### High Risk
**Symptoms and Labs**
- Newly found brain/spinal cord mass or lesion with or without signs or symptoms (except for meningioma, which are to be referred to neurosurgery)
- Demyelinating lesion with focal neurological signs/symptoms
- Acute restricted diffusion positive lesion

**Exam:** Asymptomatic OR seizure, HA, focal weakness or numbness, cognitive changes

**Suggested Previsit Workup**
- Have films imported to IMPAX or sent to MMP Neuro STAT and have adult neurology review for scheduling
- Send to ER if patient is decompensating or has significant edema around the lesion

### Moderate Risk
**Symptoms and Labs**
- Known mass/lesion that has remained stable but never evaluated
- Possible demyelinating lesion in patient < 60 who is asymptomatic
- Subacute stroke or small vessel disease in patients with no known vascular risk factors
- Ventriculomegaly, concerning for NPH
- Atrophy out of proportion to age
- Colloid or arachnoid cyst with or without symptoms
- Chiari I malformation
- Cavernous malformation

**Suggested Workup**
- Referral to adult neurology and patient will be seen next available
- Ensure all imaging has been sent or pushed to IMPAX before scheduling.

### Low Risk
**Symptoms and Labs**
- “Small vessel disease” in patients with known vascular risk factor
- Global atrophy without symptoms
- Aneurysm
- Pituitary adenoma

**Suggested Management**
- Management of vascular risk factors
- Refer aneurysm to neurosurgery or vascular neurology
- Refer pituitary tumors to endocrine and neurosurgery

### Clinical Pearls
- It is common to see nonspecific T2 hyperintense lesions in the subcortical white matter in patients with risk factors for small vessel disease (hypertension, hyperlipidemia, tobacco use, diabetes). This is also common in older patients (> 70 y/o) or in patients with history of migraines.
- Not all newly discovered mass lesions necessarily need steroids. Steroids are needed based on clinical presentation if patient is asymptomatic or mildly symptomatic, no need to reflexively start steroids.
- Ensure all images are either pushed to IMPAX or have been received at our office prior to scheduling a patient to discuss an abnormal MRI. Having MRI reports available is also helpful, but not as important as having the actual images.
## ATAXIA/IMBALANCE/FALLING REFERRAL GUIDELINE

### HIGH RISK

**SUGGESTED EMERGENT CONSULTATION**

**SYMPTOMS AND LABS**
Less than 1 month of imbalance, ataxia or repeated falls or rapid progression of symptoms

**EXAM:**
Ataxia, muscle weakness, hyperreflexia, sensory loss, nystagmus or dysconjugate gaze

**LABS/IMAGING:**
Forward test results performed to date

**SUGGESTED PREVISIT WORKUP**
PT consultation for safety ASAP.

*Send to ER if sudden onset of symptoms*

### MODERATE RISK

**SUGGESTED CONSULTATION OR CO-MANAGEMENT**

**SYMPTOMS AND LABS**
Greater than 1 month of imbalance, ataxia, or falling

**EXAM:**
Ataxia, muscle weakness, sensory loss, nystagmus or dysconjugate gaze

**LABS:**
Forward test results performed to date

**SUGGESTED WORKUP**
PT consultation for safety ASAP

### LOW RISK

**SUGGESTED ROUTINE CARE**

**SYMPTOMS AND LABS**
3rd or 4th opinion- Unless change in clinical status

**EXAM:**
Chronic diagnosis without recent change

**LABS:**
Normal or chronic unchanged findings

**SUGGESTED MANAGEMENT**
PT consultation for safety

### CLINICAL PEARLS

- Very often after neurologic evaluation and diagnosis the imbalance persists. Early PT evaluation and therapy for safety is of paramount importance.

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*Maine Medical Partners – Neurology • 49 Spring Street, Scarborough, ME • (207) 883-1414*
CONFUSION/DELIRIUM REFERRAL GUIDELINE

HIGH RISK
SUGGESTED EMERGENT CONSULTATION

SYMPTOMS AND LABS
Recurrent bouts of confusion over weeks or continuous cognitive decline over days to weeks

SEND TO ER:
Rapid onset and not resolving

EXAM:
Assess for neurologic deficit or evidence of seizure

MODERATE RISK
SUGGESTED CONSULTATION OR CO-MANAGEMENT

SYMPTOMS AND LABS
Longstanding episodes of confusion with normal baseline mental status

Second opinion

EXAM:
Assess for neurologic deficit or evidence of seizure

LABS:
Send any labs, EEG, Imaging

LOW RISK
SUGGESTED ROUTINE CARE

SYMPTOMS AND LABS
Clear non-neurologic source:
Cardiac/hemodynamic, respiratory, metabolic, infectious, toxic, med effect, traumatic, hormonal, nutritional, pain, psychiatric do not require neurologic consultation

EXAM:
Normal exam or functional exam

SUGGESTED PREVISIT WORKUP
ER Eval:
Medical team to rapidly assess for source: Cardiac/hemodynamic, respiratory, Metabolic, infectious, toxic, traumatic, hormonal, nutritional. Psych?
Elderly: assess UTI, constipation, pain, depression, lack of sleep

LABS:
CMP, CBC, Tox, TSH, B12, UA, cultures, telemetry, imaging

SUGGESTED WORKUP
Vital history for confusion:
- Duration
- Pre/post features
- Trajectory
- Precipitating/alleviating factors
- Associated exam findings

SUGGESTED MANAGEMENT
If non neuro source found:
Complete treatment, reverse trigger
Consider combination of etiologies

LABS:
Assess for metabolic derangement, infection, or other clear cause for encephalopathy

CLINICAL PEARLS

- Untreated delirium may drift to dementia- workup is urgent
- Delirium can present in various forms: agitation/ fluctuating mental status/ apathy/mimicking focal neuro deficit
- Universal cognitive deficit in Delirium: Altered of level of consciousness

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**CLINICAL PEARLS**

- Dementia should be managed by PCP
- If prominent features are neuropsychiatric (hallucinations/paranoid delusions/severe depression/anxiety) consider geriatric psychiatry
- If prominent comorbidities (cardiac/pulmonary/oncological/metabolic/complicated social issues) consider geriatrics
- Every patient/family with dementia should optimally have a social worker/case manager involved - access association resources

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SYMPTOMS AND LABS

Acute spontaneous, non-positional vertigo with inability to walk and brainstem deficits (e.g. dysphagia, dysarthria, diplopia, unilateral incoordination, unilateral weakness or numbness), mechanism or symptoms to suggest vertebral dissection (e.g. neck/eye pain; rapid, repeated or prolonged hyperextension of neck)

EXAM:
Non-fatigable nystagmus, ataxia, CN palsies

SUGGESTED PREVISIT WORKUP
Urgent ED evaluation for possible cerebellar or brainstem stroke

SUGGESTED EMERGENT CONSULTATION

HIGH RISK

SYMPTOMS AND LABS
Pre-syncope without peripheral neuropathy; benign positional vertigo, medication side effects, hyperventilation syndrome, Meniere’s disease, acoustic neuroma (hearing loss, tinnitus)

EXAM:
Orthostasis, fatigable and provoked nystagmus (if BPPV)

SUGGESTED MANAGEMENT
If pre-syncope, consider cardiology evaluation and discontinue any causative medications.
If suspect BPPV or Meniere’s, consider ENT evaluation.
If chronic dizziness not responsive to therapies, consider neuro-otology referral to Mass Eye and Ear.
If acoustic neuroma, MRI w/ and w/o gad and neurosurgery consultation

SUGGESTED CONSULTATION OR CO-MANAGEMENT

MODERATE RISK

SYMPTOMS AND LABS
Dizziness with headache/migraine

EXAM:
Generally normal exam

SUGGESTED WORKUP
Non-urgent neurology consultation

SUGGESTED CONSULTATION OR CO-MANAGEMENT

LOW RISK

SYMPTOMS AND LABS
Dizziness with headache/migraine

EXAM:
Generally normal exam

SUGGESTED MANAGEMENT
If suspect benign paroxysmal positional vertigo (BPPV) due to provoked, brief vertigo and nystagmus, consider ENT evaluation and vestibular therapy.

If chronic dizziness not responsive to therapies, consider neuro-otology referral to Mass Eye and Ear.
If acoustic neuroma, MRI w/ and w/o gad and neurosurgery consultation

SUGGESTED ROUTINE CARE

If etiology of dizziness in population based studies include:
40% peripheral vestibulopathy, 25% other (e.g. syncope, disequilibrium, medication side effects, TBI, hypoglycemia, vision/hearing/sensory loss), 15% psychiatric and 10% central brainstem/vestibular lesion, 10% undetermined

SUGGESTED CONSULTATION OR CO-MANAGEMENT

HIGH RISK

SUGGESTED PREVISIT WORKUP
Urgent ED evaluation for possible cerebellar or brainstem stroke

SUGGESTED EMERGENT CONSULTATION

SYMPTOMS AND LABS
Acute spontaneous, non-positional vertigo with inability to walk and brainstem deficits (e.g. dysphagia, dysarthria, diplopia, unilateral incoordination, unilateral weakness or numbness), mechanism or symptoms to suggest vertebral dissection (e.g. neck/eye pain; rapid, repeated or prolonged hyperextension of neck)

EXAM:
Non-fatigable nystagmus, ataxia, CN palsies

SUGGESTED WORKUP
Non-urgent neurology consultation

SUGGESTED CONSULTATION OR CO-MANAGEMENT

MODERATE RISK

SYMPTOMS AND LABS
Dizziness with headache/migraine

EXAM:
Generally normal exam

SUGGESTED MANAGEMENT
If suspect benign paroxysmal positional vertigo (BPPV) due to provoked, brief vertigo and nystagmus, consider ENT evaluation and vestibular therapy.

If chronic dizziness not responsive to therapies, consider neuro-otology referral to Mass Eye and Ear.
If acoustic neuroma, MRI w/ and w/o gad and neurosurgery consultation

SUGGESTED ROUTINE CARE

CLINICAL PEARLS

- Etiology of dizziness in population based studies include:
  40% peripheral vestibulopathy, 25% other (e.g. syncope, disequilibrium, medication side effects, TBI, hypoglycemia, vision/hearing/sensory loss), 15% psychiatric and 10% central brainstem/vestibular lesion, 10% undetermined
  - If suspect benign paroxysmal positional vertigo (BPPV) due to provoked, brief vertigo and nystagmus, consider ENT evaluation and vestibular therapy.
### Headaches Referral Guideline

**HIGH RISK**

**Symptoms and Labs**
- Papilledema with negative imaging or low concern for mass lesion.
- Severe temporal headache in elderly patient
- Severe headache associated with neurologic deficits (CN palsies, weakness, numbness, neck pain)

**Exam:** Papilledema. Temporal artery tenderness, CN palsies, weakness, numbness, nuchal rigidity

**Labs:** High WBC/inflammatory parameters

**Suggested Previsit Workup**
- Referral to neurology. Due to high volume from providers throughout all of Maine as well as southern New Hampshire, wait may be up to several months.
- Consider alternative physical and/or psychologic techniques, lifestyle modification, and counseling.
- Assess for analgesic overuse/rebound.
- Consider and treat any secondary causes of headache including sinus disease, TMJ syndrome, sleep disorders, mood and anxiety disorders.

**Moderate Risk**

**Symptoms and Labs**
- Patient with signs and symptoms of headaches that are not clear migraine or tension headache OR there has been a suboptimal response to initial therapies OR potential treatment with Botox for intractable migraines (greater than 14 migraines/month + greater than 2 failed preventative medicine trials)

**Exam:** Non-focal neurologic exam, no papilledema or meningismus

**Labs:** Many imaging findings are incidental.
- A telephone call to review findings may save an unnecessary consultation and patient anxiety.

**Suggested Consultation or Co-management**
- Trials of standard preventive pharmacologic agents by primary care provider (see below).

**Low Risk**

**Symptoms and Labs**
- Patient with clear signs and symptoms of episodic migraine or tension headache and displays expected response to NSAIDs, triptans or other pain relievers do not require consult.
- Clearly migrainous visual aura with or without headache usually does not require consultation.

**Exam:** Normal neurologic exam with or without pericranial muscular tenderness

**Labs:**
- Many imaging findings are incidental.
- A telephone call to review findings may save an unnecessary consultation and patient anxiety.

**Suggested Routine Care**
- Trials of standard preventive pharmacologic agents by primary care provider (see below).

**Clinical Pearls**
- Numerous preventative therapies are available for both migraine and tension type headaches and include:
  - Herbal supplements: Riboflavin 200mg twice daily, Magnesium 200mg twice daily, Co-enzyme Q10 100mg twice daily
  - Anticonvulsants: Topiramate 100mg nightly or 50mg twice daily, Valproic acid 250-500mg twice daily, Gabapentin 300mg three time daily, Zonisamide 100-200mg nightly
  - Antihypertensives: Propranolol LA 60-120mg daily, Verapamil, ACE inhibitors
  - Antidepressants: Amitriptyline/Nortriptyline 10mg-100mg nightly, Duloxetine 30-60mg daily
  - Preventative agents may take up to one month to note a 50% reduction in frequency and severity of headaches. If initial agent is ineffective after two months of therapy at goal dose, then transition to alternative agent.
  - Alternative therapies may include PT, massage therapy, stress reduction techniques, acupuncture

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MULTIPLE SCLEROSIS REFERRAL GUIDELINE

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HIGH RISK
SUGGESTED EMERGENT CONSULTATION

SYMPTOMS AND LABS
Hemiparesis/plegia, paraparesis/plegia, hemisensory paresthesia/numbness, diplopia with ataxia, vertigo and/or unilateral or bilateral visual loss

EXAM:
Examples: hemiparesis/plegia, paraparesis/plegia, hemisensory deficits, optic neuritis dx by ophthalmologist, hyperreflexia, spasticity

SUGGESTED PREVISIT WORKUP
Send to ER or call REMIS if:
Disabling and/or acute onset of one or more of above symptoms unable to be managed or evaluated as outpatient (paraplegia, hemiplegia, dysphagia, severe visual loss, severe ataxia) OR alternative diagnosis considered (CVA)

Request urgent neurology consultation for:
New, persistent, subacute symptoms suspected to be due to MS

Moderate Risk
SUGGESTED CONSULTATION OR CO-MANAGEMENT

SYMPTOMS AND LABS
History of focal CNS symptoms: (paresthesias, numbness, weakness, ataxia, diplopia, history of optic neuritis) which lasted for days or weeks but resolved or improved

EXAM:
History of recurrent episodes of one or more of above symptoms in the past with recent reoccurrence
Progressive LE weakness, numbness, ataxia with onset of symptoms in late 40s or 50s

Existing MS diagnosis:
- need for transfer of care
- second opinion on management
- 2nd opinion for suspected MS dx

EXAM:
unilateral upper/lower OR bilateral lower limb motor or sensory deficits, ataxia, hyperreflexia

MRI:
suggestive or diagnostic of MS

SUGGESTED WORKUP
Request more urgent MS evaluation (less than 4 weeks) for recent new symptoms improved or resolved if patient w/o current neurologist OR patient is transferring care from out of state and needs medication management (ex. infusions)

LABS to r/o mimickers:
CBC, CMP, TSH, B12, ANA, RF, SSA/B, ACE, Lyme, RPR
Routine scheduling for transfer of care/second opinion

LOW RISK
SUGGESTED ROUTINE CARE

SYMPTOMS AND LABS
Less than 48 hours symptom duration, non-localizing symptoms, alternative diagnosis considered that would require more acute evaluation (stroke, cord compression, malignancy)

EXAM:
Normal or alternate diagnosis more likely

MRI:
Brain and cervical spine negative

SUGGESTED MANAGEMENT
Consider general neurology referral if still concerned about a neurological etiology

CLINICAL PEARLS

- Common Neurologic Symptoms of Multiple Sclerosis:
  - Optic Neuritis (decreased acuity and color saturation, scotoma, pain w/eye movements)
  - Partial Transverse Myelitis (weak legs, numbness, neurogenic bladder, Lhermitte's phenomenon)

- Cerebellar/Brainstem (imbalance, dysarthria, diplopia, dysphagia, tremor, vertigo)

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V1.0 7/17
**SYMPTOMS AND LABS**

**HIGH RISK**
- Known myasthenia gravis with worsening swallowing, speech, or vision problems (If respiratory sx- send to ER)
- Progressive motor and/or sensory deficits resulting in impaired function present for ≤ 1 month
- Progressive limb weakness over weeks to months with atrophy and muscle twitching
- Progressive proximal weakness, dysphagia, dysarthria, or dyspnea present < 3 mos.

**EXAM:**
- Muscle atrophy with fasciculations, Ptosis, Weakness < 3/5

**LABS:**
- Positive myasthenia antibodies
- CK > 2 x normal with weakness

**SUGGESTED PREVISIT WORKUP**
- For neuropathy and myopathy evaluations, patients will be scheduled for EMG testing. We do not diagnose and treat based on outside studies and typically will need to repeat these

**MODERATE RISK**
- Chronic progressive limb weakness and/or sensory deficits in a stocking-glove pattern w/out a diagnosis or with a diagnosis requiring treatment
- Chronic progressive muscle weakness, cramping, or elevated CK of unknown cause
- Known diagnoses of neuromuscular disease with stable symptoms transferring care or requesting 2nd opinion
- Diffuse fasciculations without weakness or muscle atrophy
- Cervical/lumbar radiculopathies with acute neurologic deficits and focal neuropathies will be seen semi-urgently

**SUGGESTED WORKUP**
- Radiculopathies with acute neurologic deficits will be seen semi-urgently- please specify symptoms.
- Diagnosed muscular dystrophies and hereditary neuropathies should be referred to the Muscular Dystrophy Clinic
- Unilateral numbness and/or weakness involving face, arm, and leg is unlikely to be due to a neuromuscular cause: EMG is not indicated.

**LABS:**
- Neuropathy: B12, RPR, TSH, HbA1c, ESR, ANA
- Myopathy: CK, ESR, CRP, TSH, ANA

**LOW RISK**
- General fatigue without muscle weakness
- Patient has known peripheral neuropathy without significant change in symptoms
- New onset small fiber sensory loss in patient with known diabetes - Check reversible neuropathy labs: TSH, B12, Folate, RPR to assess for other causes.
- Consider neuropathic pain treatment with topical capsaicin/Lidoderm patches, gabapentin/lyrica, nortriptyline/amitriptyline
- Clinical symptoms of diffuse numbness/paresthesia with normal sensory exam is unlikely to be due to neurologic disease- assess for toxic-metabolic cause

**SUGGESTED MANAGEMENT**
- We do not see patients for pain management and do not treat Complex Regional Pain Syndrome or Fibromyalgia
- We do not see neck/back pain in the absence of associated neurologic symptoms in arm/leg- These patients should be referred to the Spine Center.

**SUGGESTED EMERGENT CONSULTATION**
- Known Myasthenia with increasing breathing problems or new onset (< 1 week) of breathing and swallowing problems without known diagnosis
- Acute onset (< 7 days) of rapidly progressive numbness/weakness in both legs with or without urinary or respiratory symptoms

**SUGGESTED CONSULTATION OR CO-MANAGEMENT**

**SUGGESTED ROUTINE CARE**

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**CLINICAL PEARLS**

- Known Myasthenia with increasing breathing problems or new onset (< 1 week) of breathing and swallowing problems without known diagnosis
- Acute onset (< 7 days) of rapidly progressive numbness/weakness in both legs with or without urinary or respiratory symptoms

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**Neuropathic pain treatment:**

1. Anticonvulsant medications such as Gabapentin and Lyrica
2. Antidepressants such as nortriptyline/amitriptyline or duloxetine
3. Topical medications such as topical lidocaine preparations or capsaicin cream.

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V2.0 11/20
### Clinical Pearls

- **Syncopal convulsion** is the most common diagnosis mistaken for seizures and requires careful history. Cardiology referral often indicated.

- Please ensure all prior neurologic records and testing is available before the consult.

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**SYMPTOMS AND LABS**

**First Seizure**

**Exam:** Should be normal or unchanged from baseline

**SUGGESTED PREVISIT WORKUP**

Please rule out syncopal convulsion and check orthostatics if indicated

Please obtain prior ER reports and acute imaging, and any EEG data performed outside of MMC/MMP including EEG tracings, if able

Initial ER visit indicated most of the time for assessment of new onset seizure and then urgent outpatient neurology consult if patient back to baseline

**LABS:**

- EKG, CBC, electrolytes, tox screen and blood EtOH (if warranted)

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**SYMPTOMS AND LABS**

**Active alcoholics with withdrawal seizures**

**Exam:** Should be normal or unchanged from baseline

**SUGGESTED CONSULTATION OR CO-MANAGEMENT**

Make sure we have all prior neurology records and test results including EEG, MRI, PET scans, Neuropsych tests

If chronic patients are controlled, indicate reason for referral to help us prioritize

If patient has a neurologist, indicate if this is transfer of care or testing only.

**LABS:**

- Any recent blood AED levels.

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### CLINICAL PEARLS

- Syncopal convulsion is the most common diagnosis mistaken for seizures and requires careful history. Cardiology referral often indicated.

- Please ensure all prior neurologic records and testing is available before the consult.

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**SYMPTOMS AND LABS**

Most sleep disorders are non-urgent. If referring physician deems consult is urgent please contact Dr. Kaminow.

**SUGGESTED PREVISIT WORKUP**

LABS: sleep studies if applicable, labs to include CBC, CMP, TSH, ferritin

**SUGGESTED WORKUP**

Send referral information

LABS: sleep studies if applicable, labs to include CBC, CMP, TSH, ferritin

**SUGGESTED MANAGEMENT**

Send referral information

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**SYMPTOMS AND LABS**

Parasomnia (sleep walking etc.), restless legs syndrome, daytime sleepiness, sleep paralysis, cataplexy (loss of body tone with retained wakefulness), sleep breathing disorder, sleep wake cycle disorders.

**SUGGESTED PREVISIT WORKUP**

LABS: sleep studies if applicable, labs to include CBC, CMP, TSH, ferritin

**SUGGESTED WORKUP**

Send referral information

LABS: sleep studies if applicable, labs to include CBC, CMP, TSH, ferritin

**SUGGESTED MANAGEMENT**

Send referral information

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**SYMPTOMS AND LABS**

Primary complaint of insomnia-typically will not be scheduled

If primarily sleep related breathing disorder will need to be triaged to see if pulmonary referral is more appropriate.

**SUGGESTED PREVISIT WORKUP**

LABS: sleep studies if applicable, labs to include CBC, CMP, TSH, ferritin

**SUGGESTED WORKUP**

Send referral information

LABS: sleep studies if applicable, labs to include CBC, CMP, TSH, ferritin

**SUGGESTED MANAGEMENT**

Send referral information

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**CLINICAL PEARLS**

- Many patients with underlying medical illnesses report insomnia and this can be a common medication side effect as can daytime sleepiness. This should be evaluated prior to sending for neurologic consultation.
- Counseling on sleep hygiene measures is recommended

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SYMPTOMS AND EXAM

Sudden onset of neurological dysfunction with persistent weakness or numbness on half of the face/body, difficulty speaking or understanding speech, partial loss of vision or double vision, dizziness, imbalance, difficulty walking.

The patient is likely to have abnormal neurological exam findings; signs and symptoms that improved > 24 hours from onset are more likely to be associated with stroke on imaging.

SUGGESTED PREVISIT WORKUP

PATIENTS WITH ACUTE ONSET OF STROKE SYMPTOMS SHOULD BE DIRECTED TO CALL 911 AND SHOULD BE EVALUATED IN THE ED.

Imaging: MRI brain, CT head if unable to do MRI; CTA or MRA head and neck preferred, carotid ultrasound only if unable to do either CTA/MRA

Cardiac Evaluation as indicated: TTE with bubble study and EKG; Troponin and Telemetry while hospitalized

Labs: Fasting lipid panel, fasting blood glucose or HbA1c, CBC, CMP, and consider PT/INR, aPTT, and urinalysis in appropriate cases

SUGGESTED EMERGENT CONSULTATION

HIGH RISK

SYMPTOMS AND EXAM

Sudden onset of neurological dysfunction with persistent weakness or numbness on half of the face/body, difficulty speaking or understanding speech, partial loss of vision or double vision, dizziness, imbalance, difficulty walking.

The patient is likely to have abnormal neurological exam findings; signs and symptoms that improved > 24 hours from onset are more likely to be associated with stroke on imaging.

SUGGESTED PREVISIT WORKUP

RESULTS FOR IMAGING, CARDIAC EVALUATION, AND LABS FROM THE “HIGH RISK” COLUMN SHOULD BE PROVIDED, OR PROMPTLY ORDERED IF NECESSARY, BY THE REFERRING PROVIDER

Continue secondary stroke prevention measures.

Neurologist can help determine if there is a need for more specialized testing, such as TEE, prolonged cardiac monitoring, or evaluation for blood coagulation disorders.

SUGGESTED CONSULTATION OR CO-MANAGEMENT

MODERATE RISK

SYMPTOMS AND EXAM

Symptoms as outlined in the “high risk” column; the patient has already had a complete stroke work up and appropriate secondary stroke prevention measures are in place. Include a clinical exam noting any significant or new neurologic deficits.

Referral indication may include the need for an opinion regarding stroke etiology, or for recurrent strokes.

SUGGESTED PREVISIT WORKUP

RESULTS FOR IMAGING, CARDIAC EVALUATION, AND LABS FROM THE “HIGH RISK” COLUMN SHOULD BE PROVIDED, OR PROMPTLY ORDERED IF NECESSARY, BY THE REFERRING PROVIDER

Continued secondary stroke prevention measures.

Neurologist can help determine if there is a need for more specialized testing, such as TEE, prolonged cardiac monitoring, or evaluation for blood coagulation disorders.

SUGGESTED ROUTINE CARE

LOW RISK

SYMPTOMS AND EXAM

Remote history of stroke without new neurologic symptoms or exam findings; question of stroke etiology or long term management.

If symptoms are related to ongoing neurologic deficit, spasticity, or pain then a Physiatry / Physical Medicine & Rehabilitation consult should be considered.

SUGGESTED MANAGEMENT

Ensure appropriate secondary stroke prevention measures are in place.

If questioning need for neurologic evaluation, please call to speak with one of our neurologists.

SUGGESTED CONSULTATION OR CO-MANAGEMENT

CLINICAL PEARLS

- Actual reports of diagnostic testing (imaging, cardiac evaluation, labs) are strongly preferred over second hand reports of results.
- Please make sure actual images are available for review on IMPAX or disc prior to the patient’s appointment. If needed, get guidance from where the images were done.
- If images cannot be sent to MaineHealth IMPAX Server, then consider sending CD’s of all neuroimaging, including MRI, MRA, CT, CTA, and carotid ultrasonograms, before the appointment so we can have imaging transferred to the server. CD’s brought to the office sometimes cannot be opened on the doctors’ desktop computers.

Reviewed by Christopher Cummings, MD
### Symptoms and Exam

**High Risk**

Sudden onset of transient neurological dysfunction, usually lasting several minutes to a few hours, including weakness or numbness on half of the face/body, difficulty speaking or understanding speech, partial loss of vision or double vision, dizziness, imbalance, difficulty walking.

The neurological exam should be normal or have no new findings following the episode. Signs and symptoms that improved > 24 hours from onset are more likely to be associated with stroke on imaging.

**Suggested PREVisit WORKUP**

Patients should be referred to the ED if symptoms occurred within the last 72 hours, or have not completely resolved.

- Imaging: MRI brain, CT head if unable to do MRI; CTA or MRA head and neck preferred, carotid ultrasound only if unable to do either CTA/MRA
- Cardiac Evaluation as indicated: TTE with bubble study and EKG; Troponin and Telemetry while hospitalized
- LABS: Fasting lipid panel, fasting blood glucose, Hgb A1C, CBC, CMP, and consider PT/INR, aPTT, and urinalysis in appropriate cases

**Moderate Risk**

Symptoms and exam as outlined in the “high risk” column; however, symptoms occurred > 72 hours ago, the patient has already completed a work up for TIA, and appropriate secondary stroke prevention measures are in place.

**Suggested WORKUP**

Results for Imaging, Cardiac Evaluation, and Labs from the “high risk” column should be provided, or promptly ordered if necessary, by the referring provider

Continue secondary stroke prevention measures. Neurologist can help determine if there is a need for more specialized testing, such as TEE, prolonged cardiac monitoring, or evaluation for blood coagulation disorders.

**Low Risk**

Symptoms inconsistent with those in the “high risk” column, including isolated sensory complaints without objective findings on exam or prior diagnostic testing, are likely to be caused by another process, such as migraine aura, benign paroxysmal positional vertigo, orthostasis, adverse effects of medication, delirium, etc., especially in the setting of a negative stroke work-up in the past.

**Suggested Routine Care**

Ensure appropriate primary stroke and cardiovascular prevention measures are in place.

Consider potential causes of the symptoms, and pursue further evaluation as indicated.

### Clinical Pearls

- Transient neurological symptoms that last only seconds are unlikely to be TIA.
- Paresthesia isolated to the face or part of a limb, slurred speech without facial droop or other deficits and vertigo without any other deficits, are unlikely to be TIA and alterative explanations should be considered.
- Actual reports of diagnostic testing (imaging, cardiac evaluation, labs) are strongly preferred over second hand reports of results.
- Please make sure actual images are available for review on IMPAX or disc prior to the patient’s appointment.

Reviewed by Christopher Cummings, MD
SYMPTOMS AND LABS

Suspected Parkinson’s disease (PD):
Tremor, slowed walking, loss of dexterity, poor balance.

Suspected Essential tremor: Bilateral action tremor.

LABS:
Thyroid function should be checked.

SUGGESTED PREVISIT WORKUP

Rule out medication induced tremor in the case of new onset tremor.

Consider the possibility of anxiety contributing to tremor in a patient with a previously mild tremor.

DBS patients should call the office of the doctor who manages their DBS.

LABS:
Urinalysis should be checked with any acute decline in Parkinson’s symptoms.

SUGGESTED CONSULTATION OR CO-MANAGEMENT

Neuroimaging does not need to be performed prior to being evaluated by neurology in the case of suspected Parkinson’s disease or essential tremor.

LABS:
Lab work is not necessary prior to being seen by neurology.

SUGGESTED EMERGENT CONSULTATION

Patients treated with DBS should have home programmers which would allow them to make sure that the unit is still on.

Tremor of PD most often starts unilaterally in the hands but a unilateral resting leg/foot tremor can also be the presenting symptom.

Reconsider the diagnosis of essential tremor in anyone with a new onset tremor that progresses significantly over the course of months to a few years.

The most common cause for an acute worsening in Parkinson’s symptoms is infection, usually UTI.

Never suddenly withdraw levodopa or a dopamine agonist because of the risk for a withdrawal syndrome.

A family history of tremor and/or alcohol responsive tremor is strongly suggestive of the diagnosis of essential tremor.

These clinical practice guidelines describe generally recommended evidence-based interventions for the evaluation, diagnosis and treatment of specific diseases or conditions. The guidelines are: (i) not considered to be entirely inclusive or exclusive of all methods of reasonable care that can obtain or produce the same results, and are not a statement of the standard of medical care; (ii) based on information available at the time and may not reflect the most current evidenced-based literature available at subsequent times; and (iii) not intended to substitute for the independent professional judgment of the responsible clinician(s). No set of guidelines can address the individual variation among patients or their unique needs, nor the combination of resources available to a particular community, provider or healthcare professional. Deviations from clinical practice guidelines thus may be appropriate based upon the specific patient circumstances.