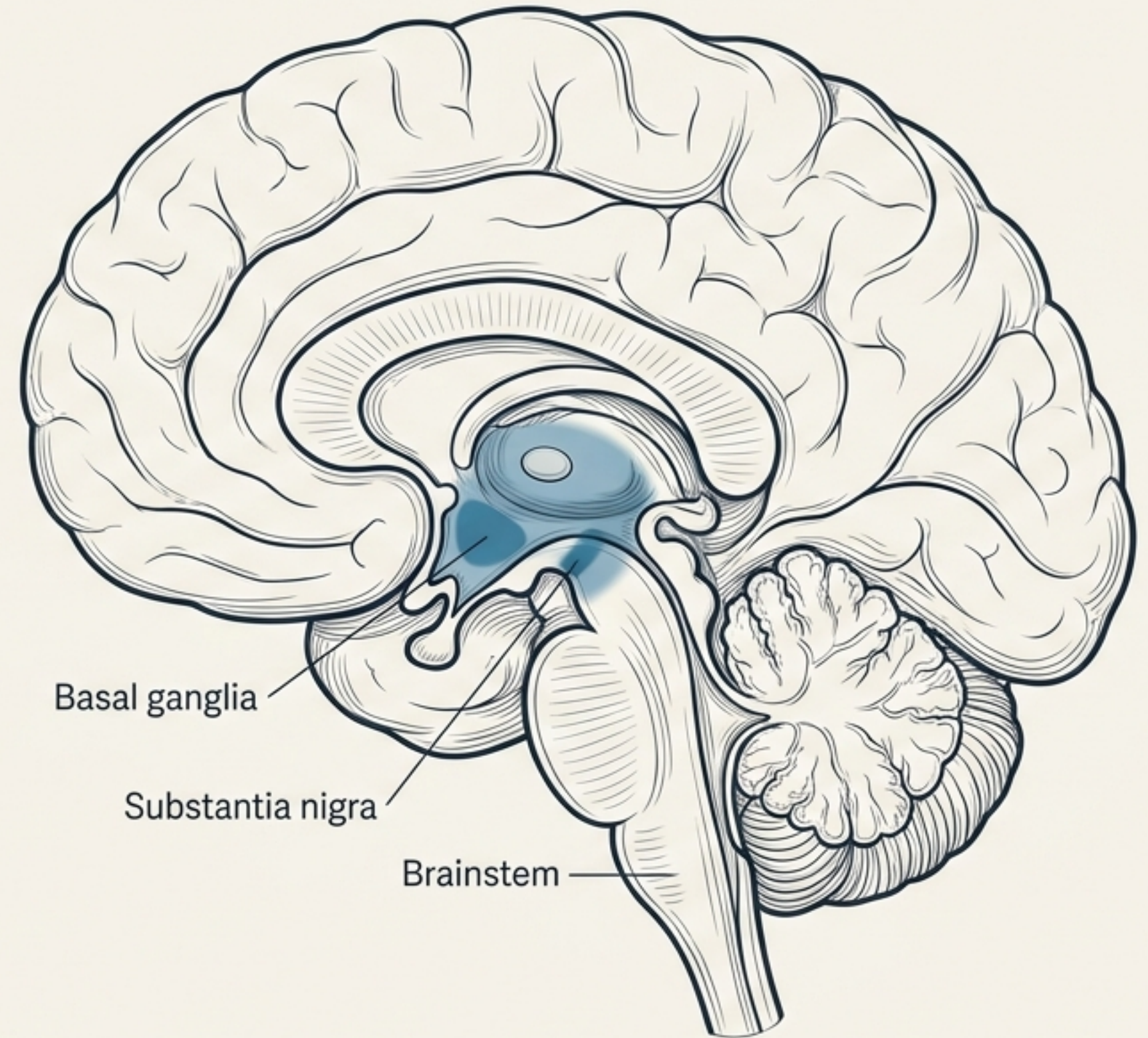
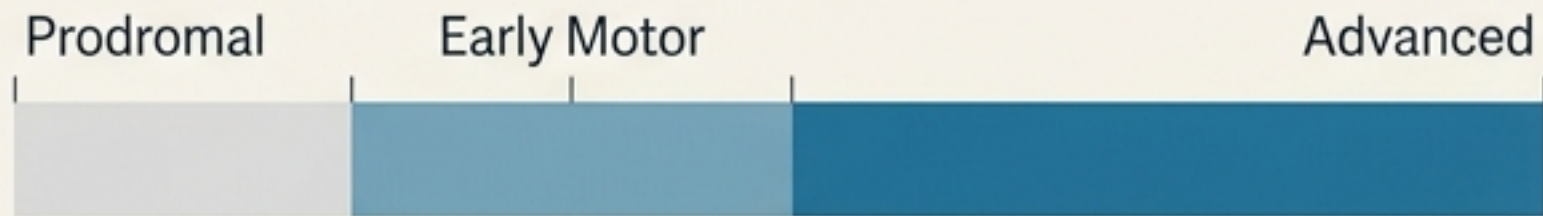


Parkinson Disease Clinical Dashboard

The definitive visual reference for diagnosis, pharmacological algorithms, and holistic management.



The Demographic Imperative

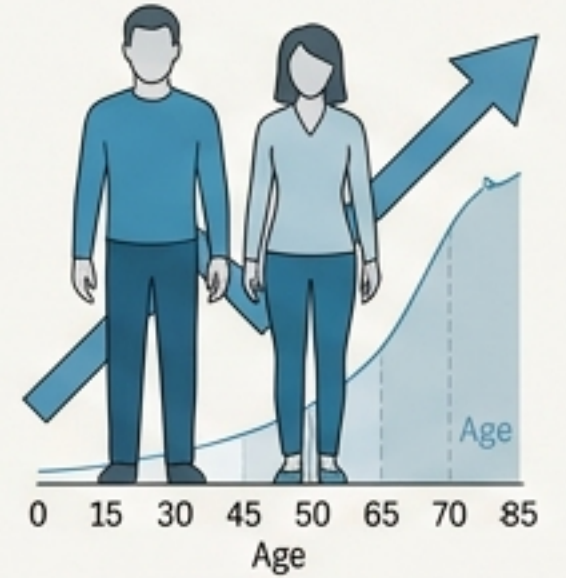
80,000 - 100,000

Australians currently living with PD. It is the 2nd most common neurodegenerative condition after Alzheimer disease.



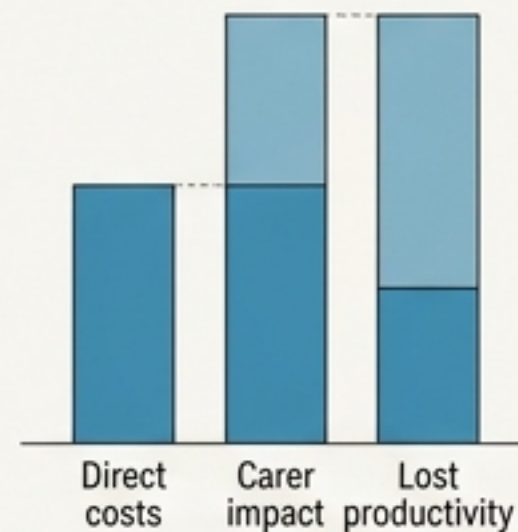
1.5x | 1-2%

Male predominance. Prevalence reaches 1-2% at age ≥ 65 and accelerates to 4% at age ≥ 85 .

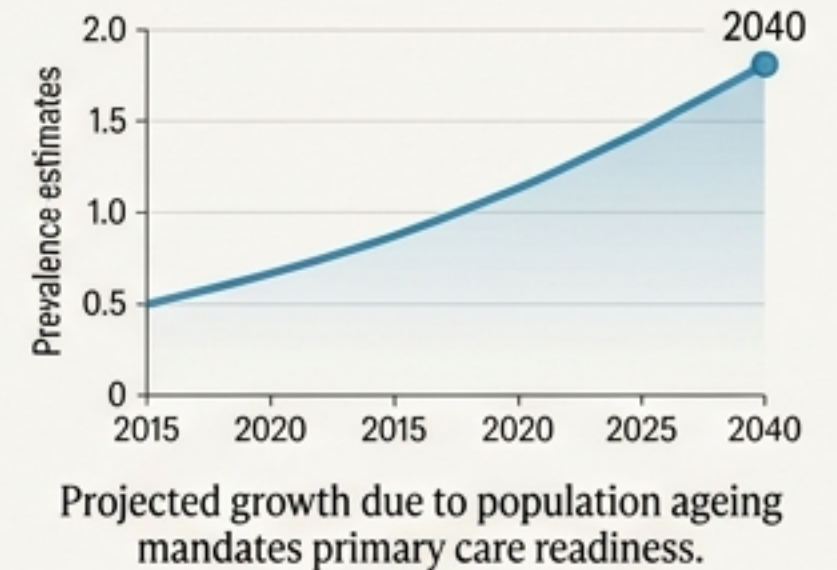


\$1.7 Billion

Annual economic cost to the Australian healthcare system, encompassing direct costs, carer impact, and lost productivity.

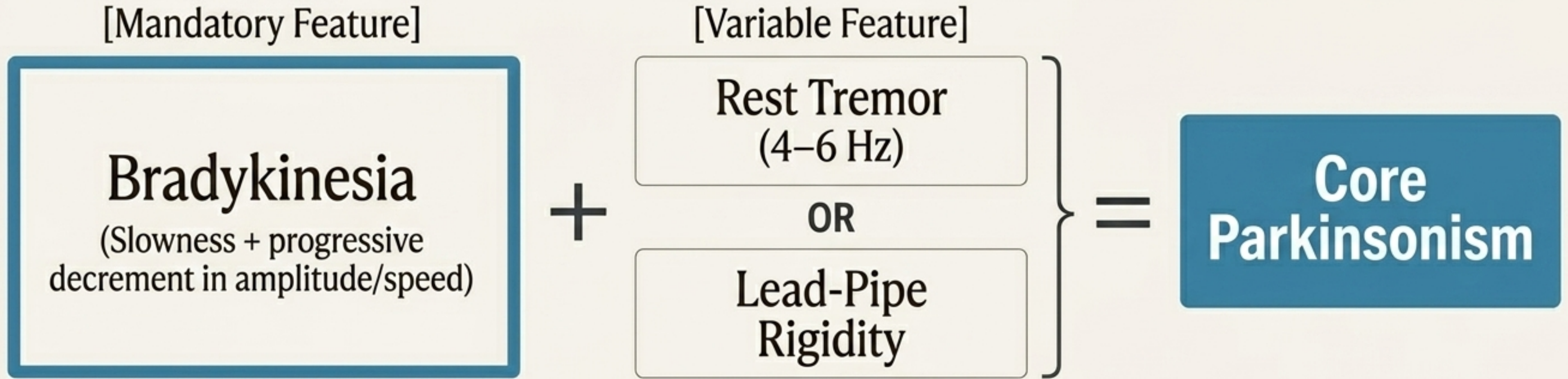


2X by 2040



Clinical Outlook: Median survival is 12–15 years from diagnosis with optimal multidisciplinary management.

The Diagnostic Equation: MDS 2015 Criteria



Supportive Modifiers (Increase Confidence)

- ✓ Clear and dramatic levodopa response
- ✓ Documented limb rest tremor
- ✓ Olfactory loss

Absolute Exclusions (Red Flags)

- ✗ Cerebellar abnormalities (gait/limb ataxia)
- ✗ Supranuclear gaze palsy
- ✗ Primary progressive aphasia within 5 yrs
- ✗ Use of dopamine-blocking agents

Atypical Parkinsonism Diagnostic Grid

When to suspect atypical variants? Early severe falls (<3 yrs), early dysphagia, symmetric onset, wheelchair reliance <5 yrs, or lack of levodopa response (>600mg/day).

MSA Multiple System Atrophy	PSP Progressive Supranuclear Palsy	CBD Corticobasal Degeneration	DLB Dementia with Lewy Bodies
<p>Early severe autonomic failure</p> <ul style="list-style-type: none"> • Urinary incontinence • Orthostatic hypotension • Cerebellar ataxia • Stridor 	<p>Vertical supranuclear gaze palsy</p> <ul style="list-style-type: none"> • Early falls (within 1 yr) • Axial rigidity • Retrocollis 	<p>Asymmetric limb rigidity</p> <ul style="list-style-type: none"> • Alien limb phenomenon • Cortical sensory loss • Apraxia 	<p>Dementia within 1 year of onset</p> <ul style="list-style-type: none"> • Visual hallucinations • Fluctuating cognition • REM sleep behavior disorder

Diagnostic Uncertainty Pathways



Pathway A: Exclusion

Routine Bloods & Medication Review

Explicitly exclude drug-induced parkinsonism (e.g., metoclopramide, prochlorperazine, haloperidol).

Pathway B: The Gold Standard Support

Withhold all dopaminergic meds ≥ 12 h.

Administer Levodopa 250/25mg.
Wait 60-90 mins.

Positive Response = UPDRS-III motor score improves by $\geq 30\%$.

Pathway C: Advanced Imaging

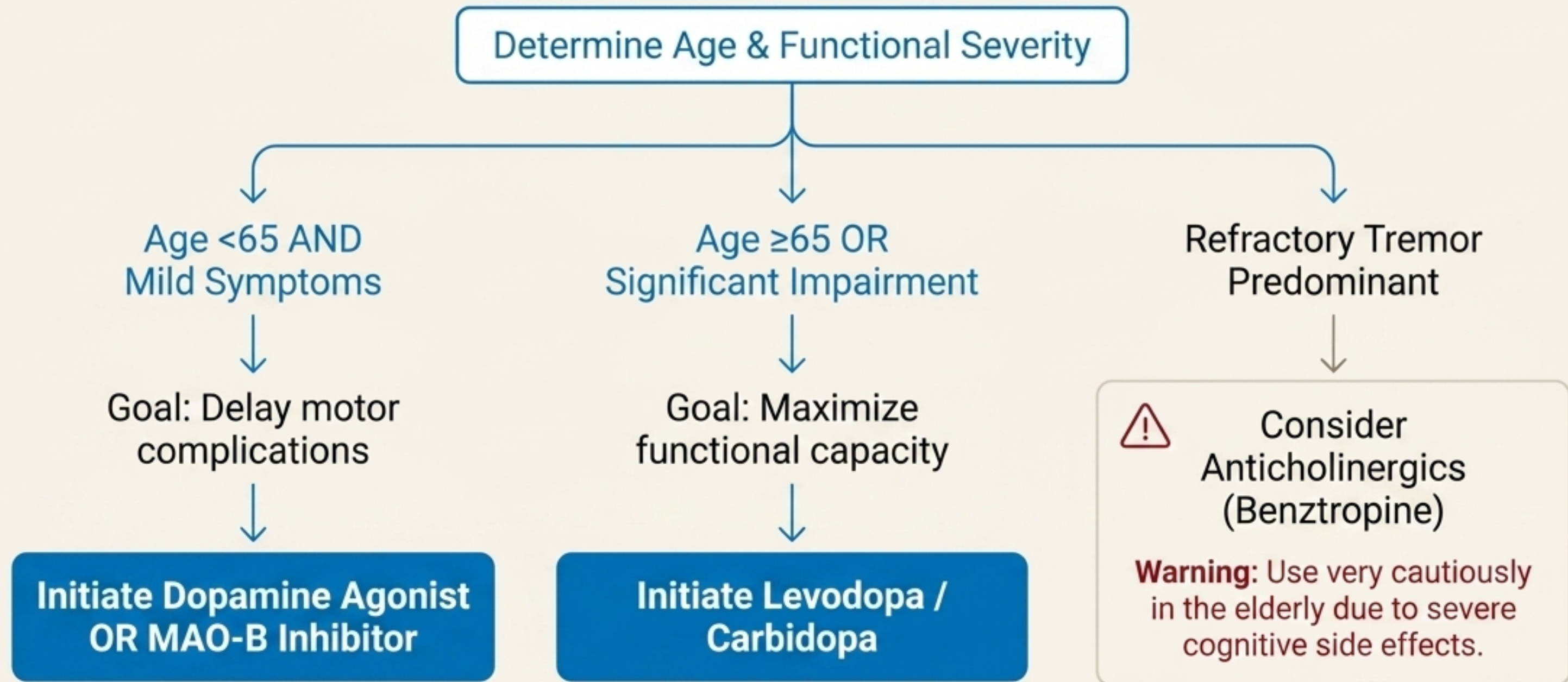


DaTscan (^{123}I -ioflupane SPECT). MBS item 61337.

Confirms presynaptic dopaminergic deficit; reliably distinguishes idiopathic PD from essential tremor or drug-induced parkinsonism.










Clinical Uncertainty

Initial Therapy Decision Algorithm



Clinical Pearl: There is no single correct first-line agent. The key is individualizing the trade-off between immediate motor efficacy and long-term complication delay.

The Pharmacological Trade-Off Matrix

	Levodopa	Dopamine Agonists	MAO-B Inhibitors
Motor Efficacy			
Motor Complication Risk		 (Delays onset by 2-3 years)	
Impulse Control Risk			
Peripheral ADRs	Nausea, Orthostatic Hypotension	Oedema, Somnolence, Sleep attacks	Insomnia (selegiline), Headache
Ideal Patient Profile	Age ≥ 65 , significant functional impairment, cognitive concerns.	Age < 65 , mild symptoms, desire to delay complications.	Very mild disease monotherapy or levodopa adjunct.

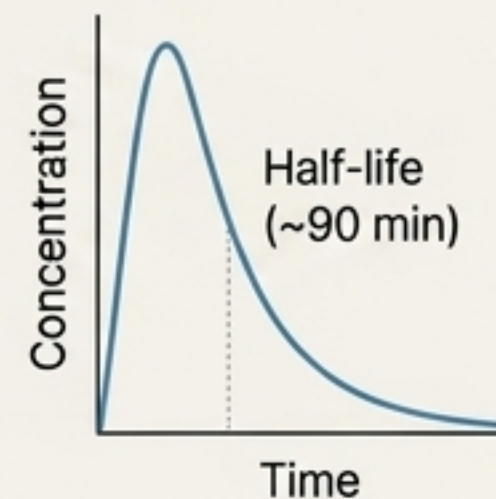
Pharmacotherapy Profile: Levodopa

Agents: Sinemet® / Kinson® (Levodopa + Carbidopa) & Madopar® (Levodopa + Benserazide)
The gold-standard symptomatic therapy.

Titration & Maintenance

- **Start:** 50/12.5 mg PO TDS with food to minimize nausea.
- **Titrate:** Increase every 5–7 days based on clinical effect.
- **Maintenance:** Ranges from 100/25 mg TDS up to 200/50 mg 5x daily.
- **Max dose:** Levodopa component $\leq 1000\text{--}1500$ mg/day.

Kinetics & Administration



Standard formulation has a short half-life (~90 minutes), laying the pathophysiological groundwork for eventual motor complications.

Best taken on an empty stomach (30 mins pre-meal) as dietary protein competes for intestinal absorption.

Special Formulations

Madopar Dispersible

A rapid-acting formulation vital for treating 'morning akinesia' and essential for patients with progressive dysphagia.

Dopamine Agonists & Behavioral Risk

The Agents

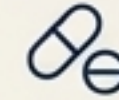
1



Pramipexole (Sifrol)

Oral dosing.
Significant renal clearance; strict dose adjustment required for CrCl <60.

2



Ropinirole (Requip)

Oral dosing.
Titrated weekly.
Hepatic metabolism.

3



Rotigotine (Neupro)

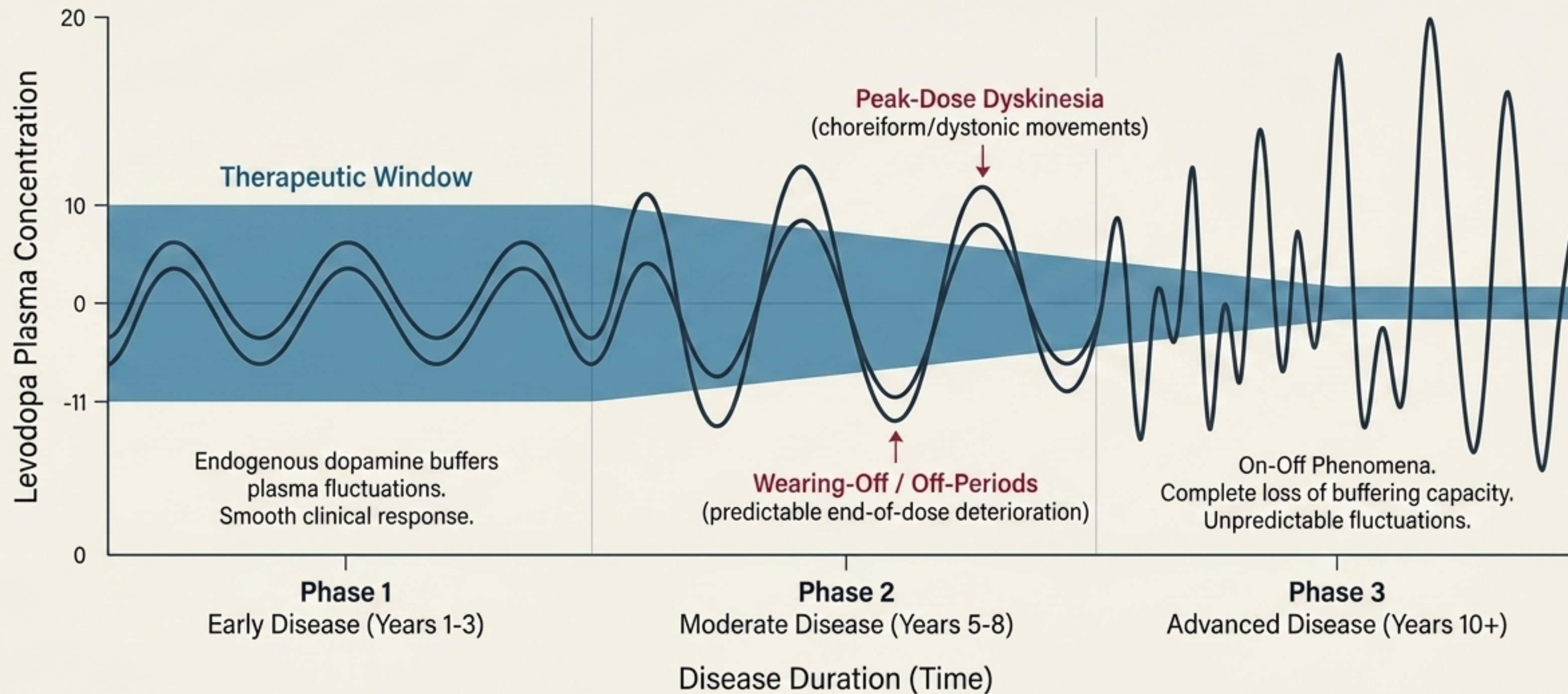
Transdermal patch.
Provides continuous dopaminergic stimulation. Vital for patients with dysphagia or gastroparesis.
Must rotate application sites.



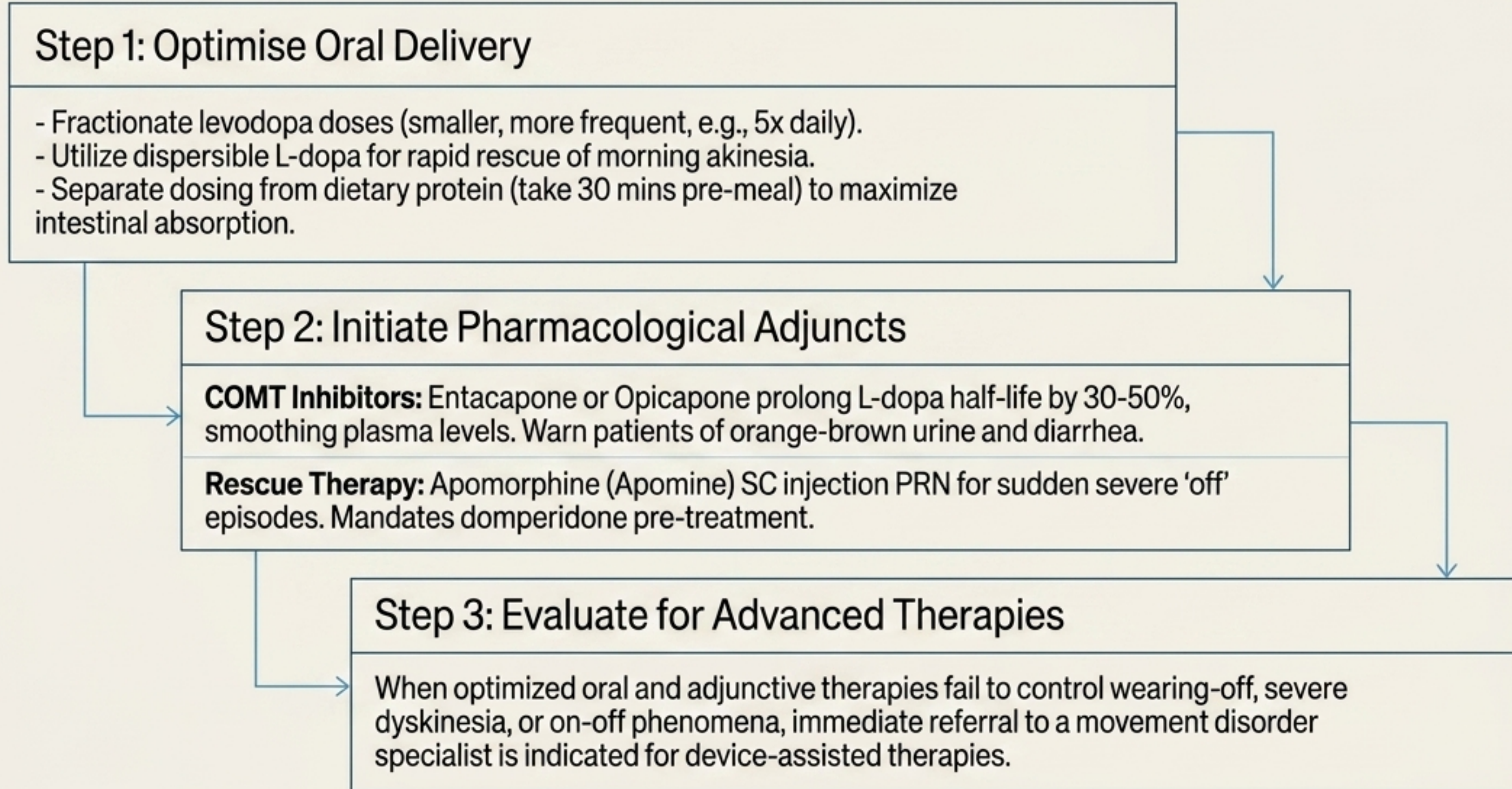
WARNING: Impulse Control Disorders (ICDs)

Agonists carry a severe risk of ICDs including pathological gambling, hypersexuality, compulsive shopping, and binge eating. Risk is significantly higher in younger males and those with prior addiction histories. Structured screening (e.g., QUIP-RS) is mandatory at every clinical visit. Must counsel patients and caregivers prior to initiation.

The Narrowing Therapeutic Window



Stepwise Management of Motor Complications



Advanced Therapies Triage



Deep Brain Stimulation (DBS)

Levodopa Intestinal Gel (Duodopa®)

Apomorphine SC Infusion

Bilateral STN or GPi continuous high-frequency electrodes.

Continuous jejunal infusion via PEG-J stoma providing highly stable levodopa plasma levels.

Continuous subcutaneous pump delivering 12–16 hours of continuous dopaminergic stimulation.

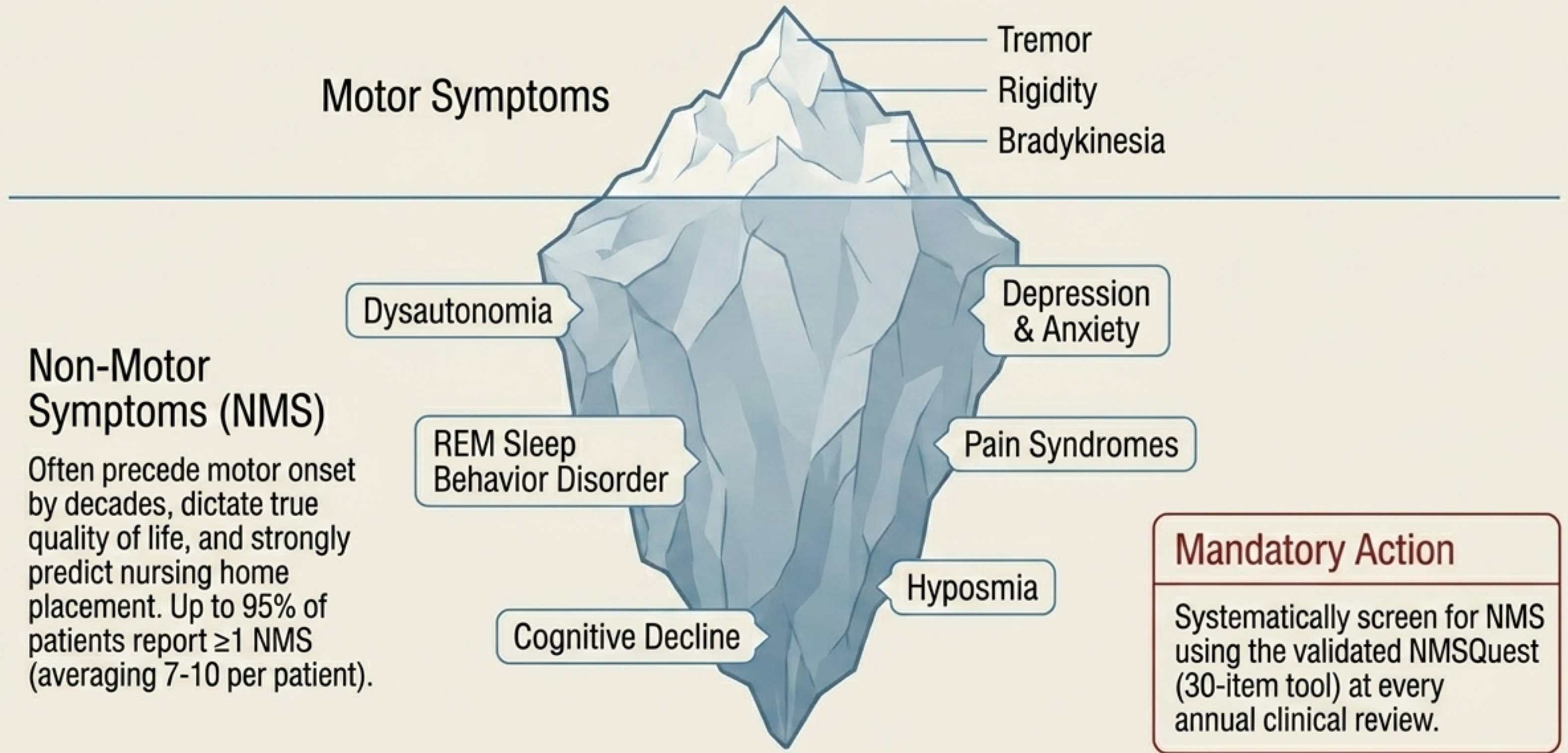
Indications: Motor fluctuations and dyskinesia with a preserved, robust levodopa response.

Contraindications: Dementia, active major psychiatric illness, or severe brain atrophy. Relative age limit >75.

Indications: Severe motor fluctuations or dyskinesia refractory to oral meds, especially in patients unsuitable for DBS. Bypasses erratic gastric emptying.

Indications: Refractory fluctuations. Can be trialled non-invasively before committing to surgery or PEG-J. Requires domperidone cover.

The PD Iceberg: Non-Motor Symptoms (NMS)



Non-Motor Symptoms (NMS)

Often precede motor onset by decades, dictate true quality of life, and strongly predict nursing home placement. Up to 95% of patients report ≥ 1 NMS (averaging 7-10 per patient).

Autonomic Dysfunction Panel



Orthostatic
Hypotension (30-50%)



Action: Reduce antihypertensives.
Increase salt/fluid intake.
Increase salt/fluid intake.
Pharmacotherapy: Fludrocortisone or Midodrine.

Constipation (60-80%)



Action: Dietary fiber, hydration.
Action: Dietary fiber, hydration.
First-line medical: Macrogol 3350 (Movicol).
Refractory: Prucalopride.

Urinary &
Sialorrhoea



Action: Overactive bladder
managed with Solifenacin or
Mirabegron.
Drooling managed by Glycopyrrolate
or targeted Botulinum toxin.

Gastroparesis



Action: Small frequent meals.
Impairs levodopa absorption.
Preferred prokinetic is Domperidone
(10mg TDS), as it does not cross the
blood-brain barrier.

**ABSOLUTE
CONTRAINDICTION:
METOCLOPRAMIDE.**

Metoclopramide is a D2
receptor antagonist that
crosses the blood-brain barrier. It will
rapidly and severely worsen
parkinsonism.

Neuropsychiatric Architecture

Mood Disorders



Depression & Anxiety affect up to 50% of patients.

Action: SSRIs (citalopram/sertraline) or SNRIs are first-line. CBT is highly effective.

Strictly avoid long-term benzodiazepine use due to fall risk.

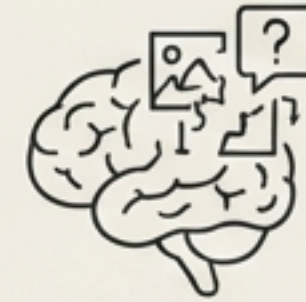
Cognitive Impairment



Progresses from PD-MCI to PD Dementia (up to 80% over 15yrs). Screen annually with MoCA.

Action: Rivastigmine (Exelon) is the only PBS-approved cholinesterase inhibitor for PDD. Immediately discontinue all anticholinergics.

Psychosis & Hallucinations



Action Steps:

1. Reduce adjunctive meds first (anticholinergics → MAO-B → Agonists).
2. Keep Levodopa.
3. If psychosis persists, add Quetiapine, Pimavanserin, or Clozapine.

ABSOLUTE CONTRAINDICATION: OLANZAPINE & RISPERIDONE.

These atypical antipsychotics block dopamine D2 receptors and will severely worsen motor parkinsonism.

Sleep Architecture & Pain Typologies

Sleep Architecture

REM Sleep Behaviour Disorder (RBD)

Dream enactment (punching, kicking, shouting). Highly prevalent and may precede motor PD by decades.

Treatment: Clonazepam or Melatonin.
Implement physical safety measures.



Insomnia & Restless Legs

Often driven by nocturnal 'off' periods.

Treatment: Optimize nighttime dopaminergic therapy (e.g., controlled-release levodopa).
Check ferritin levels for RLS.

The 5 Pain Typologies of PD

1. Musculoskeletal: Joint stiffness, frozen shoulder. Treat with physio & optimized L-dopa.



2. Dystonic: Early morning or 'off' period cramping. Treat by adjusting L-dopa timing.



3. Neuropathic: Burning, tingling. Treat with Duloxetine or Pregabalin.



4. Akathitic: Inner restlessness during off-periods. Optimize dopamine.



5. Primary Central: Unexplained diffuse pain. Requires specialist opioid guidance.



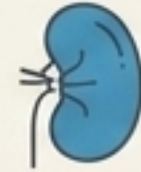
Special Populations Filter



Elderly (≥ 75 years)

Levodopa is strictly first-line. Dopamine Agonists should be **avoided** due to significantly higher risks of hallucinations, somnolence, and ICDs.

Centrally-acting Anticholinergics (benztropine) are **completely contraindicated** due to delirium and fall risk.



Renal Impairment

Levodopa requires no specific adjustment but monitor for hypotension.

Pramipexole and Amantadine require strict, **mandatory dose reductions** based on Creatinine Clearance (avoid if CrCl < 15 mL/min).



Hepatic Impairment

Avoid Entacapone, Rasagiline, and Selegiline in severe hepatic impairment due to heavy hepatic metabolism.

Use Levodopa with caution and monitor LFTs.



Pregnancy

Rare presentation. Levodopa is considered relatively safe if treatment is essential.

Discontinue MAO-B inhibitors and Amantadine (known teratogenic cardiovascular risk). Agonists may suppress lactation.

Hospitalization & The Delirium Protocol

NEVER ABRUPTLY STOP PARKINSON MEDICATIONS

The Iatrogenic Risk

Sudden withdrawal or prolonged withholding of levodopa or dopamine agonists triggers a severe Neuroleptic Malignant-like Syndrome. Features include high fever, extreme rigidity, autonomic instability, and altered consciousness.

The Clinical Protocol

1. Continue levodopa through all hospital admissions.
2. If patient is Nil By Mouth (NBM) pre-operatively, switch to dispersible/liquid levodopa formulations or a rotigotine patch.
3. Strictly avoid centrally acting anticholinergics, sedatives, and contraindicated antiemetics (metoclopramide) to prevent profound acute delirium.

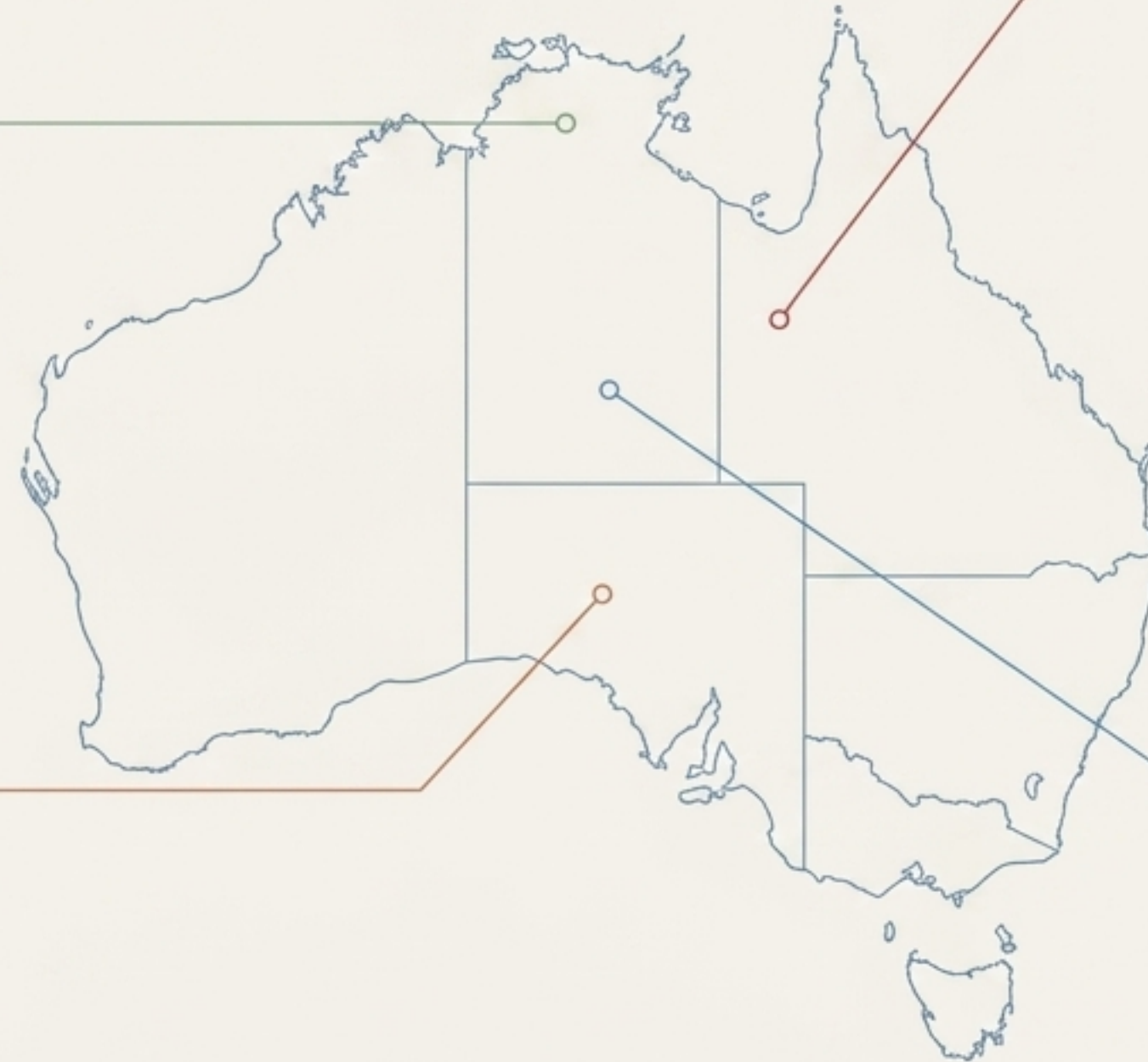
Aboriginal & Torres Strait Islander Health Access

3. Medication Security

Utilize RAAHS and S100 programs to ensure continuous PBS access. Transdermal patches (Rotigotine) may be preferable where daily oral adherence is structurally compromised.

4. Cultural Safety

Care must be co-designed through Aboriginal Community Controlled Health Organisations (ACCHOs). Concepts of cognitive decline and 'dementia' must be contextualized sensitively with community Elders.



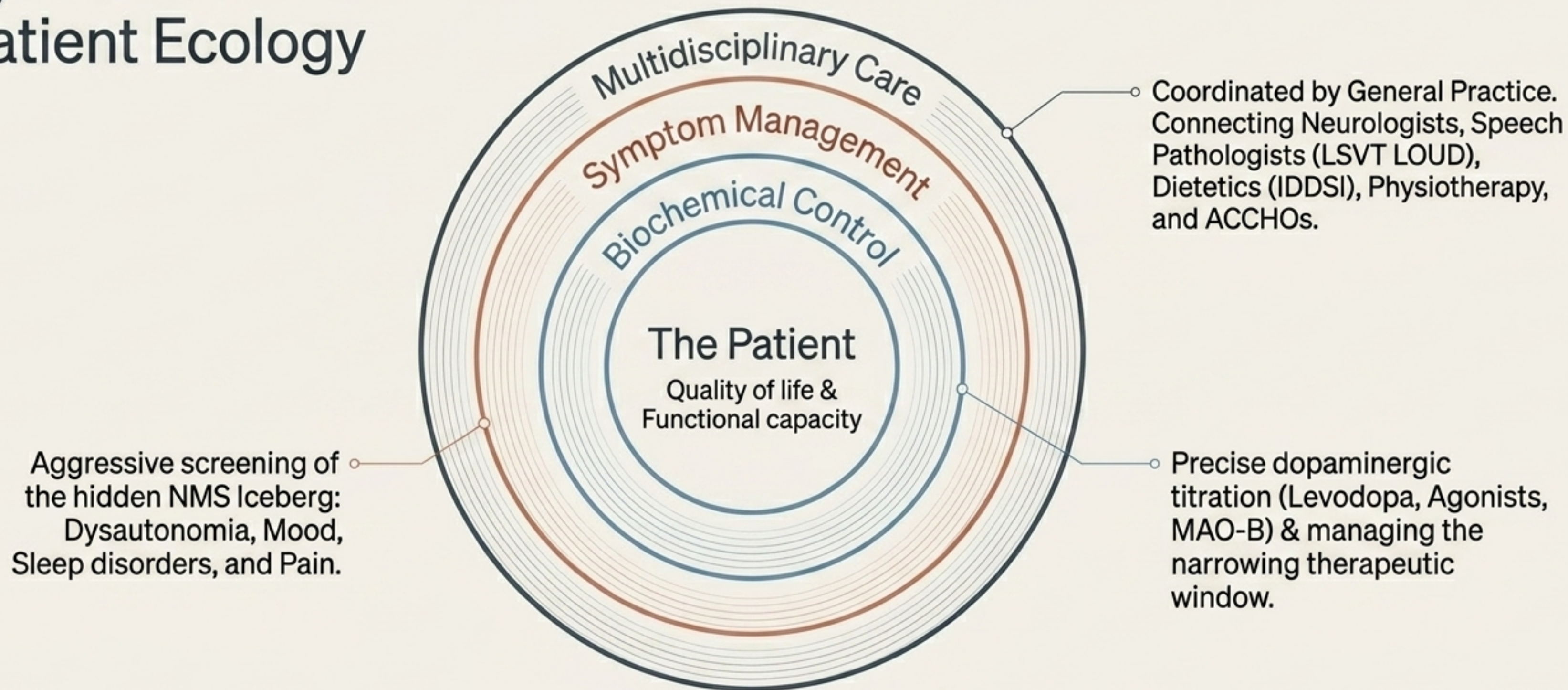
1. Diagnostic Delays

Remote presentations often occur at advanced stages. Crucial diagnostic tools like DaTscan are restricted entirely to capital cities, creating massive geographical barriers.

2. Care Delivery Models

Bridging the specialist gap requires utilization of Telehealth (MBS 99200) and ANZAN-supported Fly-In Fly-Out (FIFO) neurology services.

Synthesis: Total Patient Ecology



Optimal Parkinson Disease management is not just replacing dopamine—it is preserving the entire human ecology.