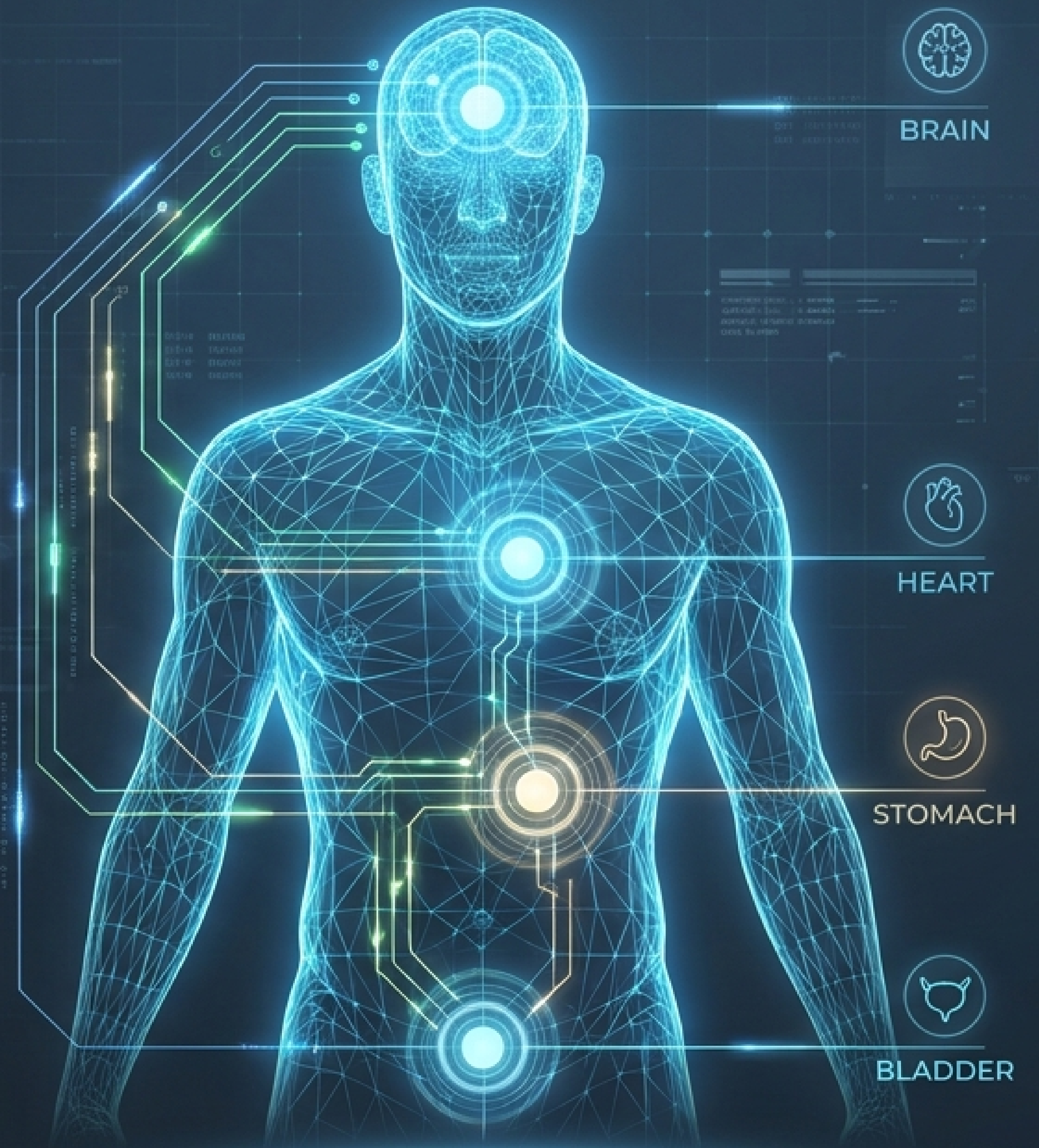
Clinical Control Board

Decoding Autonomic Dysfunction

A Primary Care Pathway for Dizziness, Syncope, GI, and Bladder Symptoms.

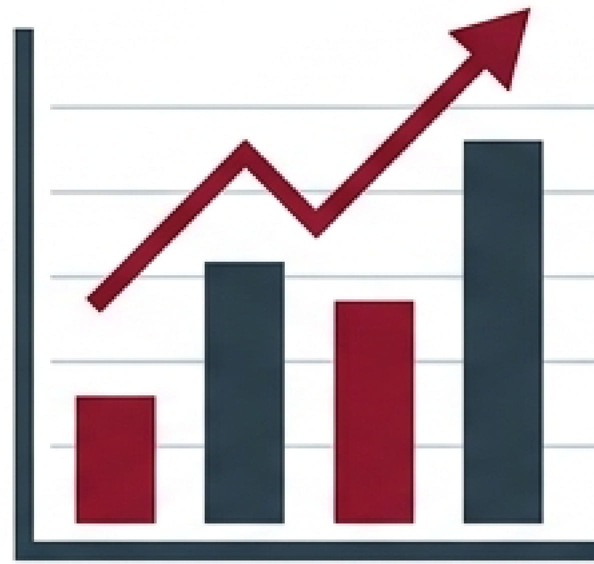


Australian Clinical Guidelines | Screening, Diagnosis & Tiered Management

The Elderly & The Ward

5–10% of community-dwelling adults >65 years experience **Orthostatic Hypotension** (OH). This jumps to **30%** in **aged-care** residents.

The Chronic Disease Burden



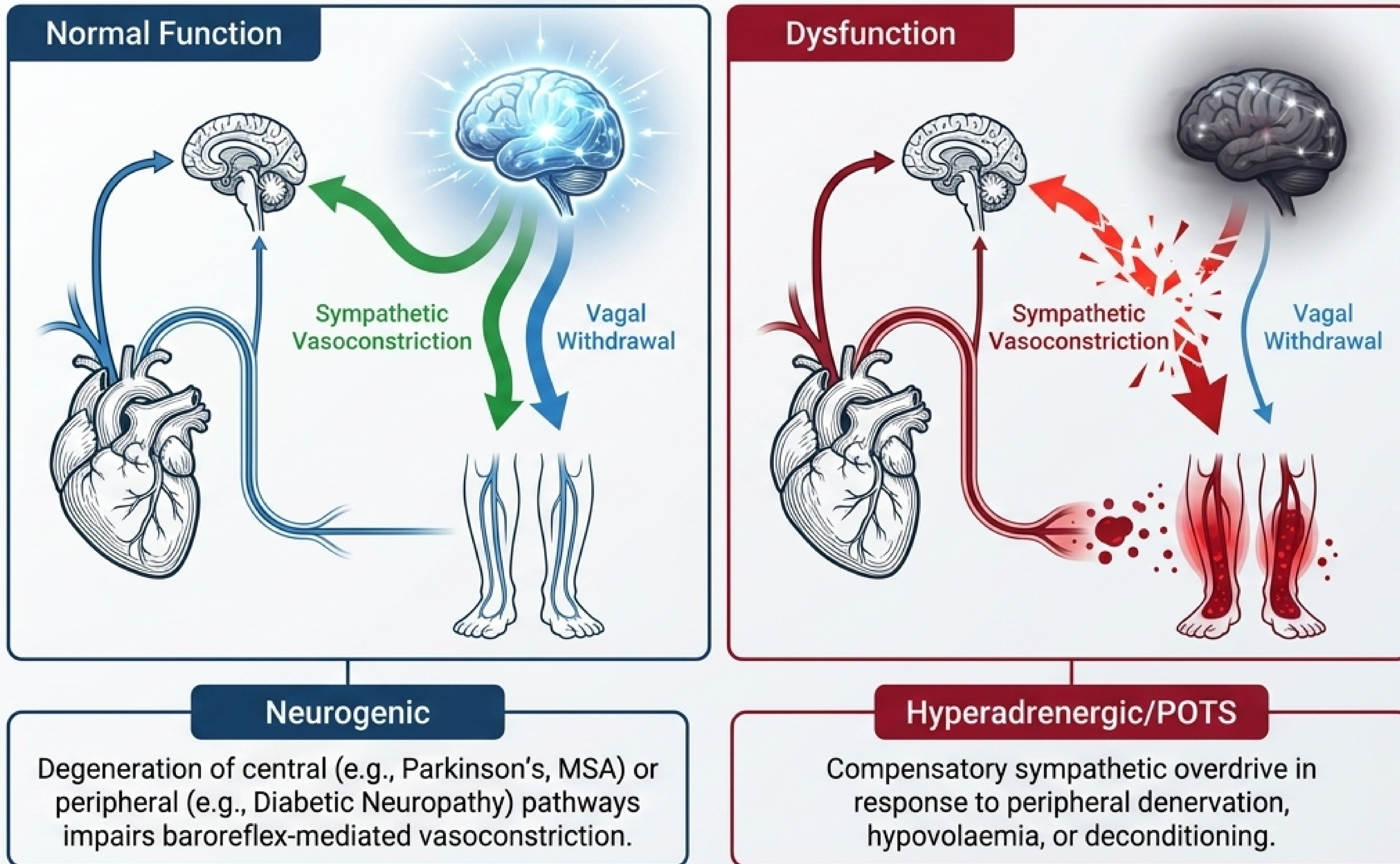
Over **1.3 million** Australians live with **diabetes.** Up to **73%** of longstanding Type 1 and **54%** of Type 2 diabetics have **cardiac autonomic neuropathy**.

The Diagnostic Gap

4–6 Years: The median diagnostic delay for **POTS** in Australia.

Autonomic symptoms are common, cross-systemic, and frequently misattributed.
A **high index of suspicion** changes trajectories.

Pathophysiology: The Baroreflex Loop



The Multi-System Autonomic Dashboard

Cardiovascular

Normal: BP/HR stability on standing.

Dysfunction: Orthostatic hypotension, POTS, supine hypertension, syncope.

Gastrointestinal

Normal: Coordinated peristalsis via enteric system.

Dysfunction: Gastroparesis (nausea, early satiety), constipation, faecal incontinence, SIBO.

Bladder

Normal: Parasympathetic detrusor contraction + sphincter relaxation.

Dysfunction: Detrusor underactivity (retention), overactivity (urgency), detrusor-sphincter dyssynergia.

Sudomotor & Pupillary

Normal: Thermoregulatory sweating, light reflex.

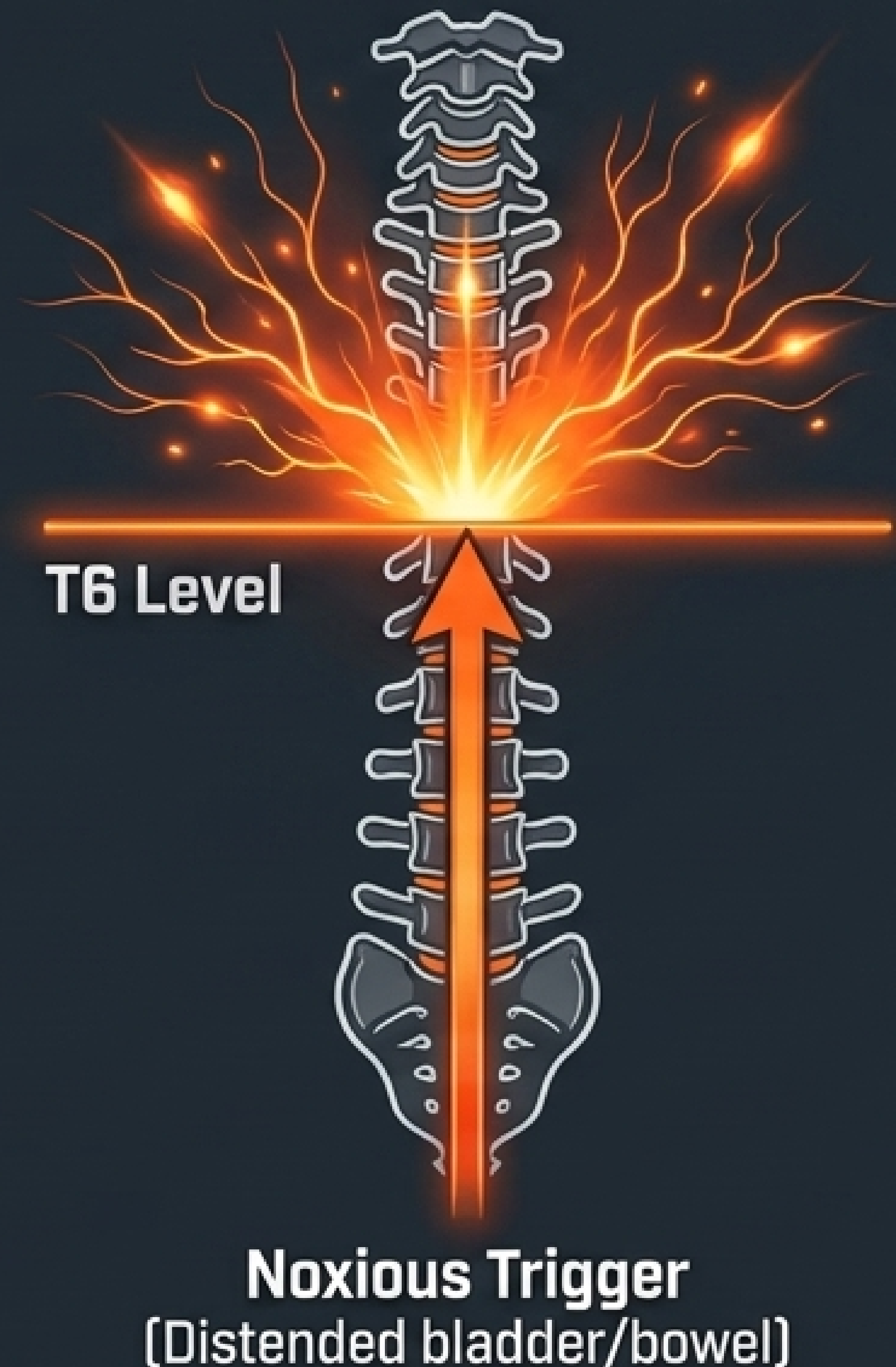
Dysfunction: Anhidrosis, compensatory hyperhidrosis, heat intolerance, intolerance, Adie's tonic pupil.

MEDICAL EMERGENCY: Autonomic Dysreflexia

Affects patients with spinal cord injuries at T6 or above

Red Flag Symptoms (Above Lesion):

- Sudden severe hypertension
- Pounding headache
- Flushing/sweating
- Bradycardia



Immediate Action Checklist

- ☑ Sit patient fully upright immediately.
- ☑ **Identify and remove trigger** (check blocked catheter, bowel impaction).
- ☑ **If BP remains critical:** Glyceryl trinitrate 300 mcg sublingual **OR** Nifedipine 10 mg immediate-release (crush).

Primary Care Diversion: Urgent Specialist Red Flags

Cardiac Syncope

Syncope during exertion OR family history of sudden cardiac death.
(Risk of fatal arrhythmia).

Autonomic Storm

Labile blood pressure + tachycardia + hyperthermia + diaphoresis.
(Consider NMS, serotonin syndrome, phaeochromocytoma).

Acute Retention

Acute urinary retention requiring catheterisation.
(Urgent Urology/Neurology).

Progressive Neurological Decline

Progressive autonomic failure paired with parkinsonism or cerebellar ataxia.

(Points to MSA or paraneoplastic syndrome).

Presence of any red flag dictates urgent specialist referral. Do not wait for routine autonomic testing.

The Bedside Orthostatic Vitals Timeline

Phase 1:
The Baseline

5:00 min timer

- Patient lies supine for ≥5 minutes.
- Measure Baseline BP & HR.

Phase 2:
The Initial Challenge

1:00 min timer

- Patient stands. Measure BP & HR at 1 minute.

Phase 3:
The Sustained Challenge

3:00 min timer

Measure BP & HR at 3 minutes.

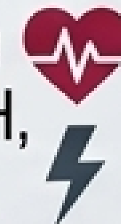
Crucial: Record symptoms during standing (visual dimming, nausea, palpitations).

Orthostatic Hypotension (OH)

Systolic drop ≥20 mmHg
OR
Diastolic drop ≥10 mmHg.

POTS

Sustained HR increase ≥30 bpm (≥40 bpm if age 12-19) without OH, accompanied by symptoms.



The Offending Medication Matrix

Category		
Cardiovascular	• **Antihypertensives** (Prazosin, Amlodipine) → Exaggerated standing BP drop. **Action:** Dose reduction, switch to morning dosing.	• **Diuretics** (Frusemide, Spironolactone) → Volume depletion. **Action:** Review indication, ensure oral hydration.
Neurological & Psychiatric	• **Antidepressants** (Amitriptyline, Venlafaxine) → Anticholinergic & noradrenergic OH. **Action:** Weigh risk-benefit, use low-anticholinergic alternatives.	• **Antipsychotics** (Quetiapine, Olanzapine) → α-blockade (OH) & urinary retention. **Action:** Dose timing, psychiatry co-review.
General / Other	• **Opioids** (Oxycodone, Tapentadol) → Constipation, urinary retention. **Action:** Regular laxatives, minimize duration.	• **Anticholinergics** (Oxybutynin) → Constipation, urinary retention, cognitive load. **Action:** Calculate Anticholinergic Burden Scale.

The "Dizzy Patient" Diagnostic Pathway

Tier 1: Essential Primary Care Workup

- **Bedside:** Orthostatic Vitals, 12-lead ECG, Post-Void Residual (BladderScan >100mL).
- **Bloods:** FBC, EUC, LFT, HbA1c (Diabetes screen), TSH, B12/Folate/Iron.

Tier 2: Targeted Investigations

- **Cardiac:** Holter/Event monitor, Echocardiography, ABPM (for postprandial OH).
- **GI/Bladder:** Urine MCS, GI symptom review.

Tier 3: Specialist Autonomic Testing

- Head-up tilt-table test (HUTT) for POTS/syncope.
- Cardiovascular autonomic reflex tests (CARTs).
- Thermoregulatory sweat test (TST) / Skin biopsy.

Referral trigger: Normal bedside testing + negative basic workup + persistent orthostatic symptoms = Refer to Autonomic Lab.

Diagnostic Matrix: OH vs. POTS

Orthostatic Hypotension (OH)

- **Vital Threshold:** ↓ BP ≥ 20/10 mmHg within 3 mins of standing.
- **Core Mechanism:** Baroreflex failure (Neurogenic) or volume depletion/meds (Non-neurogenic).
- **Classic Demographics:** Elderly (>65), Parkinson's, Diabetes, Polypharmacy.
- **Hallmark Symptoms:** "Coat-hanger" neck pain, visual blurring, frank syncope, postprandial worsening.

Postural Tachycardia Syndrome (POTS)

- **Vital Threshold:** ↑ HR ≥ 30 bpm (≥ 40 if teens) within 10 mins standing, without OH drop.
- **Core Mechanism:** Hyperadrenergic state, hypovolaemia, partial neuropathy.
- **Classic Demographics:** Young females (5:1 ratio), adolescents, post-viral (COVID-19).
- **Hallmark Symptoms:** Chronic (≥6 mo) palpitations, brain fog, fatigue, exercise intolerance.

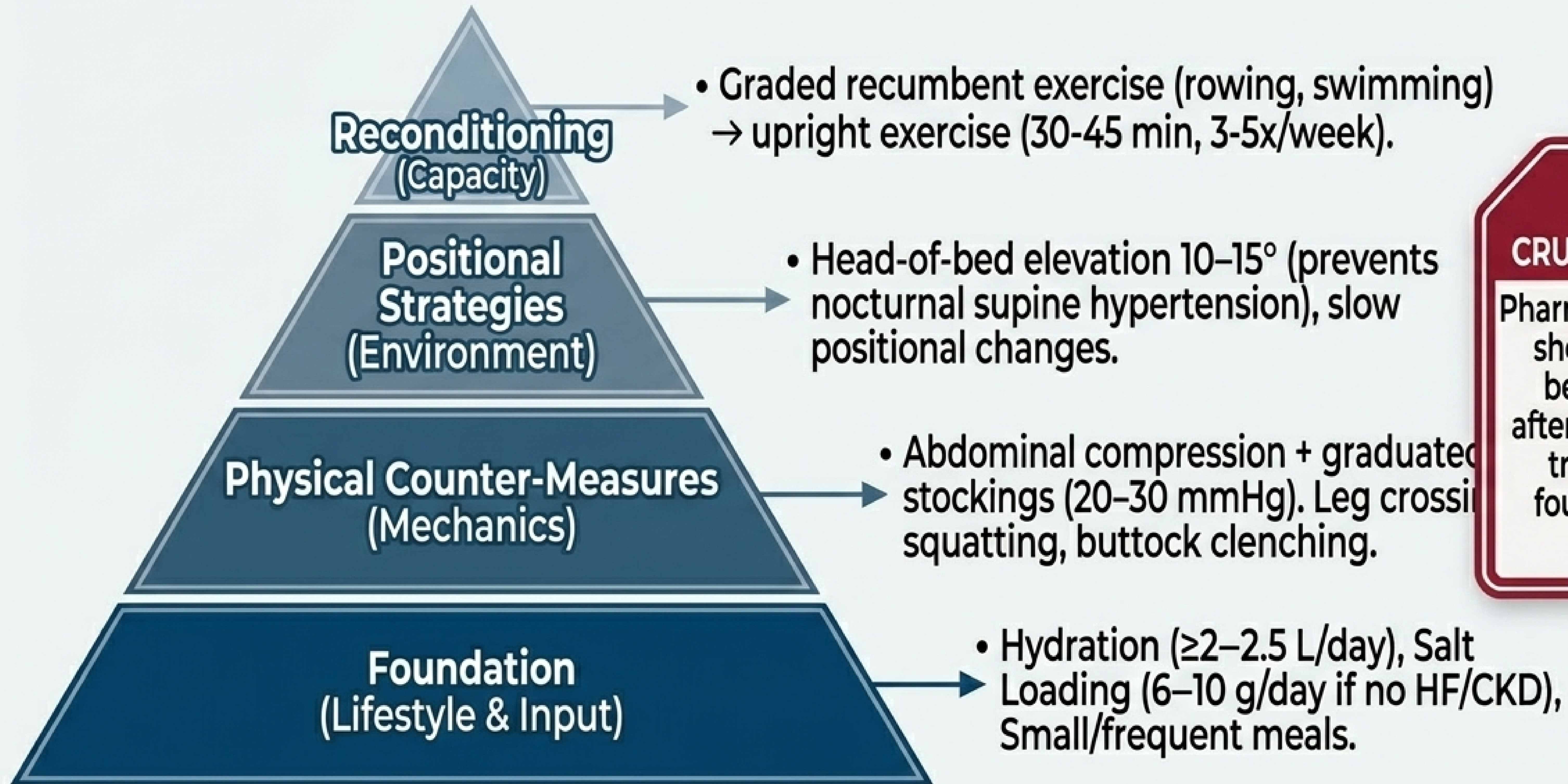
Severity Stratification & Risk Assessment

	OH Focus	POTS Focus
Mild (Incidental / Manageable)	Primary care monitoring	Non-pharmacological base
Moderate (Functional Impairment)	Primary care + specialist testing	Primary care + pharmacotherapy
Severe (Recurrent Falls / Bed-bound)	Urgent cardiology / neurology	MDT rehab program / Wheelchair

Syncope High-Risk Features (ED Admission)

- **Abnormal ECG** (new arrhythmia, prolonged QTc)
- **History of structural heart disease**
- **Exertional syncope**
- **Systolic BP <90 mmHg at triage**

Tiered Intervention Pyramid



CRUCIAL RULE:

Pharmacotherapy should ONLY be initiated after a 2-4 week trial of this foundational base.

Pharmacotherapy: Neurogenic Orthostatic Hypotension

Fludrocortisone (Florinef)

- **Mechanism:** Mineralocorticoid (plasma volume expansion).
- **Dose:** 0.1–0.3 mg/day (Mane).
- **Monitoring:** Watch for hypokalaemia, supine hypertension.
- **Status:** PBS General Benefit

Midodrine (Gutron)

- **Mechanism:** α_1-adrenergic agonist (peripheral vasoconstriction).
- **Dose:** 2.5–5 mg TDS. (Last dose ≥4 hrs before bed).
- **Monitoring:** Supine BP mandatory, urinary retention.
- **Status:** PBS General Benefit

Droxidopa (Northera)

- **Mechanism:** Norepinephrine prodrug (increases standing BP).
- **Dose:** 100-600 mg TDS. Second-line agent.
- **Status:** Not PBS listed

WARNING: All pressor agents can worsen supine hypertension. Advise head-of-bed elevation and strictly avoid lying flat during the day.

Pharmacotherapy: POTS

STRATEGY: Target the predominant mechanism: Hyperadrenergic vs. Hypovolaemic. Start one agent, titrate slowly.

Ivabradine (Procoralan)

- **Mechanism:** Selective If channel inhibitor (Lowers HR without dropping BP).
- **Indication:** POTS with resting HR >70 bpm.
- **Status:** Off-label / Authority required

Low-Dose Propranolol (Inderal)

- **Mechanism:** Non-selective β-blocker. Blocks β_2 vasodilation.
- **Dose:** 10–20 mg BD–TDS. Caution: High doses worsen fatigue.
- **Status:** PBS General Benefit

Desmopressin (DDAVP)

- **Mechanism:** V_2 receptor agonist (Volume expansion).
- **Monitoring:** Strict serum sodium checks at 3 days, 1 week, then monthly due to severe hyponatraemia risk.

Targeted Fixes: Non-Cardiovascular Autonomic Symptoms

Gastrointestinal Dysfunction

- **Gastroparesis:** Dietary mod (small/low-fat). Domperidone (preferred in Parkinson's). Metoclopramide (max 5 days acute).
- **Constipation:** Macrogol, Prucalopride (2mg daily).

Bladder Dysfunction

- **Overactive/Urgency:** Bladder retraining, Solifenacin, Mirabegron (β_3 agonist - fewer anticholinergic effects).
- **Underactive/Retention:** Clean intermittent self-catheterisation (CISC) = first-line. Tamsulosin if outlet obstruction.

Referral trigger: Mandatory urology referral if Post-Void Residual >300 mL or recurrent UTIs.

Pathogen & Disease-Directed Therapies

Diabetic Autonomic Neuropathy

- Primary disease modifier: Glycaemic control.
- Cardiac Autonomic Neuropathy (CAN) predicts mortality.
- Screen annually with deep breathing HR variability.

Autoimmune Autonomic Ganglionopathy (AAG)

- Subacute pandysautonomia. High gAChR antibodies.
- **Therapy:** IVIg (Privigen/Intragam P) 2g/kg over 2-5 days.
- Early treatment within 6 months is crucial.

Parkinson's & MSA

- Avoid sudden PD med dose reductions (akinetic crisis).
- **MSA** median survival 6-10 years; integrate palliative care early.
- **GI dysfunction** impairs levodopa absorption (timing is critical).

Clinical Context: Special Populations

Pregnancy

- Pathological OH vs physiologic changes.
- Avoid supine position >20 weeks.
- Fludrocortisone/Midodrine are Category B3 (Specialist only).

Paediatrics

- POTS peak onset 14-17 yrs.
- HR threshold is ≥40 bpm.
- Non-pharm management is highly effective; most improve in 1-2 years.

The Elderly

- Postprandial hypotension common (BP drops 15-30 mmHg after meals).
- Extreme caution with Midodrine (severe supine hypertension risk).
- Falls prevention is paramount.

Renal Impairment

- Uraemic autonomic neuropathy.
- Avoid Fludrocortisone if eGFR <30 (hyperkalaemia).
- Midodrine safe and useful in CKD-related OH.

First Nations Considerations & Care Models

The Burden

- Type 2 diabetes rate is 3.7x higher.
- Up to 40% have cardiac autonomic neuropathy at diagnosis.
- High rates of Rheumatic Heart Disease complicate haemodynamics.

Remote Access

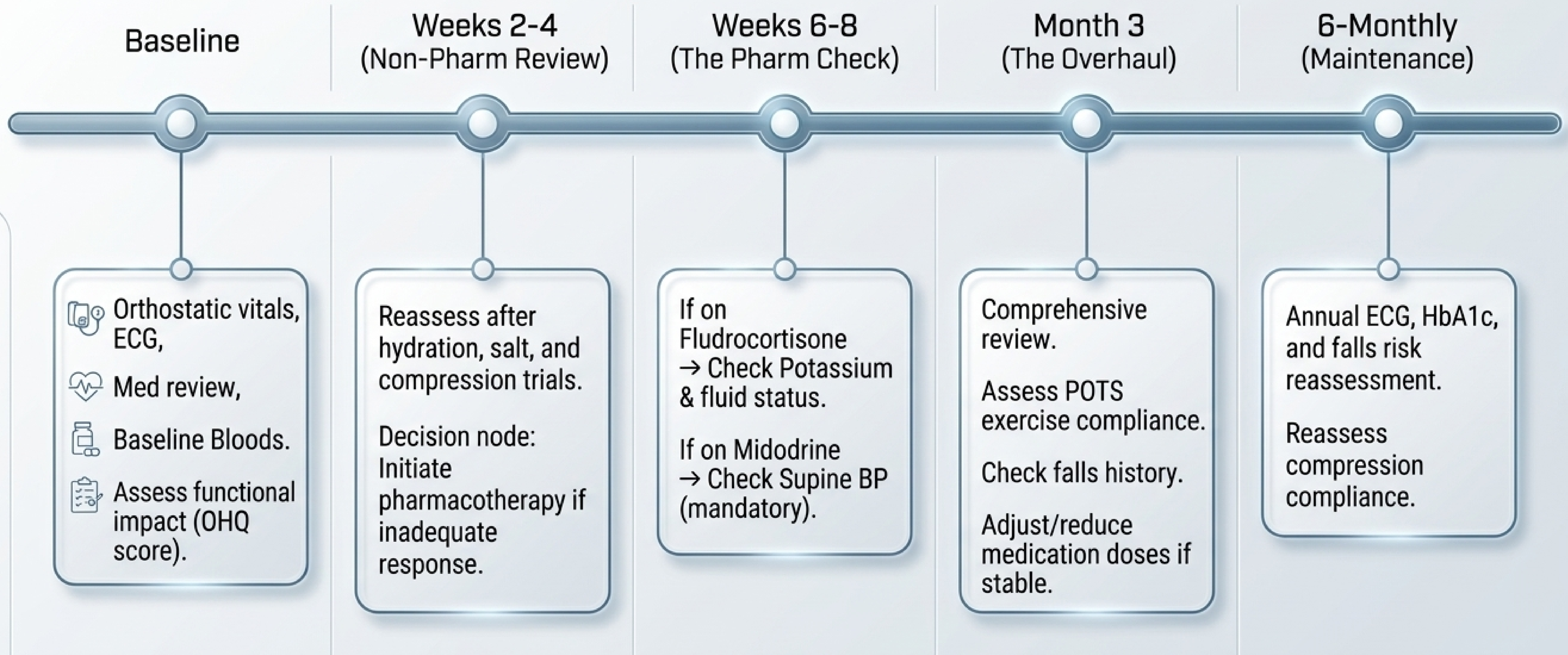
- Point-of-care HbA1c, bedside orthostatic vitals in ACCHOs.
- Utilize Telehealth and Patient Assisted Travel Schemes (PATS) for lab testing.

Culturally Safe Care

Bladder/bowel discussions require sensitivity. Compression garments often impractical in hot climates; pivot to hydration/salt.

System Action: Integrate lying-standing BP into all Annual Health Checks (MBS 715). Use Closing the Gap PBS co-payment for Midodrine/Fludrocortisone.

The Primary Care Monitoring Framework



A dynamic, iterative approach: The goal is functional restoration, not just numerical vital sign normalization.