Approach to the Dizzy Patient:

A Systematic Clinical Framework

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How to Use This Review

This document is the companion to the Clinical Assessment section of the Australian Dizziness Clinics Education Hub. It provides a comprehensive analysis of the approach to the dizzy patient — tracing the diagnostic journey from initial triage through symptom classification, targeted bedside examination, differential diagnosis, and evidence-based management, and concluding with clinical implications for vestibular physician practice.

The document is structured developmentally: beginning with the epidemiological context that motivates a systematic approach, progressing through the TiTrATE diagnostic framework, detailed assessment of each vestibular syndrome category (Acute, Episodic, and Chronic), and concluding with integrated management and current controversies. Each section synthesises peer-reviewed literature with practical clinical guidance.

Callout Box Guide

> □ **Key Point:** *Foundational concepts and summary statements that anchor the core scientific or clinical content of each section.*

> □ **Clinical Insight:** *Clinically relevant observations derived directly from the diagnostic framework — for direct application in assessment and treatment of dizzy patients.*

> □ **Clinical Pearl:** *High-yield, memorable clinical points — the take-home messages most likely to influence management or examination performance.*

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I. Introduction — The Clinical Challenge of Dizziness

Dizziness is one of the most frequent presenting complaints in clinical medicine, accounting for up to 4% of all chief complaints in emergency departments and an estimated 7.5 million ambulatory care visits annually in the United States alone [1,2]. Despite its prevalence, dizziness remains one of the most diagnostically challenging symptoms encountered in clinical practice. The term encompasses a heterogeneous range of experiences — from the spinning vertigo of benign paroxysmal positional vertigo (BPPV) to the pre-syncopal light-headedness of orthostatic hypotension, and from the chronic imbalance of bilateral vestibular failure to the motion sensitivity of persistent postural-perceptual dizziness (PPPD).

Historically, clinicians categorised dizziness by symptom quality — vertigo, pre-syncope, dysequilibrium, and non-specific dizziness — a framework proposed by Drachman and Hart in 1972. Whilst this approach provided an early taxonomy, it has been shown to have poor inter-rater reliability and limited diagnostic utility; patients struggle to reliably characterise their symptom quality and clinicians may be misled by subjective descriptors [3].

A paradigm shift has occurred over the past two decades. Contemporary best practice, embodied in frameworks such as TiTrATE (Timing, Triggers, And Targeted Examination) and the GRACE-3 guidelines (2023), moves away from symptom quality and instead anchors diagnosis to the timing and triggers of dizziness, combined with targeted bedside clinical examination [4,5]. This approach reduces misdiagnosis, decreases unnecessary neuroimaging, and improves identification of dangerous central causes such as posterior circulation stroke [4,6].

> □ **Key Point:**
> The single most important paradigm shift in dizziness diagnosis is moving from "what type of dizziness" (quality) to "when does it occur and what brings it on" (timing and triggers). This shift, embodied in TiTrATE, improves diagnostic accuracy and reduces unnecessary investigation.

This review provides a systematic framework for the clinical evaluation of the dizzy patient, structured to guide the clinician from initial triage through differential diagnosis to evidence-based management — with particular application to the vestibular physician context.

II. Epidemiology and Burden of Dizziness

Dizziness and vertigo are among the most common symptoms reported across all age groups and healthcare settings. An estimated 15–35% of the general population experience dizziness at some point during their lifetime, with annual prevalence estimates of 15–20% in adults [7]. The burden increases markedly with age — dizziness becomes the most disabling healthcare problem in adults over 80 years, contributing significantly to falls, functional decline, and institutionalisation [7,8].

II.1 Healthcare Utilisation

The majority of dizzy patients first present to primary care physicians (approximately 52% of consultations), with otorhinolaryngologists and neurologists seeing 13% and 10% respectively [7]. Despite the high consultation rate, correct diagnoses are frequently delayed or missed. In up to 80% of cases presenting to general practice, no specific diagnosis is established at the first encounter [8]. This diagnostic gap has major implications for patient outcomes and healthcare cost.

In the emergency department, acute dizziness accounts for 2.1–3.6% of all visits, with an annual healthcare cost of approximately USD $10 billion in the United States [5]. Posterior circulation stroke — the most important diagnosis to exclude in the acutely dizzy patient — is missed in up to 35% of cases when clinicians rely on conventional neurological examination without vestibular-specific testing [6].

II.2 Economic Burden

Direct costs arise from repeated consultations, excessive diagnostic imaging (CT scanning where MRI is more appropriate), and unnecessary emergency admissions [2,9]. Indirect costs include work absenteeism and reduced productivity. A JAMA Otolaryngology study estimated annual costs of episodic recurrent vestibular vertigo at several billion US dollars, predominantly driven by diagnostic delays [9].

> □ **Clinical Insight:**
> Vestibular disorders are systematically underdiagnosed and undertreated at the primary care level. GPs who receive targeted vestibular education dramatically improve diagnostic accuracy, reduce unnecessary imaging, and appropriately refer patients earlier — representing a significant opportunity for vestibular physician-led training programs.

Table 1: Epidemiology of Dizziness — Key Figures

Parameter	Data
Lifetime prevalence (general population)	15–35% [7]
Annual prevalence (adults)	15–20% [7]
Primary care share of dizzy consultations	~52% [7]
No specific diagnosis at first GP visit	Up to 80% [8]
Emergency department (% of chief complaints)	2.1–3.6% [5]
Annual ED dizziness cost (USA)	~USD $10 billion [5]
Stroke missed at initial ED assessment	Up to 35% without vestibular-specific testing [6]

Legend: Key epidemiological figures for dizziness and vertigo across healthcare settings.

III. Classification of Vestibular Symptoms — The ICVD Framework

Precise symptom characterisation is the foundation of the diagnostic approach to dizziness. The International Classification of Vestibular Disorders (ICVD), established by the Bárány Society, provides a standardised, internationally endorsed taxonomy for vestibular symptoms and disorders [10]. The ICVD framework defines four cardinal vestibular symptom categories:

- **Vertigo:** The sensation of self-motion when no self-motion is occurring, or the sensation of distorted self-motion during an otherwise normal head movement. This includes internal vertigo (the body is spinning or tilting) and external vertigo (the visual scene is spinning). Vertigo is typically peripheral or central vestibular in origin.
- **Dizziness:** The sensation of disturbed or impaired spatial orientation without a false or distorted sense of motion. Often described as light-headedness, wooziness, or a “swimming” sensation. May be vestibular or non-vestibular in origin.
- **Unsteadiness (Postural Symptoms):** The sensation of being unstable, unbalanced, or about to fall while sitting, standing, or walking. Reflects impaired postural control arising from vestibular, proprioceptive, cerebellar, or multisensory pathology.
- **Vestibulo-Ocular Symptoms:** Visual disturbances arising from vestibular dysfunction, including oscillopsia (visual instability during head movement). Reflect impaired vestibulo-ocular reflex (VOR) function.

> □ **Clinical Insight:**
> Patients frequently experience more than one ICVD symptom category simultaneously. Symptom quality alone is insufficient to distinguish peripheral from central vestibular pathology — a critical reason why timing and triggers are prioritised in modern diagnostic frameworks [4,10].

IV. The Diagnostic Framework — TiTrATE

The TiTrATE framework (Timing, Triggers, And Targeted Examination), developed by Newman-Toker and colleagues and published in Neurologic Clinics in 2015, is the most influential contemporary approach to systematic evaluation of the dizzy patient [4]. The framework classifies patients into three vestibular syndrome categories — Acute Vestibular Syndrome (AVS), Episodic Vestibular Syndrome (EVS), and Chronic Vestibular Syndrome (CVS) — based on symptom timing and triggers, with targeted bedside examination used to differentiate peripheral from central causes within each category.

The superiority of timing-and-trigger based diagnosis over symptom-quality classification has been demonstrated across multiple clinical studies. The GRACE-3 guidelines (2023) explicitly endorse this approach, recommending abandonment of the traditional “type of dizziness” classification [5].

IV.1 Timing

The temporal profile of dizziness provides the single most powerful diagnostic discriminator. Three patterns are recognised:

- **Acute onset, continuous:** Dizziness that begins suddenly and remains constant for days to weeks. Defines the Acute Vestibular Syndrome; the key differential is vestibular neuritis versus posterior circulation stroke.
- **Episodic:** Recurrent attacks with symptom-free intervals. Individual attack duration ranges from seconds (BPPV, vestibular paroxysmia) to hours (Menière’s disease, vestibular migraine).
- **Chronic/persistent:** Dizziness lasting weeks to months, constant or fluctuating. Defines the Chronic Vestibular Syndrome; includes PPPD, bilateral vestibular failure, and central causes.

IV.2 Triggers

Within the episodic category, the presence or absence of a trigger is the primary discriminating factor:

- **Positional trigger:** Dizziness provoked by specific head positions. Strongly suggests BPPV, or if atypical, a posterior fossa lesion. Dix-Hallpike and supine roll tests are the targeted examinations.
- **Orthostatic trigger:** Dizziness on standing. Suggests orthostatic hypotension or POTS. Orthostatic vital signs and autonomic assessment are indicated.
- **Visual/motion trigger:** Dizziness in complex visual environments or during self-motion. Characteristic of PPPD and visual vertigo syndrome.
- **Spontaneous (no trigger):** Episodic dizziness without provocation. Differential includes Menière’s disease, vestibular migraine, vestibular paroxysmia, and TIA/stroke.

IV.3 Targeted Examination

- **AVS → HINTS+:** Head Impulse test, Nystagmus pattern, Test of Skew, plus unilateral hearing loss assessment.
- **Triggered EVS → Dix-Hallpike / Supine Roll:** Provocation testing to confirm BPPV and identify the affected canal.
- **Spontaneous EVS → Associated symptom assessment:** Migraine features, aural symptoms, and vascular risk factors to differentiate vestibular migraine from TIA.
- **CVS → Full neuro-otological battery:** Including vHIT, VEMP, posturography, audiometry, and neurological examination.

> □ **Key Point:**

TiTrATE is a three-step cognitive framework: (1) Timing — Is this acute, episodic, or chronic? (2) Triggers — Is there a consistent provocation? (3) Targeted Exam — Apply the examination specific to that syndrome category. The framework replaces the obsolete "type of dizziness" classification.

Table 2: TiTrATE Framework — Vestibular Syndrome Classification

Syndrome	Timing	Key Trigger(s)	Targeted Exam
Acute Vestibular Syndrome	Continuous, sudden onset, days–weeks	None (spontaneous)	HINTS+
Triggered EVS	Episodic, seconds–minutes	Head position / movement	Dix-Hallpike, Supine Roll
Spontaneous EVS	Episodic, minutes–hours (or days)	None (spontaneous attacks)	Vascular risk, migraine features, aural symptoms
Chronic Vestibular Syndrome	Persistent / fluctuating, weeks–months	Variable — posture, motion, visual, or none	Full neuro-otological assessment

Legend: Vestibular syndrome classification by timing and triggers with corresponding targeted examination. Adapted from Newman-Toker et al. [4] and GRACE-3 [5].

V. Initial Triage — Ruling Out Systemic Causes

Before applying the vestibular diagnostic framework, the clinician must first exclude systemic and life-threatening non-vestibular causes of dizziness. Failure to identify conditions such as cardiac arrhythmia, severe anaemia, medication toxicity, or metabolic disturbance can be immediately dangerous [3,11].

- **Cardiovascular:** Arrhythmia, severe hypertension, orthostatic hypotension, heart failure. Orthostatic vital signs and ECG are essential first-line tools. Dizziness with palpitations, exertional symptoms, or syncope requires urgent cardiac evaluation.
- **Haematological:** Severe anaemia, hyperviscosity syndrome. Full blood count in persistent, unexplained dizziness.
- **Metabolic and endocrine:** Hypoglycaemia, hypothyroidism, hyponatraemia, dehydration. BSL, electrolytes, renal and thyroid function are appropriate first-line investigations.
- **Medication-related:** Vestibulotoxic agents (aminoglycosides, cisplatin, loop diuretics, quinine), CNS sedatives, antihypertensives, and antiepileptics are frequent culprits. A thorough medication review is mandatory.
- **Anxiety and panic disorder:** Panic attacks can produce intense dizziness and are frequently mistaken for vestibular pathology. This is a diagnosis of exclusion — vestibular disorders also cause significant anxiety, and the two frequently coexist.

□ Clinical Pearl:
Always check orthostatic blood pressures before attributing dizziness to a vestibular cause. A 20 mmHg systolic drop on standing is diagnostic of orthostatic hypotension and explains many presentations that would otherwise be labelled as vestibular. This is a two-minute bedside test that is frequently omitted.

Figure 1: Six-Step Diagnostic Algorithm — Approach to the Dizzy Patient

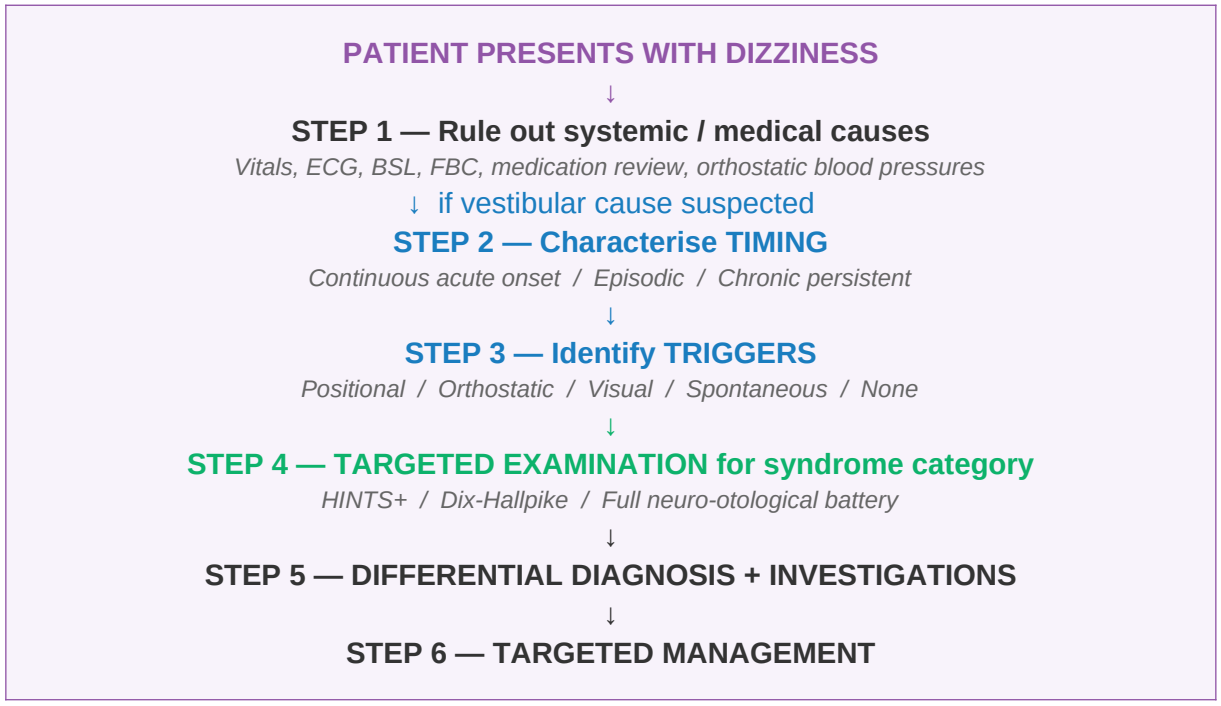

Figure 1: Systematic six-step approach to the dizzy patient. Steps 1–3 are history-based; Steps 4–6 are examination, investigation, and management driven.

VI. Acute Vestibular Syndrome — HINTS+ Bedside Assessment

Acute Vestibular Syndrome (AVS) is defined as the new onset of continuous dizziness, vertigo, nausea/vomiting, gait unsteadiness, and nystagmus lasting more than 24 hours, without return to baseline [4]. The two principal causes are vestibular neuritis (peripheral) and posterior circulation stroke (central). Given that posterior fossa strokes may initially present without focal neurological deficits on standard examination, clinical differentiation requires targeted vestibulo-ocular assessment.

VI.1 The HINTS Examination

The HINTS examination — comprising Head Impulse test, Nystagmus assessment, and Test of Skew — is the gold-standard bedside tool for differentiating peripheral from central AVS [6]. The landmark Kattah et al. 2009 Stroke study demonstrated HINTS to be more sensitive for posterior fossa stroke than early MRI diffusion-weighted imaging (DWI) in the first 24–48 hours.

- **Head Impulse Test (HIT):** Assesses the vestibulo-ocular reflex (VOR) during rapid horizontal head thrusts. A catch-up saccade indicates peripheral VOR dysfunction (reassuring). A normal head impulse (no catch-up saccade) in a patient with acute continuous vertigo and nystagmus is alarming for central pathology.
- **Nystagmus pattern:** Peripheral nystagmus is unidirectional, horizontal-torsional, and suppressed by visual fixation. Direction-changing nystagmus, or pure vertical / pure torsional nystagmus, indicates central pathology.

- **Test of Skew:** Vertical ocular misalignment (skew deviation) on alternating cover test indicates a central brainstem lesion. Any skew deviation in AVS is highly specific for stroke.

VI.2 HINTS+ — Adding Hearing Assessment

New unilateral sensorineural hearing loss accompanying AVS suggests either labyrinthitis (peripheral) or AICA territory stroke (central). Any of the following constitutes a “central” HINTS+ result requiring urgent MRI brain:

- Normal head impulse test (no catch-up saccade) in continuous vertiginous patient
- Direction-changing, pure vertical, or pure torsional nystagmus
- Skew deviation present on alternating cover test
- New unilateral sensorineural hearing loss (HINTS+)

> □ **Clinical Pearl:**
> HINTS is more sensitive for posterior fossa stroke than early MRI-DWI, but only when performed by a trained examiner. The mnemonic to remember: a PERIPHERAL pattern is INFARCT-safe (abnormal HIT + unidirectional nystagmus + no skew). Any ONE central sign mandates urgent MRI. Never rely on a normal CT to exclude posterior fossa stroke.

Table 3: HINTS+ Interpretation — Peripheral vs Central

Component	Peripheral (Reassuring)	Central (Alarming — urgent MRI)
Head Impulse Test	Abnormal — catch-up saccade (impaired VOR)	Normal — no catch-up saccade despite continuous vertigo
Nystagmus	Unidirectional horizontal-torsional; fixation suppresses	Direction-changing; pure vertical or torsional; fixation does NOT suppress
Test of Skew	No vertical ocular misalignment	Skew deviation present (vertical misalignment on cover test)
Hearing (HINTS+)	Normal; no change from baseline	New unilateral SNHL (raises concern for AICA territory stroke)

Legend: A single alarming finding in any component warrants urgent MRI brain. Green = reassuring peripheral pattern; Red = alarming central pattern. Adapted from Kattah et al. [6] and GRACE-3 [5].

VII. Episodic Vestibular Syndrome

Episodic Vestibular Syndrome (EVS) is characterised by recurrent attacks of dizziness or vertigo with complete or near-complete return to baseline between episodes. Duration of individual attacks spans a wide range — from seconds to hours — and the nature of any trigger is the primary diagnostic discriminator [4].

VII.1 Triggered Episodic Vestibular Syndrome

Triggered EVS is defined by consistent provocation of symptoms by a specific stimulus, most commonly positional head movement. The overwhelming cause is BPPV.

- **Benign Paroxysmal Positional Vertigo (BPPV):** The most common cause of triggered EVS. Symptoms last seconds to under one minute, provoked by lying down, rolling over in bed, or looking upward. The Dix-Hallpike test (posterior canal BPPV, ~85% of cases) or supine roll test (horizontal canal BPPV) confirms the diagnosis. The Epley canalith repositioning procedure is first-line treatment with high efficacy [14].
- **Orthostatic hypotension / POTS:** Dizziness triggered reproducibly by standing. Orthostatic vital signs confirming a ≥20 mmHg systolic drop (orthostatic hypotension) or tachycardia without hypotension (POTS) are diagnostic.
- **Posterior fossa lesion (atypical positional vertigo):** Structural cerebellar or brainstem lesions can mimic BPPV but with atypical features — non-fatigable nystagmus, direction inconsistent with the expected canal, or absent latency. Any atypical positional nystagmus warrants MRI brain.

> □ **Clinical Insight:**
> When the Epley manoeuvre fails to resolve positional nystagmus after two attempts in the clinic, reassess the nystagmus characteristics carefully. Consider horizontal canal BPPV (treated with the Gufoni or barbecue roll), cupulolithiasis variant, or an atypical central mimic requiring MRI.

VII.2 Spontaneous Episodic Vestibular Syndrome

Spontaneous EVS presents with recurrent attacks without a consistent trigger. This category encompasses the most diagnostically challenging conditions, as the differential spans from benign to life-threatening.

- **Vestibular Migraine (VM):** The most common cause of spontaneous EVS and the most common cause of recurrent spontaneous vertigo overall [15]. Episodes typically last minutes to 72 hours; associated photophobia, phonophobia, and headache (absent in ~30% of episodes). Diagnosis uses 2012 Bárány/IHS consensus criteria. Management is multimodal: lifestyle, acute pharmacotherapy, and preventive agents.
- **Menière's Disease:** Spontaneous episodes lasting 20 minutes to 12 hours with fluctuating low-frequency SNHL, tinnitus, and aural fullness. Audiometric evidence of SNHL required for definite diagnosis per Bárány Society criteria.
- **Vestibular Paroxysmia:** Very brief episodes (<1 minute), often multiple per day, attributed to vascular cross-compression of the VIIIth nerve. MRI with FIESTA/CISS sequences may reveal a vascular loop. Dramatic response to low-dose carbamazepine is both diagnostic and therapeutic.
- **Transient Ischaemic Attack (TIA):** Episodic dizziness lasting minutes in patients with vascular risk factors. Concurrent neurological symptoms (diplopia, dysarthria, ataxia, visual field defect, weakness) substantially elevate concern. Urgent vascular imaging and referral are indicated.

□ Clinical Pearl:
Distinguish vestibular migraine from Menière's disease by: (1) audiometric findings — fluctuating low-frequency SNHL is Menière's; (2) headache and migraine history favour VM; (3) episode duration — Menière's rarely lasts >12 hours. The conditions can coexist. When in doubt, treat the condition most supported by objective evidence (audiogram first).

Table 4: Differential Diagnosis of Episodic Vestibular Syndrome

Diagnosis	Duration	Key Features	Investigation / Management
BPPV (posterior canal)	<1 minute	Positional; Dix-Hallpike positive; geotropic torsional nystagmus	Dix-Hallpike; Epley manoeuvre; no imaging if typical
Vestibular Migraine	Minutes to 72 hours	Migraine history; photophobia; spontaneous onset	Clinical diagnosis (Bárány/IHS criteria); audiometry; MRI if atypical
Menière's Disease	20 min–12 hours	SNHL, tinnitus, aural fullness; severe autonomic symptoms	Pure tone audiometry; MRI IAM + gadolinium; hydrops diet; betahistine
Vestibular Paroxysmia	<1 min, multiple/day	Very brief; high frequency; responds to carbamazepine	MRI with FIESTA/CISS sequences; trial carbamazepine
TIA (posterior circulation)	Minutes	Vascular risk factors; brainstem/cerebellar symptoms possible	MRI brain + DWI; CT angiography; urgent vascular referral

Legend: Attack duration and associated features are the primary discriminating factors. BPPV is distinguished by its positional trigger. SNHL = sensorineural hearing loss.

VIII. Chronic Vestibular Syndrome

Chronic Vestibular Syndrome (CVS) encompasses conditions where dizziness, imbalance, or unsteadiness persists for months, either continuously or with fluctuating intensity without complete symptom-free intervals. CVS is diagnostically and therapeutically challenging and frequently requires a multidisciplinary approach [4,10].

VIII.1 Acute-Onset Persistent Dizziness

When persistent dizziness begins acutely (within hours to days), this presentation should trigger urgent HINTS+ assessment for posterior circulation stroke, as many strokes initially appear indistinguishable from peripheral vestibular events. Incomplete recovery from vestibular neuritis can also produce months of residual imbalance and oscillopsia, particularly if early vestibular rehabilitation was not initiated.

VIII.2 Insidious-Onset Persistent Dizziness

Insidious-onset persistent dizziness develops gradually over weeks to months. The major diagnostic possibilities include:

- **Persistent Postural-Perceptual Dizziness (PPPD):** The most common cause of chronic dizziness in specialised vestibular clinics. Defined by Bárány Society consensus as chronic dizziness/unsteadiness ≥3 months, exacerbated by upright posture, motion, and complex visual stimuli. Frequently follows an acute vestibular event as a trigger. Treatment: vestibular physiotherapy, SSRIs/SNRIs, and cognitive-behavioural therapy [16].
- **Bilateral Vestibular Failure (Bilateral Vestibulopathy):** Imbalance worsening in darkness and on uneven terrain, oscillopsia during head movement, bilateral VOR impairment on vHIT. Causes include aminoglycoside ototoxicity, autoimmune inner ear disease, bilateral Menière's, and idiopathic (up to 50%). Vestibular rehabilitation is the mainstay; no proven pharmacological therapy.
- **Peripheral Neuropathy:** Sensory ataxia from large-fibre neuropathy producing imbalance on uneven surfaces and in low light. Distal sensory loss, reduced ankle reflexes, and abnormal nerve conduction studies confirm the diagnosis. Causes include diabetes, vitamin B12 deficiency, alcohol, and autoimmune conditions.
- **Presbystasis (Age-Related Multisensory Dizziness):** Accumulation of mild age-related deficits across vestibular, visual, proprioceptive, musculoskeletal, and cognitive systems producing global balance decline. No single system failure is sufficient to explain symptoms. Falls prevention and multidisciplinary rehabilitation are the cornerstone.
- **Central Vestibular Pathology:** Insidious-onset ataxia with vestibular features may indicate cerebellar degeneration, Parkinson-plus syndromes (MSA, PSP), or structural posterior fossa lesions. Frequent unexplained falls, cerebellar or brainstem signs, or failure to respond to peripheral vestibular treatments should prompt neurological referral and MRI.

> □ **Clinical Insight:**
> PPPD is a disorder of sensory processing and postural control — not a functional disorder in the dismissive sense. It is frequently preceded by an acute vestibular event (vestibular neuritis, BPPV, or panic attack) and perpetuated by maladaptive postural control strategies. Early identification and targeted treatment significantly improves prognosis. Always screen with HADS to quantify anxiety and depression comorbidity.

Table 5: Differential Diagnosis of Chronic Vestibular Syndrome

Diagnosis	Onset Pattern	Key Features	Investigations / Management
PPPD	Gradual (post-trigger event)	Postural, motion, and visual triggers; anxiety common; no structural lesion	MRI, vHIT, HADS; SSRI/SNRI; CBT; vestibular physiotherapy
Bilateral Vestibular Failure	Variable (acute if toxic)	Oscillopsia; worsens in dark/uneven ground; bilateral vHIT abnormal	Bilateral vHIT, calorics, VEMP; medication review; rehabilitation
Peripheral Neuropathy	Gradual	Distal sensory loss; lower limbs; worsens in dark and uneven surfaces	Nerve conduction studies; B12, HbA1c, SPEP; treat underlying cause
Presbystasis	Gradual (elderly)	Multifactorial; mild deficits across multiple systems; no dominant cause	Comprehensive geriatric / falls assessment; multidisciplinary rehabilitation
Central Pathology	Progressive	Ataxia; frequent falls; neurological signs; fails peripheral treatment	MRI brain; neurology referral

Legend: A comprehensive neuro-otological battery is required for CVS diagnoses. PPPD = Persistent Postural-Perceptual Dizziness; vHIT = video Head Impulse Test; HADS = Hospital Anxiety and Depression Scale.

IX. Integrated Management Principles

Management of the dizzy patient is condition-specific, but several overarching principles guide clinical practice across all vestibular syndromes:

- **Accurate diagnosis before treatment:** Vestibular sedatives (antihistamines, benzodiazepines, prochlorperazine) are appropriate for short-term acute symptom relief only. Prolonged empirical use delays central vestibular compensation and worsens outcomes. They have no role in chronic vestibular management [17].
- **Early vestibular rehabilitation:** Exercise-based vestibular rehabilitation accelerates central compensation following acute peripheral events. It is also the primary evidence-based intervention for PPPD, bilateral vestibular failure, and presbystasis. Early referral to a vestibular physiotherapist is recommended for all persistent syndromes [17].
- **Condition-specific pharmacotherapy:** BPPV → canalith repositioning (Epley); Menière's → hydrops diet, betahistine, thiazide diuretics; Vestibular Migraine → preventive agents (beta-blockers, topiramate, amitriptyline, CGRP antagonists); Vestibular Neuritis → short-course prednisolone in acute phase; PPPD → sertraline or venlafaxine combined with vestibular physiotherapy; TIA/Stroke → urgent secondary prevention.
- **Address psychological comorbidity:** Anxiety and depression are highly prevalent in vestibular disorders and independently worsen outcomes. Screening with the Hospital Anxiety and Depression Scale (HADS) and integrated psychological support are components of best-practice vestibular care [16].
- **Patient education:** Understanding the nature of the condition, the rationale for exercises, and the expected recovery trajectory improves adherence and outcomes. Written condition-specific materials should be provided at each consultation.

> □ **Key Point:**
> The four pillars of vestibular management are: (1) accurate diagnosis, (2) condition-specific treatment, (3) vestibular rehabilitation, and (4) psychological support. Addressing all four simultaneously produces better outcomes than any single intervention alone.

X. Current Controversies and Diagnostic Pitfalls

- **HINTS in non-expert hands:** The 2024 systematic review in Annals of Emergency Medicine and the GRACE-3 guidelines document that HINTS accuracy is substantially lower in routine emergency practice by non-specialist clinicians [5,13]. Sensitivity for stroke may fall below 70% without specific vestibular training. This raises critical questions about training requirements and the potential role of portable vHIT devices in emergency settings.
- **Overuse of CT in acute dizziness:** CT brain has very poor sensitivity for posterior fossa stroke (~16%) but continues to be widely overused in acute dizziness evaluation. GRACE-3 explicitly recommends against routine CT in acute vestibular syndrome, advising MRI with DWI instead [5].
- **The BPPV–Vestibular Migraine diagnostic overlap:** Vestibular migraine can produce positional nystagmus mimicking BPPV, and BPPV is more prevalent in migraineurs. Careful analysis of nystagmus characteristics (duration, fatigability, direction-consistency) and the broader clinical history is essential to avoid misclassification.
- **Isolated dizziness as a stroke presentation:** Dizziness in isolation can be the sole presenting feature of posterior circulation stroke in up to 11% of cases — the highest-stakes pitfall in emergency dizziness evaluation, and precisely the scenario where HINTS+ by a trained examiner provides its greatest clinical value [6].
- **PPPD — a functional disorder, not functional in the dismissive sense:** PPPD is a disorder of sensory processing, not a psychogenic condition. Clinicians must avoid dismissing patients as “anxious”, which delays appropriate treatment. Vestibular pathology must be rigorously excluded before the PPPD label is applied.

> □ **Clinical Insight:**
> The vestibular physician occupies a unique position in the healthcare system to address each of these controversies: providing expert HINTS+ examination, ordering appropriate MRI over CT, correctly distinguishing BPPV from vestibular migraine, and delivering the integrated management that prevents PPPD chronification.

XI. Conclusions

The evaluation of the dizzy patient is one of the most rewarding diagnostic challenges in clinical medicine. The shift from symptom-quality classification to the timing-and-trigger based TiTrATE framework represents a major advance in diagnostic accuracy, safety, and efficiency. Key conclusions from this review:

- Dizziness is one of the most prevalent symptoms in clinical medicine, but correct diagnosis rates in primary care remain unacceptably low. A systematic approach is essential.
- The TiTrATE framework (Timing → Triggers → Targeted Examination) provides a reproducible, evidence-based structure that classifies every dizzy patient into an actionable diagnostic category.
- Initial triage to exclude systemic and life-threatening non-vestibular causes must precede vestibular-specific evaluation.
- In Acute Vestibular Syndrome, HINTS+ bedside examination by a trained clinician outperforms early MRI-DWI for detecting posterior fossa stroke, and is the most important safety-critical test in vestibular medicine.
- Episodic vestibular syndrome is distinguished by trigger analysis: positional trigger → BPPV pathway; no trigger → vestibular migraine, Menière's disease, vestibular paroxysmia, or TIA.
- Chronic vestibular syndrome, particularly PPPD, is the most common cause of ongoing disability in vestibular clinics and requires an integrated, multidisciplinary approach.
- Early vestibular rehabilitation, condition-specific pharmacotherapy, and psychological support are the pillars of vestibular management.

> □ **Key Point:**
> A vestibular physician skilled in the full TiTrATE framework — from HINTS+ examination to the management of PPPD and bilateral vestibulopathy — addresses a major unmet clinical need. This review provides the scientific and clinical foundation for that expertise.

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