

# Neurology Referral Guidelines

The first section below is an alphabetically organized symptom-based referral guideline with suggestions for pre-referral workup.

The second section provides guidelines for referring patients who carry a specific neurological diagnosis made at an outside institution. There is also a section here on first line migraine care.

*This list is by no means exhaustive but covers the most common referral reasons. Please let us know if you have suggestions for additional info!*

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## Section I.

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## Dizziness

- It is helpful diagnostically to categorize dizziness and vertigo as one issue. Further characterize dizziness as acute/constant/ongoing vs episodic, and then as provoked vs unprovoked.
  - *\*See dizziness exam tips (HINTS exam) and diagnostic flow sheet guide at end of document\**
- A full set of **orthostatic vital signs** should be documented in the chart. *Patients with orthostatic hypotension WITHOUT a compensatory increase in HR of at least 15 pts, may have neurogenic OH and should be seen by neurology for evaluation.*
- **Tip:** *migrainous vertigo* is a central vertigo that is normally episodic, unprovoked, and can occur without headache.
- Consider sending any patient with chronic dizziness who has had a negative workup for stroke/central lesion to **PT for vestibular rehab**.
- For persistent **dizziness following head injury, please refer to Concussion Clinic**.

## Gait and balance issues

- In the elderly population, gait and balance issues are often due to a neurodegenerative disorder-- cognitive decline and gait decline go hand in hand. Additionally, gait disorders in this group are often multifactorial and difficult to treat.
  - For patients who have enlarged ventricles on imaging and are being referred to “rule out normal pressure hydrocephalus”, please have an **MRI brain with and without contrast with CSF flow study**, completed prior to the visit.
- In middle aged population alcohol related cerebellar dysfunction and neuropathy, diabetic neuropathy, are common contributors to balance problems. Typical Parkinson’s with onset in middle age affects gait later in its

course; *atypical parkinsonisms and late onset Parkinson's can affect gait and cause falls earlier in disease course.*

- Please have an **accurate and up to date alcohol history** documented in the chart.
  - **MRI brain +/- gad** is also helpful in this age group.
- Consider sending B12, folate, TSH, HbA1c, RPR prior to visit.

## Headache

- Patients with new onset thunderclap headache should be evaluated in the **ER with emergent CT and CTA head and neck.**
- Patients with chronic *orthostatic postural headaches* should undergo **MRI brain with and without contrast**, prior to visit to evaluate for evidence of low CSF pressure due to a dural tear.
- *\*For tips on migraine see Section 2 below.\**
- The following situations also require imaging prior to neurology visit (generally **MRI +/- gad** is superior to CT):
  - Headache in immunocompromised or cancer patient
  - New onset headache over 50 yrs old
  - Headache with any focal signs/symptoms or altered mental status
  - New headache worsened with Valsalva, cough or exertion
  - Headache of escalating severity and frequency and change in quality
  - New headache in a pregnant patient (use no contrast)

## Memory loss

- Typical and uncomplicated short term memory loss in patients over 80 is almost always secondary to Alzheimer's disease, or MCI. Consider referral to geriatrics and palliative care rather than neurology.
- B12, TSH, and syphilis screen are appropriate prior to visit.
- Please note: we do not have capability to perform neuropsychological testing in our department at this time. Patients wanting access to clinical trials or requiring extensive neuropsychological testing would benefit from referral to UW Dementia Clinic for these services.
- Memory loss in patients under age 60 is frequently due to psychological conditions such as adult ADD, PTSD, major depression, schizophrenia and related

conditions. The following factors should prompt neurological assessment in the younger age group:

- Family history of early onset dementia.
- Presence of neurological symptoms like parkinsonism, abnormal gait, involuntary movements, seizures.
- A rapid onset/progression of cognitive issues (i.e. weeks); this also applies to elderly patients.

### Numbness

- Numbness may either be due to central nervous system (MS, stroke, spinal cord inflammation), or peripheral nervous system (neuropathy) issues.
- Consider sending the following basic labs to screen for the more common treatable central and peripheral nervous system disorders that cause numbness: **HbA1c, B12, folate, vitamin D, ESR, CRP, ANA reflex, ANCA.**
- Please have an *accurate alcohol history* documented on the chart.
- In most cases it is best for the neurologist to determine whether EMG/NCS testing is appropriate. However, for cases that clearly suggest a focal neuropathy (*such as carpal tunnel syndrome, ulnar entrapment syndrome, or cervical or lumbosacral radiculopathy*), it is appropriate for the referring provider to order **EMG/NCS testing**.
  - Please note that for simple compression neuropathies and radiculopathies, **the testing may be scheduled either with neurology OR with physiatry.**
  - Please send referrals for **back and neck pain with radiculopathy to Spine Clinic**, rather than to neurology.

### Seizure

- First time, new onset, unprovoked seizure in an adult will be prioritized for an urgent evaluation.
- Following any unprovoked loss of consciousness or seizure, the patient should be counseled on *driving restrictions for 6 months*.
- Antiepileptic medication is typically not started after a first time seizure; exceptions include patients who presented with multiple seizures or status epilepticus, or patients with a known potential seizure focus such as prior stroke, or brain tumor.

- Please order an **outpatient EEG, and MRI brain +/- gad with seizure protocol** for any new onset, unprovoked seizure. **It is extremely helpful for these to be complete before the neurology visit.**

#### Twitches, tremors, and tics

- For new onset tremors, please have **TSH** documented.
- Imaging is not always required for these conditions and it is not necessary to order MRI prior to neurology evaluation.
- The most common causes of iatrogenic tremor are: *metoclopramide (and other D2 blockers), aripiprazole (and other typical and atypical antipsychotics), and valproic acid. Amiodarone, beta agonists, and stimulants also cause tremor.*
- For restless legs, please check **ferritin** and iron studies prior to appointment.

#### Weakness

- Weakness may be due to any of a myriad of conditions of the central and peripheral nervous systems. The neurological history and exam is utilized to determine whether workup should focus on peripheral or central nervous system etiologies.
- **Rapidly progressive (days to weeks) new onset extremity or bulbar (facial/throat) weakness is considered an emergency. If gait, swallowing, or other function is impaired the patient should be evaluated in the ER for AIDP or Myasthenic crisis.**
- Slowly progressive weakness or subjective weakness can be evaluated in neurology clinic.
- Helpful labs prior to neurology clinic visit include: **TSH, CPK and aldolase levels, ESR/CRP, LFTs, CBC, vitamin D, B12.**

## Section 2.

#### ALS

- Patients with established ALS diagnoses need multidisciplinary supportive and palliative care. The neurology department here does not currently have an ALS

specific multidisciplinary clinic, but we do diagnose and care for patients with ALS.

- Please ensure that all **EMG/NCS reports from outside hospitals are in the chart, and all MRI brain/spine images and reports should be available to us on PACS.**

#### Alzheimer's disease/ dementia

- Patients with atypical forms of Alzheimers, Lewy Body dementia, vascular dementia, frontotemporal dementias may be followed in neurology for help with management, diagnostic clarity, and palliative care.
- Patients with typical late onset Alzheimer's are managed primarily by the geriatrics and palliative care teams and often do not require a neurology referral.

#### Encephalitis

- Patients who have been discharged from the hospital with a diagnosis of HSV encephalitis, or NMDA-R encephalitis, or any form of autoimmune or paraneoplastic encephalitis are appropriate to follow in the neurology clinic. This is especially indicated if they had seizures or other complications.
- Please ensure that any **EEGs and lab results from outside hospitals are available in the chart, and all MRIs are available to view on PACS** along with reports.
- Though HSV encephalitis is usually monophasic, some patients can relapse or develop NMDA encephalitis, and surveillance in the neurology clinic is important.

#### Epilepsy

- For patients diagnosed with epilepsy at an outside hospital, **all prior EEG reports, neuropsychological testing reports, MRI images and reports,** should be available in the chart prior to referral.

#### Idiopathic Intracranial Hypertension (pseudotumor cerebri)

- All patients with IIH should have had an **MRI brain +/- gad, MRV brain, and lumbar puncture with opening pressure and comprehensive eye exam** as part of their diagnostic workup.
- Weight loss counseling and support is a critical aspect of their care.

- All IHH patients require regular follow up with ophthalmology to monitor papilledema, visual acuity, and visual fields.
- *Vitamin A overuse, tetracycline group drug use, or steroid withdrawal should also be considered possible etiologies and addressed prior to referral.*

## Migraine

- Patients who have had 5 or more moderate to severe headaches lasting hours to days, which are throbbing in character, unilateral or holocephalic (never only on the same side), exacerbated by movement, and associated with photophobia, nausea, or phonophobia likely have migraine.
- Any patient with multiple attacks per month, or one particularly disabling attack per month, should be offered preventive treatment.
  - **Topiramate 50mg qhs x 1 week then 50 bid thereafter**; contraindicated with closed angle glaucoma and renal calculi. *For menstrual migraine topiramate can be utilized for the week prior to menses only.*
  - Supplements with evidence for effectiveness: **B2 400mg daily (turns urine orange), butterbur/petasites, amino acid bound magnesium like mag gluconate 1200mg daily or mag L-threonate, coenzyme Q10 200mg daily.**
- **Triptans** should be offered to patients without history of coronary artery disease or stroke, as first line abortive agents. **Sumatriptan 100mg at onset of migraine; repeat after 2 hours.** *For patients who do not tolerate sumatriptan, try slow acting triptans like naratriptan.* Take triptans in **combination with high dose NSAID (eg. 1000mg acetaminophen or ibuprofen) and D2 blocker (like promethazine 25mg)** at migraine onset for best effect.
- Patients who fail these measures can be referred to neurology for consideration of *Botox for migraine prevention, or CGRP-antagonist treatments.*
- **Do not prescribe opiates or butalbital/fioricet** to patients with migraine. Analgesics of any kind (including triptans) should be restricted to two days of use per week or less.

## Multiple sclerosis

- Last 2-3 most recent notes from prior neurologist, and all MRI reports should be available in chart prior to referral.

- **MRI brain, C, and T spine images should be requested from outside hospitals to be placed on our PACS system for review.**

### Myasthenia gravis

- The following should be available for review in the chart: **EMG/NCS results, CT chest for thymoma, Myasthenia panel serologies, and any ongoing treatment plan such as IVIg.**

### Parkinson's disease

- For patients with deep brain stimulators please have operative report and last 2-3 programming sessions with prior neurologist in the chart.
- Please ensure that medications are up to date in the chart.
- Any outside neuroimaging such as MRI or DAT scan should be uploaded in the chart.

### Peripheral neuropathy/ CIDP

- All outside **EMG/NCS results and prior laboratory testing** should be available for review in Epic.
- Infusion treatment plans such as IVIg or rituximab should be available for review in chart.

### Stroke

- Patients with recent stroke who were treated at an outside hospital for their acute care may be referred to stroke clinic within the neurology department. *Currently there is no Epic order for Stroke Clinic unfortunately; please place outpatient neurology referral with "stroke clinic" in comments.*
- It is critical that the following information is clearly available in the chart:
  - CT, CTA, MRI images and reports describing location of stroke
  - CTA neck or carotid ultrasound
  - Echocardiogram if done
  - Cardiac monitoring/ Zio patch results
  - Summary of the patient's risk factors for stroke
  - Presence or absence of afib
  - Current antiplatelet or anticoagulation plan



- High intensity statin such as atorvastatin 40mg is indicated for all patients post stroke.

## Appendix: Dizziness evaluation and management:

<https://collections.lib.utah.edu/details?id=177180> A link to about an 8 minute video demonstrating the HINTS exam

### **HINTS exam for differentiating central from peripheral vertigo (only useful while patient is symptomatic):**

Even in high risk patients, if exam indicates peripheral vertigo, the risk of missing a stroke is 2.5%.

#### **Head Impulse**

Patient looks you straight in eyes;  
Grasp sides of their head, instruct them to keep eyes on yours, and quickly jerk head to one side.  
Observe for any corrective eye movement/loss of visual fixation.  
Do same on other side.

**YES corrective saccade is seen = PERIPHERAL**  
**NO corrective saccade, maintains fixation = could be CENTRAL.**

#### **Test of Skew**

##### **The Cover/uncover test.**

Patient directs eyes towards you;  
Alternately cover their right and left eyes and observe for any vertical movement of the just uncovered eye.

**YES, movement seen— eyes vertically misaligned and likely a CENTRAL vertigo**  
**NO movement seen— eyes are vertically aligned and vertigo probably PERIPHERAL.**

#### **Nytagmus**

Observe direction of nystagmus with lateral visual tracking.  
**If beat direction does not change (i.e. left beating when tracking right or left) = PERIPHERAL**  
**If beat direction changes with direction of gaze = CENTRAL**  
**If any VERTICAL component = CENTRAL**  
(Rotational nystagmus can be either but is typical with BPPV.)

**All 3 CENTRAL**



Probable stroke: Activate stroke code; stat head CT/CTA; tPA if ataxic, symptomatic.

**Not certain/conflicting**



Possible stroke:  
<48h post onset, obs admit for TIA/stroke protocol, and non-urgent MRI  
>48h— obtain MRI from ED to determine dispo.

**All 3 PERIPHERAL**



Unlikely stroke: treat and discharge if walking; if too ataxic admit for rehab

# Dizziness Diagnostic Support Tree

**Do not differentiate “dizziness” from “vertigo” — treat the same.**

## Establish TIME COURSE and TRIGGER:

### Acute/ongoing vs Episodic.

### Spontaneous vs Triggered

\*Most cases of TIA or stroke will end up being in either spontaneous category.

# Be sure to clearly differentiate trigger from exacerbating factors.

