Chief Complaint: Altered Mental Status	
Acute Disseminated Encephalomyelitis (ADEM)[1]	
Red Flags	Decreased level of arousal can indicate need for intubation for airway protection
Workup	MRI brain and spine w/ and w/o contrast, LP. T2 weighted MRI reveals confluent increased signal intensity throughout white matter, specifically corpus callosum and periventricular region; CSF can be normal or have elevated protein or WBC.
Management	High dose IV methylprednisolone; IVIG and plasma exchange may help refractory cases
Complications	• Typically a self-limiting, monophasic course • Multiple episodes raise concern for MS/MOG-associated demyelination
Autoimmune Encephalitis (NMDA Receptor Antibody Encephalopathy)[2]	
PowerPlans	N/A
Pathophysiology	• Antibodies bind to NR1 subunit of NMDAR and cause receptor endocytosis and subsequent neurologic dysfunction • Ovarian teratomas are an important cause in girls < 18 (31 %); Tumors rare in males • Overall, a rare disease
Presentation	Acute (<3 months) behavior and personality changes (including depression/anxiety/psychosis), seizures, stereotyped movements and autonomic instability
Differential	Viral encephalitis,neuroleptic malignant syndrome, psychosis, catatonia
Red Flags	Autonomic instability
Workup	• MRI Brain typically w/ lesions • EEG can show slowing and delta brush • ELISA test of Ab against NR1 subunit of NMDA receptor (autoimmune encephalitis panel) is diagnostic
Management	• If applicable, tumor resection • Methylprednisolone 30mg/kg (max 1g) IV daily x5d, IVIG 2g/kg over 2 to 5 days and plasma exchange are all first line treatments
Complications	Autonomic instability, seizures

1. Krupp et al. International Pediatric Multiple Sclerosis Study Group criteria for pediatric multiple sclerosis and immune-mediated central nervous system demyelinating disorders: revisions to the 2007 definitions. Multiple Sclerosis Journal. April 2013.
2. Dalmau, J. Clinical experience and laboratory investigations in patients w/ anti NMDAR encephalitis. Lancet Neurology. January 2011.

Chief Complaint: Headache	
Migraine	
PowerPlans	Migraine EBG
Pathophysiology	Cortical spreading depression: neurons fire in a sequential manner across the surface of the brain (causing an aura); associated w/ irritation and dysregulation of blood vessel tone of the overlying meninges, causing pain.
Presentation	Unilateral throbbing headache (frontal in young children), visual aura, photophobia, phonophobia, nausea, vomiting, relieved by rest
Differential	Venous sinus thrombosis, concussion, tension type headache, intracranial mass lesion

Headache continued on next page →

Chief Complaint: Headache	
Migraine	
Red Flags	Any symptoms suggestive of increased ICP (i.e. papilledema, nerve palsy, positional headache, emesis, encephalopathy, wake from sleep w/ headache), focal neurological deficits, change in character from typical headache, progressive worsening of headaches
Workup	Clinical diagnosis; consider MRI for red-flag symptoms
Management	See migraine headache treatment algorithm in EBG
Complications	Paralysis (hemiplegic migraine) visual disturbance/loss (if aura); emesis, disability (missed school, work), vertigo and clumsiness (basilar migraine)
Concussion	
See Sports Med	
Idiopathic Intracranial Hypertension (Pseudotumor Cerebri)	
PowerPlans	N/A
Pathophysiology	Syndrome of increased ICP due to impaired absorption at the arachnoid granulations. Risk factors: obesity, drugs (tetracyclines, retinoids, OCPs)
Presentation	• Patients have frontal, positional HA worse upon awakening • Visual disturbances, visual loss, +/- dizziness
Differential	Venous sinus thrombosis, intracranial mass lesion, migraine headache, tension headache
Workup	MRI/MRV required in children w/ HA and papilledema to rule out mass/hydrocephalus, venous sinus thrombosis. LP w/ elevated opening pressure is diagnostic.
Management	Acetazolamide 15-25 mg/kg/day (decreases rate of CSF production)
Complications	Vision loss, optic neuropathy
Febrile Seizure	
PowerPlans	Febrile Seizure EBG
Pathophysiology	Decreased threshold for seizure due to fever and immaturity of the CNS, often familial
Presentation	Simple: < 15 minutes, generalized, occurred once in 24 h; Complex: lasts > 15 minutes, focal, or occurred 2 or more times in a 24 hr period. Most commonly seen between 6 mo and 6 yrs of age
Differential	Meningitis, encephalitis
Red Flags	AMS, neck stiffness, lethargy, focal deficits lead to consideration of meningitis/encephalitis
Workup	If examination is normal, no further workup is required
Management	Reassurance and anticipatory guidance. For complex febrile seizures > 15 minutes, prescribe rectal Diastat. Antipyretics not shown to decrease risk.
Complications	30-50% recurrence rate. Minimally increased risk of epilepsy compared w/ the average population, slightly greater for those w/ complex febrile seizures