HINTS
CHEAT SHEET

# HINTS Examination

*ED Stroke Triage in Acute Vestibular Syndrome*

**▸ Why HINTS matters**

Acute Vestibular Syndrome (AVS) = continuous vertigo + nystagmus at rest. Cause is posterior fossa stroke in ~25% of ED presentations. HINTS outperforms early MRI DWI (sensitivity ~98% vs ~72%) for stroke detection in AVS.

## When to Apply HINTS — AVS Only

| Indication | Detail |
|---|---|
| **Syndrome required** | AVS: continuous vertigo/unsteadiness + nausea/vomiting + nystagmus at rest |
| **Duration** | Hours to days — symptoms ongoing at time of assessment |
| **Do NOT use HINTS for** | Episodic vertigo without current nystagmus — unreliable outside AVS |

## The Three Components — H · I/N · TS

| Test | Peripheral — Reassuring | Central — HIGH RISK (Stroke) |
|---|---|---|
| **H — Head Impulse Test** | ABNORMAL — catch-up saccade after rapid head turn | NORMAL — no catch-up saccade (VOR intact) |
| **I/N — Nystagmus** | Unidirectional; fast phase same direction in all gaze | Direction-changing OR purely vertical |
| **TS — Test of Skew** | No vertical deviation on alternating cover test | Vertical skew deviation (cover-uncover test positive) |

**▸ INFARCT rule**

Central (stroke) = ANY ONE of: Normal HIT | INfarct | diReCtion-changing nystagmus | Any skew deviation | unilateral Tinnitus/hearing loss (HINTS Plus).
ALL THREE must be peripheral for a safe peripheral diagnosis.

## Bedside Technique

| Step | Action | Key Points |
|---|---|---|
| **HIT** | Hold head, tilt chin 30° down, deliver rapid small-amplitude impulse (10–20°) to each side | HIGH velocity, small amplitude — watch for catch-up saccade |
| **Nystagmus** | Observe in primary gaze; test right and left gaze (30° only — not extremes) | Does fast phase direction reverse? If yes = central |
| **Skew** | Alternating cover test — cover one eye then uncover rapidly; watch for vertical realignment | Any vertical re-fixation movement = positive skew |

## Pitfalls

| Pitfall | Problem | Fix |
|---|---|---|
| **HIT too slow** | Low velocity misses peripheral deficit — false normal HIT | Small amplitude, high velocity — unpredictable timing |
| **Skew missed** | Subtle vertical deviation overlooked | Perform cover test in ALL AVS — do not skip |
| **HINTS without nystagmus** | Applied to wrong syndrome — invalid result | HINTS only valid if nystagmus present at rest |
| **Early MRI over-relied upon** | DWI sensitivity only ~72% in first 24–48 h | Negative MRI does not exclude stroke if HINTS central |

# HINTS Examination — *continued*

## HINTS Plus — Adding Audiometry

| Test | Finding | Significance |
|---|---|---|
| **HINTS Plus** | Standard HINTS + unilateral hearing loss (finger rub / tuning fork) | New unilateral hearing loss in AVS raises concern for labyrinthine infarct even with peripheral HINTS |
| **Labyrinthine infarct** | HINTS may appear peripheral but sudden SNHL present | Treat as central — stroke workup; MRI DWI |

## HINTS vs Early MRI — Key Data

| Metric | Bedside HINTS | Early MRI DWI (under 24 h) |
|---|---|---|
| **Sensitivity for posterior stroke** | 96–100% | 72–80% |
| **Specificity** | 95–98% | 95–99% |
| **Negative likelihood ratio** | 0.02–0.05 | 0.25 |
| **Clinical message** | Use HINTS first in AVS — it outperforms early MRI | MRI gold standard after 24–48 h if initial negative |

## Disposition Guide

| HINTS Pattern | Diagnosis | Action |
|---|---|---|
| **All peripheral (abnormal HIT + unidirectional + no skew)** | Vestibular neuritis likely | Prochlorperazine; ± prednisolone 50 mg x 5 d; discharge with GP + vestibular physio |
| **Any central sign** | Posterior fossa stroke/TIA | Stroke protocol; MRI DWI; admit neurology/stroke unit |
| **Uncertain / equivocal** | Cannot exclude central | Admit; delayed MRI at 24–48 h; senior review |

## Documentation Essentials

| Document | Required Detail |
|---|---|
| **Syndrome confirmed** | AVS criteria met — continuous vertigo + nystagmus at rest documented |
| **HIT result** | Left and right: abnormal (saccade seen) or normal (no saccade) |
| **Nystagmus direction** | Primary gaze direction + gaze-evoked behaviour (unidirectional vs direction-changing) |
| **Skew result** | Cover test: vertical deviation present or absent |
| **HINTS Plus** | Hearing assessment: finger rub both ears; any asymmetry recorded |
| **Disposition rationale** | Peripheral vs central pattern; imaging performed or rationale if deferred |

## Vestibular Neuritis — Management Summary

| Intervention | Recommendation |
|---|---|
| **Antiemetics** | Prochlorperazine 12.5 mg IM or 5 mg oral; ondansetron 4–8 mg if sedation concern |
| **Steroids** | Prednisolone 50 mg/day x 5 days (moderate evidence; may improve recovery speed) |
| **Vestibular suppressants** | Short-term only (1–3 days) — prolonged use delays central compensation |
| **Vestibular rehabilitation** | Early referral to vestibular physiotherapy — best evidence for recovery |