Parkinson's Disease

CLINICAL PRACTICE GUIDELINE

PALTmed
POST-ACUTE AND LONG-TERM CARE
MEDICAL ASSOCIATION

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Preface

This clinical practice guideline (CPG) has been developed under a project conducted by PALTmed, the national professional organization representing medical directors, attending physicians, and other practitioners who care for patients in the long-term care setting. This is one of a number of guidelines undertaken as part of the association's mission to improve the quality of care deliv-ered to patients in these settings.

Original guidelines are developed by interdisciplinary workgroups, using a process that combines evidence and consensus-based approaches. Workgroups include practitioners and others involved in patient care in long-term care facilities. Beginning with a general guideline developed by an agency, association, or organization such as the Agency for Healthcare Research and Quality (AHRQ), pertinent articles and information, and a draft outline, each group works to make a concise, usable guideline that is tailored to the long-term care setting. Because scientific research in the long-term care population is limited, many recommendations are based on the expert opinion of practitioners in the field. A bibliography is provided for individuals who desire more detailed information.

Guideline revisions are completed under the direction of the Clinical Practice Guideline Steering Committee. The committee incorporates information published in peer-reviewed journals after the original guidelines appeared as well as comments and recommendations not only from experts in the field addressed by the guideline but also from "hands-on" long-term care practitioners and staff.

Purpose

PALTmed seeks to develop and revise guidelines that focus on specific concerns and common problems in the long-term care setting. Although AHRQ and other agencies, organizations, and associations have developed a number of guidelines for conditions that occur in elderly and chronically ill indi-viduals, many of these guidelines limit or omit considerations that are unique to the long-term care population.

PALTmed guidelines emphasize key care processes and are organized for ready incorporation into facility-specific policies and procedures to guide staff and practitioner practices and performance. They are meant to be used in a manner appropriate to the population and practice of a particular fa-cility. Guideline implementation will be affected by resources available in the facility, including staffing, and will require the involvement of all those in the facility who have a role in patient care.

Audience

This guideline is intended for the members of the interdisciplinary team in long-term care facilities, including the medical director, director of nursing, practitioners, nursing staff, consultant pharmacist, and other professionals such as therapists, social workers, dietitians, and nursing assistants who care for residents of long-term care facilities.

PALTmed CPGs include many functions and tasks related to recognizing, clarifying, managing, and monitoring various conditions and situations. But the guidelines only sometimes specify who should do these tasks. For example, many disciplines including nursing assistants, licensed nurses, dieti-cians, and social workers may make and document observations (e.g., that someone does not sleep at night, is more withdrawn, or has a change in usual eating patterns). But only some of them may

be qualified to determine the significance of those observations (for example, what is causing the sleeplessness or change in eating patterns). In contrast, physicians and nurse practitioners may not be present to make observations, but are trained to analyze the significance and causes of symptoms. Thus, each facility should ensure that tasks are done correctly and by appropriate interdisciplinary team members. It is important for observers to make and document findings effectively, but they should get appropriate support for interpreting the findings when this is not within the scope of their training or practice.

Assumptions

Guidelines in the long-term care setting should be consistent with fundamental goals of desirable long-term care practice. Operationally, this requirement means that the nursing facility care team systematically addresses (1) each individual's risk factors for a number of diseases and conditions and (2) the adverse consequences of the diseases and conditions on the patient's functioning and quality of life.

However, when nursing facility patients are at or near the end of life, care goals will shift from functional improvement or physical stability to palliation or comfort care. PALTmed guidelines address this transition and provide suggestions for appropriate modification of the patient's care plan.

Long-term care facilities care for a variety of individuals, including younger patients with chronic diseases and disabilities, short-stay patients needing postacute care, and very old and frail individuals suffering from multiple comorbidities. When a workup or treatment is suggested, it is crucial to consider if such a step is appropriate for a specific individual. A workup may not be indicated if the patient has a terminal or end-stage condition, if it would not change the management course, if the burden of the workup is greater than the potential benefit, or if the patient or his or her proxy would refuse treatment. It is important to carefully document in the patient's medical record the rea-sons for decisions not to treat or perform a workup or for choosing one treatment approach over an-other.

How to Use These Guidelines

Each guideline includes a narrative portion that covers definition, recognition, assessment, treatment, and monitoring of the condition being addressed. "Recognition" means identifying the presence of a risk or condition. "Assessment" means clarifying the nature and causes of a condition or situation and identifying its impact on the individual. "Treatment" means selecting and providing appropri-ate interventions for that individual. "Monitoring" means reviewing the course of a condition or sit-uation as the basis for deciding to continue, change, or stop interventions.

Each guideline also includes an algorithm that summarizes the steps involved in addressing the condition. In the algorithm, rectangles signify points where action is to be taken; diamonds indicate points where a decision must be made.

Terminology

We recognize that people who reside in long-term care facilities are "residents". However, we have used the term "patient(s)" throughout these guidelines because we are addressing individuals within the context of treating a medical condition. In addition, these guidelines apply substantially to individuals who come to long-term care facilities for short-term care. When referring to pharmaceutical products, we have avoided the use of brand names and refer to classes of drugs whenever possible.

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Parkinson's Disease
in the Long-Term Care Setting

Definitions

Parkinson's disease (PD) is a chronic, slowly progressive neurodegenerative disease that was first described by James Parkinson in 1800. PD has four cardinal features: resting tremor, rigidity of muscle, akinesia (or bradykinesia), and postural instability.[1] Generally, a diagnosis is made when bradykinesia (slowness of movement) or tremor is present along with one or more of the other three cardinal symptoms. The term **parkinsonism** refers to a range of conditions that includes PD, Parkinson-like syndromes (including drug-induced dyskinesia), and conditions that mimic PD.

INTRODUCTION

Parkinson's disease (PD) is an age-related, degenerative neurological disorder. Patients with PD are substantially more likely to live in nursing homes than are adults in the general population.[2] The prevalence of PD in nursing homes is estimated to be about 5% to 10%.[3] A pooled analysis of data from five population-based European studies showed that women with PD have a fivefold higher risk of living in a care facility than do men with PD.[4] Old age, functional impairment, dementia, and hallucinations are independent predictors of nursing home admission in PD patients.[5]

Patients in nursing homes have more advanced PD than do home-dwelling patients. In an epidemiologic study of 183 patients with PD in Rogaland county, Norway, patients in nursing homes had higher total scores on the 10-item neuropsychiatric inventory (NPI) than did home-dwelling patients, and this difference was primarily caused by higher scores on the delusion, hallucination, agitation, and disinhibition subscales. Eighty-three percent of the nursing home population had at least one symptom.[6]

The cause of PD is unknown. The disease is characterized histologically by a loss of dopaminergic neurons in a region of the brain known as the substantia nigra. Although the gradual loss of these cells eventually triggers the emergence of symptoms of PD, the disease process likely begins years before symptoms appear.

The disease is slowly progressive, and once symptoms occur, the mean life expectancy is 15 years.[7] The severity of the disease course varies widely; some patients may be only slightly disabled 15 to 20 years after diagnosis, whereas others may be completely disabled after 10 years. PD reduces

life expectancy because of an increased incidence of factors such as motor disorders, dysphagia with aspiration pneumonia, infection, dementia, and fall-related injuries.

Early detection of PD is essential to its effective treatment. Although there is no known cure for PD, treatment can often prolong the patient's life, improve mobility and function, and enhance dignity and quality of life. Staff in long-term care facilities should receive up-to-date education and training about PD to enable them to identify patients with PD signs or symptoms. Clinicians and caregivers also need education and training about the benefits of treatment and when consultation with specialists (e.g., neurologists, geriatric psychiatrists, geriatricians, physiatrists, and hospice and palliative care specialists) is appropriate.

Early diagnosis is also important because the progression of dementia can be slowed in some cases. [See the PALTmed clinical practice guideline (CPG) on dementia.[a]]

Interdisciplinary Care Management

The interdisciplinary team managing the care of the patient with PD will often include the practitioner; nurse; nursing assistant; social worker; dietitian; consultant pharmacist; psychologist; physical, occupational, speech, and recreational therapists; chaplain; and family caregivers. The caregiver or nursing assistant may notice subtle changes of increased rigidity or diminished appetite resulting from dysphagia. The dietitian may help to address nutritional issues, and the physical therapist may help to address and treat mobility problems. The practitioner, with input from the consultant pharmacist, may be able to differentiate drug-induced parkinsonism (DIP) from new onset of PD.

All members of the interdisciplinary team may participate in the evaluation and management of the patient with PD at different stages in the disease process, depending on the patient's needs and the availability of specific team members. It is important that the practitioner assume a leadership role in the care of the patient with PD, evaluating input from all members of the interdisciplinary team.

Documentation

A systematic approach to documentation is an essential aspect of the implementation of a care plan that addresses the specific needs of the individual patient. Without adequate documentation, it is impossible to know whether treatment goals are being achieved or whether modification of the care plan is appropriate. It is also important to document the reason or reasons for treatment decisions, including decisions not to treat or the choice of one treatment approach over another. For example, the rationale to support a palliative care approach should be documented, as should patient nonadherence to recommended treatments. Members of the care team can use their specific section of the patient's chart or an interdisciplinary progress note for documentation purposes.

Equally important to adequate documentation is communication among the members of the care team. For example, communication and discussion between team members may include scheduled meetings, interdisciplinary care conferences with family members and specialist physicians in the community, and the use of established communication tools in the facility.

Expected Outcomes from Implementation of This Clinical Practice Guideline

This guideline recommends processes that, if implemented, should help long-term care facilities to improve the care of patients with PD. Potential benefits associated with the implementation of this guideline include the following:

[a] Post-Acute and Long-Term Care Medical Association. Dementia in the Long Term Care Setting. Clinical Practice Guideline. Columbia, MD.

- Earlier identification of PD and its complications.
- Better management of PD, allowing patients to maintain their highest practicable physical, mental, and psychosocial function.
- Greater individualization of care.
- Enhanced quality of life.
- Better documentation of, and rationale for, patients' personal goals and decision-making processes regarding their disease and its treatment.
- More appropriate pharmacologic therapy for PD.
- More appropriate practitioner participation in the care of the patient with PD.
- Improved patient and family satisfaction with care.
- More appropriate resource utilization.
- Improved treatment and monitoring protocols.
- Improved staff education and awareness of this complex progressive disease.
- More appropriate and timely referral to palliative care and hospice.

RECOGNITION

Early detection of PD enables early intervention with both nonpharmacologic and pharmacologic treatments that can improve patients' physical and cognitive function, maximize their mobility, and enhance their quality of life. Practitioners and staff in the long-term care facility should know the signs and symptoms that suggest the presence of PD or parkinsonism (Table 1).

Numerous barriers must be overcome to ensure prompt and accurate recognition of PD in the long-term care setting. For example, some interdisciplinary team members may need additional education or clinical training about PD and the tools used to assess for this disease. Managers and staff of long-term care facilities also need to be familiar with the potential benefits of physical, occupational, speech, and recreational therapy; social services; and psychological and psychiatric counseling interventions in improving the management of PD.

TABLE 1

Diagnostic Criteria for Parkinson's Disease

Group A features (characteristic of PD)

- Resting tremor
- Bradykinesia
- Rigidity
- Asymmetric onset

Group B features (suggestive of alternative diagnoses)

- Features that do not usually occur early in the clinical course
- Prominent postural instability in the first 3 years after symptom onset
- Freezing phenomenon in the first 3 years
- Hallucinations unrelated to medications in the first 3 years
- Dementia preceding motor symptoms or in the first year
- Supranuclear gaze palsy (other than restriction of upward gaze) or slowing of vertical saccades*
- Severe, symptomatic dysautonomia unrelated to medications
- Documentation of condition known to produce parkinsonism and plausibly connected to the patient's symptoms (such as suitably located focal brain lesions or neuroleptic use within the past 6 months)

Criteria for definite PD

- All criteria for probable Parkinson's are met, and
- Histopathological confirmation of the diagnosis is obtained at autopsy

Criteria for probable PD

- At least three of the four features in group A are present and
- None of the features in group B is present (note: symptom duration greater than or equal to 3 years is necessary to meet this requirement) and
- Substantial and sustained response to levodopa or a dopamine agonist has been documented

Criteria for possible PD

- At least two of the four features in group A are present; at least one of these is tremor or bradykinesia and
- Either (a) none of the features in group B is present or (b) symptoms have been present less than or equal to 3 years and none of the features in group B is present and
- Either (a) substantial and sustained response to levodopa or a dopamine agonist has been documented or (b) the patient has not had an adequate trial of levodopa or a dopamine agonist

Source: From the National Institute of Neurological Disorders and Stroke. Adapted from Jankovic, 2008.[1]
**Abrupt, rapid small movements of both eyes.*

STEP 1

Has Parkinson's disease already been diagnosed in this patient? On admission or during the pre-admission assessment, ask the patient and family members if the patient has PD or has shown signs or symptoms that suggest PD. Evaluate the patient for manifestations of PD or parkinsonism (Tables 2 and 3). Determine whether any current or previous medication may have caused DIP (Table 4).

TABLE 2

Motor Symptoms of Parkinson's Disease

Akinesia or bradykinesia
- Akinesia: inability to move
- Bradykinesia: slowness of movement and reaction times
- Most disabling aspect of PD
- Decrease in eye blinking, facial expressions, walking speed, and ability to eat and chew
- Patients describe weakness, fatigue, decreased ability to write or perform fine motor movements

Gait disorder
- Manifestation of bradykinesia and rigidity
- Characteristic shuffling quality
- Posture may become stooped and flexed forward
- Marked difficulty initiating gait

Postural instability
- Falling backward
- Impaired ability to stand erect or regain erect stature after bending over
- Development of "toe-first" style of walking
- Decreased arm swing when walking
- Posture may become stooped and flexed forward, with knees flexed while walking
- Unsteadiness while turning
- Increased risk of falls; may present as frequent falling
- Usually occurs late in illness
- Least amenable to drug therapy

Rigidity
- Muscular stiffness and increased muscle tone and resistance
- Patients troubled with "slowness"
- More apparent to clinician than to patient
- Detected clinically by passively moving an extremity at a joint
- "Cogwheeling" (intermittent interruption of smooth extension/flexion of upper limbs; detected by resistance starting and stopping in quick, repetitive sequence as limb is moved)

Secondary motor abnormalities
- Dysarthria (difficulty in speech articulation), hypophonia (an abnormally weak voice), dysphasia, and sialorrhea (an excessive secretion of saliva); these are thought to be related to bradykinesia and rigidity
- Dysphagia, drooling, decrease in swallowing
- Neuro-ophthalmologic abnormalities, decreased blink rate, dry eyes

Tremor
- Involuntary movement that may affect head, lips, chin, jaw, limbs, or entire body
- Most apparent when affected region is rested and supported
- Present in about 75% of patients
- Most visible manifestation of the illness
- Increases with stress
- Ceases during sleep and decreases with effort (in contrast with cerebellar tremor)
- Most prominent feature is "pill-rolling tremor" in fingers and hands
- Postural tremor may also be present
- Most bothersome symptom to patients

Sources: Dawson 2000[8]; Jankovic 2008[1]

TABLE 3
Nonmotor Features of Parkinson's Disease

Autonomic dysfunction
- May include orthostatic hypotension, impaired gastrointestinal motility, constipation, dysphagia, or sensation of full stomach
- May include urinary bladder dysfunction as well as symptoms of urgency, frequency, and loss of control; sphincter dysfunction; and erectile dysfunction
- May include abnormal thermoregulation and increased sweating

Cognitive, mood, and behavioral dysfunction
- Cognitive decline
- Amnesia, loss of memory, and other memory disorders
- Apraxia (loss of ability to coordinate learned movements)
- Aphasia (inability to speak or understand)
- Agnosia (loss of ability to recognize faces, familiar places, or objects)
- Bradyphrenia (slowed thinking), visuospatial dysfunction, dysexecutive syndrome (difficulty with planning and problem-solving), and impaired attention
- Dementia
- Major depression, apathy, anxiety, or hallucinations, which may be medication-induced
- Obsessive-compulsive and impulsive behaviors, such as craving (especially for sweets), binge eating, foraging, hypersexuality, pathological gambling, shopping, and sorting and arranging objects

Pain
- Sensory symptoms, such as aching, tingling, numbness, cold, and burning
- Painful cramping (often an early manifestation of dystonia)

Sleep disorders
- Excessive daytime sleepiness
- Insomnia
- REM sleep behavior disorder, increased violent dream content (talking, yelling, swearing, grabbing, punching, kicking)
- Restless leg syndrome or disorders of circadian rhythm

Sources: Dawson 2000[8]; Allcock 2004[9]; Jankovic 2008[1]; Hely 1999[10]; Aarsland 2007[11]; Miyasaki 2007[12]; Gjerstad 2007[13]

TABLE 4
Medications That Create Signs or Symptoms That Mimic Parkinsonism

- Alpha-Methyldopa
- Amoxapine
- Aripiprazole
- Benzisoxazole derivatives (risperidone)
- Butyrophenones (e.g., haloperidol, droperidol)
- Dibenzapine derivatives (clozapine, olanzapine, quetiapine)
- Dibenzoxazepines (loxapine)
- Dihydroindolones (molindone)
- Metoclopramide
- Phenothiazines (e.g., chlorpromazine, trifluoperazine, thioridazine, fluphenazine, perphenazine, thiothixene)
- Prochlorperazine
- Tetrabenazine
- Valproate

Source: Adapted from Chen and Swope, 2005.[14]

ASSESSMENT

STEP 2

Conduct a pertinent history, physical examination, and mental status examination to determine whether the patient has Parkinson's disease or parkinsonism. Because no biological markers for PD exist, a thorough, accurate history and physical examination are essential to the diagnosis. Although the presence of two or more of the cardinal features suggests PD, the clinician must rule out Parkinson-like syndromes (Table 5). A diagnosis based solely on the presence of two or more of the cardinal features may be misleading. See the diagnostic criteria for Parkinson's disease according to the National Institute of Neurological Disorders and Stroke in Table 1 above.

DIP is common among the institutionalized elderly, who frequently take multiple medications. Patients with DIP are less likely to have tremor than are patients with PD and are more likely to exhibit symmetrical rigidity.[7]

Other disease processes that may be confused with PD include multiple systems atrophy (2%), progressive supranuclear palsy (1.4%), normal-pressure hydrocephalus, and diffuse Lewy body disease. Onset of these variants is usually symmetrical, whereas PD has a unilateral onset and progresses to involve the midline and later the limbs. Lewy body disease is characterized by early development of cognitive changes and early onset of visual and auditory hallucinations.[7]

Arthritis, essential tremor, depression, and the aging process can also be mistaken for PD.[15] An uncertain diagnosis should prompt the clinician to consider obtaining a consultation from a neurologist or psychiatrist with expertise in PD.

TABLE 5

Differentiation of Parkinson's Disease, Drug-Induced Parkinsonism, and Other Parkinson-Like Syndromes

Disease Characteristic	Parkinson's Disease	Drug-Induced Parkinsonism	Parkinson-Like Syndromes
Asymmetric vs. symmetric motor signs	Asymmetric	Typically symmetric	Symmetric
Time frame of progression	Slow progression of symptoms over years	Onset of parkinsonism after initiation or dosage increase of suspected agent Improvement with removal of offending agent*	Rapid progression of symptoms over several months to one year Onset of dementia early in course or before motor signs; history of falls early in course
Response to pharmacologic therapy	Response to levodopa or dopamine agonist	Improvement with removal of offending agent* or addition of anti-parkinsonian agent	Minimal or no response to levodopa or dopamine agonist

**Improvement within 2 to 12 months.*

STEP 3

Assess the physical function of the patient with Parkinson's disease. An assessment of physical function is essential to determining the stage of PD and identifying the interventions likely to be most effective. Interdisciplinary team members should, as clinically indicated, assess the patient's gait, balance, mobility, and ability to perform activities of daily living (ADLs).

The Hoehn and Yahr Scale (Table 6) identifies the five stages of PD that can be determined by mobility testing. The stage indicates the patient's current status but is not useful for determining prognosis. Other rating scales that can be used to assess the severity and impact of PD are listed in Table 7. All of these tools should be used only by licensed staff members who are trained and skilled in their administration. The value of these assessment tools may be compromised if patients are seriously cognitively impaired. Comparative studies of the use of some of these scales in PD have been published.[16-18]

TABLE 6

Hoehn and Yahr Staging of Parkinson's Disease

Stage 1
- Signs and symptoms on one side only
- Mild symptoms
- Symptoms inconvenient but not disabling
- Usually presents with tremor of one limb
- Friends have noticed changes in posture, locomotion, and facial expression

Stage 2
- Bilateral symptoms
- Minimal disability
- Posture and gait affected

Stage 3
- Significant slowing of body movements
- Early impairment of equilibrium on walking or standing
- Generalized, moderately severe dysfunction

Stage 4
- Severe symptoms
- Walking limited
- Rigidity and bradykinesia
- No longer able to live alone
- Tremor may be less pronounced than in earlier stages

Stage 5
- Cachectic stage
- Debility with total ADL dependency
- Cannot stand or walk
- Requires constant nursing care

ADL: activities of daily living.
Source: Adapted from the National Parkinson Foundation.

TABLE 7

Other Scales for Assessing Physical Function, Quality of Life, and Severity in Parkinson's Disease

Scale or Questionnaire	Source
Functional Reach Test	Duncan et al, 1990[19]
39-Item Parkinson's Disease Questionnaire (PDQ-39)	Peto et al, 1995[20]
Neuropsychiatric Inventory (NPI)	Cummings et al, 1994[21]
Parkinson's Disease Quality of Life Questionnaire (PDQL)	De Boer et al, 1996[22]
Schwab and England Activities of Daily Living	Schwab and England, 1969[23]
Short-Form 36 (SF-36)	Hays et al, 1993[24]
Short Physical Performance Battery (SPPB)	National Institute on Aging, 2007[25]
Sickness Impact Profile (SIP)	Gilson et al, 1975[26]
Timed Up and Go Test (TUG)	Podsiadlo and Richardson, 1991[27]
Unified Parkinson's Disease Rating Scale (UPDRS)	Fahn et al, 1987[28]

STEP 4

Assess the patient's emotional and cognitive status. A significant proportion of the so-called "non-motor" symptoms in PD include psychiatric and cognitive problems, such as depression, anxiety, psychosis, apathy, and cognitive impairment or dementia. Depression is one of the most common psychiatric complications in PD and may affect more than 50% of PD patients.[29] Psychosis, most often in the form of visual hallucinations or delusions, may affect more than 44% of PD patients,[11] particularly those who are elderly or have more advanced disease. One of the most common predictors of admission to nursing home care in persons with PD is the presence of visual hallucinations.[5] Mild cognitive impairment may occur in most PD sufferers, and frank dementia occurs in at least 40%.[30] Depression, anxiety, and psychosis are often part of the prodrome of a dementia syndrome and there-fore need to be properly assessed and managed. (See PALTmed's CPGs on dementia and depression.[a,b])

Several rating scales for the assessment of neuropsychiatric complications have now been validated. For depression, the Geriatric Depression Scale (GDS) is easy to use and is self-rated.[31] It should be used with caution once cognitive impairment is evident, however, because at this time it may no longer be valid. The 9-item depression scale of the Patient Health Questionnaire (PHQ-9) can be used to make a tentative diagnosis of depression and to assess the severity of depressive symptoms.[32] It can also be used to guide the selection of therapeutic choice and to assess responses to treatment after 4 to 6 weeks of intervention. Two other scales that may be useful as depression rating scales for PD patients are the Montgomery-Asberg Depression Rating Scale (MADRS) and the Cornell Scales for Depression in Dementia (CSDD).[31] Cognitive impairment may also be best assessed by caregiver report, focusing on impairments in the patient's ability to perform ADLs that are not related to their motor functioning. Erring on the side of "over-diagnosis" of depression is preferable to "under-diag-nosis."[33]

a Post-Acute and Long-Term Care Medical Association. Dementia in the Long Term Care Setting. Clinical Practice Guideline. Columbia, MD.

b Post-Acute and Long-Term Care Medical Association. Depression. Clinical Practice Guideline. Columbia, MD.

TABLE 8

Movement Disorder Society's Clinical Diagnostic Criteria for Dementia Associated With Parkinson's Disease

A. Features of Dementia Associated with Parkinson's Disease – Parkinson's Disease Dementia (PDD)

I. Core features

1. Diagnosis of Parkinson's disease according to Queen Square Brain Bank criteria
2. A dementia syndrome with insidious onset and slow progression, developing within the context of established Parkinson's disease and diagnosed by history, clinical, and mental examination, defined as:
   - Impairment in more than one cognitive domain
   - Representing a decline from premorbid level
   - Deficits severe enough to impair daily life (social, occupational, or personal care), independent of the impairment ascribable to motor or autonomic symptoms

II. Associated clinical features

1. Cognitive features:
   - Attention: Impaired. Impairment in spontaneous and focused attention, poor performance in attentional tasks; performance may fluctuate during the day and from day to day
   - Executive functions: Impaired. Impairment in tasks requiring initiation, planning, concept formation, rule finding, set shifting or set maintenance; impaired mental speed (bradyphrenia)
   - Visuo-spatial functions: Impaired. Impairment in tasks requiring visual-spatial orientation, perception, or construction
   - Memory: Impaired. Impairment in free recall of recent events or in tasks requiring learning new material, memory usually improves with cueing, recognition is usually better than free recall
   - Language: Core functions largely preserved. Word finding difficulties and impaired comprehension of complex sentences may be present
2. Behavioral features:
   - Apathy: decreased spontaneity; loss of motivation, interest, and effortful behavior
   - Changes in personality and mood including depressive features and anxiety
   - Hallucinations: mostly visual, usually complex, formed visions of people, animals or objects
   - Delusions: usually paranoid, such as infidelity, or phantom boarder (unwelcome guests living in the home) delusions
   - Excessive daytime sleepiness

III. Features that do not exclude PDD, but make the diagnosis uncertain

- Coexistence of any other abnormality which may by itself cause cognitive impairment, but judged not to be the cause of dementia, e.g., presence of relevant vascular disease in imaging
- Time interval between the development of motor and cognitive symptoms not known

IV. Features suggesting other conditions or diseases as cause of mental impairment, which, when present, make it impossible to reliably diagnose PDD

- Cognitive and behavioral symptoms appearing solely in the context of other conditions such as (a) acute confusion due to systemic diseases or abnormalities or drug intoxication or (b) major depression according to DSM-IV
- Features compatible with "probable vascular dementia" criteria according to NINDS-AIREN (dementia in the context of cerebrovascular disease as indicated by focal signs in neurological exam such as hemiparesis, sensory deficits, and evidence of relevant cerebrovascular disease by brain imaging AND a relationship between the two as indicated by the presence of one or more of the following: onset of dementia within 3 months after a recognized stroke, abrupt deterioration in cognitive functions, and fluctuating, stepwise progression of cognitive deficits)

B. Criteria for the Diagnosis of Probable and Possible Parkinson's Disease Dementia

Probable PDD

A. Core features: both must be present
B. Associated clinical features:
   - Typical profile of cognitive deficits including impairment in at least two of the four core cognitive domains (impaired attention which may fluctuate, impaired executive functions, impairment in visuospatial functions, and impaired free recall memory which usually improves with cueing)
   - The presence of at least one behavioral symptom (apathy, depressed or anxious mood, hallucinations, delusions, excessive day time sleepiness) supports the diagnosis of Probable PDD; lack of behavioral symptoms, however, does not exclude the diagnosis
C. No group III features present
D. No group IV features present

TABLE 8 (continued)

Possible PDD

A. Core features: both must be present
B. Associated clinical features:
   - Atypical profile of cognitive impairment in one or more domains, such as prominent or receptive-type (fluent) aphasia, or pure storage-failure type amnesia (memory does not improve with cueing or in recognition tasks) with preserved attention
   - Behavioral symptoms may or may not be present

OR

C. One or more group III features present
D. No group IV features present

DSM-IV: Diagnostic and Statistical Manual of Mental Disorders IV. NINDS-AIREN: National Institute of Neurological Disorders and Stroke and Association Internationale pour la Recherché et l'Enseignement en Neurosciences.
Source: Emre et al, 2007.[34]

It is increasingly recognized that dementia is a common feature in patients with PD. The cumulative prevalence of dementia in patients with PD has been reported to range from 48% to 78% after 15 and 8 years of follow-up, respectively.[34] Clinical diagnostic criteria for dementia in PD have been published by a task force organized by the Movement Disorder Society.[34,35] These criteria are summarized in Table 8. Specific test batteries can also be used to detect cognitive impairment and to determine whether conversion to PD dementia has occurred. For example, the Montreal Cognitive Assessment[36] has been shown to be more sensitive than the Mini-Mental State Exam (MMSE)[37] in identifying mild cognitive impairment and dementia in persons with PD.[38] Because early PD dementia typically presents with slowed cognitive processing, recall problems, impaired visuospatial functioning, and impaired verbal fluency,[39] looking only for "memory impairment" and using traditional screening tools such as the MMSE may be misleading. Ideally, once a baseline mental and cognitive state has been established, regular assessments thereafter to monitor progress should be undertaken by using the same set of tools.

STEP 5

Assess the patient for signs of dysphagia and altered nutritional status. Swallowing difficulty may occur as PD progresses. Assess patients' swallowing ability at baseline and as clinically indicated. Train caregivers to observe and report the signs and symptoms of a swallowing problem (Table 9). The practitioner should consider possible causes of coughing and swallowing difficulty, which may include medication side effects and other common problems such as gastroesophageal reflux disease. In the presence of signs and symptoms of dysphagia, the practitioner should determine, on the basis of the age and condition of the patient, whether therapeutic intervention by a speech-language pathologist or other evaluation may be helpful. When a swallowing evaluation for dysphagia is performed, the practitioner should interpret the results in terms of the patient's quality of life, taking into account the patient's cognitive and functional status, severity of disease, expressed preferences, and life expectancy.

Assess the patient on admission and at least monthly thereafter for weight changes, changes in food intake, changes in appetite, and altered nutritional status. (See PALTmed's CPG on altered nutritional status.[c])

[c] Post-Acute and Long-Term Care Medical Association. Altered Nutritional Status. Clinical Practice Guideline. Columbia, MD.

TABLE 9

Possible Indicators for Additional Assessment of Swallowing Problems (Dysphagia)

- Coughing, clearing throat when eating or drinking
- "Wet" or "gurgly" vocal quality during meals
- Difficulty with chewing
- Pocketing food in mouth
- Difficulty keeping food or liquid in mouth
- Decreased food consumption
- Slow eating
- Nasal regurgitation
- Difficulty swallowing pills
- Patient complains of having food "stuck in throat"
- Drooling

STEP 6

Assess the patient's physical functional status. This should be done at baseline, each time the Minimum Data Set (MDS) is completed, and as clinically indicated, for example, when significant changes occur in the patient's ability to perform ADLs or when comorbid disease is present. Consider the reasons for the patient's impaired function when deciding whether the patient would benefit from restorative nursing or from specific rehabilitation interventions such as physical or occupational therapy. Consider a speech therapy evaluation if there is a significant change in the patient's ability to communicate.

STEP 7

Assess the patient's medication regimen. A medication regimen review at baseline and whenever a significant change occurs in the patient's condition will help to identify drugs associated with DIP, drugs that can worsen nonmotor features, and other medication-related problems. Falls or changes in functional status may indicate a need for adjustment or discontinuation of medications. For example, concomitant use of anti-parkinsonian drugs (e.g., dopamine agonists and levodopa), diuretics, psychotropic drugs, antihypertensives, and specific cardiac agents may induce hypotension, falls, or syncope. Use of the Abnormal Involuntary Movement Scale can identify concomitant non-Parkinson's movement disorders such as tardive dyskinesia. In addition, caregivers can be trained to recognize and report certain drug effects. For example, in-service training could address the following effects of the drug levodopa:

- **"Wearing-off" effect:** The patient's duration of response to individual daily doses of levodopa becomes progressively shorter over time, resulting in a marked, predictable decline in function ("off time") before the next dose is administered. A more-frequent dosing regimen or initiation of adjunctive rasagiline or entacapone can compensate for this effect. Alternatively, adding a dopamine agonist or selegiline may also be considered. Use of controlled-release levodopa has not been shown to be consistently effective for reducing off time.[40]
- **Peak dose dyskinesia:** The patient displays abnormal twisting or jerking movements of the head, trunk, and extremities when levodopa is at its peak effectiveness. Reducing individual levodopa daily doses or doses of concomitant anti-parkinsonian agents (e.g., dopamine agonist, MAO-B inhibitor) or adding amantadine may be considered.[40]

TABLE 10

Common Nonpsychiatric Complications and Comorbidities of Parkinson's Disease With Possible Interventions

Complication	Possible Interventions
Constipation	◆ Modify diet to increase fluid, fiber, and bulk ◆ Stop anticholinergic medications ◆ Increase physical activity as appropriate ◆ Prescribe osmotic agents, enemas, stool softeners, or mild laxatives
Urinary incontinence	◆ Move diuretic dose to earlier in the day or discontinue unnecessary diuretics ◆ Toilet frequently (see the PALTmed CPG on urinary incontinence[d]) ◆ Consider anti-spasmodic medication or urologic evaluation
Sexual dysfunction	◆ Review medications and consider additional medical evaluation ◆ Treat depression if present ◆ Consider urologic evaluation
Orthostatic hypotension	◆ If possible, reduce or eliminate medications that can exacerbate hypotension (e.g., diuretics, nitrates, ACE inhibitors, calcium channel blockers, hydralazine, prazosin, other antihypertensive drugs, psychoactive drugs, digoxin) ◆ Reduce dosages of dopamine agonists (if possible) ◆ Instruct patient how to prevent syncope or falling when rising from a supine position ◆ Increase salt and fluid intake ◆ Consider use of supportive stockings ◆ Elevate head of bed ◆ Consider medication (fludrocortisone, midodrine) as a last resort
Thermoregulation and sweating	◆ Reduce dosage of anticholinergic agent or beta-adrenergic blocker to allow sweating ◆ Consider other causes of fever (e.g., infection, tumors, vascular accidents, thyroid crisis, drugs such as sulfonamides, barbiturates, and iodides)
Pain and dysesthesia	◆ Treat fluctuations and dystonia if present ◆ Treat depression if present ◆ Evaluate other medical problems that could cause pain (see the PALTmed CPG on pain management[e])
Dysphagia (swallowing difficulty)	◆ Conduct swallowing evaluation if appropriate ◆ Teach safer swallowing techniques ◆ Consider providing foods of alternate texture and consistency ◆ Consider providing thickened liquids ◆ Consider gastrostomy tube for feeding (if appropriate)
Seborrhea (acne)	◆ Prescribe medicated shampoos or topical steroids ◆ Consider dermatological evaluation as necessary
Dry eyes	◆ Consider lubricating ointments or solutions or warm compresses or refer for ophthalmologic evaluation
Sleep disturbance (insomnia)	◆ Evaluate for sleep disorder ◆ Encourage sleep hygiene; review environmental and bedtime factors ◆ Review medications for potential medication-induced insomnia (including PD medications, dosages, and timing of administration) ◆ Evaluate for depression
Restless legs syndrome	◆ Evaluate primary disorder ◆ Consider medication (dopamine agonist, carbidopa/levodopa, clonazepam, codeine, gabapentin)
Joint contractures and stiffness in extremities or spine	◆ Evaluate joint mobility and function ◆ Implement exercise program ◆ Provide specialized seating and positioning devices

[d] Post-Acute and Long-Term Care Medical Association. Urinary Incontinence. Clinical Practice Guideline. Columbia, MD.

[e] Post-Acute and Long-Term Care Medical Association. Pain Management in the Long Term Care Setting. Clinical Practice Guideline. Columbia, MD.

TABLE 10 (continued)

Complication	Possible Interventions
Postprandial hypotension	◆ Consider frequent small meals ◆ Consider low-carbohydrate diet that includes starches (less-readily digestible carbohydrates) ◆ Avoid alcohol ◆ Avoid excessive exercise within 2 hours after meals ◆ Evaluate use of medications associated with postprandial hypotension (e.g., diuretics, nitrates, ACE inhibitors, calcium channel blockers, hydralazine, prazosin, other antihypertensive drugs, psychoactive drugs, digoxin); discontinue these medications if possible ◆ Avoid hypovolemia if possible

ACE, angiotensin-converting enzyme; CPG, clinical practice guideline.
Sources: Olanow et al 2001[41]; Aranow 1999[42]

STEP 8

Assess the patient's risk for developing comorbidities and complications and need for specialty consultation. Major complications that may require additional assessment are altered nutritional status, infections, pressure ulcers, aspiration pneumonia, falls, contractures, altered mental status, depression, dementia, psychosis, and new onset of urinary or fecal incontinence or fecal impaction. Conduct this assessment at baseline and as clinically indicated. Table 10 lists common comorbidities and complications with possible interventions.

Potentially disabling neuropsychiatric conditions such as dementia, delirium, and depression appear in most PD patients at some point in the disease continuum. Among PD patients, old age, functional impairment, dementia, and hallucination are the leading predictors of nursing home placement.[5] Side effects of medications used to treat PD may paradoxically exacerbate underlying nonmotor comorbidities (e.g., cognitive impairment, orthostatic hypotension, sleep disorders) or exacerbate the same symptoms they are intended to treat. Discontinuing a medication or switching to another agent may resolve or mitigate the problem and diminish the need for other pharmacologic and nonpharmacologic interventions.

Consider referral to a specialist such as a geriatric psychiatrist or neurologist based on the presence or absence of motor versus nonmotor symptoms. Note that specialty consultation may not be appropriate for all individuals in the long-term care setting. Before seeking consultation, take into account the patient's cognitive and functional status, severity of disease, expressed preferences, and life expectancy. If it is determined that a specialty consultation is not in the best interests of an individual patient for whom basic measures have not helped, ensure that the rationale for this decision is carefully documented in the patient's record.

STEP 9

Summarize the patient's condition. The practitioner's written summary of the patient's medical condition should:

- Describe the patient's medical conditions and stability, including the severity of PD and associated complications as well as other significant medical conditions.
- Describe the impact of PD on the patient's function and quality of life.
- Provide reasons why other suspected diagnoses were not pursued (e.g., patient too frail, terminal, or unwilling to undergo further interventions).

STEP 10

Assess the patient's need for palliative care or hospice. As defined by the World Health Organization, palliative care is an approach that improves the quality of life of patients and their families through the prevention and relief of suffering by means of early identification and comprehensive assessment and treatment of pain and other physical, psychosocial, and spiritual problems.[43] Palliative care may include hospice care. (See PALTmed's publication on palliative care.[f]) It is prudent and appropriate to consider a palliative care model upon admission to the long-term care facility if progressive decline is expected and not preventable. Assessment for palliative care includes consideration of the stage of disease (the Hoehn and Yahr score; see Table 6 above) and the patient's ability to perform ADLs.[44] The guidelines of the National Hospice and Palliative Care Organization recommend the use of the Functional Assessment Staging Tool (FAST) to determine the severity of a patient's dementia.[45] In addition to the clinical care palliative model, the hospice benefit provides up to one year of bereavement support to families after death. Hospice support to families before the expected death of a loved one can be helpful.

TREATMENT

A multifaceted approach to treating PD is essential. This involves addressing the patient's spiritual, social, emotional, and cultural needs and concerns as well as his or her physical needs. The implementation of such an approach to care may involve the interaction of clinicians, caregivers, family members, nonclinical facility staff, and patients themselves to the extent that they are able to participate.

Nonpharmacologic and pharmacologic therapies are the mainstays in the primary management of PD. Careful and thoughtful consideration should be given to selection of anti-parkinsonian therapies, and desired outcomes should be individualized. Surgical interventions are reserved for individuals who are levodopa-responsive and are experiencing severe fluctuations and dyskinesia despite medical optimization. Deep brain stimulation has become the most commonly performed surgery for PD in North America.[40] Studies have shown that when performed on appropriately selected patients, the symptomatic and functional improvements after deep brain stimulation can result in a higher quality of life in some well-selected patients.[46]

STEP 11

Develop an individualized care plan. Development of the care plan should be coordinated by the nursing staff, with practitioner oversight and input from all pertinent disciplines as well as from the patient or caregiver as feasible and appropriate. It is important that the patient's individual goals and preferences be incorporated into the care plan and that he or she participates in treatment decisions to the extent possible. Key components of the care plan should be clearly documented in the practitioner's orders. It is also important that information about the patient's condition and the proposed care plan are communicated to caregivers and family members. Early discussion with patients regarding advance care planning is imperative. Initiate a discussion regarding the need to identify a proxy to act as a surrogate in case the patient is unable to communicate his or her own treatment needs and desires. The proxy should be fully informed and included in discussions with regard to the patient's wishes. In the event that the patient loses the ability to make and communicate medical decisions, advance directives define the medical care desired (to include instructions related to resus-

[f] Post-Acute and Long-Term Care Medical Association. Palliation in the Long Term Care Setting. LTC Information Series. Columbia, MD.

citation, pain management, hydration, and artificial nutrition) and specify whom to ask for decisions in the future. (See the PALTmed *White Paper on Surrogate Decision-Making and Advance Care Planning in Long-Term Care*[g].) If decline is expected and not preventable, that prognosis should be documented and discussed with the family.

STEP 12

Implement appropriate nonpharmacologic interventions. Patients with PD may benefit from nonpharmacologic interventions. Incorporating such interventions into patients' daily lives can enable patients to continue to socialize and participate in leisure interests and other activities. In many cases, nonpharmacologic interventions can reduce the need for drug therapy. Consider psychological counseling and support groups for selected patients. Environmental adaptations should address potential hazards for falls (see the PALTmed CPG on falls[h]).

Other nonpharmacologic interventions may include:

- physical and occupational therapy,
- speech therapy,
- dietary therapy,
- recreational therapy, and
- complementary and alternative medicine.

Several studies have described the potential value of exercise in the treatment of PD.[47] Educate patients, caregivers, and family members about the benefits of regular exercise and the effects of postural impairments and rigidity as they relate to mobility, ADLs, and functional status. Establish exercise programs early in the disease process to maintain flexibility of joints and strength of extensor muscles (trunk and lower extremities). Modify as warranted by change in functional status or disease progression. Introduce appropriate assistive devices as indicated. Assistive devices include manual wheelchairs, seating systems, power devices (scooters, power chairs), orthotics, ambulation devices, and protective measures (e.g., hip protectors).

Speech-language pathology may play a role in treatment. For example, cognitive training by a speech pathologist may be considered in cases of dementia.

Complementary and alternative medicine, which is defined as "a group of diverse medical and health care systems, practices, and products that are not generally considered to be part of conventional medicine,"[48] may also be considered. Some studies suggest that simple touch can reduce agitation in patients with dementia.[49] Methods such as Reiki, aroma therapy, music therapy, simple touch, and massage all have some evidence-based studies suggesting potential efficacy.[50-53]

The possible indications and goals of nonpharmacologic therapy are listed in Table 11.

g Post-Acute and Long-Term Care Medical Association. White Paper on Surrogate Decision-Making and Advance Care Planning. Columbia, MD.

h Post-Acute and Long-Term Care Medical Association. Falls and Fall Risk. Clinical Practice Guideline. Columbia, MD.

TABLE 11

Possible Indications and Goals for Nonpharmacologic Therapy

Possible Indications	Services to Consider	Possible Goals
Physical and Occupational Therapy		
◆ Difficulty with balance ◆ Stumbling ◆ Falls or near falls ◆ Gait instability ◆ Decline in ambulation ◆ Decline in ability to perform ADLs independently ◆ Decline in postural control	◆ Review environment for safety ◆ Assess for risk of falls ◆ Assess for training in use of assistive devices and adaptive equipment ◆ Provide balance training ◆ Provide therapeutic exercise ◆ Assess for orthotics ◆ Establish or upgrade restorative nursing program	◆ Improve or maintain balance ◆ Improve or maintain gait or locomotion and gait stability ◆ Decrease falls and fall risk ◆ Improve or maintain muscle performance (strength, power, and endurance) ◆ Improve or maintain respiratory function through breathing exercises and other strategies (later in disease process) ◆ Maintain postural control and minimize postural deformities ◆ Improve or maintain strength and range of motion of joints to maximize functional mobility and ADL performance ◆ Improve or maintain the highest level of independence and ADL performance ◆ Improve or maintain dining skills ◆ Improve overall functioning and safety In late-stage PD: ◆ Promote and maintain safe mobility ◆ Use positioning and seating devices to minimize risk of pressure ulcers and aspiration pneumonia
Recreational Therapy		
◆ Likely to benefit from improved or maintained flexibility, posture, and balance ◆ Experiencing feelings of depression or isolation because of PD	◆ Encourage involvement in preferred activities, hobbies, and interests ◆ Encourage exercise as appropriate ◆ Implement therapeutic chores that focus on self-esteem and make patient feel useful and empowered	◆ Maintain quality of life ◆ Address or prevent depression ◆ Improve mental status and mood or attitude ◆ Provide relaxation techniques and support family and caregivers ◆ Improve muscle performance (strength, power, and endurance) ◆ Reduce risks of postural deformities and improve postural control ◆ Maintain adequate range of motion and reduce risk of contractures and deformities ◆ Improve gait, locomotion, and balance ◆ Reduce risk of urinary incontinence ◆ Improve mobility ◆ Improve pulmonary function and reduce risk of pneumonia ◆ Reduce falls
Speech Therapy		
◆ Dysphagia ◆ Decreased vocal quality ◆ Dysarthria ◆ Cognitive decline	◆ Conduct diagnostic evaluation ◆ Provide speech exercises ◆ Suggest alternative or augmentative communication devices	◆ Improve skills for communicating wants, needs, and ideas ◆ Improve vocal quality for more effective communication ◆ Improve cognitive skills through use of compensatory strategies ◆ Identify clinically significant dysphagia that may be contributing to weight loss ◆ Recommend swallowing strategies to maximize function

TABLE 11 (continued)

Possible Indications	Services to Consider	Possible Goals
Dietary Therapy		
◆ Weight loss ◆ Reduced food intake ◆ Altered nutritional status ◆ Constipation	◆ Evaluate whether diet is appropriate to patient's needs ◆ Assess disease-specific issues (DM, gout, CKD, CHF) ◆ Evaluate vitamin replacement needs ◆ Assess potential food-drug interactions	◆ Well-balanced diet and adequate hydration ◆ Determine likes and dislikes ◆ Calculate caloric needs ◆ Educate patient, family, and staff ◆ Make recommendations to practitioner ◆ Track sequential progress (i.e., weights)
Complementary and Alternative Medicine		
◆ Reduce pain ◆ Reduce tension and stress ◆ Relieve anxiety ◆ Reduce loss of hope ◆ Reduce sense of loneliness ◆ Synergize communications ◆ Release anger	◆ Acupuncture ◆ Aroma Therapy ◆ Music Therapy ◆ Qigong ◆ Reiki ◆ Yoga ◆ Zero balance	◆ Assist patient in finding a place of calm ◆ Release worry and anxiety ◆ Encourage patient to let go of anger ◆ Alleviate sense of stress ◆ Replenish a sense of hope ◆ Relieve the suffering of loneliness ◆ Diminish the focus on physical pain ◆ Synergize patient's own spiritual connections ◆ Offer human presence and connection ◆ Facilitate communication with significant others ◆ Allow increased relaxation

CHF: congestive heart failure; CKD: chronic kidney disease; DM: diabetes mellitus.

Some practical techniques for enhancing patient independence, mobility, and safety were identified in one qualitative study that explored facilitators and barriers to participation in functional activities and exercise by persons with PD.[54] These are listed in Table 12.

STEP 13

Implement appropriate pharmacologic inerventions. Pharmacotherapy should be combined with nonpharmacologic therapy (e.g., education, exercise, social support, nutrition). Input from a consultant pharmacist is encouraged.

Levodopa combined with carbidopa has long been considered the gold standard for treating PD (Table 13); however, long-term use of levodopa is associated with motor complications. Involuntary movements (dyskinesia) are among the most disabling of these complications. Patients treated with dopamine agonist monotherapy experience a lower incidence of dyskinesia than do patients who receive levodopa monotherapy.[55]

TABLE 12

Optimizing Physical and Cognitive Function in Persons with Parkinson's Disease

Task	
Dressing	Have patient sit down when dressing Use pullovers (sweaters, blouses, and dresses) Do not use buttons; instead use zippers, hooks, or snaps Use skirts or pants with elasticized waistbands for women Use paper clips, zipper pulls, or safety pins for zippers Use elastic shoe laces Use grabber-reacher Use sock helper
Bathing	Install shower chair or bench with back Install grab bars in shower and next to sink and toilet Encourage the patient to use an electric toothbrush and electric shaver Install handheld shower head
Toileting	Encourage patient to toilet every two hours Use pull-up protective undergarments Use waterproof cover on mattress Use urinal or commode at bedside for nighttime
Transferring	Use chair with arms Instruct patient to move forward on chair seat to get out of chair Raise bed, chairs, and toilet seats Use small bedrail at top of bed to help patient get out of bed
Eating	Offer foods with thicker consistency like cheese, soups, or pureed foods Encourage patient to use a spoon instead of straw
Walking	Use verbal cueing to "take big steps" Train with walker early in the disease so that stance is straighter Use a walker with brakes, seat, and a basket Use a gait belt
Freeze Episodes	Avoid small spaces, clear clutter Touch the limb that is frozen. Sometimes just touching the arm helps the person to move Use humor to distract Be patient; wait for the freeze to pass Use verbal cueing to get the person started moving: (i.e., "Pick up your feet, left, right, left, right, pick it up and put it down now.")
Communication	Cue the patient to "speak slowly, sit straight, clear throat, take a deep breath, and project voice" Allow extra time for the patient to speak. Don't answer for the patient
Lack of Stimulation	Use books on tape Read the newspaper to patient Encourage conversation with others Encourage the presence of others and simple touch Use music therapy Use aroma therapy
Cognitive Decline	Keep surroundings familiar Use verbal cueing Use signs to remind patient to use assistive devices or do simple tasks Give step-by-step directions

Source: Adapted from Pretzer-Aboff et al, 2009[54]

TABLE 13

Pharmacological Treatment of Parkinson's Disease

Drug Class	Drug Name/ Availability	Dosage	Adverse Effects	Comments/Useful Documentation/ Outcome Measurement
Dopaminergic Precursor Converts to dopamine	carbidopa/levodopa (Parcopa, Sinemet, Sinemet CR) **Tablets:** 10/100 mg, 25/100 mg, 25/250 mg **Orally disintegrating tablets:** 10/100 mg, 25/100 mg, 25/250 mg **Tablets sustained release:** 25/100, 50/200 mg	**Start:** 25/100 mg daily **Titrate:** Every 3 to 5 days to 25/100 mg TID. Increase or decrease frequency or dose thereafter as necessary. **Maximum dosage:** No maximum. Generally 800 to 1000 mg levodopa/d. **Sustained release:** Start 25/100 mg daily **Titrate:** Every 3 to 5 days to 50/200 mg BID. Increase frequency or dose thereafter as necessary.	Anorexia, confusion, delusions, dizziness, dyskinesia, hallucinations, insomnia, nausea, vomiting, nightmares, postural hypotension, "wearing off" effect	If drug response is erratic or suboptimal, avoid sustained release and convert to conventional tablet Add carbidopa (Lodosyn) if nausea or orthostatic hypotension occurs Take with meals to minimize nausea Avoid concomitant administration of iron supplement within 2 hours of levodopa *Follow: MDS Sections C3-C5; E; F; G
Dopamine Agonists Act on postsynaptic dopamine receptors to produce similar effect to dopamine	bromocriptine (Parlodel) **Tablets:** 2.5 mg **Capsules:** 5 mg	**Start:** 2.5 mg daily **Titrate:** Every 3 days to achieve 5 mg TID **Maximum dosage:** 15–40 mg/d	Anorexia, confusion, constipation, delusions, dizziness, hallucinations, hypersexuality, impulse control disorders, insomnia, nausea, vomiting, orthostatic hypotension, retroperitoneal or pulmonary fibrosis, somnolence	Considered to be the least effective dopamine agonist Take with meals to minimize nausea Titrate slowly to minimize side effects *Follow: MDS Sections C3-C5; E; F; G
	pramipexole (Mirapex) **Tablets:** 0.125 mg, 0.25 mg, 0.75 mg, 1 mg, 1.5 mg	**Start:** 0.125 mg QAM **Titrate:** 0.125 mg every 3 to 5 days to achieve 1mg TID. Increase or reduce dose thereafter as necessary. **Maximum dosage:** 4.5 mg	Anorexia, confusion, constipation, delusions, dizziness, hallucinations, hypersexuality, impulse control disorders, insomnia, nausea, vomiting, orthostatic hypotension, somnolence	Take with meals to minimize nausea Titrate slowly to minimize side effects Lower dosages required for renal impairment *Follow: MDS Sections C3-C5; E; F; G
	ropinirole (Requip, Requip XL) **Tablets:** 0.25 mg, 0.5 mg, 1 mg, 2 mg, 3 mg, 4 mg, 5 mg **Tablets sustained release:** 2 mg, 4 mg, 6 mg, 8 mg, 12 mg	**Start:** 0.25 mg QAM **Titrate:** 0.25 mg every 3 days to achieve 2 to 4mg TID. Increase or decrease dose thereafter as necessary. **Maximum dosage:** 24 mg/d **Sustained release:** Start 2 mg QAM **Titrate:** Every 3 to 5 days to 6 to 12 mg daily	Same as pramipexole	Take with meals to minimize nausea Titrate slowly to minimize side effects *Follow: MDS Sections C3-C5; E; F; G
COMT Inhibitors Extend elimination half-life of levodopa	entacapone (Comtan) **Tablets:** 200 mg	**Dose:** 200 mg with each dose of levodopa, up to 8 times a day **Maximum dosage:** 1600 mg/d	Diarrhea, dopaminergic side effects (e.g., confusion, dyskinesia, hallucinations, nausea, vomiting, postural hypotension)	Use as adjunct to levodopa therapy Dose should be taken at the same time as levodopa dose *Follow: MDS Sections C3-C5; E; F; G

TABLE 13 (continued)

Drug Class	Drug Name/ Availability	Dosage	Adverse Effects	Comments/Useful Documentation/ Outcome Measurement
COMT Inhibitors Extend elimination half-life of levodopa (continued)	tolcapone (Tasmar) **Tablets:** 100 mg, 200 mg	**Start:** 100 mg daily with first dose of levodopa **Titrate:** 100 mg every 3 days to achieve 200 mg TID **Maximum dosage:** 600 mg/d	Same as entacapone Also liver toxicity	Use as adjunct to levodopa therapy Requires monitoring of liver function enzymes *Follow: MDS Sections C3-C5; E; F; G
Anticholinergics	benztropine (Cogentin) **Tablets:** 0.5 mg, 1 mg, 2 mg	**Start:** 0.5 mg QHS **Titrate:** 0.5 mg every 3 to 5 days to achieve 1 mg TID. May increase dose as tolerated for effectiveness.	Agitation, blurred vision, confusion, constipation, dizziness, drowsiness, dry mouth, memory impairment, tachycardia, body temperature dysregulation, urinary retention	Use cautiously in the elderly *Follow: MDS Sections C3-C5; E; F; G
	trihexyphenidyl (Artane) **Tablets:** 2 mg, 5 mg **Capsules:** SR 5 mg **Elixir:** 2 mg/5 ml	**Start:** 1 mg QHS **Titrate:** 1 mg every 3 to 5 days to 2 mg TID. May increase dosage as tolerated for effectiveness. **Time-released capsule:** 5 mg BID	Same as benztropine	Use cautiously in the elderly *Follow: MDS Sections C3-C5; E; F; G
Glutamate Receptor Antagonist Also some dopaminergic and anticholinergic activity	amantadine (Symmetrel) **Capsules:** 100 mg **Elixir:** 50 mg/5 ml	**Start:** 100 mg daily **Titrate:** 100 mg every 3 to 5 days to 300 mg/d. May increase to 400 mg/d as tolerated.	Anorexia, confusion, constipation, dizziness, dry mouth, hallucinations, insomnia, nausea, orthostatic hypotension, ankle edema, livedo reticularis	Lower dosages required for renal impairment Also useful for management of levodopa-induced dyskinesia *Follow: MDS Sections C3-C5; E; F; G
MAO-B Inhibitors Selectively inhibit MAO-Type B and dopamine metabolism	rasagiline (Azilect) **Tablets:** 0.5 mg, 1 mg	**Dose:** 1 mg daily	Anorexia, dizziness, dyskinesia if in combination with levodopa	May use in combination with serotonergic antidepressants; but potential for serotonin syndrome Do not use concomitantly with fluoxetine or meperidine
	selegiline (Eldepryl, Zelapar) **Tablets:** 5 mg **Orally disintegrating tablets:** 1.25 mg, 2.5 mg	**Dose:** 5 mg with breakfast and with lunch **Orally disintegrating tablets:** 2.5 mg daily	Confusion, delusions, dizziness, euphoria, hallucinations, insomnia, orthostatic hypotension, vivid dreams, dyskinesia if in combination with levodopa	May use in combination with serotonergic antidepressants; but potential for serotonin syndrome Do not use concomitantly with fluoxetine or meperidine Orally disintegrating tablets must be held in mouth for one minute to be absorbed for efficacy Avoid food or liquid for 5 minutes before and after a dose *Follow: MDS Sections C3-C5; E; F; G

TABLE 13 (continued)

Pharmacological Treatment of Parkinson's Disease

Drug Class	Drug Name/ Availability	Dosage	Adverse Effects	Comments/Useful Documentation/ Outcome Measurement
Tricyclic Antidepressants For anxiety or depression	nortriptyline desipramine	Refer to Paltmed's CPG on depression and pharmacotherapy companion[i]	Blurred vision, confusion, constipation, dry mouth, urinary retention, weight gain	Refer to PALTmed's CPG on depression and pharmacotherapy companion[i]
Selective Serotonin Re-uptake Inhibitors For anxiety or depression	citalopram (Celexa) escitalopram (Lexapro) venlafaxine (Effexor) paroxetine (Paxil) sertraline (Zoloft)	Refer to Paltmed's CPG on depression and pharmacotherapy companion[i]	Agitation, akathisia, anorexia, insomnia, nausea, sexual dysfunction, somnolence, hypertension (venlafaxine)	Refer to PALTmed's CPG on depression and pharmacotherapy companion[i]
Other Antidepressants	mirtazapine (Remeron) bupropion (Wellbutrin)	Refer to Paltmed's CPG on depression and pharmacotherapy companion[i]	Increased appetite (mirtazapine); insomnia, seizure risk in high-risk patients (bupropion), weight gain	Refer to PALTmed's CPG on depression and pharmacotherapy companion[i]
Antipsychotics For hallucinations or delusion	clozapine (Clozaril) quetiapine (Seroquel)	**Initial dose:** 6.25–12.5 mg QHS Increase to 25 mg BID as necessary **Initial dose:** 25 mg QHS. Increase to 200 mg/day as necessary	**Clozapine:** agranulocytosis, dizziness, hypersalivation, postural hypotension, somnolence, **Quetiapine:** sedation	**Clozapine:** Monitor with baseline WBC count and weekly WBC counts for 6 months
Combination Product	carbidopa/levodopa-entacapone (Stalevo)	Therapy should be individualized and adjusted according to the desired therapeutic response Initial dose based on previous carbidopa/levodopa (+/- entacapone) dose	**Carbidopa/levodopa:** dyskinesias, such as choreiform, dystonic, and other involuntary movements and nausea **Entacapone:** dyskinesia/hyperkinesia, nausea, urine discoloration, diarrhea, and abdominal pain	Monitor response to therapy. Additional immediate-release carbidopa/levodopa may be necessary in some residents because of dosing limitations of fixed-dose combination *Follow: MDS 2.0 Sections C3-C5; E; F; G

BID: twice a day; MAO: monoamine oxidase; MDS: Minimum Data Set; QAM: once a day, in the morning; QHS: once a day, at bedtime; SR: sustained release; TID: three times a day; WBC: white blood cell.

*Note: in version MDS 3.0, follow sections B4-B6; D; E; G.

[i] Post-Acute and Long-Term Care Medical Association. Depression. Clinical Practice Guideline. Columbia, MD.and Post-Acute and Long-Term Care Medical Association. Pharmacotherapy Companion to Depression Clinical Practice Guideline. Clinical Practice Guideline. Columbia, MD.

Dopamine agonists or monoamine oxidase inhibitors (e.g., rasagiline, selegiline) are considered an appropriate fist-line therapy for younger patients. In younger patients, because of the risk of developing levodopa-associated motor complications, initiation of levodopa may be reserved for later in the course of PD. On the other hand, levodopa is preferable for patients aged over 70 years or for those with dementia because dopamine agonists are associated with a greater propensity for inducing confusion, hallucinations, hypotension, impulse control disorders, memory impairment, nausea and vomiting, and excessive daytime sedation.[55] In older patients, the efficacy and tolerability of levodopa outweighs the risk of developing dyskinesia.

There is insufficient evidence to recommend either initiating treatment with sustained-release levodopa rather than the immediate-release formulation or prescribing selegiline for neuroprotection against PD.[40] More recent evidence suggests that initiation of rasagiline earlier in the course of PD results in better clinical outcomes.[56] Dosage times should be individualized on the basis of timing of worst symptoms, meals, physical therapy or occupational therapy sessions, time of awakening, and bedtime.

The Exelon Patch (rivastigmine transdermal system) is also approved by the Food and Drug Administration to treat mild to moderate PD dementia.

STEP 14

Implement nutritional interventions as necessary. Nutritional status has been shown to worsen in PD with duration of disease, and therefore evaluating nutritional status should be part of the routine evaluation of PD patients.[57] Dietary patterns with a high intake of fruits, vegetables, legumes, whole grains, nuts, fish, and poultry and a low intake of saturated fat and a moderate intake of alcohol may protect against PD.[58] Avoid giving levodopa in conjunction with a high-protein meal. The amino acids in the protein and levodopa compete for absorption, which can cause fluctuations in response.

If the patient does not consume sufficient nutrients, consider giving a dietary supplement as a daily multivitamin and mineral supplement (preferably in a liquid form). (See PALTmed's CPG on altered nutritional status.[c])

Constipation may be caused by the medications used to treat PD but is also a symptom of the disease itself. Persons with PD should consume fiber-containing foods (aiming for 25 to 35 grams of fiber per day) and plenty of fluids.

For patients who are too tired to eat, have a suppressed appetite, or are nauseated, offer foods that provide the most calories, protein, vitamins, and minerals, such as the following: cheese; peanut butter (until patient becomes dysphagic); whole milk; ice cream; dried fruits; nuts; fruit and vegetable juice; instant breakfast mixes or advanced nutritional products; butter, cream cheese, jam, syrup, sour cream, and salad dressing; beans and lentils; and eggs. (Be aware of the common occurrence of lactose intolerance in the elderly and African Americans.) Consider referring the patient for a dietary consultation as necessary.

STEP 15

Manage complications and comorbidities associated with Parkinson's disease and obtain specialty consultation if appropriate. The nature of the complication or comorbidity will determine the appropriate interventions and the appropriate specialists who should participate (see Table 10 above and Tables 14 and 15).

[c] Post-Acute and Long-Term Care Medical Association. Altered Nutritional Status. Clinical Practice Guideline. Columbia, MD.

As previously noted, specialty consultation may not be appropriate for all individuals in the long-term care setting who have PD (see Step 8). Consider the patient's cognitive and functional status, severity of disease, expressed preferences, and life expectancy when determining whether to seek consultation. If it is determined that a specialty consultation is not in the best interests of an individual patient, or that additional consultations are unlikely, ensure that the rationale for this decision is documented in the patient's record. When the resident is unable to swallow medications or food, end-of-life discussions, including discussions of hospice care, should be considered (see Step 10).

Artificially administered nutrition and hydration may be clinically appropriate for certain patients with PD when swallowing problems become severe. Before deciding to initiate artificial feeding, however, the practitioner should rule out potentially reversible or treatable causes of eating difficulties. The interdisciplinary team should meet with the patient and family to consider the risks and benefits of this intervention and the patient's preferences. Artificial feeding may be appropriate when:

- there is a clinical indication for its use,
- it provides a benefit that is not outweighed by risks, and
- it is consistent with the known values and preferences of the patient and family.

For additional guidance on the use of artificial feeding methods, see PALTmed's CPG on altered nutritional status.[c] For additional guidance on methods of hydration, such as clysis, refer to the PALTmed guideline on dehydration and fluid maintenance.[j]

TABLE 14
Guide to Specialty Consultations

Specialist	Indications
Neurologist	For differential diagnosis, management of motor complications (e.g., dyskinesia, on-off fluctuations)
Psychiatrist, geriatric psychiatrist	Psychosis, depression, delusions, hallucinations, dementia
Physiatrist	Recurrent falls despite practitioner review of causes and physical therapy, contractures, functional decline, disequilibrium
Urologist	Urinary incontinence
Radiologist	Management of dysphagia in patient at significant risk for aspiration pneumonia
Gastroenterologist	Permanent artificial feeding
Hospice and palliative medicine	Assessment of prognosis, assistance in pain management, assisting families in understanding palliative options and techniques for dealing with acceptance of the prognosis

[c] Post-Acute and Long-Term Care Medical Association. Altered Nutritional Status. Clinical Practice Guideline. Columbia, MD.

[j] Post-Acute and Long-Term Care Medical Association. Dehydration and Fluid Maintenance. Clinical Practice Guideline. Columbia, MD.

TABLE 15

Possible Consultations to Consider for Complications and Comorbidities of Parkinson's Disease

Condition	Possible referral (after practitioner evaluation)
Aspiration pneumonia	Speech therapy Diet/nutrition therapy
Fall-related injury	Consultant pharmacist (medication review) Physical therapy Occupational therapy Restorative nursing
Infection	Various - evaluate for source
Pressure ulcer	Restorative nursing Occupational/physical therapy Ostomy nurse or wound treatment specialist if available
Autonomic dysfunction	Diet/nutrition therapy Medication review
Decreased food intake	Diet/nutrition therapy Occupational therapy Speech therapy Dentist
Dementia	Cognitive assessment Speech-language pathologist (as necessary)
Sleep disturbance	Sleep evaluation
Constipation	Bowel/bladder training Diet/nutrition therapy Restorative nursing Medication review

STEP 16

Consider referring the patient with advanced illness for palliative care or hospice. Because PD is a chronic, progressive disease with limited therapeutic options in its advanced stages, the optimal care of such patients should include applying the principles of palliative medicine.[44] Palliation of PD symptoms should be addressed for all stages of the disease. Individuals with mild PD symptoms may experience pain, depression, and sleep disorders. Those with moderate disease often begin to experience altered response from the anti-parkinsonian medications and begin to experience fluctuation in mobility, falling, freezing of gait, increased disability, and urinary tract symptoms. In the advanced stage of PD, advance care planning is crucial. At this stage, dementia is more prevalent and

behavior problems (wandering, sundowning, agitation, and aggressive behaviors) can pose safety problems. Impaired swallowing is common and the use of a feeding tube or withholding or withdrawing treatment at the end of life needs to be discussed with the patient and proxy. Not surprisingly, family members are especially stressed at this time and are often in need of extra support. Consider consultation with social services, a review of community resources, and assessment of the patient's spiritual needs. Agencies such as the National Hospice and Palliative Care Organization offer educational resources for patients, caregivers, and family members (see the Resources section on page 28).

Hospice is an interdisciplinary team approach that supports the patient, family or significant others, and caregivers. Coordination between long-term care facility teams and hospice or palliative care teams is important in both care and documentation. During changes in condition near the end of life, the palliative care and hospice support teams can assist families and can help to prevent inappropriate transfers and admissions to the hospital, where ineffective medical care may be initiated and where a lack of continuity of care may occur.

Any significant decline in the patient's clinical status should prompt the attending physician and the interdisciplinary team to discuss the patient's preferences with family members and to review his or her advance directives. For additional guidance, see PALTmed's publication on palliative care.[f]

MONITORING

Because PD is a progressive disorder, patients must be reassessed regularly. At a minimum, reassessment of the patient's overall functioning and medication regimen should occur at each quarterly review and any time a significant change is noted in the patient's condition. The progressive nature of PD also means that preventing further decline in a patient's level of functioning may not always be a realistic therapeutic goal. Periodic reappraisal of the goals of therapy is an essential component of ongoing care.

Additionally, communication mechanisms must be in place in the long-term care facility to ensure that any observations suggesting a significant change in a patient's condition are promptly reported to the unit manager or charge nurse and discussed with members of the interdisciplinary team and the attending physician.

STEP 17

Monitor the patient's ability to communicate and carry out ADLs. As PD progresses, secondary manifestations (such as dementia, sleep disturbance, and pain) become more disabling. It is important to monitor patients for changes in physical function, which may suggest a need for physical or occupational therapy, restorative nursing, assistive devices, or other interventions to maximize independence. Also monitor the patient for changes in his or her ability to communicate basic needs, wants, and ideas. Consider the use of appropriate strategies and assistive devices as necessary (see Table 12 in Step 12 above).

STEP 18

Monitor the patient's cognitive, mental, and emotional status. (See Step 4.) The goal of the interdisciplinary team should be to maintain a level of cognitive and mental function that is optimal for the individual patient, to promptly address behavioral problems and, to the extent feasible, to pre-

[f] Post-Acute and Long-Term Care Medical Association. Palliation in the Long Term Care Setting. LTC Information Series.Columbia, MD.

vent unanticipated cognitive or emotional decline. Nursing assistants and other direct caregiving staff are crucial to this effort because of the close, day-to-day contact they have with patients.

Education and in-service training programs for caregiving staff should include information about the signs and symptoms of progressive PD. Nursing assistants in particular should be encouraged to report observations of abnormal patient behavior or changes in the patient's usual routine. Such reports by direct caregivers should be assessed promptly and addressed appropriately. Both the reported sign or behavior and the action taken to address it should be documented in the patient's record.

STEP 19

Monitor the patient's nutritional status and ability to swallow. (See Step 5.) Regular monitoring of food intake and other indicators of nutritional status can help to reduce the risk of altered nutritional status and unplanned weight loss. Set realistic goals for the patient's weight. Identify any swallowing difficulties or changes in swallowing ability. The patient's preferences with regard to the use of artificial feeding methods or altered diet consistency should be discussed with the patient and family or designated decision-maker.

STEP 20

Monitor the patient's medications for effectiveness, potential adverse effects, and complications. Regular monitoring of medications is important to ensure that drug interactions and side effects are addressed promptly. Review medications whenever a significant change is noted in the patient's clinical condition. Consider eliminating or reducing dosages of medications associated with DIP and other adverse effects, such as postural hypotension and falls. To the extent possible, use pharmacologic agents with the lowest side-effect profiles. Document adverse medication effects and the steps taken to correct them in the patient's record.

STEP 21

Monitor the patient for the emergence or progression of comorbidities and complications. Intervene as appropriate to minimize comorbidities and complications (see Table 10 above). When a change in neurological status or a sustained change in mental status occurs, the practitioner should evaluate the situation and determine whether consultation from a neurologist or psychiatrist is appropriate. (See Steps 8 and 15; Tables 14 and 15.)

STEP 22

Monitor the need for a change in the patient's level of care. (Refer to AMDA's practice guideline on transitions of care.[k]) As a PD patient becomes increasingly ill and disabled, consider the need for palliative or hospice care. Discuss these options with the attending physician and at an interdisciplinary team meeting as well as with the patient and family or designated decision-maker. Review the patient's advance directives to ensure that the patient's wishes regarding end-of-life care are known and respected. Document changes in the care plan and the rationale for them in the patient's record. (See Step 16.)

STEP 23

Monitor the facility's management of Parkinson's disease. Systematic monitoring is needed to

[k] Post-Acute and Long-Term Care Medical Association. Transitions of Care in the Long Term Care Continuum. Columbia, MD. https://paltmed.org/products/parkinsons-disease-cpg.

determine the extent to which the long-term care facility is successfully managing patients with PD. The Appendix suggests process and outcome indicators for measuring facility performance in the recognition, assessment, treatment, and monitoring of PD. Facilities may wish to select the indicators most relevant to their population and staff for inclusion in their quality improvement process. The medical director should be actively involved in this process.

SUMMARY

PD is a progressive, degenerative neurologic disorder that commonly presents late in life. The prevalence of PD in long-term care facilities is estimated to be about 5% to 10%. Although there is no known cure for PD, treatment can often prolong the patient's life, improve mobility and function, and enhance dignity and quality of life. This guideline recommends processes that, if implemented, should help long-term care facilities improve the care of patients with PD.

Early detection of PD is essential to its effective treatment. Careful assessment is advised to rule out other disease processes that may be confused with PD. Practitioners should also be aware that dementia is common in patients with PD and should familiarize themselves with the clinical diagnostic criteria for dementia in PD.

Many clinical manifestations of PD can be managed and treated successfully with a combination of nonpharmacologic and drug therapies. Careful and thoughtful consideration should be given to selection of anti-parkinsonian therapies, and desired outcomes should be individualized on the basis of the patient's cognitive and functional status, severity of disease, expressed preferences, and life expectancy. Because PD is a chronic, progressive disease with limited therapeutic options in its advanced stages, the optimal care of such patients should include applying the principles of palliative medicine.

Understanding all the manifestations of the disease; the importance of basic, competent primary nursing and medical care; the roles of various disciplines, therapies, and specialties; and the concept of realistic goal setting for the individual patient are essential to effective treatment of PD. Effective treatment should be multifaceted, taking into consideration not only the individual patient's physical needs, but also his or her spiritual, social, and emotional needs and concerns as well as those of the family.

RESOURCES

Organizations Offering Support for Parkinson's Disease Patients and Families

American Parkinson's Disease Association, Inc.
135 Parkinson Avenue
Staten Island, NY 10305
800/223-2732
www.apdaparkinson.org/userND/index.asp

The Bachmann-Straus Dystonia and Parkinson Foundation
Mount Sinai Medical Center
1 Gustave L. Levy Place, Box 1490

New York, NY 10029
212/241-5614
www.dystonia-parkinsons.org

European Parkinson Foundation Inc.
1504 NW Ninth Ave., Bob Hope Rd.
Miami, FL 33136-1494
800/433-7022
www.parkinson.org

The Parkinson's Disease Foundation
710 West 158th Street
New York, NY 10032
800/457-6676
www.pdf.org

The Michael J. Fox Foundation for Parkinson's Research
840 3rd St.
Santa Rosa, CA 95404
707/544-1994
www.michaeljfox.org

The National Parkinson Foundation
1501 NW 9th Avenue
Miami, FL 33136
800/327-4545
www.parkinson.org/Page.aspx?pid=208

National Hospice and Palliative Care Organization
1731 King Street, Suite 100
Alexandria, VA 22314
703/837-1500
www.nhpco.org/templates/1/homepage.cfm

The Parkinson Foundation of Canada
4211 Yonge Street, Suite 316
Toronto, Canada M2P 2A9
416/227-9700
www.parkinson.ca

We Move
204 West 84th St., 3rd Floor
New York, NY 10024
www.wemove.org

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APPENDIX

Sample Performance Measures for Recognition, Assessment, Treatment, and Monitoring of Parkinson's Disease: Suggested Process and Clinical Indicators

Each facility is different, and in implementing a CPG, a facility must take into consideration the individual characteristics of the facility and the nature of the community. High-quality practice does not require that every facility be the same.

General Process Indicators

1. Recognition

a. Does the admission process, including the physician history and physical examination (H&P), include queries about the patient's history of a diagnosis of Parkinson's disease (PD) or a Parkinson-like syndrome and its complications (e.g., past hospitalizations, previous tests, and previous treatment for PD)?

b. Does the admission process, including the H&P, include an evaluation of the patient for signs and symptoms of PD or a Parkinson-like syndrome (Tables 1, 2, and 3) and a review of medications that may cause drug-induced parkinsonism (see Table 4 above)?

2. Assessment

a. Does the medical record document that a relevant history, physical examination, and mental status examination were performed to determine whether the patient has PD or parkinsonism?

b. Has an assessment of physical function been performed to determine the stage of PD and to identify the interventions likely to be most effective?

c. Has an initial work-up (for potentially reversible etiologies for signs and symptoms suggestive of PD) been performed or reviewed OR is there a documented explanation for why potentially reversible etiologies were not sought?

3. Treatment

a. Has an individualized care plan been developed? Have treatment goals been defined?

b. Have pharmacologic and nonpharmacologic interventions for the patient's PD and coexisting medical conditions been defined?

c. Have measures been selected to detect, treat, and prevent or slow the progression of PD and its complications?

d. Does the medical record document that the patient is monitored for the appearance or progression of comorbidities and complications?

Clinical Process and Outcome Indicators

1. Recognition

a. In what proportion of residents with PD or Parkinson-like syndrome is PD or a Parkinson-like syndrome diagnosed urgently or emergently (i.e., not on admission or at periodic assessment)? [numerator = patients diagnosed emergently/urgently; denominator = all patients with a diagnosis of PD or a Parkinson-like syndrome]

b. When members of the direct care team recognize signs and symptoms of PD or a Parkinson-like syndrome and its complications, are these signs and symptoms communicated in a timely manner to the practitioner, nurse practitioner, or physician assistant? (Consider auditing a sample of patients with PD or a Parkinson-like syndrome to determine the extent of congruence between what is recorded in the MDS, discipline-specific progress notes, and the practitioner's orders.)

APPENDIX (continued)

2. Assessment

a. Have risk factors for PD or complications secondary to a Parkinson-like syndrome been addressed OR does documentation in the medical record explain why risk factors are not being addressed?

b. Is appropriate monitoring (mental, emotional, cognitive, functional, and nutritional status; medication use) conducted on patients with PD or a Parkinson-like syndrome?

c. Have the patient's risks for developing comorbidities and complications and his or her need for specialty consultation been assessed?

3. Treatment

a. Does the treatment plan provide a multifaceted approach to treating PD that addresses the patient's spiritual, social, emotional, and cultural needs and concerns as well as his or her physical needs?

b. Are key components of the individualized care plan reflected explicitly in the practitioner's orders?

c. Is prescribed pharmacologic regimen (including agent, dosage, and dosing schedule) consistent with the severity of the patient's disease, cognition, activity level, coexisting medical conditions, and advance care directive?

d. Are complications and comorbidities associated with PD managed? Is specialty consultation including hospice and palliative care obtained when appropriate?

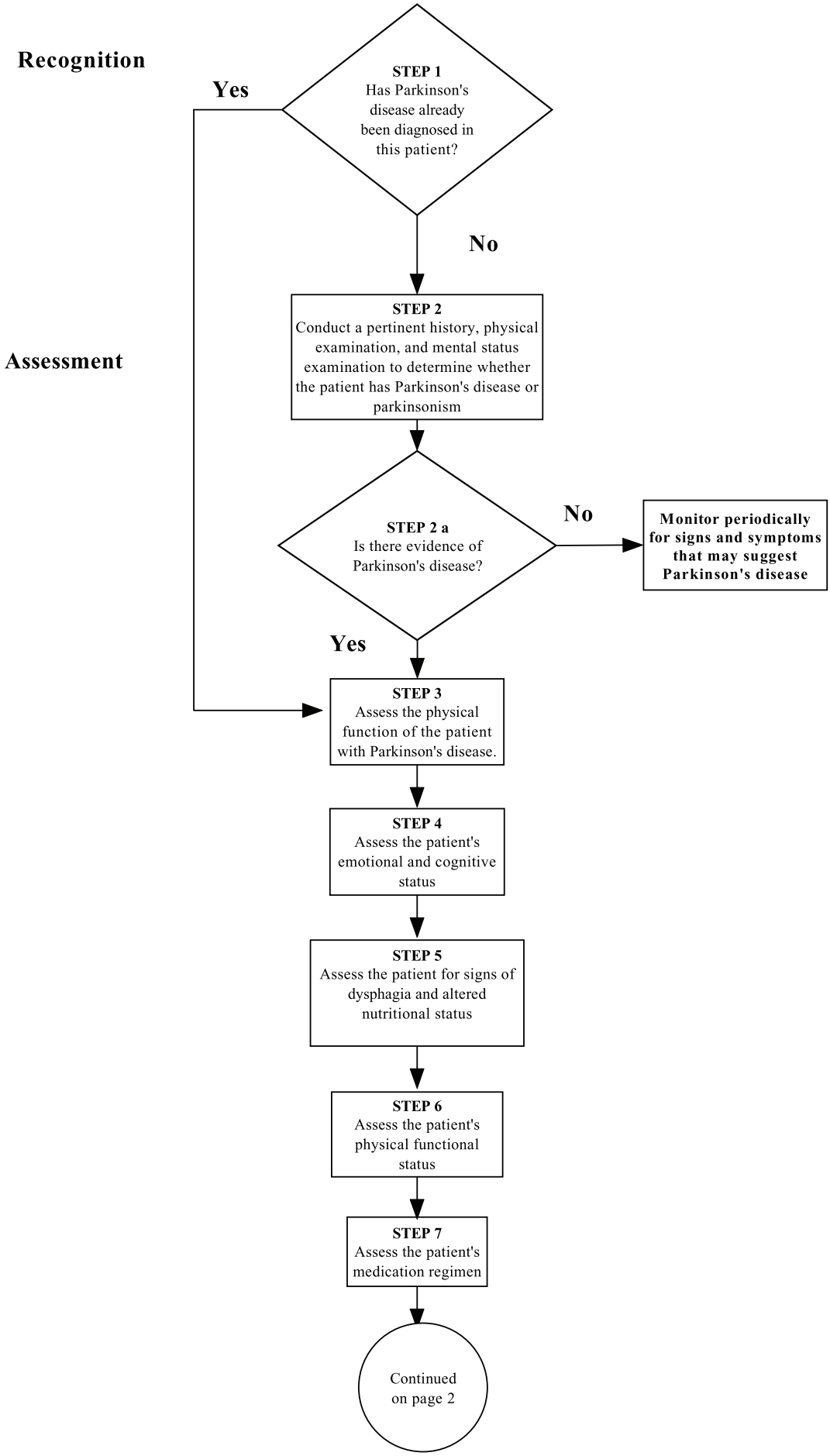
4. Monitoring

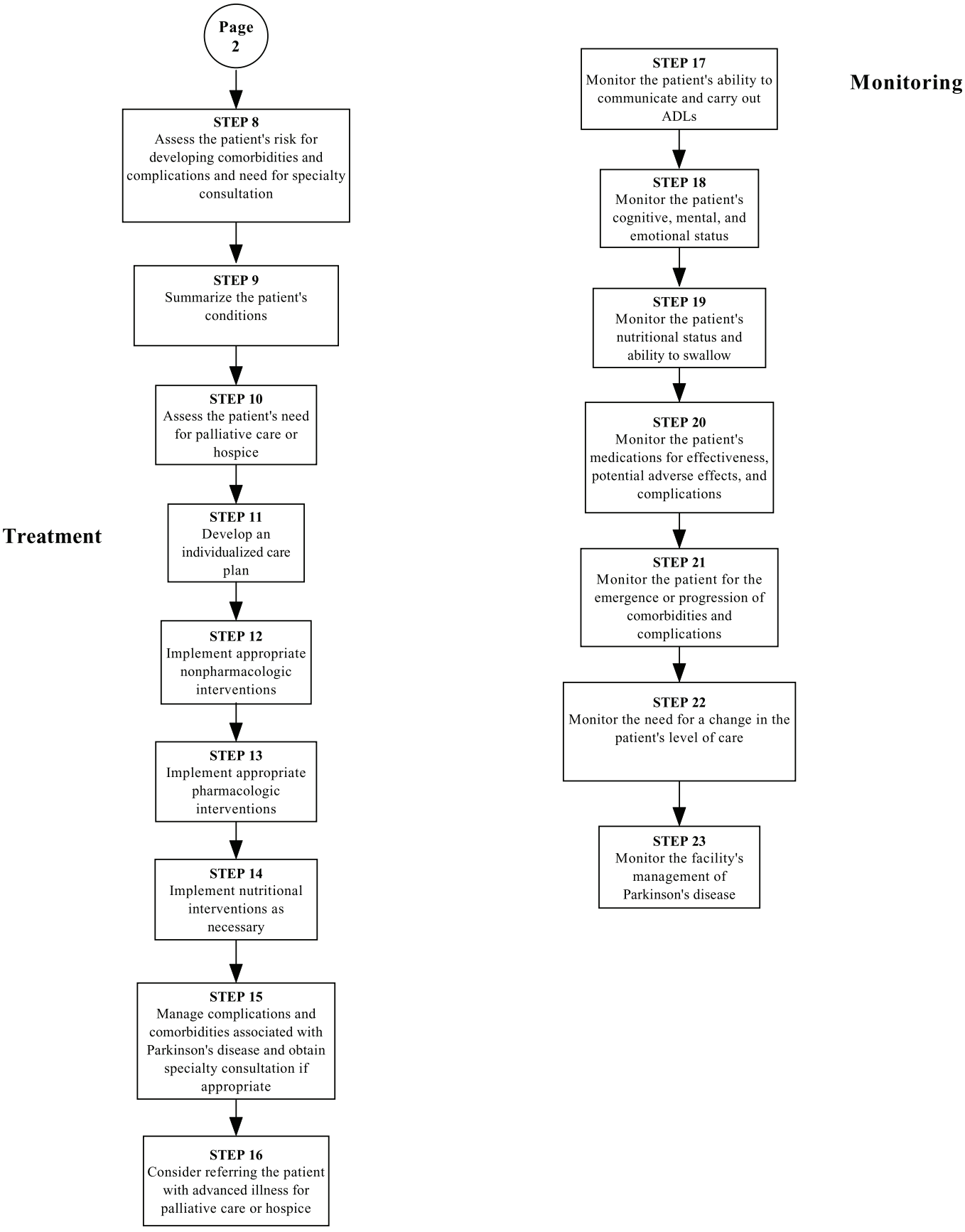
a. How often is the effect of treatment monitored? How quickly is ineffective treatment modified?

b. Is the patient monitored for adverse drug reactions? How long does it take to respond to potential adverse drug reactions?

NOTES

This is the Parkinson's disease in the long-term care setting algorithm to be used in conjunction with the written text of this clinical practice guideline. The numbers next to the different components of the algorithm correspond with the steps in the text.


Recognition
Yes
STEP 1
Has Parkinson's disease already been diagnosed in this patient?
No
Assessment
STEP 2
Conduct a pertinent history, physical examination, and mental status examination to determine whether the patient has Parkinson's disease or parkinsonism
STEP 2 a
Is there evidence of Parkinson's disease?
No
Monitor periodically for signs and symptoms that may suggest Parkinson's disease
Yes
STEP 3
Assess the physical function of the patient with Parkinson's disease.
STEP 4
Assess the patient's emotional and cognitive status
STEP 5
Assess the patient for signs of dysphagia and altered nutritional status
STEP 6
Assess the patient's physical functional status
STEP 7
Assess the patient's medication regimen
Continued on page 2


Page 2
STEP 8
Assess the patient's risk for developing comorbidities and complications and need for specialty consultation
STEP 9
Summarize the patient's conditions
STEP 10
Assess the patient's need for palliative care or hospice
Treatment
STEP 11
Develop an individualized care plan
STEP 12
Implement appropriate nonpharmacologic interventions
STEP 13
Implement appropriate pharmacologic interventions
STEP 14
Implement nutritional interventions as necessary
STEP 15
Manage complications and comorbidities associated with Parkinson's disease and obtain specialty consultation if appropriate
STEP 16
Consider referring the patient with advanced illness for palliative care or hospice
Monitoring
STEP 17
Monitor the patient's ability to communicate and carry out ADLs
STEP 18
Monitor the patient's cognitive, mental, and emotional status
STEP 19
Monitor the patient's nutritional status and ability to swallow
STEP 20
Monitor the patient's medications for effectiveness, potential adverse effects, and complications
STEP 21
Monitor the patient for the emergence or progression of comorbidities and complications
STEP 22
Monitor the need for a change in the patient's level of care
STEP 23
Monitor the facility's management of Parkinson's disease

The Post-Acute and Long-Term Care Medical Association (PALTmed) developed this guideline with the support and cooperation of the following individuals and companies:

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