Dizziness & Vertigo

Classify by timing and triggers, not by the word the patient picks · HINTS beats early MRI, but only in the right patient

Normal head impulse
= central = worry

CLASSIFY BY TIMING AND TRIGGERS

symptom-quality descriptions are unreliable and change on re-questioning

Syndrome	Pattern	Main causes	What to do
Triggered episodic *seconds to minutes*	Brief spells **provoked by position change**, symptom-free between	**BPPV** (most common overall), orthostatic hypotension	**Dix-Hallpike** (posterior canal) or supine roll test (horizontal), then reposition. Check orthostatic vitals
Spontaneous episodic *minutes to hours*	Spells **without a trigger**	**Vestibular migraine** (common, under-diagnosed), Meniere, panic, **TIA**	History-driven: headache, photophobia, motion sensitivity; hearing loss and aural fullness; vascular risk
Acute vestibular syndrome *continuous, days*	**Continuous** vertigo with nystagmus, nausea and gait instability	**Vestibular neuritis vs posterior circulation stroke**	**This is the HINTS population, and the only one where HINTS is valid**

⚠ THE HINTS EXAM

valid ONLY with continuous vertigo and nystagmus present at the time you examine

Component	Peripheral (reassuring)	Central (alarming)
HI · Head Impulse *rapid small head turn, patient fixates on your nose*	**ABNORMAL = peripheral.** A corrective saccade appears, because the vestibulo-ocular reflex is broken on that side (neuritis)	**NORMAL = central.** No saccade means the peripheral apparatus works, so the lesion is central. **Counterintuitive: a normal-looking test in a very symptomatic patient is what should worry you**
N · Nystagmus	**Unidirectional and horizontal**, fast phase away from the affected ear, suppressed by visual fixation	**Direction-changing** on gaze to either side, **vertical or torsional**, or not suppressed by fixation
TS · Test of Skew *alternate cover test*	**No vertical corrective movement** as each eye is uncovered	**Vertical skew deviation** -a brainstem sign, highly specific for central pathology
Interpreting it	**"INFARCT" is the dangerous pattern: Impulse Normal, FAst-phase alternating, Refixation on Cover Test. ANY ONE central finding is enough to be concerned**; the reassuring peripheral pattern requires all three. **Add gait** (inability to walk unaided points central regardless of the eyes) and **hearing**: HINTS "plus" adds new hearing loss, which suggests **AICA infarction rather than benign labyrinthitis**	
⚠ When it is invalid	**Episodic or resolved dizziness -a patient who feels fine now, or whose spells last seconds.** Applying HINTS there produces meaningless results and manufactures false reassurance, which is the commonest error with this tool. It also requires training: accuracy falls substantially in untrained hands	

IMAGING AND THE MISS

posterior circulation strokes present with dizziness and no obvious focal deficit

⚠ A NORMAL CT EXCLUDES NOTHING

Non-contrast CT is very insensitive for acute posterior fossa ischemia (bone artifact, infarct timing): its job is excluding hemorrhage, not clearing the patient. **Even early MRI with diffusion imaging misses a meaningful minority** of posterior circulation strokes in the first 24-48 hours, so a negative early scan with a central exam or severe ataxia means **admission and repeat imaging, not discharge**.

WHO TO WORRY ABOUT

Isolated dizziness can be a cerebellar (PICA) stroke, where gait ataxia may be the only extra sign -so **get the patient up and walk them**. Consider **vertebral artery dissection** in younger patients with neck pain or recent neck trauma or manipulation. Vascular risk factors, abrupt onset, and any central HINTS feature all push toward MRI with diffusion plus vascular imaging.

DIX-HALLPIKE: WHAT CONFIRMS BPPV

Seated, head turned **45 degrees toward the tested ear**, then lay supine quickly with the head extended ~20 degrees below horizontal. A positive test shows **upbeating-torsional nystagmus with a latency of a few seconds, lasting under a minute, and fatiguing on repetition** -those four features together are what distinguish it from central positional nystagmus, which is typically immediate, persistent, and does not fatigue. Horizontal canal disease needs the **supine roll test** instead.

EPLEY: THE FOUR POSITIONS

From the positive Dix-Hallpike position, rotate the head **90 degrees to the opposite side**, then roll the patient onto that shoulder while turning the head a further **90 degrees (nose toward the floor)**, then sit up. **Hold each position roughly 30 seconds or until nystagmus settles.** Expect transient vertigo during the maneuver: warn the patient, and have an emesis basin. Repeat in the same visit if the first pass fails.

TREATMENT

the two commonest prescribing errors are both about vestibular suppressants

Condition	Management
BPPV	**The Epley maneuver is the treatment** for posterior canal disease, often effective in a single session, because the problem is mechanical (displaced otoconia); barbecue roll for horizontal canal. **⚠ Vestibular suppressants have NO role in BPPV**: they do not fix the mechanics, they sedate, and they confound the diagnostic maneuvers. Teach home repositioning and normalize recurrence
Vestibular neuritis	Suppressants (meclizine, benzodiazepine, antiemetic) for **the first 24-72 hours only** of severe symptoms, **then STOP: prolonged use blunts the asymmetric signal that central compensation depends on and worsens long-term recovery**. **Early mobilization and vestibular rehabilitation are the actual therapy.** Steroid evidence is mixed; antivirals are not recommended
Vestibular migraine / Meniere	Vestibular migraine: treat as migraine (triggers, acute therapy, prophylaxis if frequent) -**the headache is not always present**, which is why it is missed. Meniere: sodium restriction and diuretics first-line, ENT for escalation
Suspected central	Admit or observe, **MRI with diffusion sequences** (repeat if early and negative with high suspicion), vascular imaging for dissection or vertebrobasilar disease, and stroke secondary prevention
⚠ The boring causes	**Orthostatic hypotension and medications are major, highly treatable causes in older adults**: check orthostatic vitals and review antihypertensives, alpha-blockers, sedatives and anticholinergics before applying a vestibular label. Also cardiac presyncope (arrhythmia, aortic stenosis), anemia, hypoglycemia. **Meclizine is over-prescribed across the board** -anticholinergic, sedating, a falls risk in exactly the patients who receive it most

PEARLS & PITFALLS

- **New hearing loss with acute vertigo should raise concern, not lower it.** The AICA supplies both the inner ear and the lateral pons, so an infarct can produce sudden deafness with vertigo.
- **Meniere is 20 minutes to hours with fluctuating low-frequency hearing loss, tinnitus and aural fullness**; progressive unilateral hearing loss with imbalance instead suggests vestibular schwannoma and needs dedicated MRI.
- **Walk every patient.** Severe truncal ataxia points central regardless of what the eye findings show, and it is the sign most often skipped in a busy department.
- **A "reassuring HINTS" in the wrong patient is worse than no HINTS**, because it converts diagnostic uncertainty into false confidence in a possible stroke.

References: Kattah et al., HINTS to diagnose stroke in the acute vestibular syndrome (Stroke 2009) · Newman-Toker and colleagues on the TiTrATE / timing-and-triggers approach to dizziness · AAO-HNS clinical practice guideline on benign paroxysmal positional vertigo · Barany Society diagnostic criteria for vestibular migraine and Meniere disease.