NYS
CHEAT SHEET

Nystagmus in the ED

Peripheral vs Central Pattern Recognition

▸ Nystagmus — rapid reference

Nystagmus = involuntary rhythmic eye oscillation. Named by direction of fast phase.
The single most important question: does this nystagmus change direction when gaze direction changes? If YES — central until proven otherwise.

Peripheral vs Central Nystagmus

Feature	Peripheral	Central
Direction	Unidirectional — fast phase away from lesion	Direction-changing OR purely vertical (up/downbeat)
Fixation suppression	Suppressed by visual fixation	NOT suppressed — may worsen with fixation
Alexander's Law	Increases intensity when gazing in direction of fast phase	Variable; may not follow Alexander's Law
Purely vertical	Never purely vertical in peripheral disease	Purely upbeat or downbeat = central always
Torsional component	Mixed torsional-horizontal (posterior canal BPPV)	Pure torsional without horizontal = central
Associated symptoms	Vertigo, N&V, hearing changes	Diplopia, dysarthria, ataxia, headache

Direction-Specific Pattern Recognition

Nystagmus Type	Likely Localisation	Common Cause
Horizontal unidirectional	Peripheral labyrinth or vestibular nerve	Vestibular neuritis, labyrinthitis
Direction-changing horizontal	Cerebellum or brainstem	Cerebellar stroke, drug toxicity, MS
Upbeat nystagmus	Medulla or anterior vermis	Wernicke encephalopathy, brainstem stroke, MS
Downbeat nystagmus	Cervicomedullary junction / cerebellum	Chiari malformation, drug toxicity, MS, posterior fossa tumour
Torsional-upbeat (positional)	Posterior semicircular canal	BPPV — posterior canal
Horizontal (positional)	Horizontal semicircular canal	BPPV — horizontal canal
Pendular nystagmus	Brainstem, cerebellum or congenital	MS, brainstem lesion, congenital nystagmus
See-saw nystagmus	Optic chiasm / parasellar region	Pituitary tumour, chiasmal lesion

Bedside Fixation Suppression Test

Step	Method	Interpret
1	Observe nystagmus in primary gaze	Note direction and intensity
2	Ask patient to fixate on your finger held 50 cm away	Watch nystagmus intensity
3	Frenzel goggles or ophthalmoscope (if available)	Remove fixation — peripheral nystagmus amplifies
Result A	Nystagmus suppressed with fixation	Peripheral pattern — reassuring
Result B	Nystagmus persists or worsens with fixation	Central pattern — imaging required

Nystagmus in the ED — *continued*

Nystagmus in AVS — HINTS Context

▸ N component of HINTS

Examine nystagmus in PRIMARY gaze and then in right and left lateral gaze (not extremes — 30° only).
Peripheral: fast phase direction SAME in all gaze positions (unidirectional).
Central: fast phase CHANGES direction between right and left gaze (direction-changing = geotropic or apogeotropic).
Any purely vertical nystagmus in AVS = central until excluded by MRI.

Gaze	Peripheral Result	Central Result
Primary gaze	Horizontal nystagmus beating, e.g., right	Any direction
Right lateral gaze	Still beats right (same direction)	May beat RIGHT (increases)
Left lateral gaze	Still beats right (decreases — Alexander's Law)	Beats LEFT (direction reversal)

Drug-Induced Nystagmus — Common Culprits

Drug / Toxin	Nystagmus Pattern	Other Features
Alcohol (acute)	Horizontal gaze-evoked; positional (PAN I/II)	Ataxia, slurred speech; nystagmus reverses after 5–6 h
Phenytoin / AEDs	Gaze-evoked (bidirectional)	Dose-dependent; check levels
Lithium toxicity	Gaze-evoked; may have downbeat	Ataxia, tremor, confusion; check serum lithium
Carbamazepine toxicity	Gaze-evoked; diplopia	Check levels; may need dose reduction
Benzodiazepine / opioid	Gaze-evoked, often mild	Sedation; respiratory depression
Wernicke (thiamine deficiency)	Upbeat or gaze-evoked	Treat with IV thiamine 500 mg BEFORE glucose
Aminoglycosides (ototoxicity)	Absent nystagmus (bilateral loss)	Oscillopsia; positive bilateral HIT; falls

Positional Nystagmus — Quick Differentiation

Feature	BPPV (Peripheral)	Central Positional
Latency	2–20 seconds	Immediate or absent
Duration	Less than 60 seconds	Persistent (over 1 min)
Fatiguability	Fatigues on repeat testing	Does not fatigue
Direction	Torsional-upbeat (posterior canal)	Purely downbeat, purely vertical, or atypical
Associated symptoms	Pure vertigo — resolves when still	Headache, diplopia, ataxia
Action	Epley manoeuvre	MRI brain — do not attempt Epley

Documentation

Element	What to Record
Direction	Fast phase direction in primary gaze and lateral gaze positions
Type	Horizontal / vertical / torsional / mixed
Fixation effect	Suppressed / not suppressed / worsened by fixation
Positional component	Positive or negative Dix-Hallpike; which side; latency and duration
Associated signs	Other cranial nerve findings; cerebellar signs; gait