1. **What questions would be important to ask in order to collect a good history?**
   -Headache onset
   -Previous attacks (progression of symptoms)
   -Duration of attacks
   -Days per month with headache (does the patient keep a headache diary?)
   -Pain location (unilateral, bilateral, associated neck pain, etc)
   -Headache-associated symptoms (nausea, vomiting, photophobia, conjunctival injection, rhinorrhea, etc)
   -Relationship of headache attacks to precipitating factors (stress, posture, cough, exertion, straining, neck movement, jaw pain, etc)
   -Headache severity and effect on work, physical and social activities
   -Acute and preventive medications tried, response, and side effects
   -Presence of coexistent conditions that might influence treatment choice (insomnia, depression, anxiety, hypertension, asthma, and history of heart disease or stroke)
   -Family history of headaches
   -History of recent trauma
   -Recent changes in sleep, exercise, weight or diet
   -Association with menstrual cycle and exogenous hormones, change in birth control
   -New medications, supplements, drug use

2. **What would you focus on during your physical exam when evaluating a patient with headaches?**
   -Vital signs (rule out HTN, tachycardia, fever)
   -HEENT (temporal pain to palpation, papilledema, pupillary constriction, visual fields, signs of meningismus, sinus tenderness, dental assessment)
   -Neuro: evaluate for focal neurological deficits, mental status changes
   -Skin: evaluate for rash (rule out meningococcal infection)

3. **What red flags should you watch out for?**
   -Age >50
   -Acute onset
   -Worst headache of patient's life
   -Fever
   -Altered mental status
   -Rash
   -Neuro deficits
   -Recent accident or trauma
   -Recent infection or current signs of infection
   -HTN
   -HIV
   -Cancer
   -Pregnancy
   -Neck stiffness

4. **What are the two main categories of headaches? How do you differentiate between the different types?**

- Primary vs Secondary headaches
- Primary headaches:
    - *Tension:* Most common type of headache. Should have 2 of the following characteristics: bilateral in location, pressing or tightening (non-pulsating) quality, mild to moderate intensity, lack of aggravation by physical activity. Normal neuro exam. Should not be associated with N/V or photophobia/phonophobia. Ranges from episodic to chronic.
    - *Migraine:* unilateral, pulsating, moderate or severe pain intensity, aggravation by routine physical activity; +/- N/V or photophobia/phonophobia; +/- aura (usually visual or sensory sx's), familial pattern often exists.
    - *Cluster:* episodic (6-12 wks per yr), short lasting (peaks 10-15 min, lasts 1 hr), excruciating unilateral/orbital/supraorbital pain (sharp, knife-life, piercing pain), accompanied by at least one of the following ipsilateral autonomic sx: lacrimation, nasal congestion or rhinorrhea, eyelid edema, forehead/facial sweating, miosis or ptosis, restlessness or agitation, conjunctival injection. Occurs in men more often than women.
        - *Paroxysmal hemicrania:* 3 main features: 20 or more attacks (>5/day), short-lasting (2-30 min), severe and strictly unilateral orbital, supraorbital or temporal pain; sx of parasympathetic activation on same side of pain. Responds well to Indomethacin.

-Note: Chronic headaches tend to be **primary** with low risk for emergency

-Secondary Headaches:

- Associated with infection (Dental caries/abscess, sinusitis, meningitis, encephalitis, intracranial abscess)
- Associated with intracranial mass lesion/bleed (Tumors, epidural hematoma, subdural hematoma, subarachnoid hemorrhage, cerebral venous thrombosis)
- Associated with other diseases (TMJ, Temporal arteritis, Acute angle closure glaucoma, cerebrovascular ischemia, idiopathic intracranial HTN, Malignant HTN)
- Associated with drugs (drug-induced or rebound headaches)

5. **Would you consider ordering any labs or radiologic studies?**

- Often not indicated. Based on your history, consider ESR/CRP if suspecting temporal arteritis, LP if suspecting meningitis, CT vs MRI if red flags and you're suspecting a secondary type of headache.

6. **What type of treatment would you consider in this particular patient?**

-Prophylactic treatment!

-You should consider prophylactic tx in patients if:

- migraine significantly interferes with patient's daily routine despite abortive treatment; abortive medications are contraindicated, ineffective, overused, or have intolerable side effects; frequent migraines (>2 attacks per week); uncommon migraine types (hemiplegic, basilar, prolonged aura, or migrainous infarction);

7. In general, what treatments are available for primary headaches?

***-Tension*:**

- Mild analgesics (Tylenol, NSAIDs, ASA), avoidance of precipitating factors, relaxation techniques. For chronic tension headaches, consider prophylactic agents such as Amitriptyline 10-75 mg at bedtime or SSRIs.

-Cluster:

- Abortive Therapy: 100% Oxygen, sumatriptan, intranasal lidocaine
- Prophylactic therapy: Verapamil, Lithium, and Prednisone can be used at the start of the cluster episode to prevent prolonged headache recurrence

-Migraine:

- Abortive Therapy:
  - If mild migraine, you can use Tylenol, ASA, NSAIDs, Excedrin
  - If moderate to severe, Triptans or Ergotamine can be used. If nausea, can also use antiemetics. If poor response to initial triptan, consider increasing dose, try a different Triptan, can also try combination triptan/naproxen (Treximet), or nasal spray (Migranal)

- Prophylactic Therapy:
  - Always best to start at a low dose and gradually increase. Maximal benefit may not be seen until 2-3 months into treatment.
  - B-blockers- can try Propranolol, Metoprolol or Timolol (avoid in Asthma)
  - TCAs- great for mixed Migraine-tension type. Can start with Amitriptyline 10 mg at bedtime initial dose.
  - SNRIs- Venlafaxine starting at 37.5 mg daily
  - Anticonvulsants- Sodium valproate or Topiramate have shown some efficacy, can also try Gabapentin.
  - Calcium-channel blockers such as Verapamil can also be tried, but they have lower efficacy.

8. When would you consider a neurology referral?

-When diagnosis is unclear

-When patient has persistent headaches despite trial of prophylactic and abortive medications