Enhanced Primary Care Pathway: Parkinson's Disease

1. Focused summary of PD relevant to primary care

Parkinson's Disease (PD) and Essential tremor (ET) are two of the most common movement disorders encountered by family doctors; both present with tremor but the two disorders are treated differently. The diagnosis of PD is clinical. Where there is functional impairment, treatment can produce significant benefit and may be initiated without a neurology referral.

Parkinson's Disease is characterized by tremor AT REST (not while holding objects), cogwheel rigidity, bradykinesia (slowness) and balance difficulty (postural instability). Patients complain of unilateral onset of tremor while their hand is at rest, small handwriting in comparison to the past (micrographia), decreased facial expression , soft voice (hypophonia), and stiffness resulting in slow movement (bradykinesia). Over years, these signs and symptoms spread to become bilateral.
The mnemonic **TRAP** is often used as a reminder of the cardinal features of idiopathic PD, consisting of:

resting Tremor,
cogwheel Rigidity,
Akinesia or bradykinesia, and
Postural instability.

Other "non-motor" symptoms, present at early stages of the disease include decreased olfaction, depression and anxiety, balance difficulty, constipation, bladder dysfunction and seeming "acting out of dreams" while in bed at night (REM sleep behavior disorder).

Drug induced parkinsonism should be excluded. Common culprit drugs include **metoclopramide** (used to treat nausea) as well as a variety of antipsychotic medications (haloperidol, olanzapine, aripiprazole, pimozide and risperidone). Assistance from psychiatry will be needed in changing antipsychotic medications to medications such as quetiapine or clozapine.

If there is sufficient functional impairment of daily activities in idiopathic Parkinson's Disease, medical treatment is indicated. Of all the drugs available to treat PD, levodopa has the greatest efficacy with the fewest side effects so is the drug of choice. Levodopa comes in multiple formulations but Sinemet regular 100/25 (levodopa/carbidopa), yellow in colour, (not Sinemet CR) should be used. Patients with PD show dramatic benefit to adequate doses of levodopa, which improves tremor and bradykinesia, gait and facial expression. Section 4 describes an example titration schedule for this medication.

There are a number of similar neurodegenerative syndromes to PD which in the initial stages can appear as PD; however, as the years pass, certain signs and symptoms emerge that alert the clinician to an alternate diagnosis. In the early stages, it is difficult to distinguish PD from these other syndromes. However, the presence of early dementia, falling and hallucinations, as well as lack of a significant benefit to levodopa, should warn the clinician that another diagnosis (Lewy Body dementia, progressive supranuclear palsy, multiple systems atrophy) may be entertained. Patients with these other conditions often benefit from levodopa, but not as much as those with PD; a trial of levodopa remains worthwhile in these patients.

COMPARISON OF TREMOR IN ET AND PD

Essential Tremor	Parkinson's Disease
• Tremor present with holding objects or performing tasks • Head/voice tremor • Bilateral onset of tremor, usually hands • ETOH responsive (1-2 drinks wine/beer) • No cogwheel rigidity • Writing large and shaky • Tremor better with walking • Positive family history	• Tremor present at rest • Chin tremor • Unilateral onset of tremor/bradykinesia • ETOH unresponsive • Cogwheel rigidity • Small handwriting (micrographia) • Tremor emerges with walking with reduced arm swig; stooped, shuffling gait • Often, no clear family history

2. Checklist to guide your in-clinic review of this patient with PD symptoms
☐ Signs of PD
☐ No signs of Essential Tremor
☐ Rule out drug induced parkinsonism: **metoclopramide for nausea**; antipsychotics: haloperidol, pimozide, risperidone, olanzapine, aripiprazole
☐ No red flags suggestive of another parkinsonian condition other than Parkinson's Disease (rapid progression of disability; early dementia, falls, hallucinations, no benefit from levodopa)
☐ If there is significant functional impairment, start levodopa (Sinemet) (see Section 4)

3. Links to additional resources	
For physicians:	www.parkinson.org
	REFERRAL FORM FOR COMMUNITY ACCESSIBLE REHAB PROGRAM: http://www.albertahealthservices.ca/frm-104014.pdf
	University of Calgary Department of Clinical Neurosciences Movement Disorders Clinic website: www.dcns.ca/programs/movementdisorders
	http://www.parkinsonalberta.ca
	http://www.uptodate.com
	http://www.parkinsonclinicalguidelines.ca/sites/default/files/PhysicianGuide_Non-motor_EN.pdf
For patients:	UpToDate ® -Beyond the Basics Patient Information (freely accessible)
	Parkinson's Alberta: http://www.parkinsonalberta.ca/
	Parkinson's Disease Foundation: http://www.pdf.org/
	www.michaeljfox.org

4. Suspected PD Pathway

This AHS Calgary Zone pathway has been developed with consideration of these guidelines. **The following is best-practice clinical pathways for management of PD in the primary care medical home:**

Primary Care Networks
CALGARY AND AREA

Specialist *LINK*

Alberta Health Services

SUSPECTED PARKINSON'S DISEASE

Specialist *LINK*
Local: 403.910.2551 | Toll free: 1.844.962.5465 (LINK)
www.specialistlink.ca

NEUROLOGY REFERRAL

Red Flags

- Rapid progression
- Early dementia
- Early falls and hallucinations
- No benefit from levodopa
- Dystonia
- Aphasia
- Trunk/limb ataxia

YES

NO

RULE OUT

Drug-induced Parkinsonism:

- Psychiatric drugs *(see text)*
- Anti-emetic drugs *(example: Metoclopramide)*

CHANGE IF POSSIBLE
To reverse drug induced parkinsonism.

- **T** - Resting tremor
- **R** - Cogwheel rigidity
- **A** - Akinesia/bradykinesia
- **P** - Postural instability

YES

YES

If functional disability, start Sinemet regular 100/25; consider further increase after evaluation.

If a patient with suspected Parkinson's Disease needs and wishes medical treatment (and there are no red flags or evidence of drug induced parkinsonism), then levodopa should be initiated. The formulation of choice is Sinemet regular 100/25 (yellow tablet). Initiate treatment in t.i.d. dosing with meals starting with ½ tablet t.i.d. and increasing over to 1 tablet t.i.d.. At this point, evaluate the patient again - if the patient is better, it may be best to leave the medication at this dose. Other patients will benefit from a further increase to 2 tablets t.i.d., which remains a modest dose.

Starting Sinemet 100/25

Week	Breakfast	Lunch	Supper
1	0.5	0.5	0.5
2	1	1	1 **EVALUATE**
3	1.5	1.5	1.5
4	2	2	2

Potential side effects of levodopa are primarily limited to nausea (usual mild and transient), and mild postural hypotension. Persistent nausea may be treated by taking the levodopa with meals or a small snack or starting domperidone 10 mg 1/2 hour prior to each dose of levodopa and not exceeding 10 mg t.i.d.. Domperidone may prolong the QT interval, a risk to consider, but can provide significant benefit to refractory nausea.

Common errors in starting levodopa include scheduling the medication doses too far apart (i.e., 6 a.m. and 6 p.m.) or staying at a low dose of medication (1 tablet t.i.d.) despite progression of symptoms and signs. PD is a progressive neurodegenerative condition and medications will need to be increased over time, depending on individual patient needs.