

Guidelines for Initial Evaluation and Management of Headaches - Pediatrics

Effective June 26, 2017

The following guidelines are designed to provide guidance to practicing clinicians regarding the transfer of pediatric patients for Headaches. These guidelines are not intended to supersede the medical judgment of the attending provider.

Background information: Headaches are common in children and >95% are not due to an emergent cause

- Recurrent bothersome headaches may be reported in about 20% of children and the prevalence of increases with age (about 5% of younger children and about 25% in older teens).
- Primary headache disorder (e.g. migraine headache, tension-type headache) vs.
- Secondary headache disorder (with headache being one of the symptoms of an underlying condition, more often newly onset), e.g. acute febrile illness (e.g., upper respiratory infection, influenza), head trauma, vasculopathy (e.g. AVM, cavernoma) or a potential life-threatening condition such as a central nervous system infection, tumor, hemorrhage.
- Most commonly, childhood headaches are primary headaches or secondary to infectious etiologies outside the CNS and are rarely (<5%) caused by a serious underlying disorder.

Red Flags (if new, persistent, progressive) indicate need for urgent evaluation/testing – Flowchart #3:

- Abnormal neurological exam (unexplained altered mental status, papilledema, CN VI palsy or other abnormal eye movements, visual field cut, hemiparesis ataxia, etc.).
- Progressive and persistent (unremitting) headache, especially if new onset and poorly responsive to treatment.
- Signs of increased ICP – papilledema, persistent unexplained vomiting, consistently worse when recumbent (middle of night or awakening) or with cough/Valsalva, CN VI palsy.
- Extremely severe abrupt headache onset (“thunderclap” raises suspicion for subarachnoid hemorrhage, although often with associated meningeal or increased ICP signs and relatively uncommon in children).
- Focal neurologic symptoms/signs which are persistent (unresolving) and/or atypical for migraine aura.
- Developmental regression, personality change.

Definition of Pediatric Migraine:

- Headaches episodic, lasting 2-72 hours if untreated, at least 5 episodes (2 episodes if with aura).
- At least 2 of the following characteristics: unilateral location (may be bifrontal, bitemporal, retro-orbital in children), pounding/pulsating quality, moderate or severe pain intensity (inhibits daily activity), aggravation by or causing avoidance of routine activity.
- During headaches, at least 1 of the following: nausea and/or vomiting, photophobia and phonophobia.
- Approximately 10 percent of children with migraine may have associated auras which are most commonly visual (“scintillating scotoma”), but auras could involve sensory (paresthesia), and atypical auras may include speech/language (dysphasia), motor (hemiplegia), brainstem (tinnitus, vertigo, ataxia), symptoms. Auras usually spread over >5 minutes, last 5-60 minutes, usually unilateral, and/or followed within 60 minutes by headache.

Definition of Tension Headache:

- Headaches episodic, lasting 30 minutes to 7 days, at least 10 episodes
- Headache has at least 2 of the following characteristics: pressing/tightening (non-pulsating) quality, mild or moderate intensity, not aggravated by routine physical activity such as climbing or walking stairs
- No vomiting (anorexia may occur)
- No more than one of photophobia or phonophobia

Evaluation and Diagnosis – Flowchart #1:

- A thorough history helps to prevent unnecessary investigation and neuroimaging.
- A headache diary recorded prospectively provides important diagnostic information, is not subject to recall error, may reveal a pattern that is typical for a certain type of headache, and may provide patient insight to triggers.

Characteristics of headache – age of onset, timing (times of day, days of week), quality (pounding?), severity (i.e. how it affects daily activity), range of frequency, range of duration, location, associated symptoms (nausea, vomiting, light sensitivity, sound sensitivity, vision changes, etc.).

- Assess for other causes and exacerbating factors of headaches – Flowchart #2:
 - Triggers – stressors, sleep problems (inadequate quantity/quality), not drinking enough, heat, physical activity, menstruation, Valsalva (e.g. coughing/bowel movements), standing/lying, certain foods.
 - Extracranial causes – systemic illness, head injury, dental caries/abscess, sinusitis, mastoiditis.
 - Concurrent medical problems – hypertension, vision problems, seizures, TMJ.
- Assess Headache Hygiene topics – stressors, adequate sleep, adequate meals and hydration, caffeine intake, exercise and recreational activities, depression/mood.
- Assess how the headaches have impacted daily activities – missed school, can't play sports, enjoyment of recreational activities.
- Previous use of medications to treat headaches – type of medication, dosing, timely administration.
- Consider common cause for conversion to chronic headaches: excessive stress, sleep disorder, depressed mood, and acute medication overuse (>3 days/week, > 3 weeks).
- Physical exam (nuchal rigidity, signs of trauma, cranial bruit, or neurocutaneous condition?), thorough neurological exam (focal deficits?) and fundoscopic exam (papilledema?).
- What helps to alleviate headaches (sleep often is most effective for migraine resolution).

Yellow flags (Other reasons to consider referral or other testing) – Flowchart #4:

- Occipital/cervical predominant focus.
- Significant associated symptoms of neck and/or back.
- Known risk factor for associated intracranial pathology (e.g. sickle cell disease, immune deficiency, malignancy, vasculopathy, coagulopathy, intracardiac shunt, significant head trauma, neurocutaneous condition, pre-existing hydrocephalus or shunt or progressive macrocephaly).
- Age <3 years.

Recommendations for Testing (Do for Red flags, but may also consider for Yellow flags) – Flowchart #5:

- Don't perform neuroimaging studies in patients with stable headaches that meet criteria for migraine.
- Neuroimaging generally is not indicated for children with a history of recurrent, episodic headaches that have persisted for greater than six months with no signs or symptoms of neurologic dysfunction or increased intracranial pressure.
- Don't perform a CT for headache when an MRI is available, except if urgently needed in emergency settings for, such as for neurological deterioration, acute bleeding, or fracture.
- MRI is the preferred study, may include contrast if needing to assess for mass, vasculopathy, inflammation/infection.

- Consider LP with opening pressure after MRI if concern for CNS infection, increased ICP (papilledema, consistently worse when recumbent), subarachnoid hemorrhage, or risk factors of idiopathic intracranial hypertension (obesity, OCP use, tetracyclines, retinoic acid).

Treatment Considerations for Primary Headaches – Flowchart #6:

1. Essential to educate patient/family regarding common triggers and encourage aggressive maintenance of lifestyle habits to minimize headache frequency and severity (adequate sleep, hydration, stress management, no skipped meals, trigger avoidance, etc.).
2. Acute analgesic treatment (adequate doses, administered without delay, but preferably < 3 days/week if possible) – ibuprofen or naproxen, and acetaminophen.
3. Avoid some pain medications which can make headaches worse: opioid drugs and drugs containing butalbital. They are not as effective as other migraine drugs, may cause excessive sedation and other systemic side effects, and can lead to withdrawal complications.
4. If headaches not improved with #1 and #2, may consider triptans for acute migraine treatment (e.g. sumatriptan, rizatriptan, and others).
5. Chronic daily preventative medications: consider if frequent disabling headaches (e.g. persistent significantly bothersome headaches >1/week and/or headaches causing missed school >1/month) despite adequate optimization of lifestyle habits and appropriate trials of acute abortive medications (i.e. despite #1 and #2), especially if needing acute rescue medications >3x/week on a regular basis. (e.g. topiramate, amitriptyline, propranolol, cyproheptadine, and others).

When to Consider Referral to Neurology for Pediatric Headache:

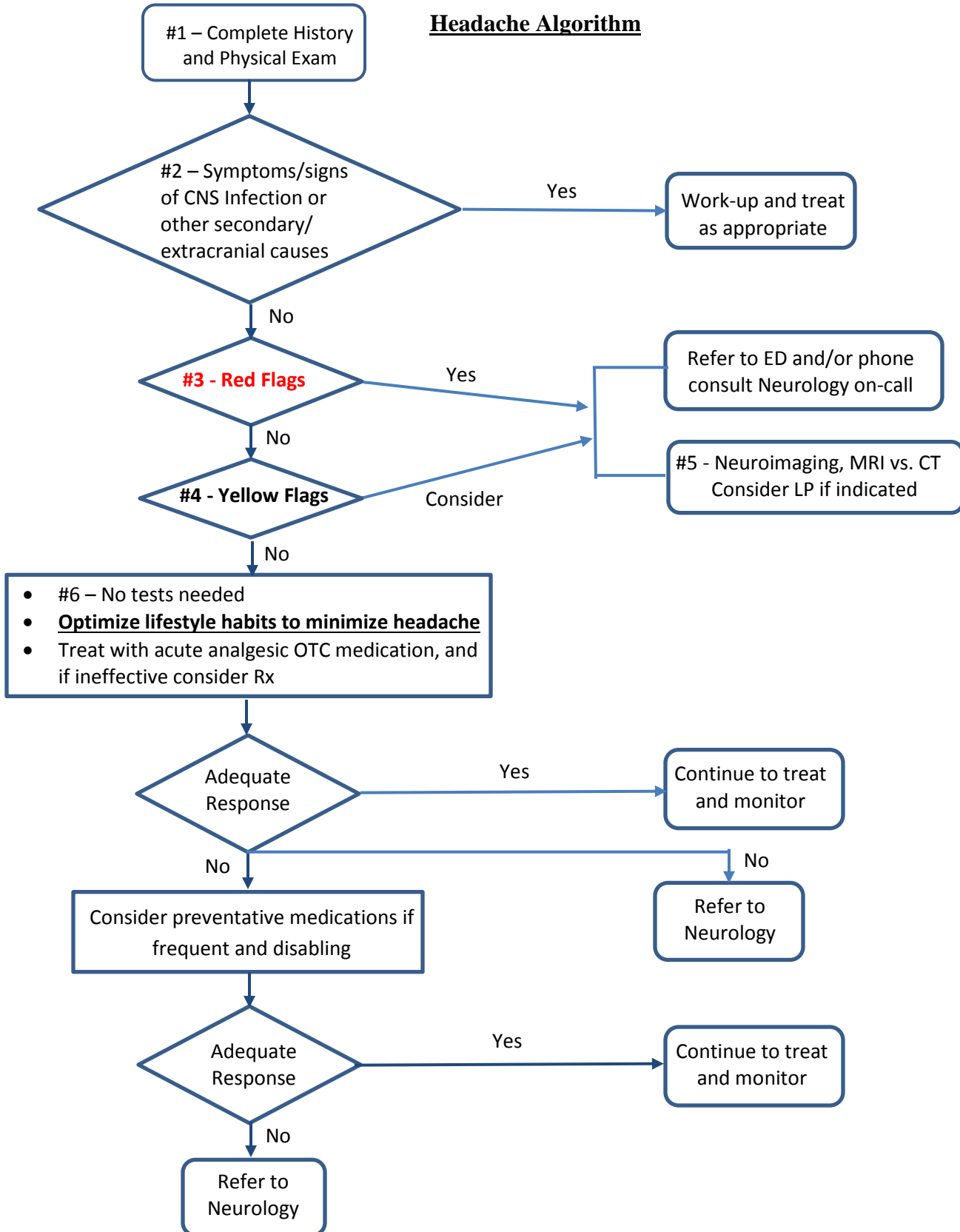
- Urgent - Red flags present.
- Abnormal MRI or exam findings.
- Ineffective control despite optimal lifestyle habits and adequate trials of OTC acute analgesic & Rx migraine treatments.
- Ineffective control despite optimal lifestyle habits and adequate trials of preventative treatment.
- Ineffective control despite optimal lifestyle habits and PCP not comfortable with Rx of triptan or preventative treatments.
- Patient/family preference.

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Headache Algorithm



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