Functional Neurologic Disorder

The Clinical Playbook for Modern Practice

A Disorder of Function, Not Structure

The Hardware

The Software

FND is characterized by **genuine neurological symptoms** not explained by recognised disease. The **nervous system's hardware is intact**, but the **software is glitching.**

FND is no longer a **"diagnosis of exclusion."** It is a **positive, rule-in diagnosis requiring demonstrable clinical signs.**

The Second Most Common Neurology Referral

10–15%

FND's share of all new referrals to Australian outpatient neurology clinics (second only to headache).

20–30%

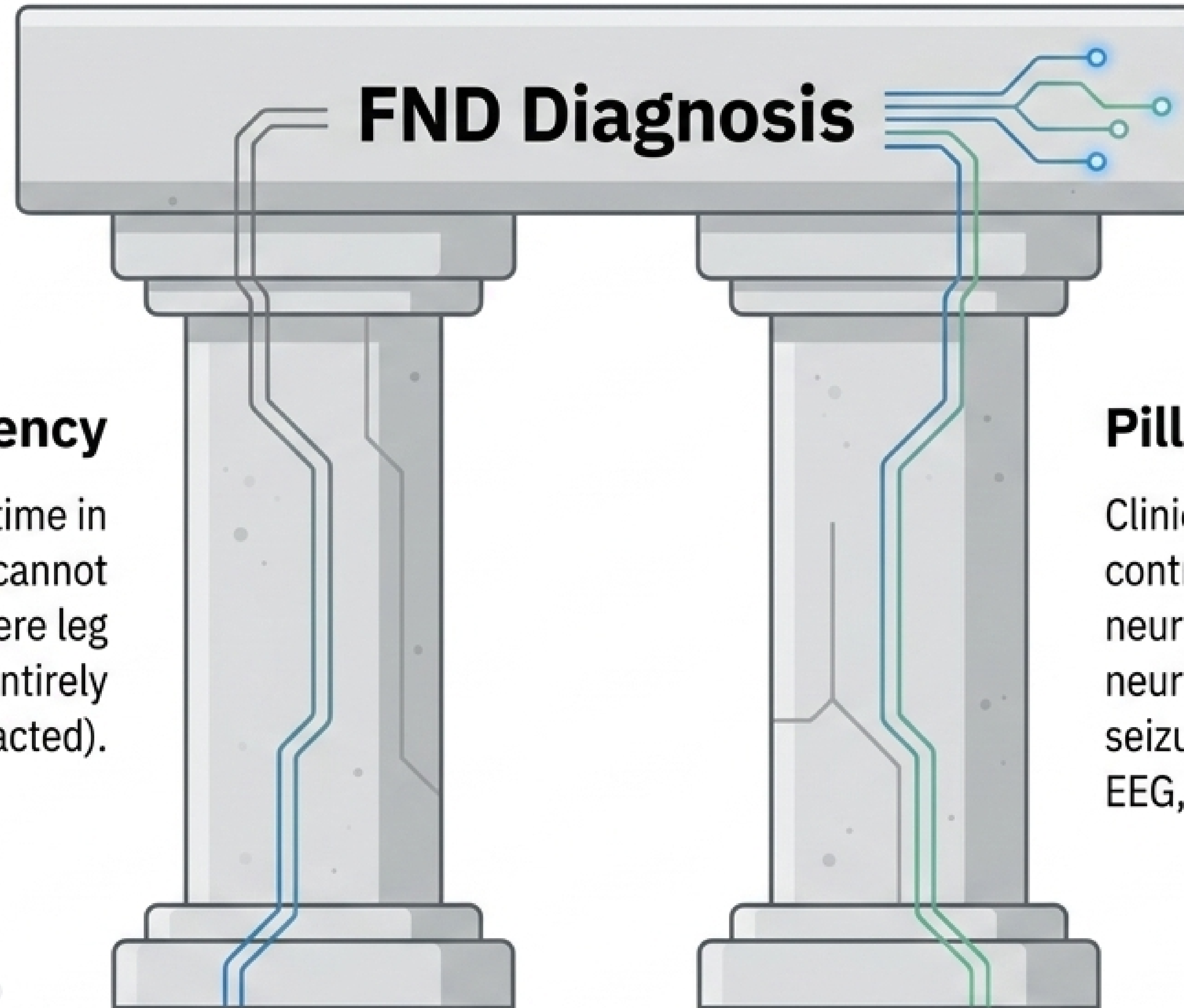
Incidence of functional seizures (PNES) in epilepsy monitoring units among patients referred for for refractory epilepsy.

2–7 Years

The median diagnostic delay.

Diagnostic delay actively harms patients, driving increased disability, psychological distress, and escalating healthcare costs.

The Two Pillars of Diagnosis

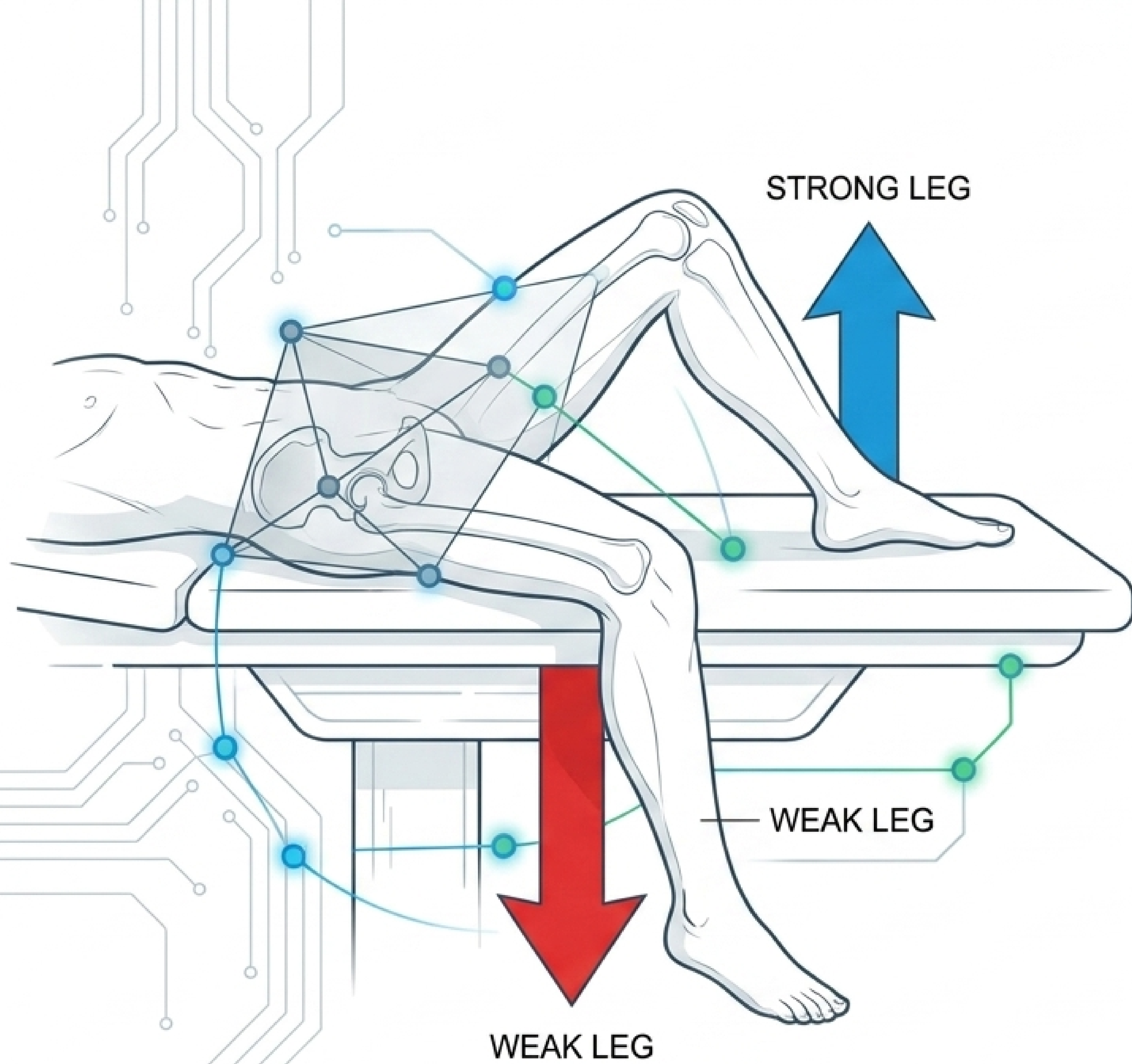


Pillar 1: Inconsistency

Symptoms vary over time in ways organic disease cannot explain (e.g., severe leg weakness that resolves entirely when the patient is distracted).

Pillar 2: Incompatibility

Clinical findings directly contradict recognized neuroanatomical or neurophysiological pathways (e.g., seizure-like events with normal EEG, or give-way weakness).



Proving the Hardware is Intact: The Hoover Sign

Mechanism

Ask the patient to flex the weak hip against resistance. Without warning, test extension of the normal hip against resistance.

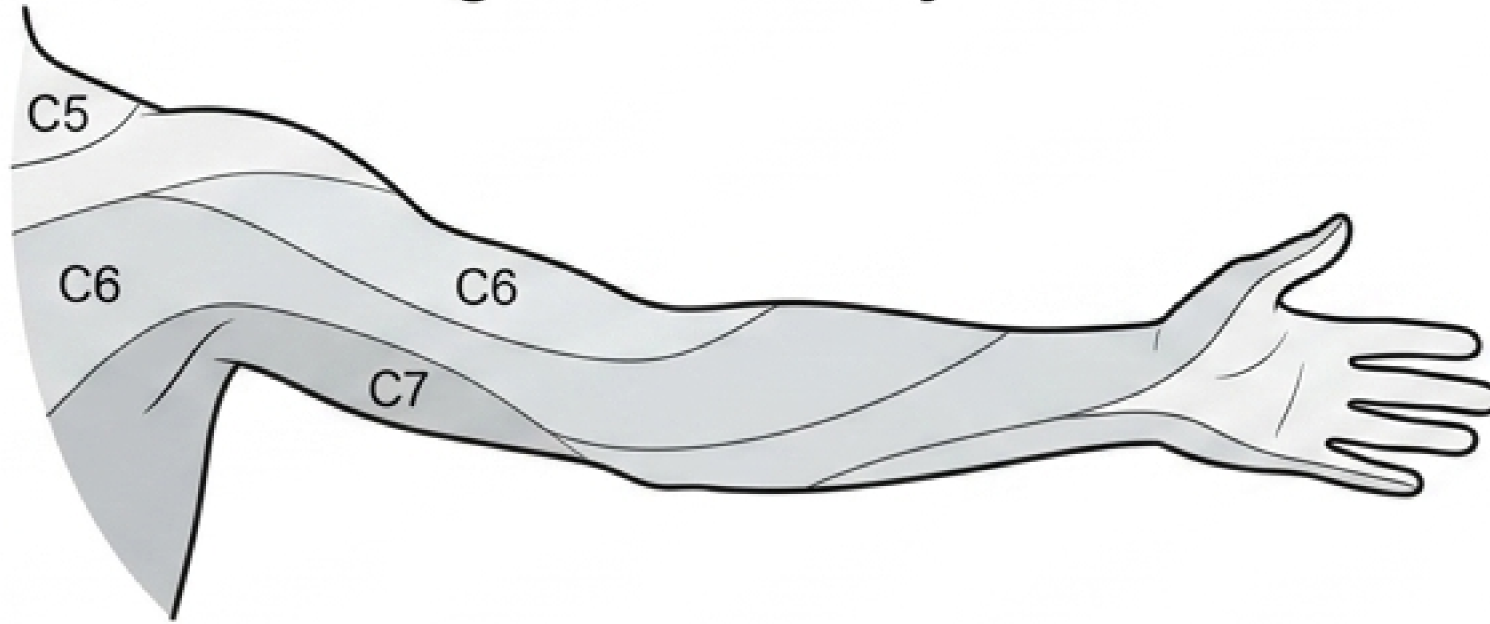
Positive Result

Involuntary hip extension is generated in the ‘weak’ leg. This physically proves that full voluntary power is physiologically possible.

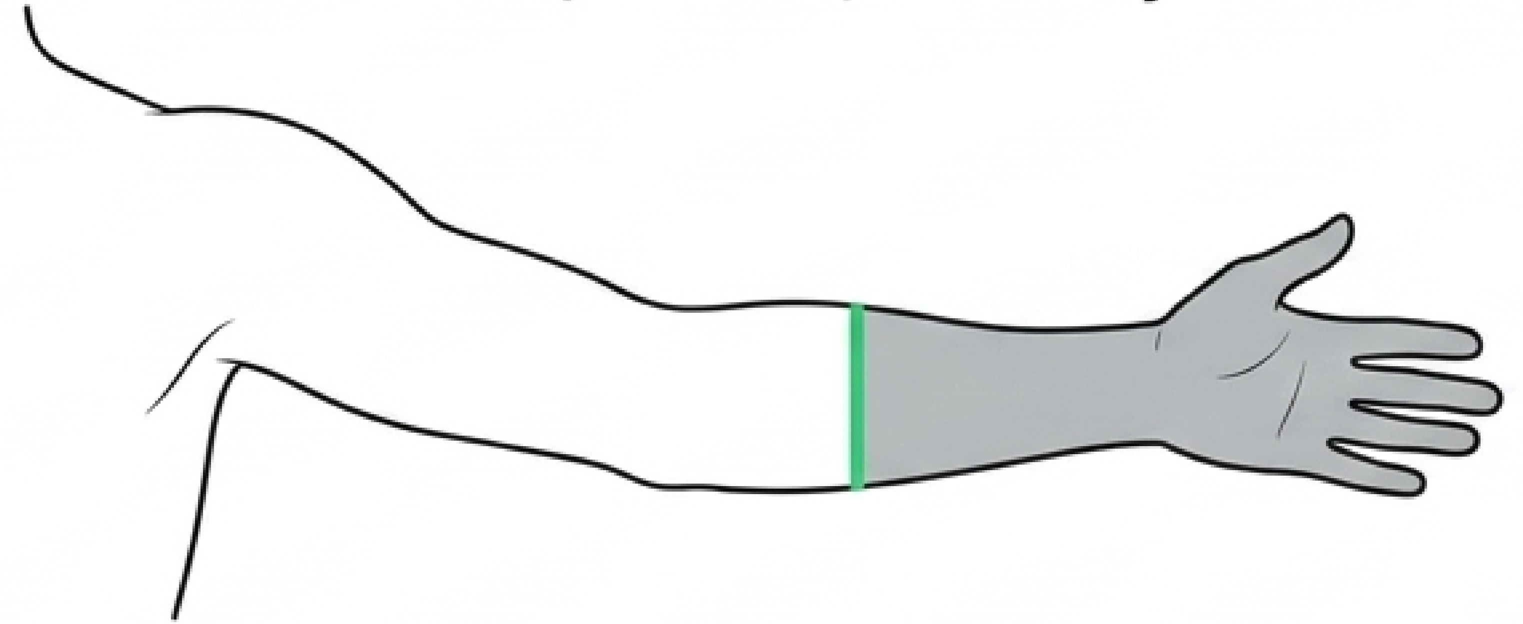
Sensitivity: 63–100% | Specificity: 86–100%

Anatomical Incompaticsibility: Sensory Mapping

Organic Sensory Loss



Functional (Tubular) Sensory Loss



Technique

Map sensory boundaries circumfelentially using cotton wool and pinprick.

Positive Result

'Tubular' sensory loss. The deficit stops sharply at a geometric boundary (e.g., a straight line around the wrist) rather than following a dermatomal or peripheral nerve distribution. Highly specific for FND.

The Movement Disorder Differentiator

Organic	Functional
Circumduction pattern (UMN Hemiparesis)	Dragging gait (leg dragged like a “dead weight” with disproportionate trunk sway)
Tone differences evident upon dropping flexed legs (Pyramidal Weakness)	The “weak” leg falls faster and with less control than the strong leg
Fixed frequency, does not entrain	Tremor Entrainment: Shifts to match the frequency of rhythmic tapping in the unaffected limb, or dramatically changes character

The Seizure Diagnostic Matrix

	Epileptic Seizures	Functional Seizures (PNES)
Duration	Typically <2 mins	Often prolonged (>2 mins to hours)
Eye State	Usually open	Often closed with resistance to opening
Motor Movements	Rhythmic, stereotyped	Asynchronous, thrashing, pelvic thrusting, side-to-side head movements
Postictal State	Prolonged confusion, drowsiness	Rapid recovery, tearfulness/distress
Video-EEG (Gold Standard)	Ictal discharges	Normal background rhythm preserved

Investigations Exclude Mimics, They Do Not Prove FND

Clinical Diagnosis (Essential)

Detailed neuro exam documenting positive signs explicitly.

Essential Tests

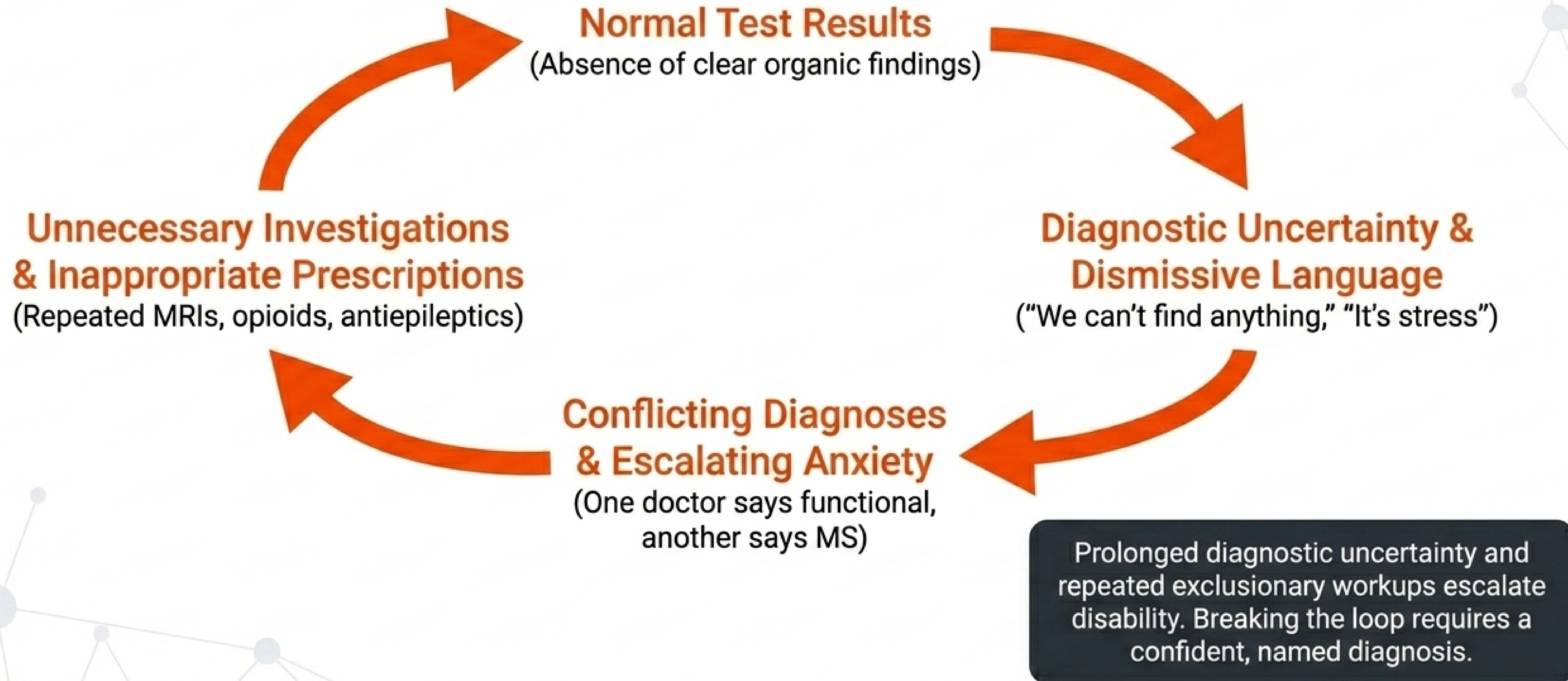
MRI Brain (structural exclusion), Routine bloods (FBC, EUC, LFT, TFT, B12, CRP for metabolic/inflammatory exclusion). Perform once.

Available Tests

Video-EEG (PNES gold standard, 3-5 days), Nerve Conduction/EMG.

Never diagnose FND by exclusion alone. Saying 'your tests are normal, so it must be functional' is diagnostically incorrect and actively harmful.

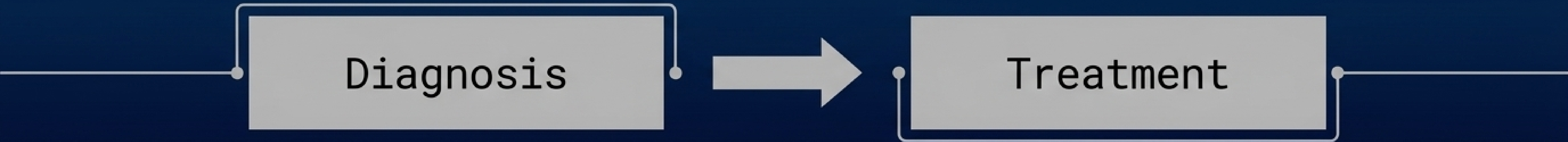
The Iatrogenic Loop: How the Medical System Worsens FND



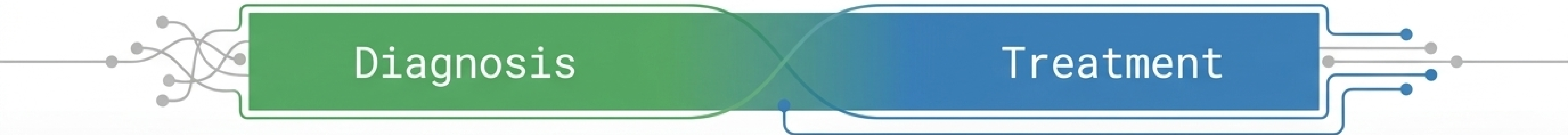
Prolonged diagnostic uncertainty and repeated exclusionary workups escalate disability. Breaking the loop requires a confident, named diagnosis.

The Intervention Begins Before The Treatment

Traditional Medicine



The FND Paradigm



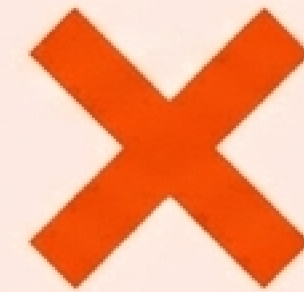
In traditional medicine, diagnosis and treatment are sequential. In FND, the Diagnostic Conversation is the first therapeutic intervention.

Demonstrating a positive sign (like Hoover) to the patient, naming the condition, and explaining the intact ‘hardware’ provides the cognitive catalyst required for physical rehabilitation to actually work.

The Therapeutic Conversation

System Malfunction (What to Say)

- You have a Functional Neurologic Disorder—a real and recognized condition.
- The problem is in how the brain is functioning (software), not damage to the brain itself.
- I found positive signs on examination that explain your symptoms.
- This is common, and physiotherapy specifically designed for functional symptoms can help.



Iatrogenic Harm (What Not to Say)

- Your tests are all normal, so there's nothing wrong.
- It's all in your head or You're imagining it.
- We couldn't find anything serious.
- I've never seen anything like this before. You need a psychiatrist.

The Multidisciplinary Care Orbit

The Core:

Care is centered around the patient and the General Practitioner. There is no single "drug cure."

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The Primary Orbit:

FND-tailored Physiotherapy is the tip of the spear with the strongest evidence base for motor symptoms.

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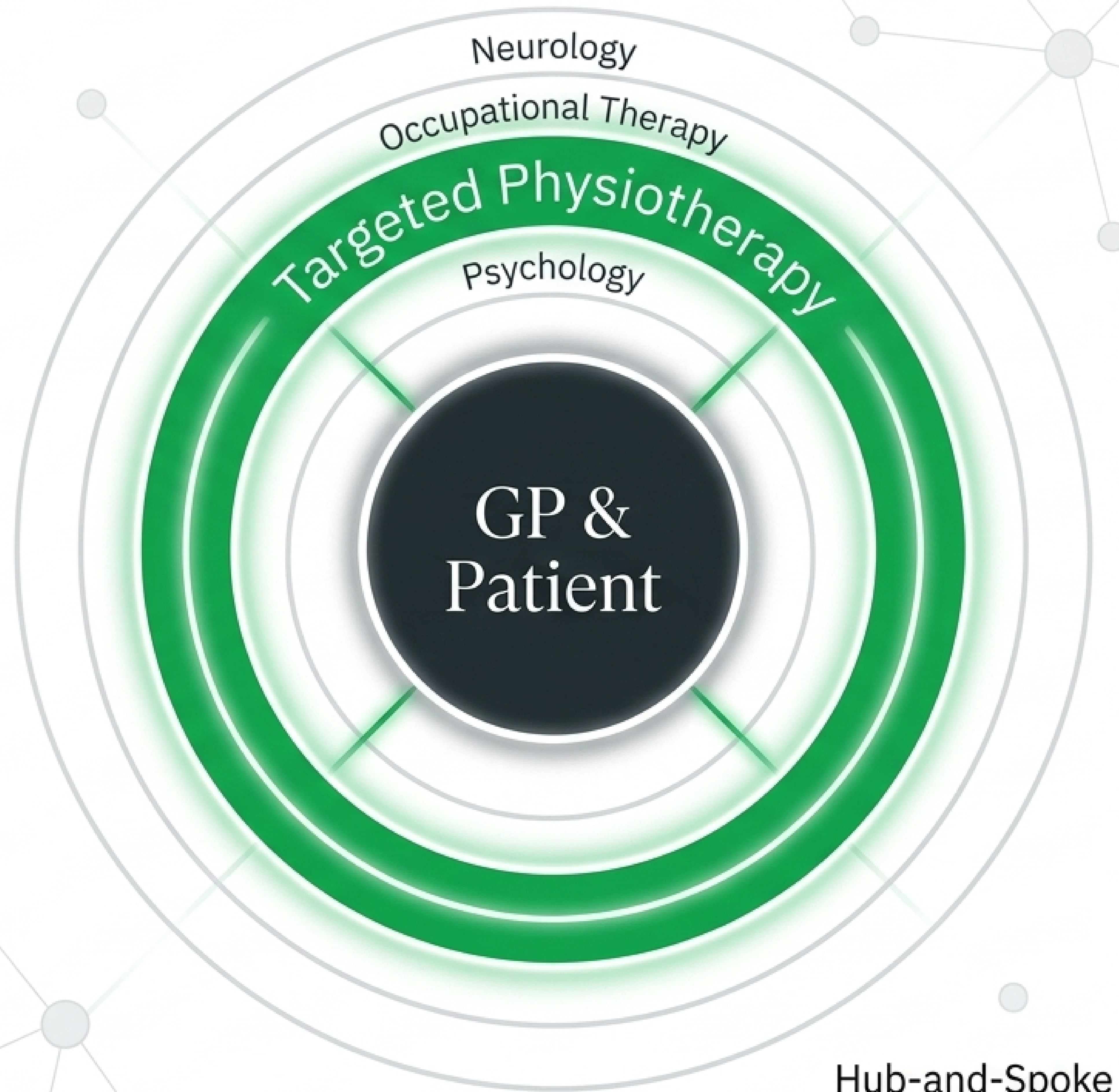
Supporting Orbits:

Psychology (for comorbidities/illness beliefs), Occupational Therapy, and Neurology provide critical structural support but do not replace movement rehabilitation.



First-Line Intervention: Targeted Physiotherapy

Task-Specific Motor Retraining

Focus on automatic and semi-automatic movements (e.g., walking while talking) rather than isolated muscle strengthening.

Distraction Techniques

Exploit the hallmark of FND by **forcing the patient to focus on a cognitive task while moving, bypassing the software glitch.**

Avoid Excessive Impairment Focus

Repeatedly testing the "weak" limb reinforces symptom-focused attention. Shift entirely to functional, goal-based activities.

Dosing

Intensive blocks: 2–3 sessions per week | **Duration:** 4–6 weeks (Telehealth viable for rural/remote).

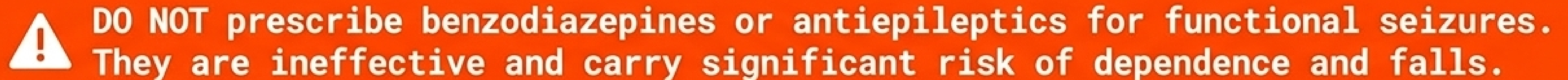
Supporting Pillars: Psychotherapy & Pharmacotherapy

Psychotherapy (Not a substitute for physio)

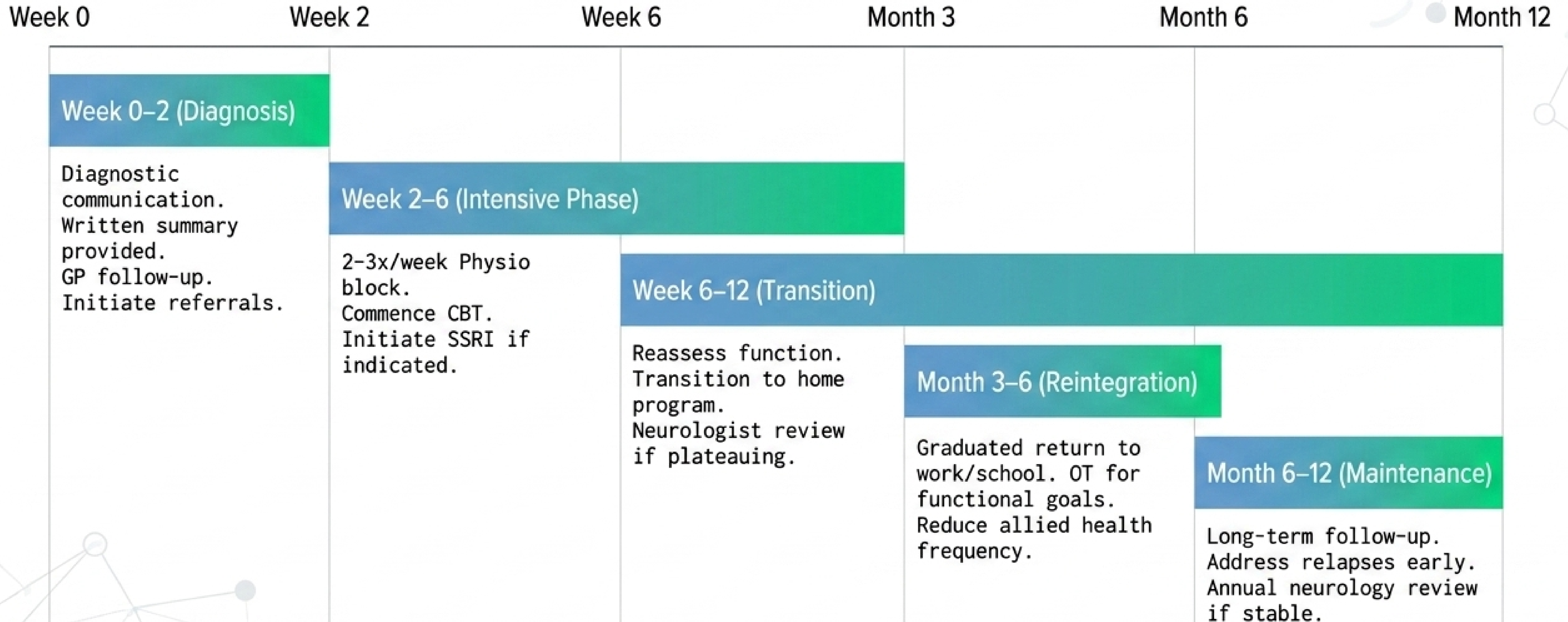
- **CBT (First-line)**: 12–16 weekly sessions. Targets illness beliefs, avoidance behaviors, and comorbid anxiety/depression.
- **Trauma-Focused**: Adjunctive only if significant trauma history is identified.

Pharmacotherapy (Treats comorbidities, not core FND)

Sertraline	50mg titrating to 100-200mg (Comorbid anxiety/depression).
Duloxetine	30mg titrating to 60mg (Depression with pain).
Pregabalin	75mg BD titrating to 150-300mg BD (Chronic pain/anxiety).



The FND Clinical Pathway



Special Populations: Early Life & Pregnancy

Paediatrics

Peak Onset 10–14 years, Female 3:1

- Family-based approach is non-negotiable. Parents must buy into the rehab plan.
- School liaison is critical to prevent excessive accommodation. **Avoid school exemptions.**
- Prognosis is excellent with early intensive physio (<3 months from onset).

Pregnancy

- Crucial differentiation between Functional Seizures (PNES) and eclamptic seizures via Video-EEG.
- **Functional seizures should not trigger an emergency caesarean section—ensure birth plan is clear.**
- Sertraline is the preferred SSRI (Category B1).

Special Populations: The Elderly & Medical Comorbidities

The Elderly

FND is under-recognized and frequently coexists with genuine disease (e.g., stroke with disproportionate functional overlay). Positive signs are essential to separate the two.
Halve starting SSRI doses; monitor for hyponatraemia.

Renal Impairment

- Sertraline: **Caution** if CrCl <10 mL/min.
- Duloxetine: **Avoid** if CrCl <30 mL/min.
- Pregabalin: **Strict dose reduction** based on eGFR.

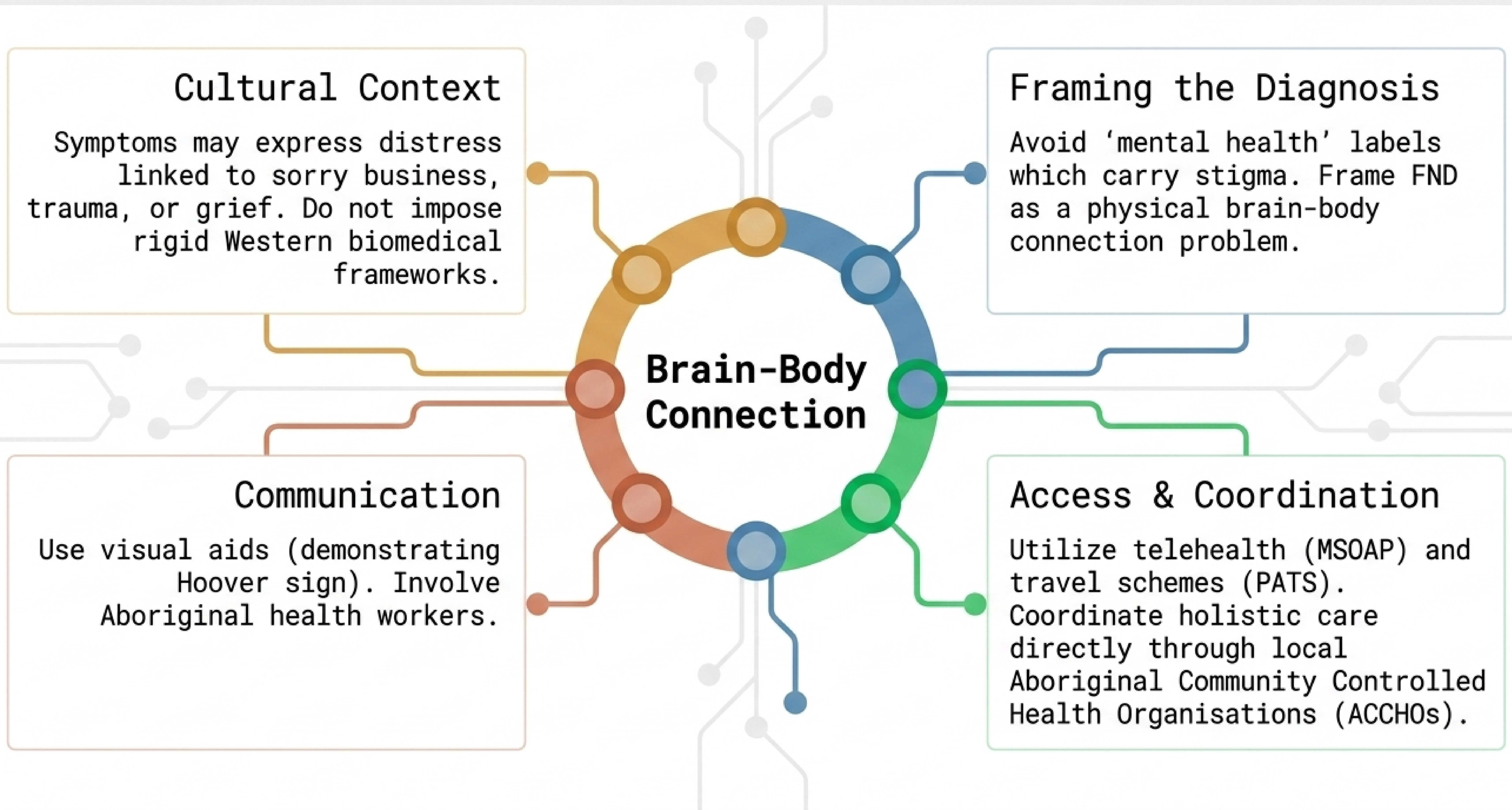
Hepatic Impairment

Duloxetine **contraindicated** (Child-Pugh B/C).

Immunocompromised

Lower threshold for MRI/CSF testing to
Lower threshold for MRI/CSF testing to
exclude opportunistic CNS infections before attributing symptoms to FND.

Cultural Safety: Aboriginal & Torres Strait Islander Health



Functional Neurologic Disorder is a positive, clinical diagnosis.
We no longer wait for all tests to return normal to guess at the cause.
We find the positive signs, we prove the hardware is intact,
and we name the condition.

Explicitly write "Functional Neurologic Disorder" in the clinical letter.
Document the positive signs. End the cycle of diagnostic uncertainty.