Peripheral Neuropathy: The Clinical Playbook

A definitive visual guide to diagnosis, pharmacological management, and longitudinal care in Australian primary practice.

Last Updated: 14 May 2026 | **Specialty:** Neuromuscular

PREVALENCE & BURDEN

- 2–8% of the Australian adult population.
- Major contributor to preventable hospitalisations and lower-limb amputations (AIHW).

THE PRIMARY DRIVER

- Diabetic Peripheral Neuropathy (DPN).
- Affects up to 50% of people with diabetes (~1.3 million Australians diagnosed).

COMMON CO-AETIOLOGIES

- Vitamin B12 deficiency (5–15% of adults >65, linked to metformin/PPIs)
- Chronic alcohol use (up to 65% with heavy use)
- Chemotherapy-induced (30-70%)

GENETIC & AUTOIMMUNE

- Charcot–Marie–Tooth disease (~1 in 2,500)
- CIDP (1–9 per 100,000, highly treatable with PBS-listed IVIg)

Large-Fibre Sensory (Thick Myelin)

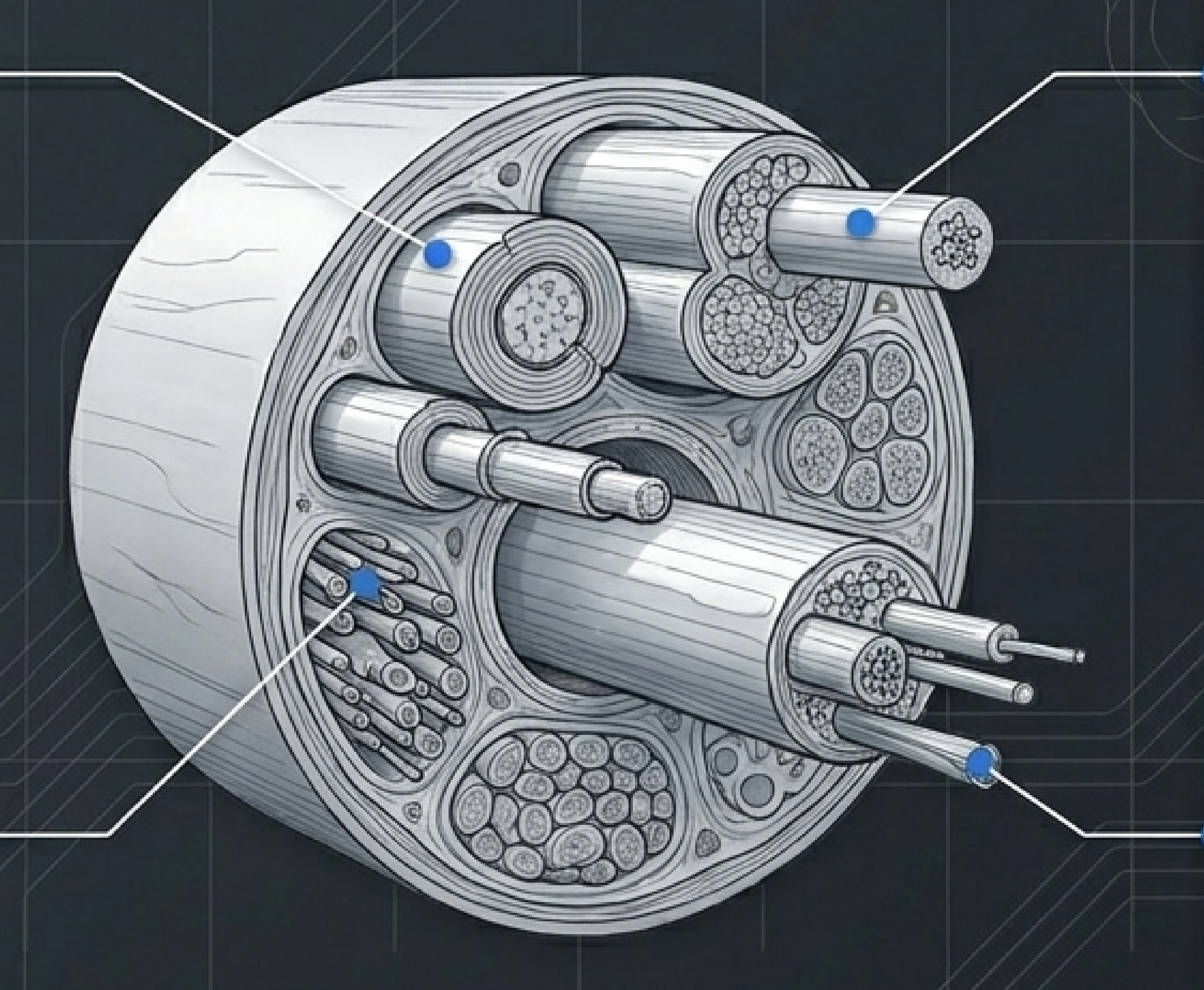
Vibration/proprioception loss, sensory ataxia, positive Romberg.

Symptoms: Numbness, unsteadiness, fine motor difficulty.

Small-Fibre Sensory (Thin/Unmyelinated)

Burning pain, allodynia, thermal loss.

Note: Preserved reflexes, normal NCS.



Motor

Anterior horn/root/plexus damage.

Symptoms: Weakness, cramping, fasciculations, muscle wasting, absent reflexes.

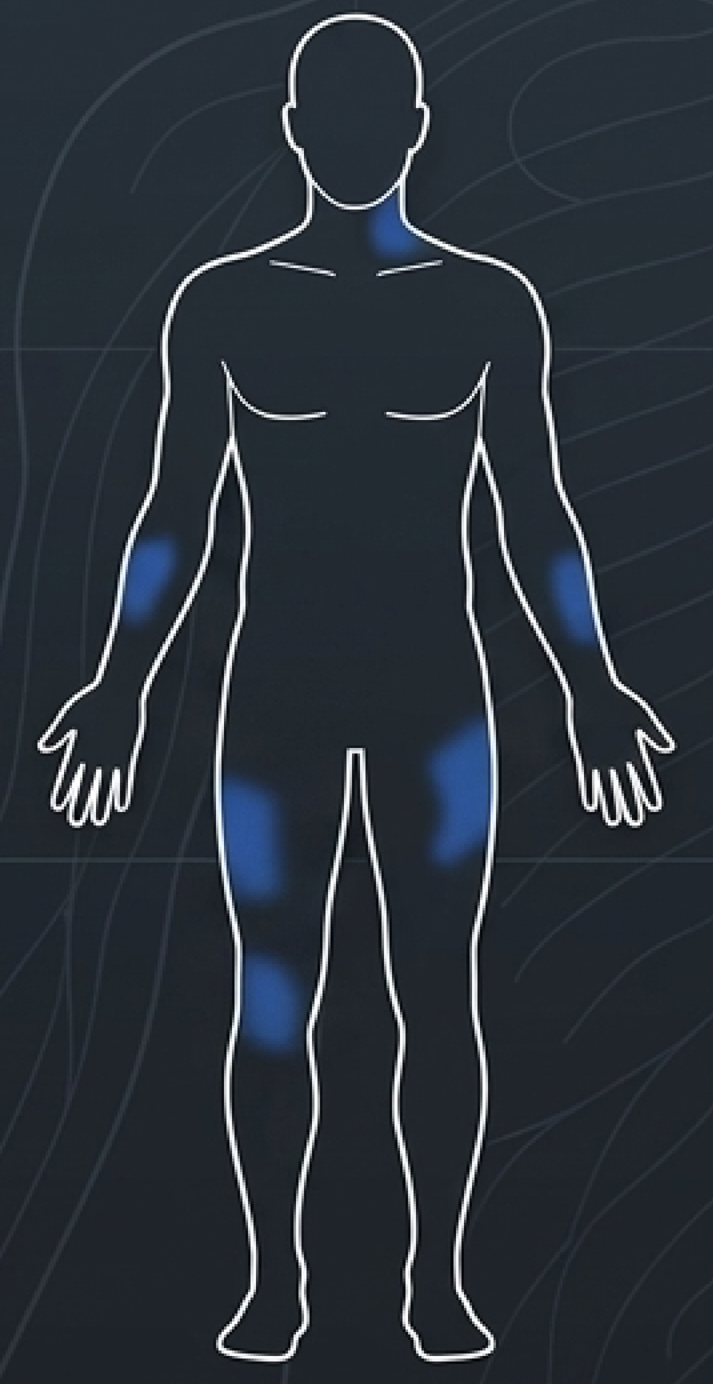
Autonomic

Orthostatic hypotension, resting tachycardia, gastroparesis, erectile dysfunction.

LENGTH-DEPENDENT (DISTAL SYMMETRIC)

Shading starts at feet, progresses proximally ('stocking-glove'). Hands involved once symptoms reach mid-calf.

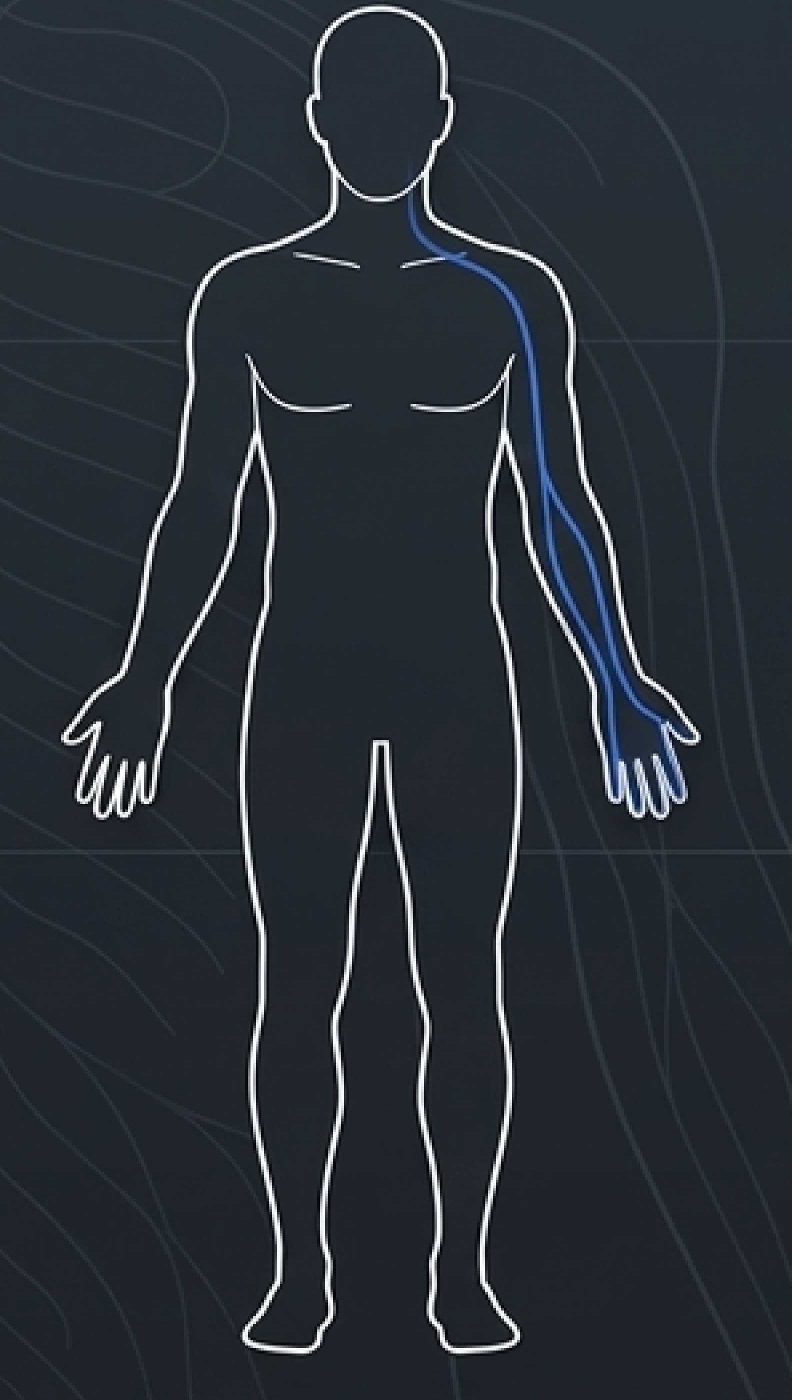
Causes: Diabetes, Alcohol, B12, CIPN.



MULTIFOCAL (MONONEURITIS MULTIPLEX)

Asymmetric, scattered nerve involvement at separate anatomical sites.

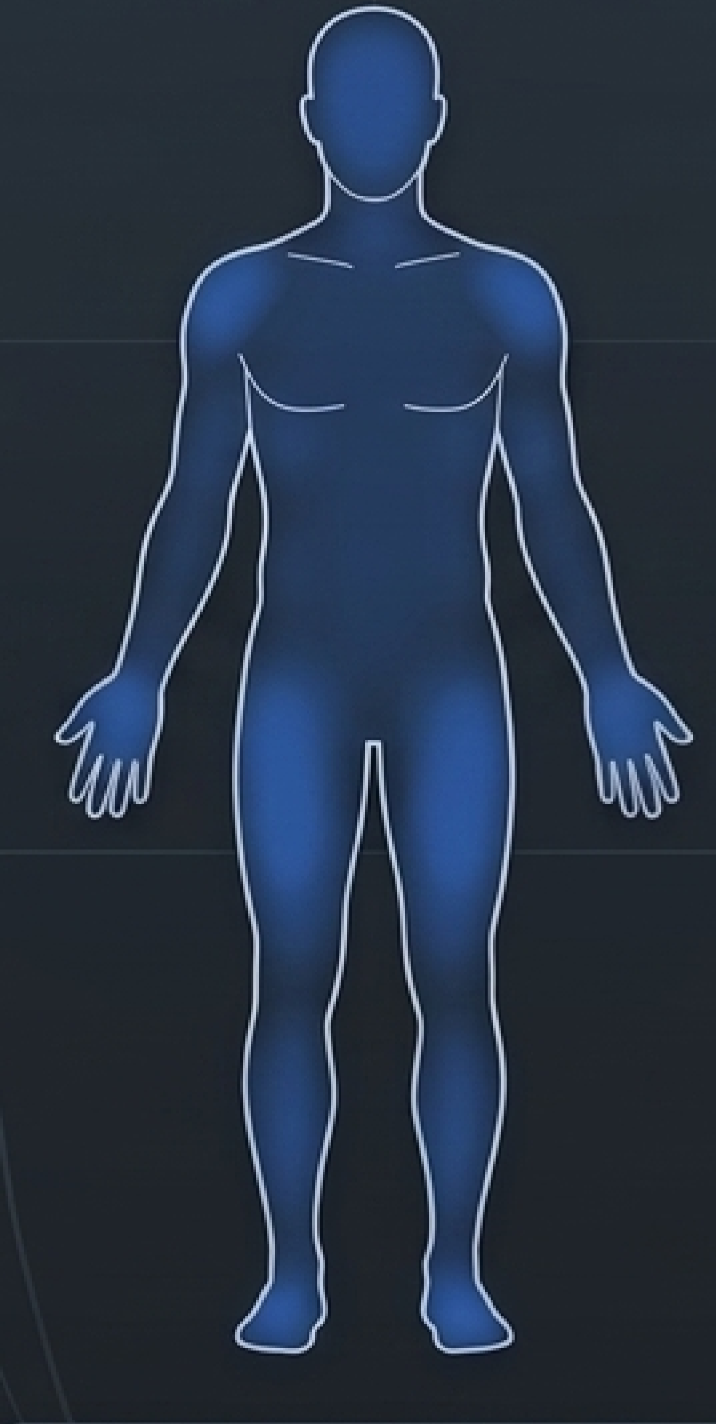
Causes: Vasculitis (PAN, EGPA), Sarcoidosis, Leprosy.



FOCAL (SINGLE NERVE)

Isolated shading on a single clear anatomical pathway (e.g., median nerve).

Causes: Compression (CTS, Ulnar, Peroneal), Trauma.



PROXIMAL & DISTAL (GENERALISED)

Diffuse shading from outset with prominent proximal involvement.

Causes: GBS, CIDP, Paraneoplastic.

The Red Zone (Urgent Hospital/ICU Admission)

- Rapidly progressive ascending weakness (suspect GBS).
- Respiratory compromise (declining FVC).
- Autonomic instability (labile BP, arrhythmias).
- Asymmetric motor involvement with pain (vasculitis).

The Green Zone (Chronic Primary Care Management)

Slower onset, distal symmetric sensory symptoms,
stable motor function.
(Diabetes, Hereditary, Alcohol, Idiopathic).

Symptom Severity

Acute <4 weeks

Subacute 4-8 weeks

Chronic >8 weeks

Tempo of Onset

Key Warning: Saddle anaesthesia with bowel/bladder dysfunction indicates cauda equina syndrome — an essential differential, not a peripheral neuropathy.

AXONAL PATHOPHYSIOLOGY

NCS Pattern: Reduced amplitudes, normal/mildly slowed conduction velocities.

Common Causes: Diabetes, alcohol, B12 deficiency, toxins.

Prognosis: Slow recovery (months to years); may be irreversible.

DEMYELINATING PATHOPHYSIOLOGY

NCS Pattern: Markedly slowed conduction velocities, prolonged distal motor latencies, conduction block, temporal dispersion.

Common Causes: GBS (AIDP), CIDP, anti-MAG neuropathy, CMT1.

Prognosis: Often treatable with immunotherapy; good prognosis if identified early.

Top Tier (Wide Net - All Patients)

- Essential first-line. HbA1c/Fasting Glucose, Serum B12 & Folate, SPEP with immunofixation, TSH/fT4, Renai function (eGFR), FBC, LFTs.

Middle Tier (Directed - Clinical Suspicion)

- Filtered based on presentation.
- ANA/ENA (connective tissue disease), ANCA (vasculitis), HIV/Hep B&C, Coeliac serology (anti-tTG IgA), Serum copper/zinc.

Bottom Tier (Narrow Tip - Specialist Investigations)

(Narrow Tip - Specialist Investigations)

- NCS/EMG (Gold Standard, MBS 11005),
- Lumbar Puncture (Albumino-cytological dissociation, MBS 11500), Skin punch biopsy (Small-fibre, MBS 30100),
- Genetic CMT panel (MBS 73294).

Bedside Exam Highlights

- **Sensory:** 128 Hz tuning fork (vibration), great toe (proprioception), 10 g Monofilament (diabetic screening, MBS 2401).
- **Reflexes:** Symmetrically absent ankle jerks with preserved knee jerks is the classic early finding.
- **Motor:** Great toe extension (L5), foot dorsiflexion.

Diabetic (Toronto Criteria)

Symptoms + abnormal NCS in ≥2 nerves + exclusion of other causes.

GBS (NINDS Criteria)

Progressive symmetric weakness + areflexia.

CIDP (EFNS/PNS 2021)

Progressive/relapsing symmetric proximal & distal weakness over ≥8 weeks + demyelinating NCS + CSF protein >0.45 g/L.

Step 1: First-Line Monotherapy

Gabapentinoid OR SNRI.
(Choose based on comorbidities: anxiety/insomnia vs depression).

If inadequate response at 4–8 weeks

Step 2: Optimise or Switch

Switch to the other first-line class, or consider combination therapy.

If inadequate response

Step 3: Second-Line / Combination

Add TCA (caution in elderly/cardiac).
Combination: gabapentinoid + SNRI.

If refractory

Step 4: Specialist Referral

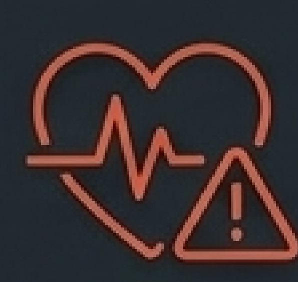
Refractory despite 2 adequate trials.
Consider Capsaicin 8% patch, spinal cord stimulation.

OPIOIDS ARE NOT RECOMMENDED.
High risk of dependence and hyperalgesia with no sustained benefit for chronic neuropathic pain.

Pregabalin (Lyrica®)	Gabapentin (Neurontin®)	Duloxetine (Cymbalta®)
Start 75 mg BD, target up to 300 mg BD.	**Start** 300 mg nocte, target 1800-3600 mg/day (TDS).	**Start** 30 mg OD, target 60 mg OD.
Renal Adjust: Mandatory (eGFR <60).	**Renal Adjust:** Mandatory.	**Renal/Hepatic:** Avoid if eGFR <30 or severe hepatic impairment.
Key Side Effects: Somnolence, weight gain. Schedule 4 misuse.	**Key Side Effects:** Dizziness, TDS dosing impacts compliance.	**Key Side Effects:** Nausea, hyperhidrosis, avoid with MAOIs.
PBS: General Benefit (Authority >3mo).	**PBS:** General Benefit (Authority req).	**PBS:** General Benefit (Authority req).

Oral Second-Line

Amitriptyline/Nortriptyline: Start 10-25mg ON. Lower doses effective for pain.



Cardiac Risk Warning:
Baseline ECG required >50 years or cardiac history. Avoid if QTc >470 ms. High anticholinergic burden.

Venlafaxine: Start 37.5 mg OD. Requires 50% dose reduction in renal/hepatic impairment. Monitor BP.

Topical Adjuncts

Capsaicin 8% Patch (Qutenza®): Refractory localised pain. Clinic application. PBS Authority Required (failing ≥2 systemic agents).

Lignocaine 5% Plaster (Versatis®): Up to 12 hours/day. Not PBS listed.

Modern Clinical Dashboard

The Mental Health Interlock

Up to 50% of patients develop clinical depression/anxiety. Insomnia is almost universal.

Screen with PHQ-9/GAD-7.

Prioritize sleep hygiene and CBT-I (poor sleep amplifies central sensitisation).

Physical Interventions

Moderate-intensity aerobic exercise (≥150 min/wk), TENS (short-term relief, OTC).

Allied Health Pathways

Physiotherapy (balance training, sensory ataxia)

Occupational Therapy (home safety)

Podiatry (footwear assessment, MBS 10950).

Alcohol Cessation

Thiamine replacement (100 mg BD) essential in alcohol-related neuropathy.

The "Big Three" Mononeuropathies

Condition	Nerve Root & Tests	Motor Weakness	Conservative Mgmt Duration	Triggers for Surgery
Carpal Tunnel (Median)	C6–T1. Phalen/Tinel.	Thenar wasting.	6–8 weeks (splinting, injection).	Severe NCS, motor weakness, continuous numbness (MBS 49824).
Ulnar at Elbow	C8–T1. Froment/ Wartenberg.	Interosseous wasting, claw hand.	3 months (night extension splint).	Wasting, progressive symptoms (MBS 49826).
Peroneal at Fibular Head	L4–S1. Tinel at fib head.	Foot drop, eversion weakness.	3–4 months (Ankle-foot orthosis).	No recovery at 4 months, traumatic injury.

Modern Clinical Dashboard

Pain/Medication Response

Complication Prevention

Baseline

Comprehensive exam, pain score (NRS), ECG (if TCA), eGFR, PHQ-9, TUG test.

4–6 Weeks

Target ≥30% pain reduction. Titrate meds.

Check sedation/ nausea.

12 Weeks

Target ≥50% pain reduction. If inadequate, switch/combine.

Repeat ECG if TCA altered.

6 Months & Ongoing

Annual diabetic foot check (MBS 2401).

Fall risk reassessment.

Monitor for Charcot neuroarthropathy (acute hot/swollen foot = urgent plain X-ray/MRI).

Treatment Modifications for Special Populations

Population	Clinical & Pharmacological Considerations
Pregnancy	CTS very common. Drug Mod: Pregabalin (Avoid - Category B3), Amitriptyline (Caution - neonatal withdrawal). Prefer splinting/TENS splinting/TENS.
Paediatrics	Suspect CMT or GBS. Drug Mod: Pregabalin/Duloxetine not approved <18. Immediate Paediatric Neurology referral
Elderly (≥65)	High falls/polypharmacy risk. Drug Mod: Avoid Amitriptyline (Beers criteria). Start Gabapentinoids at lowest dose for Gabapentinoids at lowest dose.
Renal (eGFR <30)	Uraemic neuropathy. Drug Mod: Mandatory gabapentin/pregabalin reduction. Avoid Duloxetine.
Hepatic	Alcohol toxicity + malnutrition. Drug Mod: Duloxetine contraindicated (Child-Pugh C). TCAs require reduction. Gabapentinoids are preferred (no hepatic metabolism).

Clinical Profiles: Neuropathy Considerations

Oncology (CIPN)

Chemotherapy-induced peripheral neuropathy. Dose-limiting toxicity of **platinum agents**, **taxanes**, **vinca alkaloids**, **bortezomib**.

First-line agents apply; coordinate dose modification with Oncologist.

HIV/Infectious

Distal sensory polyneuropathy (DSPN) is the most common HIV neuro-complication.

Red Flag: **Acute ascending weakness** suggests **CMV polyradiculopathy** (requires urgent ganciclovir).

Monitor antiretroviral drug interactions.

Post-Transplant

Toxicity from immunosuppressants (**tacrolimus** causes painful small-fibre neuropathy) or chronic rejection vasculitis.

Aboriginal and Torres Strait Islander Health

The Burden

3.5x higher rate of diabetes-related lower limb amputations compared to non-Indigenous Australians.

Earlier onset of Type 2 Diabetes.

Access & Logistics

NCS/EMG unavailable remotely.
Utilize Royal Flying Flying Doctor Service (RFDS), visiting specialist outreach, and specialist telehealth.

Ensure Close-the-Gap PBS co-payment prescribing.

Culturally Safe Care

Integrate Aboriginal Health Practitioners for monofilament testing and high-risk foot services (RHDAustralia/NACCHO guidelines).

Engage ACCHOs for trauma-informed alcohol and substance use support.

Effective Neuropathy Care Model

Aetiological Control

Treat the root. Glycaemic management, B12/thiamine replacement, alcohol cessation, thyroid optimisation.

Symptom Management

Calm the nerve. Gabapentinoids, SNRIs, sleep hygiene (CBT-I), psychological support for comorbid depression.

Effective neuropathy care is never monotherapy. It is the simultaneous execution of aetiological control, symptom relief, and functional preservation.

Complication Prevention

Protect the patient. Podiatry (MBS 10950), fall risk mitigation (TUG test), AFOs for foot drop, monitoring for autonomic dysfunction.

Key MBS Items

11005: Nerve Conduction Studies (NCS)

2401: Annual Diabetic Foot Check

10950–10970: Allied Health (Physio/Podiatry)

49824: Carpal Tunnel / Common Peroneal Surgical Release

49826: Ulnar Nerve Surgical Decompression

721/723: Chronic Disease Management Plans

PBS Prescribing Flags

Pregabalin/Gabapentin: General Benefit (Authority Req for neuropathic pain).

Capsaicin 8% Patch: Authority Req (Refractory only).

Lignocaine 5%: Private script only (Not PBS listed).