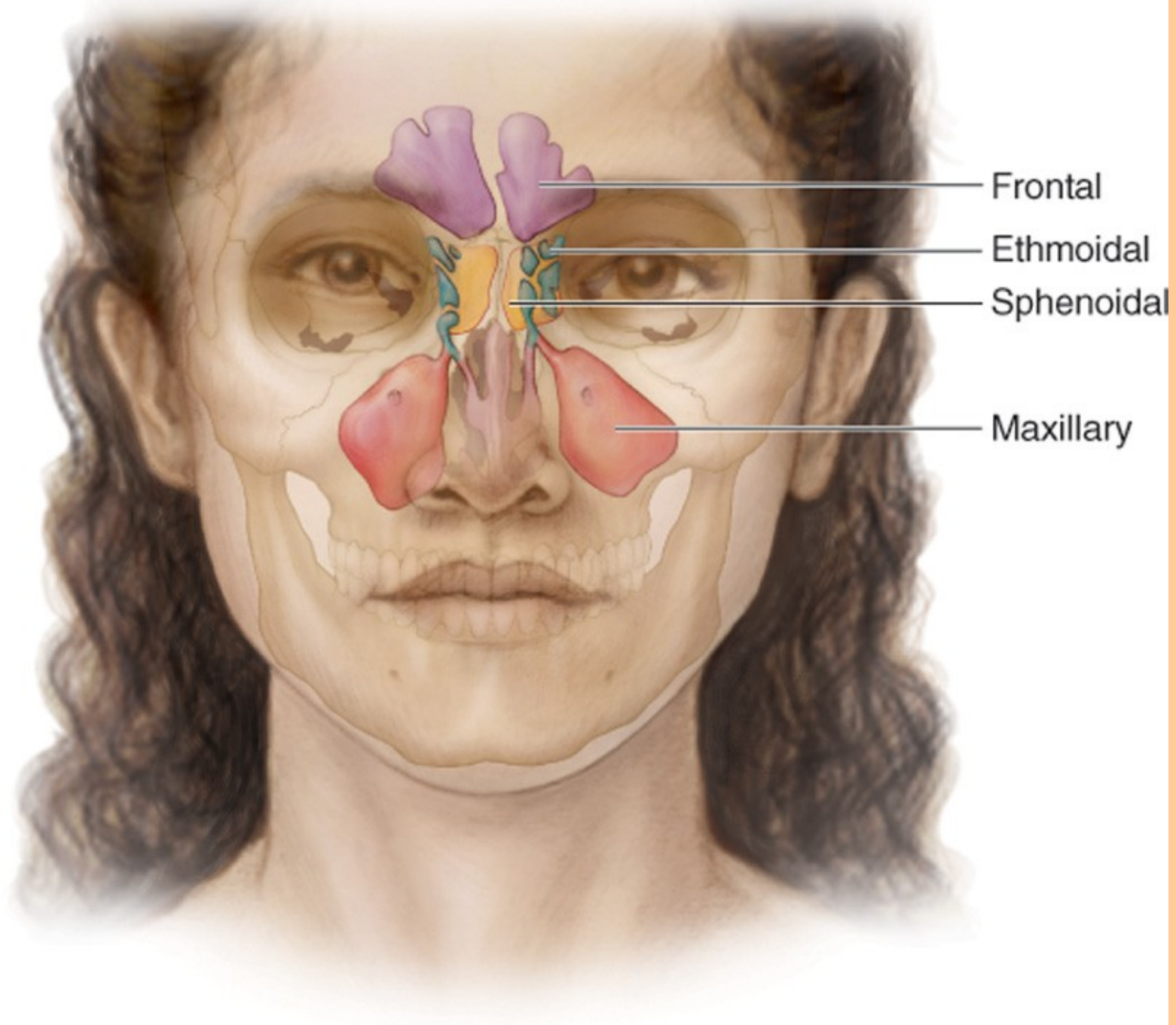
Anterior View



Lateral View

# Paranasal Sinuses

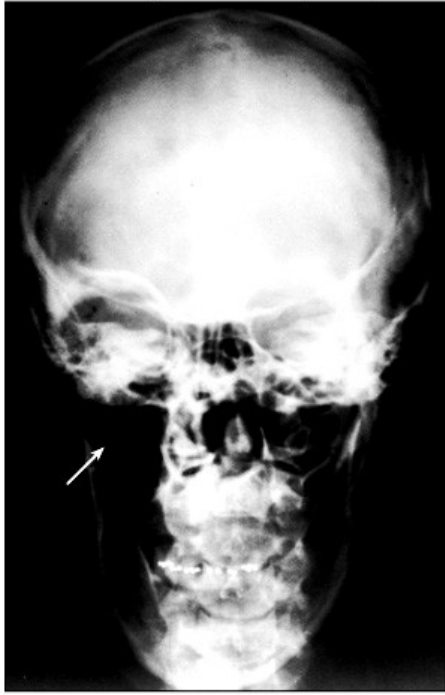
- **Paranasal sinuses:**
  - In four skull bones
  - paired air spaces
  - decrease skull bone weight
- **Named for the bones in which they are housed.**
  - frontal
  - ethmoidal
  - sphenoidal
  - maxillary
- **Communicate with the nasal cavity by ducts.**
- **Covered with the same pseudostratified ciliated columnar epithelium as the nasal cavity.**



# Sinuses

**Air-filled spaces in maxillary, frontal, ethmoid, and sphenoid bones**

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- Traditionally, sinusitis is defined as an inflammation of the mucosal lining of one or more of the paranasal sinuses.
- The term *rhinosinusitis* is now used interchangeably with sinusitis to emphasize the concurrent inflammation of the nasal passages that occurs with sinus mucosal inflammation.
- Sinusitis is subdivided into **acute** (symptoms lasting <4 wk),
- **subacute** (symptoms lasting 4-12 wk), and **chronic** (symptoms lasting >12 wk).<sup>1</sup>

- The paranasal sinuses are in direct communication with the nasopharynx. The sinuses are normally sterile, but **their proximity to nasopharyngeal flora allows bacterial and viral inoculation following rhinitis.**
- Diseases that obstruct drainage can result in a reduced ability of the paranasal sinuses to function normally.
- The sinus ostia become occluded, leading to mucosal congestion.
- The mucociliary transport system becomes impaired, leading to stagnation of secretions and epithelial damage, followed by decreased oxygen tension and subsequent bacterial growth.

- Acute rhinosinusitis is most commonly associated with viral infections such as the common cold.
- In about 0.5-2% of cases, viral sinusitis can progress to acute bacterial sinusitis.<sup>2,3</sup>
- Other factors that predispose to the development of acute bacterial rhinosinusitis include **allergic rhinitis** (hay fever) impaired mucociliary transport as seen in **cystic fibrosis**, mechanical obstruction as seen secondary to **foreign bodies**, intranasal cocaine use and immunodeficient states.

- Acute bacterial sinusitis that does not completely resolve can progress to chronic sinusitis.
- Other factors associated with **chronic sinusitis** include allergic rhinitis, fungal colonization of the sinuses, and nasal polyposis. Nasal polyposis, more commonly seen in patients with aspirin sensitivity and **asthma**, results from a localized allergic hyperresponsivity to bacterial endotoxins.

- **Frequency.**
- I am not sure about the incidence in Barbados, but I am told that it has increased remarkably
- In the United States, approximately 1 billion cases of acute rhinosinusitis and 20 million cases of acute bacterial rhinosinusitis are diagnosed every year. About 50% of people with clinically diagnosed acute sinusitis have a bacterial sinus infection. Medical treatment of rhinosinusitis is expensive, with an estimated \$3 billion spent annually.
  
- **Mortality/Morbidity**
- Sinusitis is rarely life threatening, but the close proximity of the paranasal sinuses to the central nervous system, the multiple fascial plains of the neck, and the associated venous and lymphatic channels can lead to serious complications.
  
- **Sex**
- Sinusitis occurs equally in males and females.
  
- **Age**
- Sinusitis is more commonly seen in young or middle-aged adults.<sup>4</sup> Sinusitis is rare in children younger than 1 year because the sinuses are poorly developed prior to that age.

- **Clinical**
- **History**
- **Sinusitis has 4 main signs.**
  - Mucopurulent rhinorrhea
  - Nasal congestion
  - Facial pain, pressure, or fullness
  - Decreased sense of smell
- **Some patients report other signs and symptoms.**
  - In severe cases, headache, malaise, and fever may also be present.
  - Pain is often exacerbated by head movement, especially leaning forward.
  - Patients may report retro-orbital pain if the ethmoid sinus is involved.
  - Some patients report dental pain, usually involving the maxillary teeth.
  - Ear pressure or fullness may also be seen.
  - Facial pain and headache are rarely reported in children with sinusitis.

- Sinusitis needs to be differentiated from a viral **upper respiratory infection** (URI) or allergic rhinitis.
- Symptoms of allergic rhinitis are often seasonal and may include clear watery anterior and posterior nasal discharge, sneezing, and itchy eyes and nose.
- Cases of viral rhinosinusitis are often difficult to differentiate from acute bacterial rhinosinusitis.
- The latter usually presents with a high fever, acute facial pain, swelling or erythema, sinus tenderness, symptoms of sinusitis lasting greater than 10 days, or symptoms that worsen after initial improvement.

- **Physical**
- **Purulent secretions in the middle meatus (highly predictive of maxillary sinusitis) may be seen using a nasal speculum and a directed light.**
- **Fever is seen in fewer than 2% of individuals with sinusitis.**
- **Facial tenderness to palpation is present.**
- **Complete opacification of maxillary or frontal sinuses may be seen on transillumination.**
- **Partial opacification is a nonspecific finding, and it is not as reliable.**

- If you think you have it
- GO VISIT DR VINCENT CLARKE
- He is a gentleman.
- Hope this helps David