Navigating Tremor

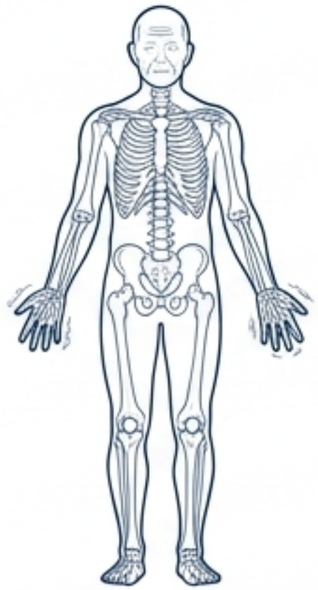
A Clinical Blueprint for Essential Tremor and Functional Movement Disorders

Clinical Decision Support for Primary Care
& Allied Health | Based on Australian Guidelines

THE EPIDEMIOLOGICAL LANDSCAPE

Contrasting the demographic profiles to frame primary care presentations.

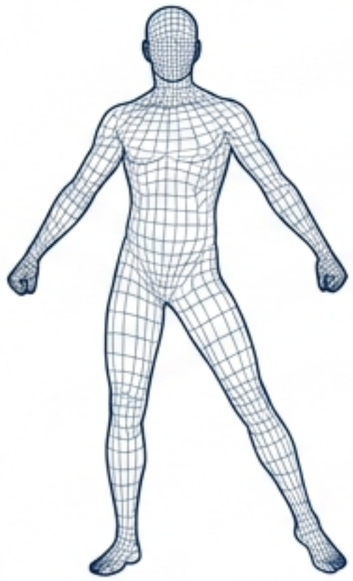
ESSENTIAL TREMOR (ET)



- 4–5% of adults >40 years
- 10-15% in those >65 years
- 4 to 10x more prevalent than Parkinson's

Clinical Impact: High risk of falls and social isolation in the elderly.

FUNCTIONAL MOVEMENT DISORDERS (FMD)

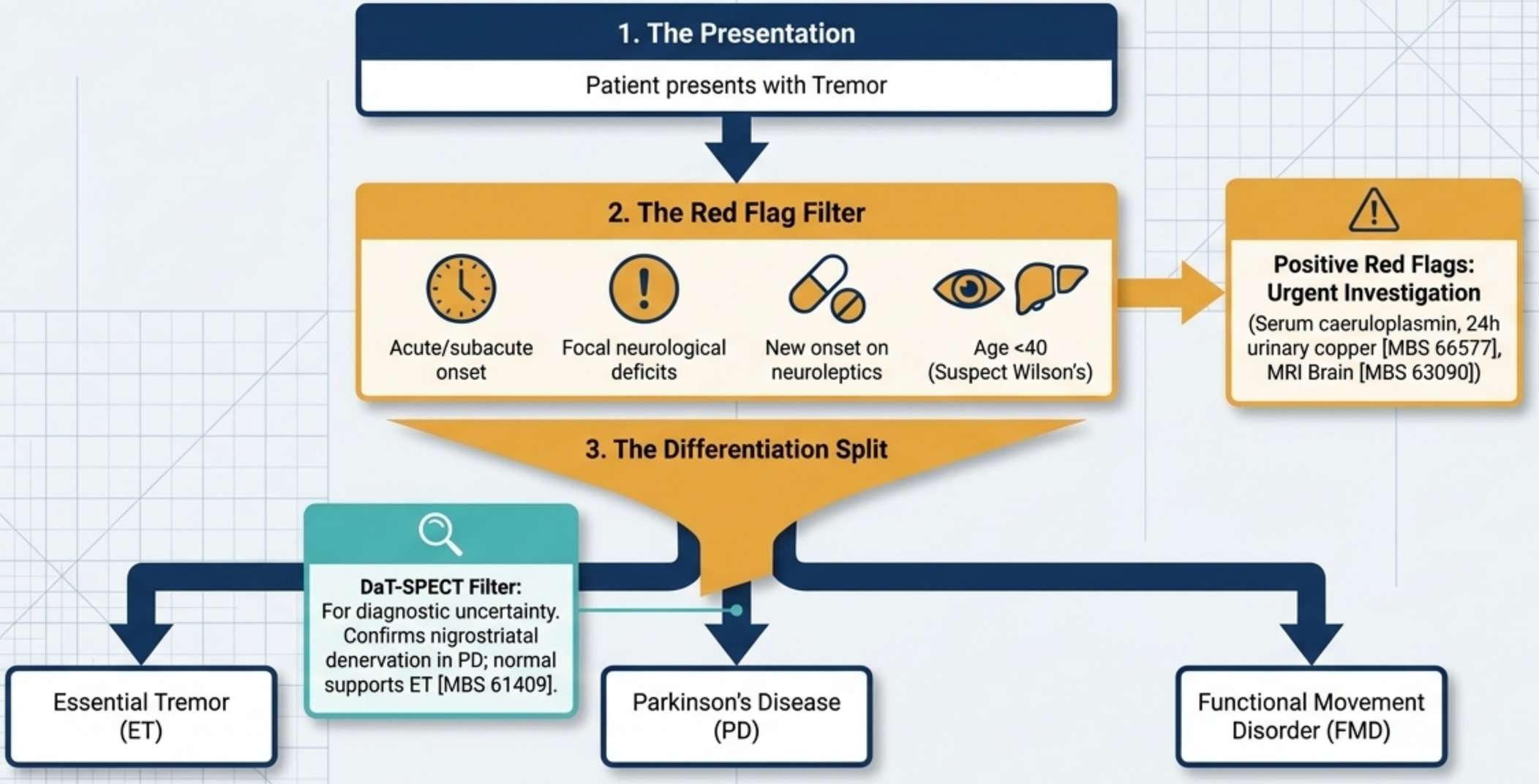


- 2–5% of all movement disorder clinic referrals
- Up to 15–20% in subspecialist practice
- Mean onset: 30–40 years

Clinical Impact: Diagnostic delays averaging 2–5 years; high healthcare utilization.

THE DIAGNOSTIC FILTER

Triage and diagnostic branching for primary care presentations.



THE DIAGNOSTIC MATRIX

Differentiating the three major tremor presentations.

Clinical Dimension	Essential Tremor (ET)	Parkinson's Disease (PD)	Functional Tremor (FMD)
Tremor Type	Postural/Kinetic (mild rest in advanced)	Resting (classic thumb-index pill-rolling)	Resting + Postural + Kinetic (inconsistent pattern)
Symmetry	Bilateral & Symmetric	Asymmetric onset	Inconsistent distribution
Frequency	4–12 Hz (typically 6–8 Hz)	4–6 Hz	Variable frequency (entrainable)
Alcohol Response	Improves with alcohol	No alcohol improvement	No alcohol improvement
Associated Features	Head/voice tremor common; NO bradykinesia	Bradykinesia, rigidity, micrographia, masked facies	Associated functional weakness/gait issues
Onset & Course	Gradual onset, 50% family history	Gradual onset, ~15% family history	Sudden onset ('hitting a wall'), spontaneous remissions

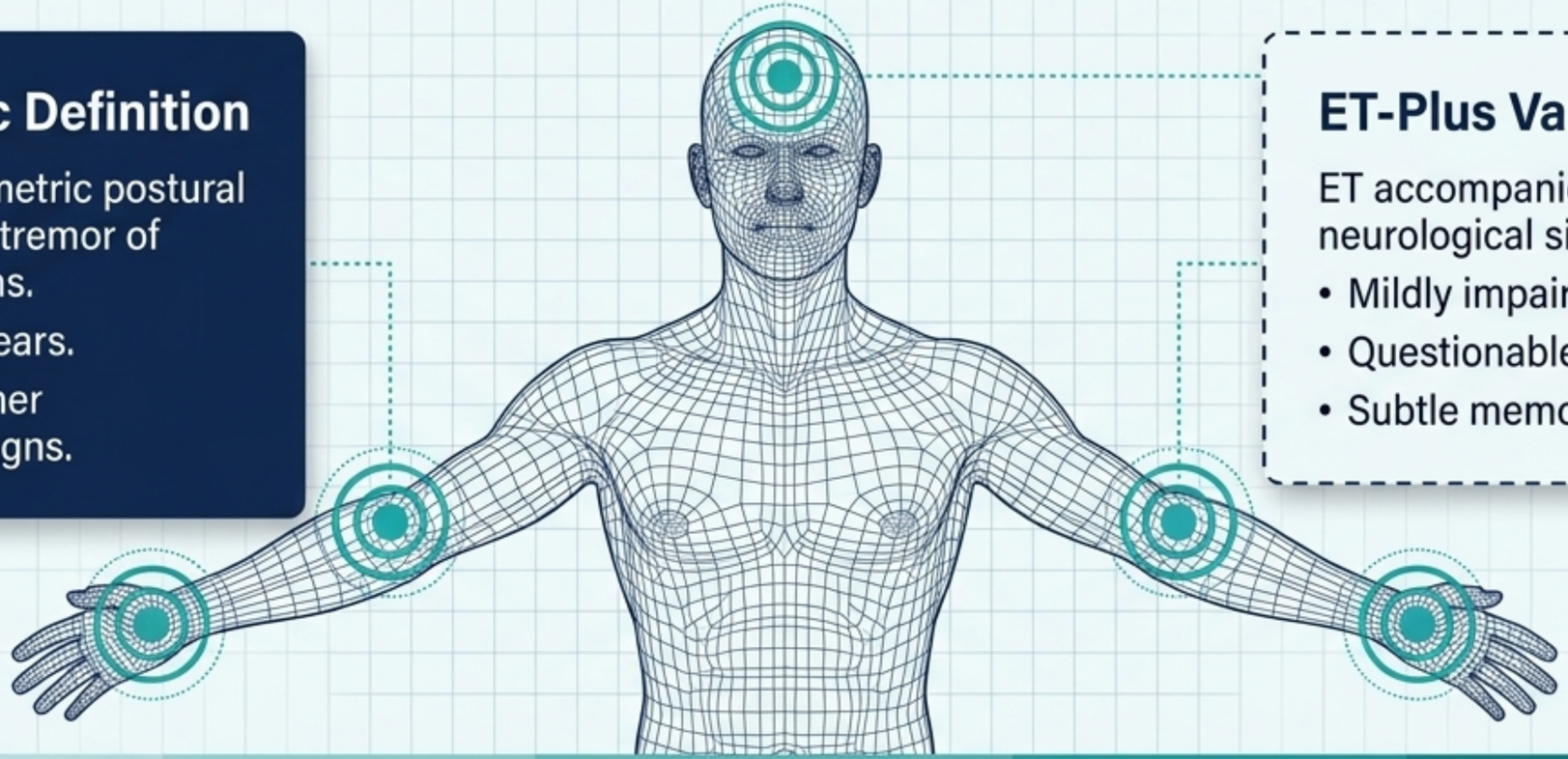
THE STRUCTURAL PATHWAY

Diagnosing Essential Tremor

Defining the parameters of ET and measuring functional impact

ET — Classic Definition

- Bilateral, symmetric postural and/or kinetic tremor of hands/forearms.
- Duration: ≥3 years.
- Absence of other neurological signs.



ET-Plus Variant

ET accompanied by uncertain neurological signs:

- Mildly impaired tandem gait
- Questionable dystonia
- Subtle memory complaints

Functional Impact Check: Assess before treating

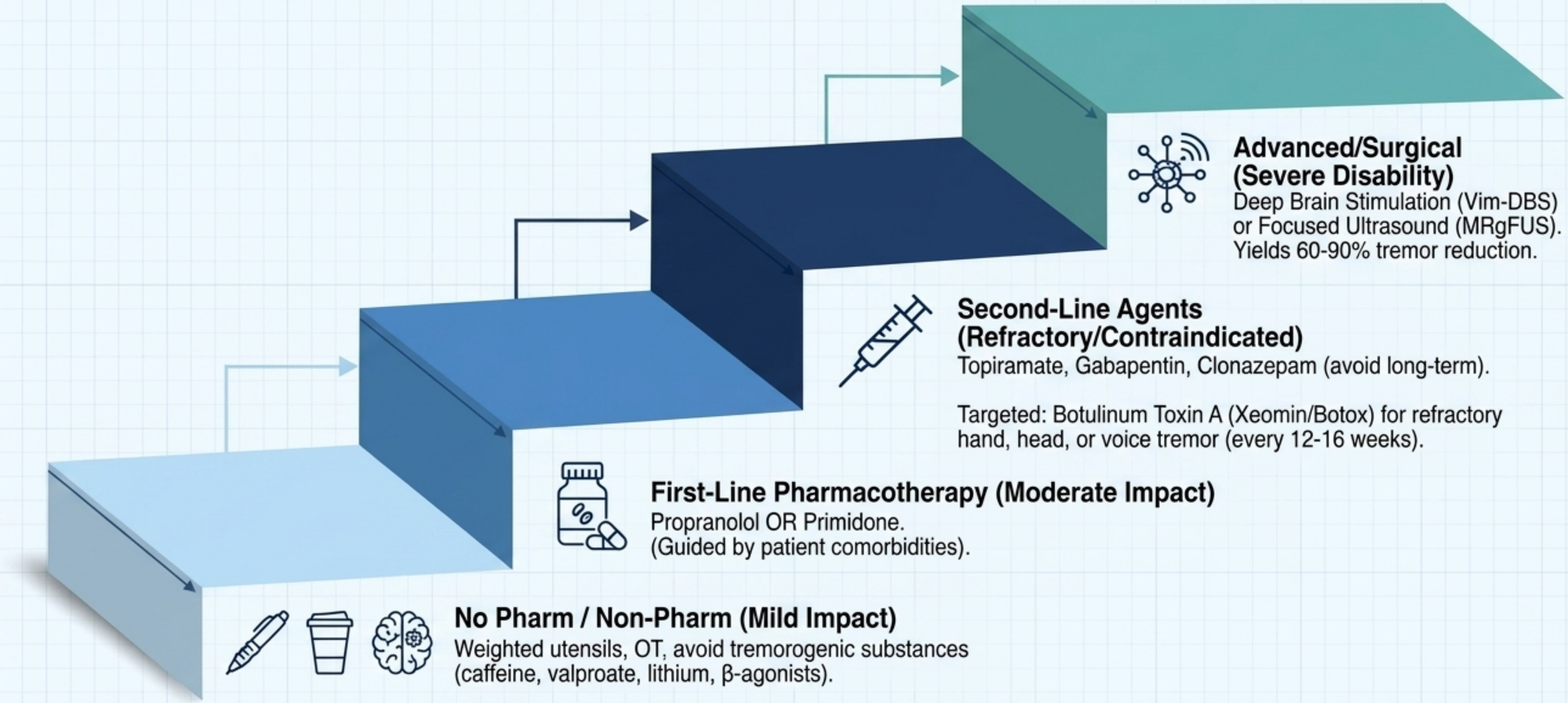
1. TETRAS Scale

2. QUEST QoL Measure

3. Specific ADL Queries (writing, drinking, dressing, driving)

The ET Treatment Ladder

Pharmacology is guided by functional impact, not tremor amplitude.



Advanced/Surgical (Severe Disability)
Deep Brain Stimulation (Vim-DBS) or Focused Ultrasound (MRgFUS). Yields 60-90% tremor reduction.

Second-Line Agents (Refractory/Contraindicated)
Topiramate, Gabapentin, Clonazepam (avoid long-term).

Targeted: Botulinum Toxin A (Xeomin/Botox) for refractory hand, head, or voice tremor (every 12-16 weeks).

First-Line Pharmacotherapy (Moderate Impact)
Propranolol OR Primidone.
(Guided by patient comorbidities).

No Pharm / Non-Pharm (Mild Impact)
Weighted utensils, OT, avoid tremorogenic substances (caffeine, valproate, lithium, β-agonists).

First-Line Pharmacology Matrix

Optimizing initial medical management for ET

Propranolol (Inderal/Deralin)

Mechanism: Non-selective β-blocker

Dosing Dial

Red Flag Contraindications:
Severe Asthma/COPD, Heart block, Decompensated HF

Side Effects:

- Fatigue, bradycardia, bronchospasm, masked hypoglycemia.

Primidone (Mysoline)

Mechanism: Barbiturate-class anticonvulsant

Dosing Dial

Red Flag Warning:
First-Dose Phenomenon. Up to 30% discontinue due to acute sedation, dizziness, ataxia on dose #1. Must take at bedtime.

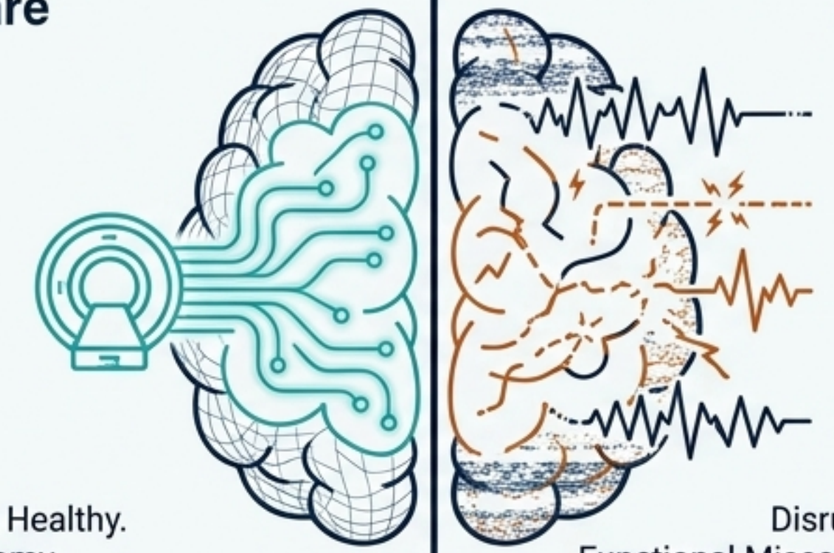
Clinical Decision: Propranolol is preferred first-line due to tolerability. Use Primidone if β-blockers are contraindicated.

FMD is a Diagnosis of Inclusion, Not Exclusion

Reframing the functional pathway.

Hardware

Software



Structurally Healthy.
Intact Anatomy.

Disrupted Signals.
Functional Miscommunication.

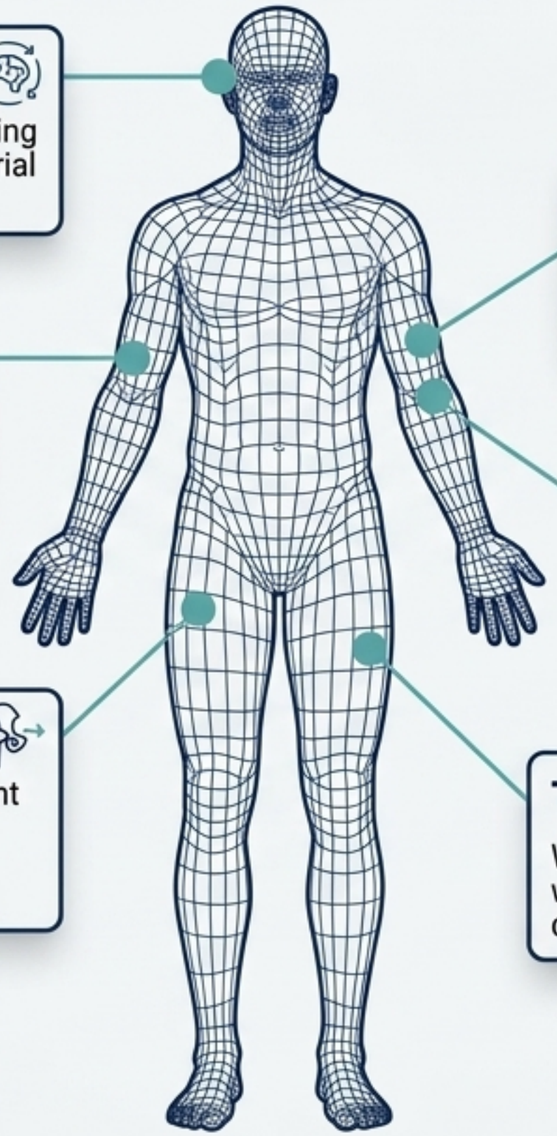
Core Philosophy:
FMD (Functional Neurological Symptom Disorder) is characterised by involuntary movements that are clinically inconsistent but possess positive clinical signs.

Critical Principle:
FMD is a real neurological condition. It is not malingering. Patients are in genuine distress. Avoid dismissive language.

Investigation Rule:
A normal MRI does not confirm FMD any more than a normal MRI confirms ET. Use tests to exclude organic pathology, not to "diagnose" FMD.

The FMD Body Map of Positive Signs

Identifying functional markers through targeted clinical examination



Distractibility

Tremor amplitude decreases during complex cognitive tasks (e.g., serial 7s) or contralateral tapping.

Entrainment

Ask patient to tap unaffected hand at a specific frequency (e.g., 3Hz then 5Hz). Functional tremor shifts to match the cued rhythm.

Hoover's Sign

Test weak hip extension. Ask patient to flex contralateral hip against resistance; extension on affected side involuntarily re-emerges.

Arm Drop

Lift affected arm over face and release. A truly weak arm hits the face; a functional arm diverts/falls slowly.

Co-contraction Sign

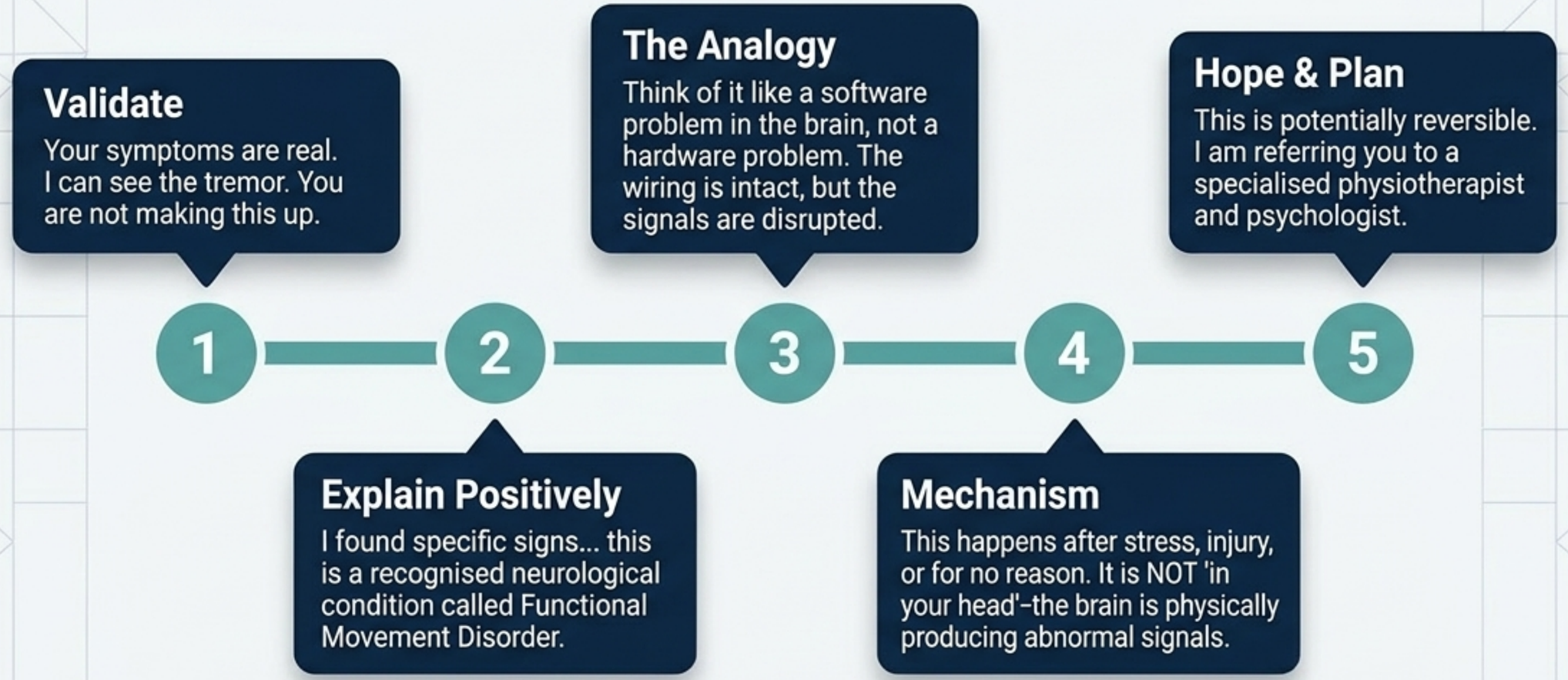
Passive movement reveals simultaneous contraction of agonist/antagonist muscles (rigidity that is NOT velocity-dependent).

Thigh Abductor Sign

Weak hip abduction becomes strong when contralateral leg performs a different task against resistance.

The FMD Diagnostic Communication Roadmap

The conversation is the first treatment. Exact scripts for primary care.



⚠ **Red Flag:** Avoid language like 'It's all in your head' or 'Your tests are normal so nothing is wrong.' This undermines recovery.

FMD Multidisciplinary Management Toolkit

Non-pharmacological pillars for functional recovery

Remission & Recovery
(50-70% improve within 1-2 years)

Pillar 1: Physiotherapy
(Motor Retraining)

- **Focus:** Retraining automatic motor control, attention-diverting strategies, movement reprogramming.
- **Logistics:** 1-2x/week for 8-12 weeks. Use Medicare CDM plan (MBS 10950).

Pillar 2: Psychology
(Cognitive/Behavioral)

- **Focus:** Cognitive Behavioural Therapy (CBT) for illness beliefs. Acceptance and Commitment Therapy (ACT) for psychological flexibility.
- **Logistics:** Medicare MHTP (MBS 80110) for up to 10 sessions.

Zero Pharm Rule:
No established FMD pharmacotherapy. Use SSRIs/SNRIs ONLY for comorbid depression/anxiety.

Avoid opioids/benzos.

Base: Specialist Neurology Confirmation (FMD clinics/Telehealth)

Contextual Overlay: Life Stages

Modifying the blueprint across the lifespan.

Paediatric
(Age <18)

ET (Essential Tremor):
Rare but presents 6-8 yrs.
Mandatory Wilson's exclusion (caeruloplasmin, slit-lamp).
Propranolol is first-line;
avoid primidone. ⚠

FMD (Functional Movement Disorder):
Assess for school avoidance/bullying.
Family-based psychology preferred.

Pregnancy
(Women of Childbearing Age)

ET:
Propranolol is safe (monitor neonate).
Primidone & Topiramate are Category D (Teratogenic - Avoid!). ⚠
Clonazepam Category C.

FMD:
Symptoms fluctuate with hormonal/psychological changes.
Multi-D team crucial.

Elderly
(Age 65+)

ET:
High falls risk from β-blockers. ⚠
Primidone first-dose sedation risk is severe (start 31.25mg). ⚠
Avoid Topiramate/Clonazepam in dementia. ⚠

FMD:
Often **misdiagnosed as progressive disease** (psychogenic parkinsonism).

Contextual Overlay: Organ Impairment

Medication adjustments for systemic organ dysfunction.

Renal Impairment

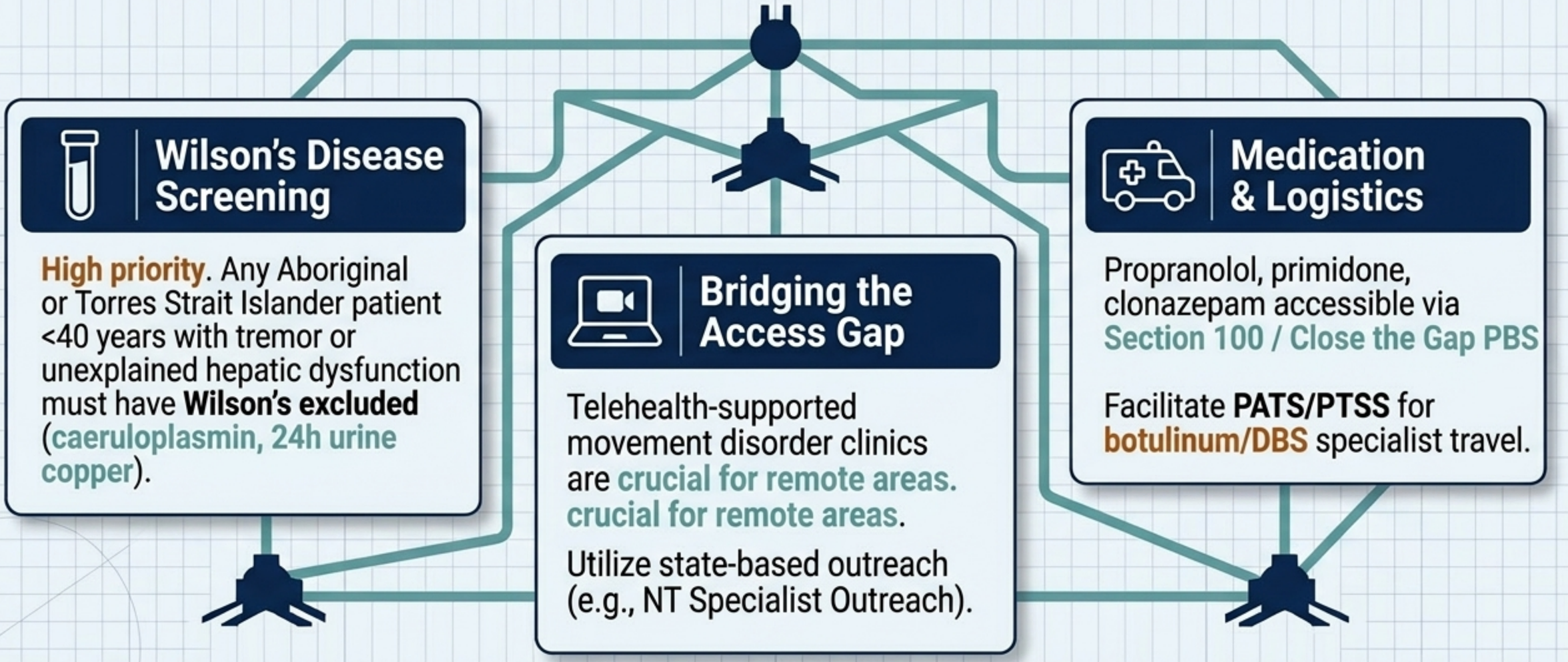
- **Propranolol**: No significant adjustment (hepatically cleared).
- **Primidone**: **Caution**. Active metabolites (PEMA) accumulate. Reduce if eGFR <30.
- **Gabapentin**: Mandatory strict dose reduction proportional to eGFR.
- **Topiramate**: Reduce if eGFR <70; **avoid if <30** (acidosis/stone risk).

Hepatic Impairment

- **Propranolol**: Reduced first-pass metabolism -> increase dose interval, monitor hypotension.
- **Primidone**: **Avoid** in significant impairment (Child-Pugh B/C).
- **Topiramate**: Minimal hepatic adjustment needed.
- **Clonazepam**: Reduce dose due to hepatic clearance.

ATSI Health Considerations: Systemic & Access

Bridging geographical and systemic barriers to specialist care.



Wilson's Disease Screening

High priority. Any Aboriginal or Torres Strait Islander patient <40 years with tremor or unexplained hepatic dysfunction must have **Wilson's excluded** (caeruloplasmin, 24h urine copper).

Bridging the Access Gap

Telehealth-supported movement disorder clinics are crucial for remote areas. crucial for remote areas.

Utilize state-based outreach (e.g., NT Specialist Outreach).

Medication & Logistics

Propranolol, primidone, clonazepam accessible via Section 100 / Close the Gap PBS

Facilitate **PATS/PTSS** for **botulinum/DBS** specialist travel.

ATSI Health Considerations: Cultural Safety

Interpersonal adjustments for diagnosing and explaining functional symptoms.

Social & Emotional Wellbeing

Recognize that tremor impacts extend beyond Western psychiatric constructs. Refer to local Aboriginal counselling and ACCHO holistic wellbeing programs.

Communication & Yarning

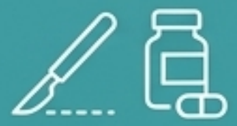
Replace rigid biomedical explanations with yarning-based approaches. **Avoid** language implying purely psychological causation without culturally appropriate explanation.

Collaborative Care

Engage Aboriginal Health Workers and Practitioners (AHWPs) in the diagnostic conversation to bridge understandings of illness causation.

The Shared Goal of Holistic Impact

Divergent pathways, identical primary care missions.



The Structural Reality (ET)

Pharmacology & Surgery

Holistic Functional Recovery

- ✓ Restoring Activities of Daily Living (eating, dressing, writing).
- ✓ Mitigating fall risks and physical injury.
- ✓ Treating comorbid depression and severe anxiety.
- ✓ Preventing severe social isolation and occupational loss.

The Functional Reality (FMD)

Physiotherapy & Psychology

“Whether the disorder lies in the hardware or the software, the primary care mission remains identical: validate the patient, restore function, and reintegrate them into life.”