LR 03 CHEAT SHEET

Acute Vertigo — Identifying Stroke Risk

Recognising posterior circulation stroke in the dizzy patient

▸ Why this matters

Posterior circulation stroke is misdiagnosed in 30–50% of initial encounters. Up to 20% present with isolated vertigo and no other focal signs.
Misdiagnosis carries a 7-fold increased risk of stroke or death within 30 days. The clinical challenge is to identify the high-risk subgroup from a sea of benign vertigo.

Acute Vestibular Syndrome (AVS) — Definition & Spectrum

- **Definition.** Acute-onset continuous vertigo >24 h with nystagmus, nausea/vomiting, and gait unsteadiness.
- **Two leading causes.** Vestibular neuritis (peripheral) and cerebellar/brainstem stroke (central) — clinically indistinguishable on history alone.
- **Pre-test probability of stroke.** Primary care <5%. ED with vascular risk factors 20–25%. Age >50 + risk factors >30–40%.
- **History alone is inadequate.** Bedside examination — not history — is the diagnostic step in AVS.

▸ Reframe the question

Not "does this patient have stroke?" but "is this acute vestibular syndrome peripheral or central?" Answering the second question correctly answers the first.

Vascular Territory — What Gets Infarcted

Artery / territory	Typical vertigo-relevant features
PICA (medial)	Isolated vertigo, truncal ataxia, direction-changing nystagmus — "pseudo-labyrinthitis"
PICA (lateral / Wallenberg)	Vertigo + crossed sensory findings, Horner's, dysphagia, hoarseness
AICA	Vertigo + ipsilateral SNHL + facial weakness — labyrinthitis mimic
SCA	Gait ataxia, limb ataxia, dysarthria — vertigo often mild
Basilar (top-of-basilar)	Altered consciousness, visual disturbance, vertical gaze palsy
Vertebral artery dissection	Neck / occipital pain, vertigo, young adult, post manipulation / trauma

HINTS-Plus — The Bedside Stroke Screen for AVS

- **H — Head Impulse.** Abnormal (corrective saccade) = peripheral. Normal HIT in active vertigo = CENTRAL.
- **I / N — Nystagmus.** Unidirectional horizontal = peripheral. Direction-changing, vertical or torsional = CENTRAL.
- **TS — Test of Skew.** Skew deviation on alternate cover = CENTRAL.
- **Plus — Hearing.** New ipsilateral SNHL = AICA territory until excluded. HINTS alone does not rule out.
- **Performance.** Trained hands: sens ~99%, spec ~97% — outperforms early MRI-DWI. ED without training: sens ~83%.

Acute Vertigo Stroke Risk — *Triage, Red Flags & Referral*

INFARCT — The Central Pattern Mnemonic

- **I — Impulse Normal.** No corrective saccade on head impulse testing in a patient with active AVS.
- **N — Fast-phase Alternating.** Direction-changing gaze-evoked nystagmus (beats right on right gaze, left on left gaze).
- **F — Refixation on Cover Test.** Skew deviation present on alternate cover.
- **+ — Plus new SNHL.** New unilateral sensorineural hearing loss — raises concern for AICA territory.

Stroke-Risk Tools in Acute Vertigo — Know the Limits

Tool	Sens / Spec	Use
HINTS-plus (AVS only)	~99% / ~97%	Primary risk stratification tool. Requires AVS and active nystagmus.
ABCD2 (all dizziness)	~61% / ~62%	Under-performs HINTS. Do not use in isolation to exclude stroke.
Early MRI-DWI (<48 h)	~80% / ~99%	May miss up to 20% of small brainstem strokes. Repeat at 72 h if high suspicion.
CT brain (non-contrast)	~16% / ~98%	Excludes haemorrhage only. Poor sensitivity for posterior fossa ischaemia.
PCS score (clinical)	~80% / ~80%	Emerging alternative when HINTS not feasible.

Red-Flag Findings — Triage at a Glance

Central HINTS+ pattern
Normal head impulse • direction-changing / vertical nystagmus • skew

Urgent MRI-DWI ± MRA. Any one finding = central until excluded.

New ipsilateral SNHL + vertigo
Acute unilateral hearing loss with AVS

AICA territory stroke until proven otherwise. Audiometry + MRI + MRA.

Truncal ataxia / inability to stand
Disproportionate to vertigo; unable to stand without support

Cerebellar infarct. Immediate ED transfer.

Peripheral HINTS+ pattern
Abnormal head impulse • unidirectional nystagmus • no skew • normal hearing

Reassuring IF exam complete, clinician experienced, no red-flag history.

Refer to ED Immediately — No Delay

- **Any central HINTS finding** (normal HIT in AVS, direction-changing nystagmus, skew, or vertical/torsional nystagmus).
- **New unilateral hearing loss with AVS —** AICA stroke until proven otherwise. Cannot exclude with HINTS alone.
- **Truncal ataxia / inability to stand** disproportionate to vertigo — cerebellar sign.
- **Any new focal neurological sign** — diplopia, dysarthria, dysphagia, weakness, crossed sensory loss.
- **Severe occipital or neck pain** with acute vertigo — consider vertebral artery dissection.
- **Sudden SNHL ± vertigo** — same-day ENT; start oral prednisolone 1 mg/kg within 72 h.
- **Equivocal HINTS** in any clinician not formally trained — image or refer. An equivocal HINTS is not a reassuring HINTS.