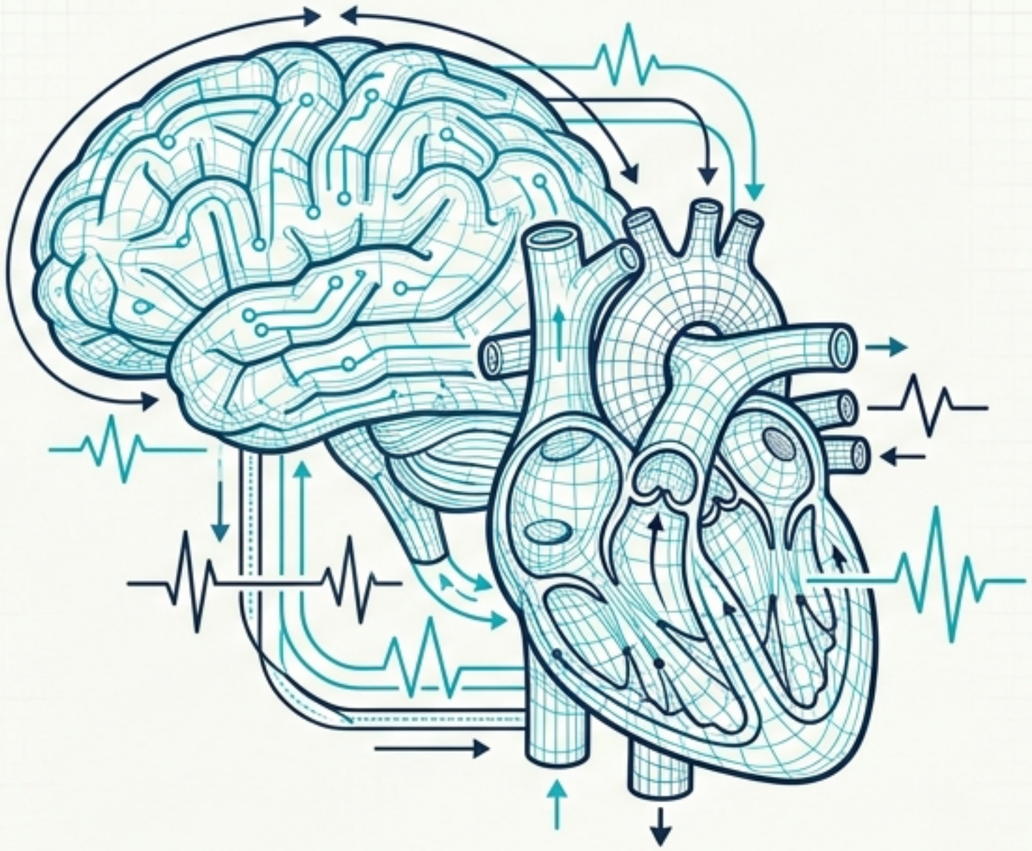


Syncope & Transient Loss of Consciousness

A Clinical Diagnostic Blueprint

Based on Med2Date Clinical Guidelines

Defining TLOC | Risk Stratification | Diagnostic Workup | Specific Management

The Clinical Problem: Defining TLOC

Transient Loss of Consciousness (TLOC) is defined as a spontaneous, temporary **loss of consciousness** characterized by rapid onset, short duration, and complete spontaneous recovery.

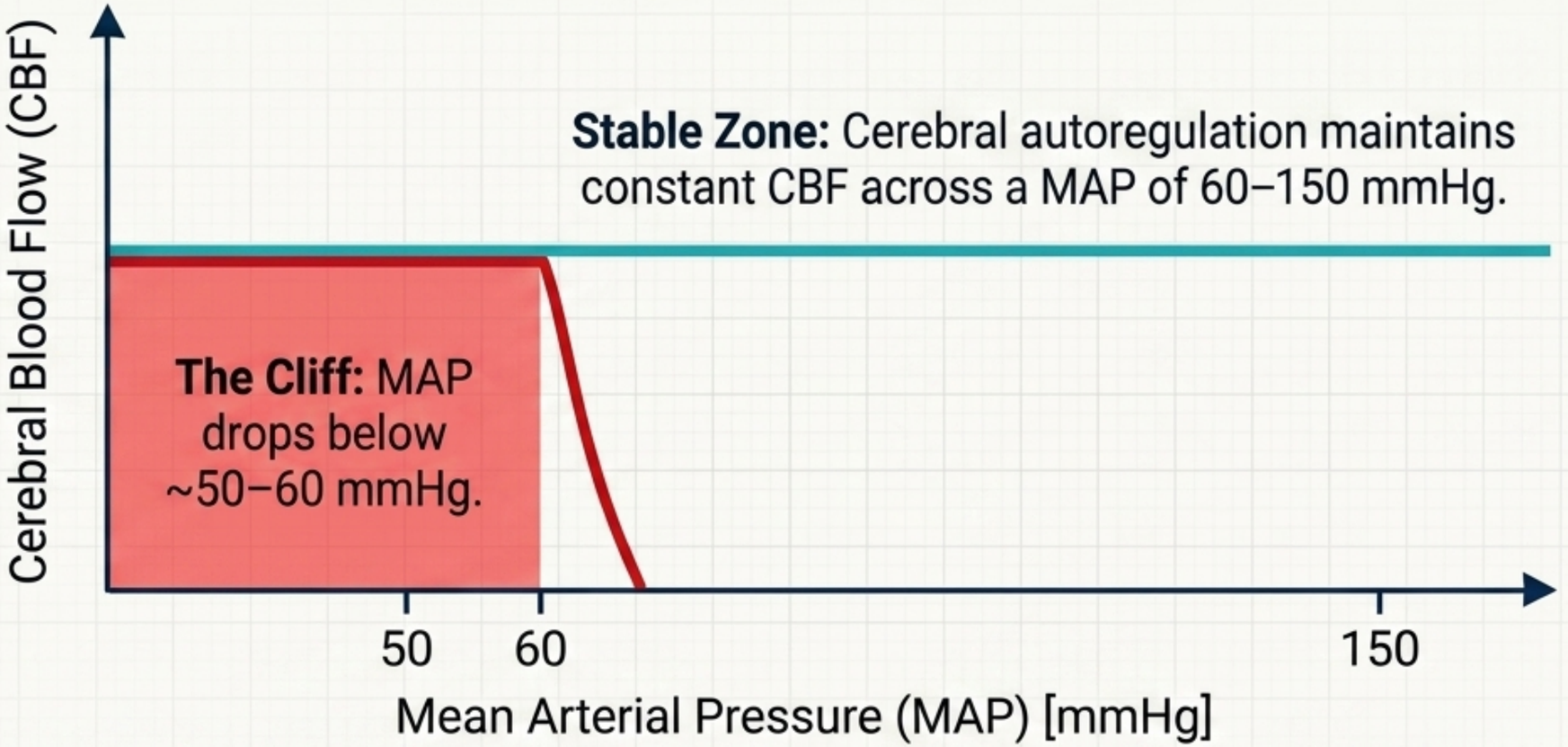
Syncope is TLOC specifically caused by global cerebral hypoperfusion.

Scale: >100,000 annual ED presentations in Australia. Accounts for 1-3% of all ED visits and up to 6% of acute medical admissions.

Cost: ~$1.4 Billion annual direct healthcare cost.

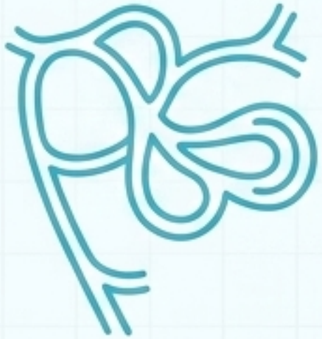
The Diagnostic Pitfall: 20% of patients initially diagnosed with syncope actually have an alternative diagnosis (seizure, concussion, intoxication). **40%** remain undiagnosed after initial ED evaluation.

The Physiology of Collapse



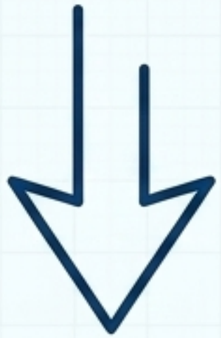
The Consequence: Global cerebral hypoperfusion lasting >6–8 seconds results in clinical syncope.

The Three Pillars of Syncope



Reflex (Vasovagal)

- **Mechanism:** Inappropriate vasodilation ± bradycardia (Bezold-Jarisch reflex).
- **Proportion:** ~40–60%
- **Mortality Risk:** Very Low



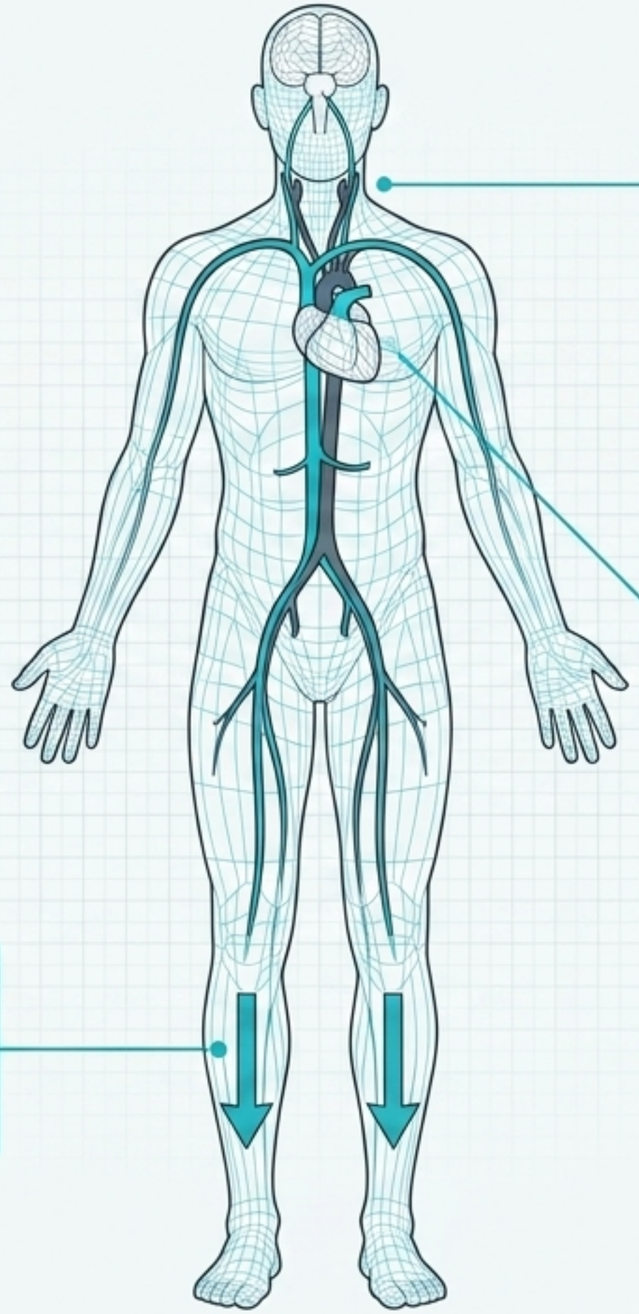
Orthostatic Hypotension

- **Mechanism:** Inadequate compensatory vasoconstriction on standing.
- **Proportion:** ~10–30%
- **Mortality Risk:** Low–Moderate

Cardiac Syncope

- **Mechanism:** Arrhythmia, structural disease, or acute cardiac event reducing output.
- **Proportion:** ~10–20%
- **Mortality Risk:** High (Up to 30% at 1 year)

The Hemodynamic Trap



Failure of the baroreceptors in the carotid sinus and aortic arch to trigger sympathetic vasoconstriction results in sustained hypotension.

Causes: Autonomic neuropathy, volume depletion, vasodilatory meds.

Reflex Mechanism: Triggered by prolonged standing, pain, or emotion. The Bezold-Jarisch reflex mediates paradoxical bradycardia and vasodilation via vagal afferents.

Orthostatic Mechanism: Gravity-dependent pooling of 500–1000 mL of blood occurs in the lower limbs on standing, reducing venous return.

The Clinical Presentation Matrix

	Reflex (Vasovagal)	Orthostatic Hypotension	Cardiac Syncope
Position	Prolonged standing, sitting upright.	Immediately on standing.	Supine or during exertion.
Prodrome	Nausea, warmth, pallor, diaphoresis (>30s).	Gradual lightheadedness, visual greying.	None or brief palpitations.
Onset	Gradual.	Seconds after postural change.	Sudden.
Recovery	Rapid, no confusion.	Rapid once supine.	Prolonged if low output.
Triggers	Pain, emotion, warmth, venepuncture.	Dehydration, morning, medications.	Exertion, preceding chest pain.

Diagnostic Red Flags: Syncope vs. Seizure

Syncope		Seizure
Lateral tip (rare)	**Tongue Biting**	Lateral tongue (highly specific)
<30 seconds typically	**Duration of LOC**	>1–2 minutes
Brief myoclonic jerks (<15 sec)	**Motor Movements**	Sustained >15 seconds, rhythmic tonic-clonic
Rapid recovery, no confusion	**Postictal State**	Prolonged (>5 min) confusion or drowsiness
Pallor	**Complexion**	Cyanosis during event
Rare (urinary only)	**Incontinence**	Urinary ± faecal (more common)

High-Risk Clinical Features

Admit and investigate urgently if ANY of the following are present:

- Syncope occurring during exertion or while supine.
- Family history of sudden cardiac death at <40 years of age.
- New or unexplained dyspnoea.
- Persistent hypotension (systolic <90 mmHg).
- Syncope associated with chest pain or palpitations.
- Known severe structural heart disease (e.g., severe aortic stenosis, hypertrophic cardiomyopathy) or reduced ejection fraction.

The Essential Basic Workup

Mandatory Trinity

12-Lead ECG:
Mandatory for every TLOC episode. Detects arrhythmia, conduction disease, ischaemia, and channelopathies.

Orthostatic Vital Signs:
Measure lying (≥5 min supine) then standing at 1 and 3 minutes.
Positive if:
- Systolic BP drop ≥20 mmHg
- Diastolic BP drop ≥10 mmHg

or standing Systolic <90 mmHg

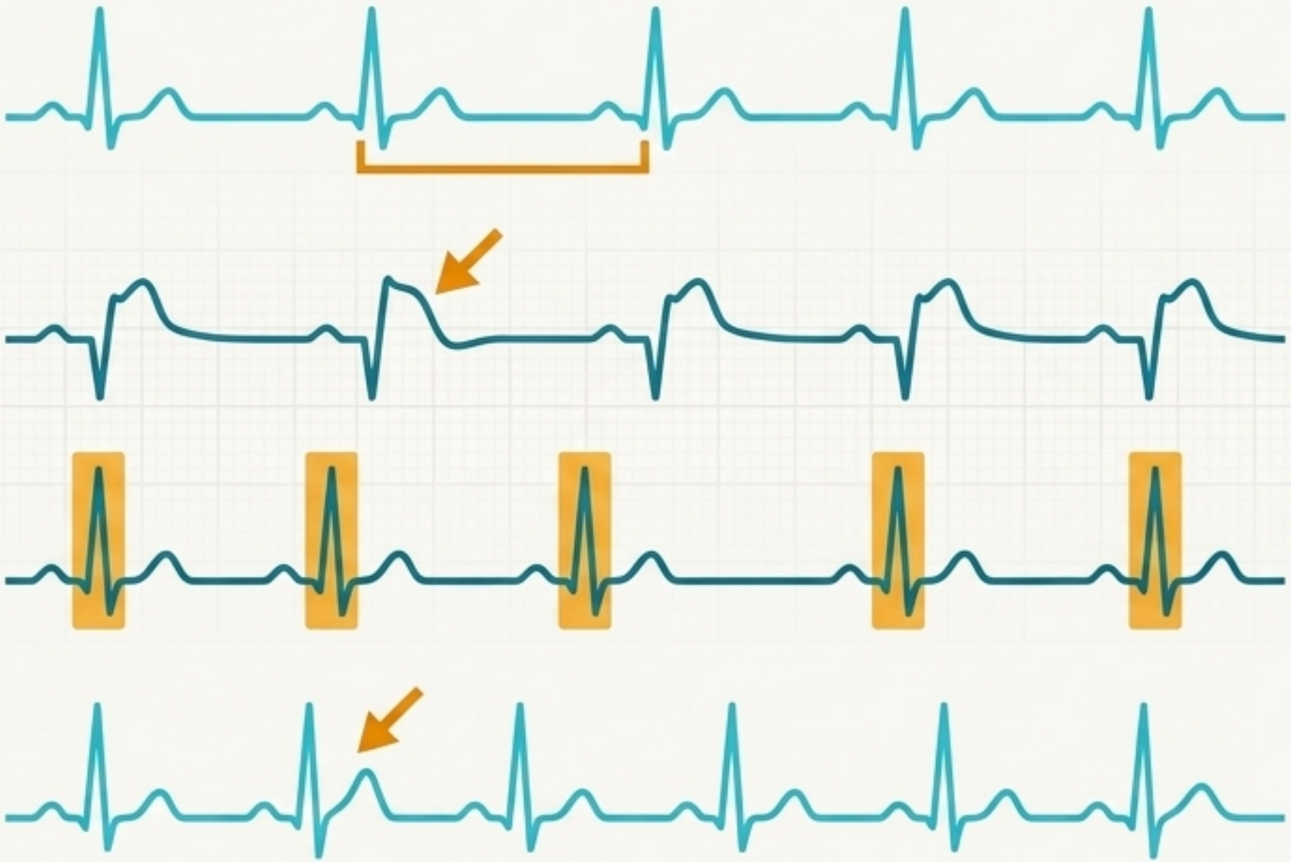
Capillary Blood Glucose:
Rule out hypoglycaemia (<4.0 mmol/L) as a readily reversible cause.

Supplementary Tests (Guided by History)

- **FBC** (Anaemia)
- **UEC** (Dehydration/Electrolytes)
- **High-Sensitivity Troponin** (If cardiac/chest pain)
- **Echocardiography** (Structural disease)

The ECG Mandate

Abnormalities that mandate urgent cardiology referral.



Prolonged QTc: QTc >500 ms. (Risk of Torsades de Pointes).

Brugada Pattern: Coved ST-segment elevation in V1-V3.

AV Block: High-degree (Mobitz II or Complete Heart Block).

Ventricular Pre-excitation: Delta waves (Wolff-Parkinson-White).

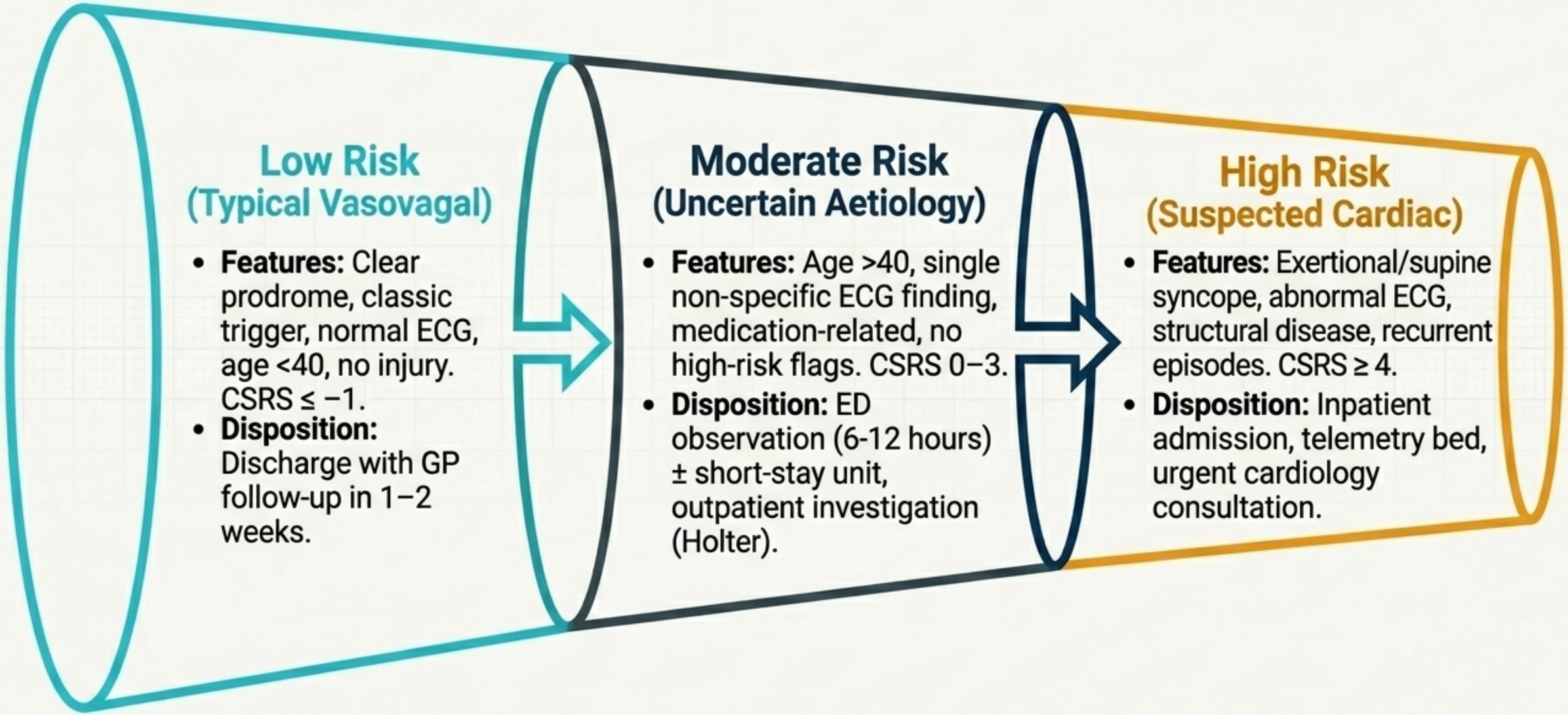
Note: Also screen for sustained VT and Q waves suggesting prior infarction.

Neuroimaging & EEG: Avoid Routine Use

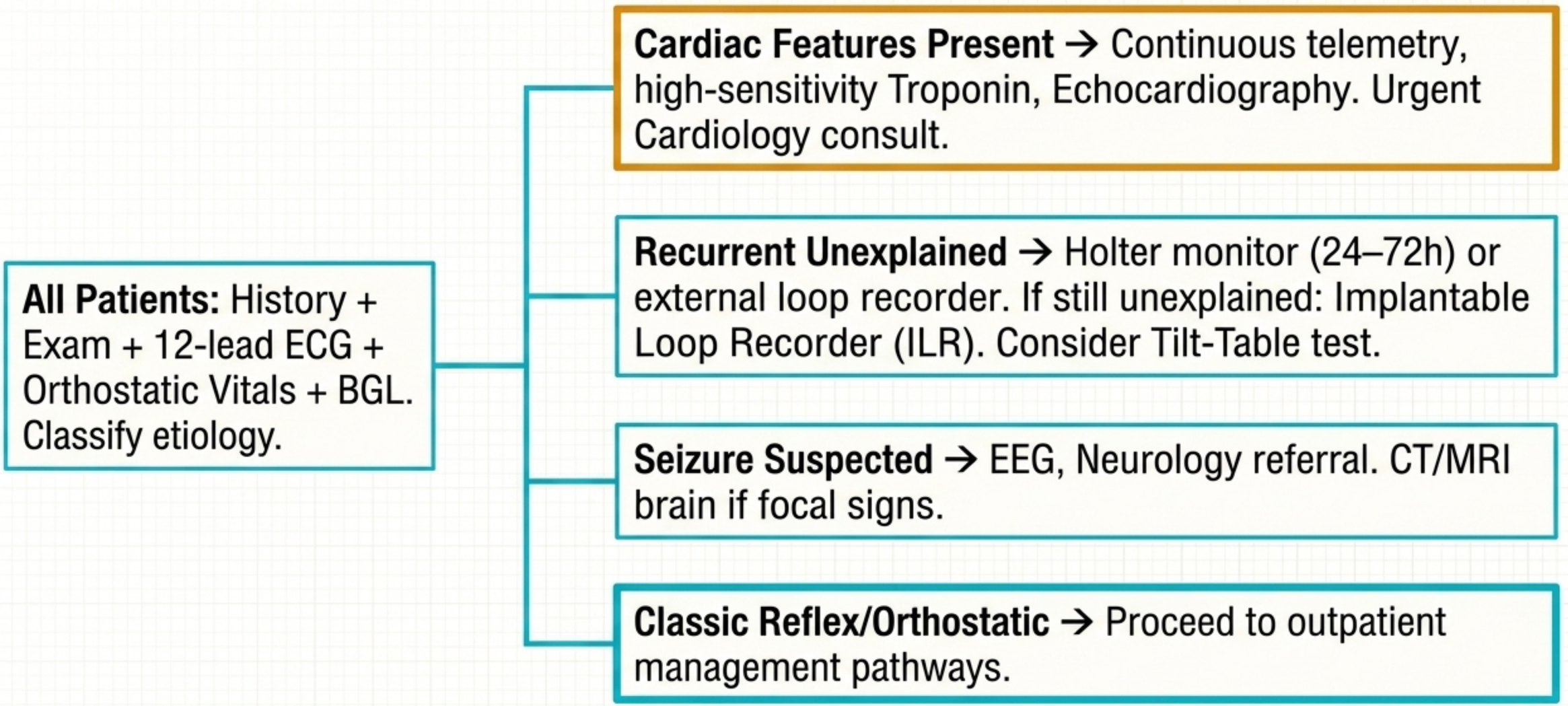
Core Rule: Do **NOT** routinely order neuroimaging or EEG for syncope. Diagnostic yield is <1% without focal neurological signs.

When to Actually Order	
CT Brain (Non-contrast)	• Head injury from syncope • Focal neuro signs • Anticoagulated trauma • Suspected SAH (Subarachnoid Hemorrhage)
MRI Brain	• Focal neuro deficit • Suspected posterior fossa lesion • Recurrent unexplained TLOC with seizure features
EEG	• Prolonged postictal confusion (>5 min) • Witnessed tonic-clonic activity >15 sec • Lateral tongue biting (Never for classic vasovagal/orthostatic or brief myoclonic jerks)

Risk Stratification & Disposition Funnel



The Diagnostic Algorithm



Management Blueprint: Reflex (Vasovagal) Syncope

Non-Pharmacological (First-Line)

- **Education & Trigger avoidance** (prolonged standing, warm environments).
- **Fluid loading:** 2–3 L water/day (1.5 L bolus before standing).
- **Dietary Salt:** 6–10 g NaCl/day (if no contraindications).
- **Physical Counterpressure Manoeuvres (PCM):** Leg crossing with muscle tensing, squatting.

Pharmacological Options (For recurrent failure)

Midodrine (Gutron®):
α_1-agonist. 2.5–10 mg PO TDS.
Note: PBS Authority Required (S100).
Avoid within 4h of bedtime.

Fludrocortisone:
Mineralocorticoid.
0.1–0.2 mg PO mane.
Note: PBS General Benefit.
Monitor K+ and fluid retention.

Management Blueprint: Orthostatic & Iatrogenic Syncope

Core Orthostatic Management: Treat underlying cause, volume repletion, waist-high elastic compression stockings, elevate head of bed 10-20°, rise slowly.

The Medication Implication Matrix

Medication Class	Mechanism	Clinical Action
Antihypertensives (Diuretics, ACEi, CCBs)	Excessive vasodilation/volume depletion	Dose reduction; switch to shorter-acting agent.
Psychotropics (TCAs, SSRIs, Antipsychotics)	Orthostasis, QT prolongation	Review indication, monitor QTc.
Anti-anginals (Nitrates, β-blockers)	Vasodilation, bradycardia	Adjust dose; avoid abrupt β-blocker cessation.
Phosphodiesterase-5 inhibitors	Vasodilation	Absolute contraindication with nitrates.
Opioids	Vasodilation	Reduce dose, consider non-opioid analgesia.

Management Blueprint: Cardiac Syncope

Warning: Cardiac syncope requires definitive treatment of the underlying cause. Empirical treatment without diagnosis is dangerous. Always involve cardiology.

Pathology	Definitive Intervention
Sick Sinus Syndrome / High-Degree AV Block	Permanent Pacemaker
SVT (AVNRT/AVRT)	Catheter Ablation or rhythm control
Ventricular Tachycardia (with EF ≤35%)	ICD Implantation
Hypertrophic Cardiomyopathy (High risk SCD)	ICD Implantation
Severe Aortic Stenosis	Aortic Valve Replacement (Surgical/TAVI)
Acute Pulmonary Embolism	Anticoagulation; Thrombolysis if massive

Driving Restrictions & Occupational Hazards

Austroads Guidelines (2022)

	Private	Commercial
Single Vasovagal	No restriction.	1 month off.
Recurrent Vasovagal	Cease until controlled (min 1 month).	**Min 3 months off** (requires 12mo recurrence-free).
Unexplained Syncope	Min 1 month off.	**Min 6 months off** (requires specialist assessment).
Cardiac Syncope	Min 1 month off.	**Min 6–12 months off** (specialist review required).
Orthostatic	Cease driving until cause identified and treated.	

⚠ **Occupational Warning:** Safety-critical roles (pilots, heavy machinery, crane operators) require formal occupational health assessment before returning to work.

Clinical Nuance in Special Populations

Pregnancy:

Supine hypotension syndrome
(2^{nd}/3^{rd} trimester aortocaval compression)

Action: Left lateral positioning.

⚠ Exclude **PE/amniotic fluid embolism.**

⚠ Avoid **fludrocortisone.**

Paediatrics:

Vasovagal accounts for >80%.

⚠ **Red Flags:** Exertional syncope, FHx SCD <40.

Action: ECG, BGL.

Breath-holding spells in toddlers are benign.

Midodrine requires specialist guidance.

Elderly (>65):

Often multifactorial (polypharmacy, postprandial, autonomic).
May present as 'falls.'

Action: Carotid sinus massage (if >50, under ECG monitoring, no bruits).

Deprescribe using **STOPP/START criteria.**

Renal Impairment:

Uraemic autonomic neuropathy, intradialytic hypotension (ultrafiltration >10mL/kg/h).

Action: Review dry weight.

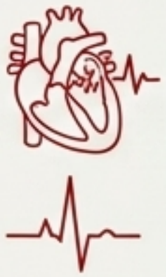
⚠ **Fludrocortisone high risk** (fluid/K+ retention).

⚠ Watch for **QT prolongation** from electrolyte shifts.

Aboriginal & Torres Strait Islander Health Considerations

Cardiovascular Disease Burden

- **Rheumatic Heart Disease (RHD):** Extremely high prevalence. Valvular disease (mitral stenosis) and **arrhythmias** are key cardiac causes of syncope. Early Echo mandated.



- **Diabetes: T2DM** prevalence is 3-4x higher; **autonomic neuropathy** causing orthostasis is heavily underrecognized.

- **Chronic Kidney Disease:** 4x higher risk. **Volume-related syncope** and **electrolyte disturbances** are frequent.

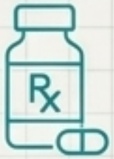
Remote Access Barriers

Lack of continuous ECG/Echo in remote settings **necessitates aeromedical transfer** for moderate/high-risk patients.

Ensure **culturally safe transport.**

Systemic Support

Utilize **Section 100 Close the Gap** scripts for medication access (Midodrine/Fludro).



Coordinate **ICD/ Pacemaker follow-up** via **telecardiology** and Aboriginal community-controlled health services (ACCHS).

Synthesis: The Syncope Ecosystem

TELEMETRY-GRID

Cardiology: The hidden risk of sudden cardiac death ⚠ (Arrhythmias, Structural faults)

TELEMETRY-GRID

Health Equity: Remote access, RHD burden ⚠ and cultural safety in Aboriginal health.

TELEMETRY-GRID

Pharmacology: Iatrogenic tipping points (Polypharmacy, ⚠ Antihypertensive load)

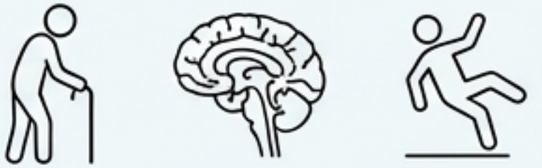
TLOC Presentation

TELEMETRY-GRID

Neurology: The critical boundary ⚠ between hypoperfusion and epileptiform activity.

TELEMETRY-GRID

Geriatrics: Frailty, autonomic decline, and the 'unexplained fall'.



Core Insight: Syncope is not a final diagnosis—it is a gateway symptom demanding holistic, systemic medical thinking.

Key References & Clinical Guidelines

Med2Date Clinical Guidelines: Syncope & Transient Loss of Consciousness (Updated May 2026).

Shen W-K, et al. 2017 ACC/AHA/HRS guideline for the evaluation and management of patients with syncope. Circulation. 2017.

Brignole M, et al. 2018 ESC guidelines for the diagnosis and management of syncope. Eur Heart J. 2018.

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