GUIDELINES & PROTOCOLS
ADVISORY COMMITTEE

Cognitive Impairment in the Elderly – Recognition, Diagnosis and Management

Effective Date: July 15, 2007

Scope

This guideline summarizes current recommendations for recognition, diagnosis and longitudinal management of cognitive impairment and dementia in the elderly. Where the guideline refers to "people affected by dementia", this indicates not only the person with dementia but also the people in their "network of support".

SUMMARY RECOMMENDATION **Care Objectives**

The primary care objectives are to encourage early recognition and assessment of cognitive impairment and to support general practitioners in the development of a comprehensive care plan that includes the identification of community resources for the people affected by dementia. A summary is provided for this guideline and can be used as a worksheet in the physician's office.

Part I: Recognition and Diagnosis

RECOMMENDATION 1 **Recognition**

a. General population screening in asymptomatic individuals is not recommended at this time.

b. Cognitive impairment should be suspected when there is a history that suggests a decline in occupational, social or day-to-day functional status. This might be directly observed or reported by the patient, concerned family members, friends and/or caregivers.

Symptoms of Cognitive Impairment

- Asks the same question repeatedly
- Cannot remember recent events
- Cannot prepare any part of a meal or may forget that they have eaten
- Forgets simple words, or forgets what certain objects are called
- Gets lost in own neighbourhood and does not know how to get home
- Dresses inappropriately (e.g. may wear summer clothing on a winter day)
- Has trouble figuring out a bill, or cannot understand concepts such as birthdays
- Repeatedly forgets where things were left; puts things in inappropriate places
- Has mood swings for no apparent reason and especially without prior psychiatric history
- Has dramatic personality changes; may become suspicious, withdrawn, apathetic, fearful, or inappropriately intrusive, overly familiar or disinhibited
- Becomes very passive and requires prompting to become involved

Adapted from the Alzheimer Society of Canada: www.alzheimer.ca

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c. At presentation, differentiate, treat, and rule out remediable and/or contributory cause(s) of cognitive impairment such as thyroid disorders, hypercalcemia, alcohol dependence, etc. (Canadian Consensus Guideline). Dementia, delirium, depression and adverse drug effects are the main conditions to consider in the differential diagnosis of cognitive impairment (See Table 1).

d. Complete a comprehensive review of medication history (type, dosage and compliance for both prescription and over-the-counter). Any medication may be implicated.

Table 1: Clinical Features of Dementia, Depression and Delirium[a]

FEATURE	DEMENTIA	DELIRIUM	DEPRESSION
Onset	• Insidious	• Acute	• Gradual; may coincide with life changes
Duration	• Months to years	• Hours to less than one month, seldom longer	• At least two weeks, but can be several months to years
Course	• Stable and progressive VaD*: usually stepwise	• Fluctuates: worse at night • Lucid periods	• Diurnal: usually worse in mornings, improves as day goes on
Alertness	• Generally normal	• Fluctuates lethargic or hyper-vigilant	• Normal
Orientation	• May be normal but often impaired for time/later in the disease, place	• Always impaired: time/place/person	• Usually normal
Memory	• Impaired recent and sometimes remote memory	• Global memory failure	• Recent memory may be impaired • Long-term memory intact
Thoughts	• Slowed; reduced interests • Makes poor judgements • Words difficult to find • Perseverates	• Disorganized, distorted, fragmented • Bizarre ideas and topics such as paranoid grandiose	• Usually slowed, preoccupied by sad and hopeless thoughts; somatic preoccupation • Mood congruent delusions
Perception	• Normal • Hallucinations (often visual)	• Distorted: visual and auditory • Hallucinations common	• Intact • Hallucinations absent except in psychotic depression
Emotions	• Shallow, apathetic, labile • Irritable	• Irritable, aggressive, fearful	• Flat, unresponsive or sad and fearful • May be irritable
Sleep	• Often disturbed, nocturnal wandering common • Nocturnal confusion	• Nocturnal confusion	• Early morning wakening
Other features	• Poor insight into deficits • Careless	• Other physical disease may not be obvious • Inattentive	• Past history of mood disorder • Poor effort on cognitive testing; gives up easily
Standard Tests	• Comprehensive assessment (history, physical, lab, SMMSE)	• Confusion Assessment Method (CAM) see Appendix A	• Geriatric Depression Scale (GDS) see Appendix B

[a]Adapted from the Centre for Health Informatics and Multiprofessional Education (CHIME), University College London. Dementia tutorial: Diagnosis and management in primary care: A primary care based education/research project. www.ehr.chime.ucl.ac.uk/display/demcare/Home

*VaD: Vascular Dementia

Recommendation 2 Diagnosis

When delirium and depression have been treated and/or ruled out and cognitive impairment is still present, suspect **dementia or mild cognitive impairment** (MCI) as the underlying cause. It may be necessary to complete the diagnostic evaluation over a few visits.

1. HISTORY– RECOGNIZING SIGNS OF DEMENTIA

In the diagnostic work-up of patients with suspected mild cognitive impairment or dementia, it is important to consider collateral information from family and caregivers.

Course of cognitive decline: Gradual and progressive (usually Alzheimer's disease [AD]); sudden or stepwise (stroke, or possibly VaD); rapid (consider prion disease)

Presence of day-to-day or intra-day fluctuations: Marked fluctuation in cognition or alertness may be a hallmark of Dementia with Lewy Bodies (DLB)

Presence of amnesia (impaired memory): Ask for examples of the patient's forgetfulness or disorientation

Presence of deficits in executive functions: Problem-solving, sequencing, multi-tasking, conceptualizing, mental flexibility, abstract thinking, etc.

Presence of language deficits: Difficulty finding words, loss of speech fluency, word substitutions, problems with verbal comprehension, etc.

Presence of agnosia (impairment of recognition of faces or objects): Not common as a presenting feature of dementia

Presence of apraxia (impairment of performing programmed motor tasks): Examples: playing an instrument, tying shoelaces or a tie, sewing or knitting

Presence of delusions: Examples: paranoid delusions such as irrational suspiciousness, concerns of infidelity, etc.

Presence of hallucinations: Vivid hallucinations are suggestive of DLB

Gait abnormalities: Arise later in AD; earlier in VaD, DLB and normal pressure hydrocephalus (NPH)

Urinary incontinence: If urinary and gait problems occur early in the course of cognitive impairment, consider NPH

Impaired instrumental activities of daily living: A prerequisite for the diagnosis of dementia Examples: can no longer perform job satisfactorily, unable to manage finances, trouble driving, cannot play bridge or keep score in golf, cannot cook from a recipe, unable to use public transit, etc.

Impaired basic activities of daily living: Declining ability to dress, toilet, groom, or attend to hygiene or nutrition

Other behavioural issues: Lack of initiative, apathy, irritability, anger, and social disengagement or behavioural disinhibition (inappropriately intrusive or over familiar)

2. PHYSICAL EXAM

a. Identify medical conditions contributing to cognitive decline, and;
b. Identify neurologic abnormalities including localizing signs, extrapyramidal signs and ataxia.

3. LABORATORY TESTS

The following tests are recommended in the initial work up of suspected MCI or dementia:

- Complete blood count
- Serum electrolytes
- Serum calcium
- Serum glucose
- Thyroid Stimulating Hormone (TSH)
- B12*

**Observational studies suggest elevated total homocysteine levels are a risk factor for dementia and impaired cognitive function.[1,2] These effects may be mediated by impaired function of the B vitamins involved in homocysteine metabolism (B12, folate and B6). Current data from systematic reviews of randomized double blind trials, however, do not provide evidence of improvement in cognition or dementia with B12 treatment.[3]*

Other tests may be added as indicated by clinical suspicion (e.g. Serological Test for Syphilis [STS], HIV, renal function tests, liver function test).

4. NEUROIMAGING[4,5]

Neuroimaging (CT or MRI of head) is not routinely indicated but may be useful when:

- The patient is less than 60 years old
- The onset has been abrupt or the course of progression rapid
- There is a history of significant recent head injury
- The presentation is atypical or the diagnosis is uncertain
- There is a history of cancer
- There are new localizing neurological signs or symptoms
- Vascular dementia is suspected
- The patient is on anticoagulants or has a bleeding disorder
- There is a history of urinary incontinence and early presentation of gait disorder

5. COGNITIVE TESTING

- Diagnostic criteria require that there should be objective evidence of a memory deficit to support the diagnosis.
- Perform an objective test of cognition such as the Standardized Mini Mental State Examination (SMMSE). While the normal range for SMMSE scores is 24-30, performance on this test must be interpreted along with the other information gathered such as sensory impairment, education attainment, language and cultural issues. Cognitive status indicated by the SMMSE is an important benchmark for following the course of cognitive impairment (Appendix C).
- Supplementary test to consider: Clock Drawing Test (Appendix D).

6. WORKING DIAGNOSIS

Arriving at a specific dementia sub-type diagnosis will aid in treatment planning and counselling. Broader use of DSM-IV TR category of ‘dementia due to multiple etiologies’ is encouraged, with specification of the diseases contributing to the dementia routinely spelled out (Third Canadian Consensus Conference on the Diagnosis and Treatment of Dementia, 2006).[5]

The major clinical pathological subtypes of dementia are outlined in the list that follows, although mixed forms of dementia are common (e.g. Alzheimer’s and VaD). Less common types of dementias, such as Traumatic Brain Injury (TBI), should be considered in the clinical context.

Table 2: Differential Diagnosis of Dementia

Alzheimer's Disease (AD)	1. Slow progressive onset 2. Multiple cognitive deficits manifested by both: • Memory impairment • One or more additional cognitive deficits such as aphasia, apraxia, agnosia, disturbance in executive functioning 3. Associated significant functional decline 4. Not explained by other neurologic or systemic disorders
Vascular Dementia (VaD)	1. A number of syndromes typically associated with cerebrovascular disease 2. Look for abrupt onset, step-wise decline and a temporal relationship between the vascular insult and the cognitive change 3. Impaired executive functioning and early development of a gait disturbance are added features 4. Clinical and neuroimaging evidence supports the diagnosis 5. Commonly see periventricular and deep white matter changes, however they may also be seen in other types of dementia and in otherwise healthy individuals (use caution)
Mixed AD/VaD	The degenerative changes of AD and the vascular changes of VaD commonly co-exist. Presentation more commonly of AD pattern with significant vascular risk factors +/- small vascular events
Dementia With Lewy Bodies (DLB)	1. Core features: • Fluctuating cognition with pronounced variation in attention and alertness (memory decline may not be an early feature) • Recurrent visual hallucinations that are well formed and detailed • Spontaneous motor features of Parkinsonism 2. Features supportive of diagnosis: • Repeated falls • Syncope or transient loss of consciousness • Hypersensitivity to antipsychotics (typical and atypical) • Systematized delusions; non-visual hallucinations 3. DLB has reduced prevalence of resting tremor and reduced response to L-dopa compared to idiopathic PDD 4. Presence of REM sleep disorder in the setting of a dementia suggests DLB & related conditions 5. DLB should occur before or concurrently with onset of Parkinsonism
Parkinson's Disease Dementia (PDD)	1. The cognitive features may appear similar to DLB (deficits in attention and alertness) 2. Look for motor Parkinsonian symptoms that typically are present many years before the onset of the dementia for PDD
Fronto-Temporal Dementia	1. Insidious onset and gradual progression; tends to present in middle-aged patients 2. Character changes present early and include apathy, disinhibition, executive failure alone or in combination 3. Relatively preserved memory, perception, spatial skills and praxis 4. Behavioural disorder supportive of diagnosis: decline in hygiene, mental rigidity, distractibility, hyperorality, perseveration 5. Prominent language changes frequently occur with reduction in verbal output

7. MILD COGNITIVE IMPAIRMENT (MCI)

- A diagnosis of MCI is made when other causes of impaired cognition (e.g. anxiety, depression, delirium or substance abuse) have been excluded and the patient does not meet the criteria for a diagnosis of dementia either because they lack a second sphere of cognitive impairment or because their deficits are not significantly affecting their daily living.
- In cases where there is a suspicion of cognitive impairment or concern about the patient's cognitive status, and the SMMSE score is in the "normal range" (24-30), the MoCA[6] is recommended [Appendix E] (Third Canadian Consensus Conference on the Diagnosis and Treatment of Dementia, 2006).[5]
- Patients with MCI may progress to dementia at a rate of 16% per year.[7] Once identified, patients with MCI should be re-examined periodically (e.g. every 6 months) so that treatment and counselling can be offered and incident dementia can be identified.

8. STAGING

Some clinicians stage AD using the Global Deterioration Scale (See Appendix F).

RECOMMENDATION 3 **Diagnosis Disclosure**

a. The disclosure of a diagnosis of dementia should be done as soon as possible, but can cause significant stress. The timing and extent of disclosure should be individualized and is best carried out over a few visits supported by referral to other support resources (see Patient/Caregiver Guide).
   - In general, there are only a few exclusions to disclosure, including probable catastrophic reaction, severe depression or severe dementia
   - Disclosure is facilitated through an initial open-ended approach, e.g. asking: *"What do you think the change in your memory and thinking is due to?"*

b. In setting up the visit for disclosure, consider patient privacy and ask whether the caregiver can be in attendance (the answer will be yes in most situations).

c. At the initial disclosure visit highlight:
   - Dementia with dementia sub-type as a clinical diagnosis
   - Anticipated prognosis
   - Indicate that you will follow-up and provide ongoing support
   - Provide the Patient/Caregiver Guide, discuss other support resources as appropriate
   - Provide a schedule of visits and book the next visit

d. At follow-up visits discuss (at least every 6 months):
   - Information needs and concerns
   - Advance planning with respect to finances and patient preferences
   - Safety planning
   - Availability of education and support resources

e. Disclosure when mild cognitive impairment is diagnosed needs to be carefully considered. Monitoring until progression in the cognitive deficit is demonstrated may be reasonable, but disclosure of the diagnosis with information about the risk of progression to dementia may allow the person to better understand their situation and participate in monitoring for further cognitive decline or associated functional changes or depression.

Part II: Management of Dementia

Recommendation 4 — Practice Management

a. Organizational interventions within a chronic disease management (CDM) approach that facilitate proactive care and support are integral to improving care for people with dementia. Physicians are encouraged to:
   - Establish a disease register and recall patients for review in a timely manner
   - Periodically reassess patients at planned visits dedicated solely to the care of dementia
   - Organize and focus by use of a clinical action plan addressing dementia and co-morbid conditions (see optional *Cognitive Impairment in the Elderly Flow Sheet,* Appendix G)
   - Establish a relationship with the person with dementia, family/caregivers and involve them as much as possible in setting goals and making decisions related to care and support

b. Consider referral to secondary services for the assessment of dementia in appropriate cases such as:
   - Diagnostic uncertainty or atypical features
   - Management issues that are difficult to resolve
   - Risk of harm to self or others
   - Request of family or caregivers

c. Involve allied health professionals in the care of the patient when indicated (e.g. Home and Community Care case managers, mental health teams, etc.).

Recommendation 5 — Driving

a. After early cognitive deficits are first diagnosed, consider entering into a discussion with the affected patient about eventual driving cessation. Assist the affected driver to make the necessary lifestyle changes early and to cease driving by choice rather than by compulsion. Encourage patient to register with HandyDart, HandyPASS and TaxiSavers (see Resources section).

b. An individual's competence for driving should be assessed using both cognitive and non-cognitive criteria (e.g. other medical conditions and special sensory defects), and include collateral history about the individual's driving habits from observers. On cognitive testing, deficits in attention, visuospatial abilities and judgment may be predictors of driving risk. When doubt exists about a patient's driving competence, physicians should recommend a performance-based evaluation such as a re-exam road test by the Insurance Corporation of British Columbia (ICBC) or a driver fitness review through the Office of the Superintendent of Motor Vehicles.

c. In accordance with the *BC Motor Vehicle Act,* physicians are required to document patients under their care who have a condition incompatible with safe driving and to instruct these patients to stop driving. If the physician learns that the patient continues to drive despite this instruction, the physician is required to notify the Superintendent of Motor Vehicles *(Motor Vehicle Act section 230, subsections 1-3).*

d. Notwithstanding these minimum requirements, physicians may opt to notify the Superintendent of Motor Vehicles of any patient with a condition incompatible with safe driving.

e. When approached by friends or family members of individuals who may be driving unsafely due to a medical condition, but who do not attend a physician, those members of the public can be told to notify the Superintendent of Motor Vehicles of their concerns.

Recommendation 6 Self-Neglect, Neglect and Abuse

a. Physicians need to be aware of the potential risks for self-neglect, neglect and abuse by caregivers and others (financial or psychological abuse)
b. Refer to Home and Community Care or geriatric outreach teams (where they exist) in the health authorities. Also, Community Living BC has been designated under guardianship legislation to investigate situations of potential self-neglect, neglect and abuse
c. For more information from the Public Guardian and Trustee of BC, see the publication, *Protecting Adults from Abuse, Neglect and Self-Neglect* online at: www.trustee.bc.ca/reports_publications/index.html

Recommendation 7 General Care and Support

Support patient functioning at the maximum level of independence appropriate for his/her cognitive and physical capabilities. For patients with early dementia who are still living in the community, it is important to identify the following issues and refer to support resources as appropriate:

a. **Nutrition**
   - If the patient is living alone and is responsible for his or her own food preparation, weigh the patient regularly to monitor for weight loss
   - Consider the use of meal support such as Meals on Wheels or pre-prepared frozen foods

b. **Kitchen safety**
   - Enquire about kitchen mishaps such as fires or burned pots
   - Consider having the stove disabled when the patient can no longer use it safely, especially if the patient is living in an apartment building
   - The kitchen area should have a functioning smoke detector
   - A family member or caregiver should ideally monitor the refrigerator for food safety

c. **Medication management**
   - Strategies to improve medication safety and adherence should be explored such as the use of blister packaging or Dossette trays and caregiver supervision of medications
   - Consider referral to Home and Community Care for medication monitoring

d. **Hygiene**
   - Consider a bathing assistant or bath program (contact Home and Community Care)

e. **Wandering**
   - The patient should always carry identification when out alone
   - Consider an ID bracelet through the *Safely Home® – Alzheimer Wandering Registry* Web site: www.alzheimer.ca/english/safelyhome/about.htm

f. **Socialization**
   - Patients with dementia living alone in the community may become socially withdrawn
   - Consider referral to an adult day centre (contact Home and Community Care)

g. **Legal issues**
   - As early as possible in the course of dementia, engage the patient in a discussion of advance planning issues
   - Encourage the patient to have an up-to-date will, a financial representative, a health care proxy and some form of advance medical directive
   - A Representation Agreement permits the patient to appoint both a financial representative and a health representative (guide available at www.trustee.bc.ca). A Power of Attorney (with an eduring clause) is the recommended legal document to appoint a financial representative

h. **Other safety issues**
   - Consider other safety hazards, such as unsafe smoking, firearms in the home, etc.
   - Lifeline or 911 stickers on the telephone

Recommendation 8 Co-Morbid Conditions

Address co-morbid conditions to prevent further unnecessary impairment of cognition in demented individuals. The underlying dementia has implications for management of other conditions, particularly with respect to tolerability and adherence to medication.

a. **Cardiovascular disease**
- Address vascular risk factors, including arterial hypertension, hypercholesterolemia, diabetes mellitus, smoking, obesity, use of anticoagulation for atrial fibrillation and primary/secondary prevention of transient ischemic attacks (TIAs) and stroke

b. **Depression**
- Mood symptoms are common in mild to moderate AD, but prevalence in advanced dementia is uncertain because recognition is more difficult
- Depression coincident with dementia may not present as depressed mood, but with lack of interest, which along with other depression symptoms such as apathy, anhedonia, insomnia and agitation must be distinguished from the dementia itself
- A high index of suspicion is required to detect depression in demented patients
- A therapeutic trial of an antidepressant may be required to diagnose depression
- Management includes: antidepressant, most often an SSRI, along with behavioural intervention, education and support for the caregivers
- For additional information, see GPAC guideline, Major Depression Disorder – Diagnosis and Management: www.BCGuidelines.ca

c. **Delirium**
- People with dementia are more susceptible to delirium. Although the agitated type of delirium with hallucinations is more easily recognized, hypoactive delirium presenting with inattentiveness and somnolence is more common and difficult to recognize
- Approach delirium as a medical emergency due to the significant conditions that may cause the delirium, such as infections or CHF
- Review and optimize all medications as they commonly contribute to delirium

Recommendation 9 Pharmacotherapy

Acetylcholinesterase Inhibitors (AChEIs)

AChEIs include donepezil (Aricept®), galantamine (Reminyl®) and rivastigmine (Exelon®). They are currently approved by Health Canada for the symptomatic treatment of mild to moderate dementia of the Alzheimer's type (AD). There is insufficient evidence to recommend them for MCI.[5]

- Earlier studies have demonstrated small to modest efficacy of AChEIs in cognitive and global outcome measures, while recent studies have included maintenance of activities of daily living and reduction of caregiver burden as outcomes. In a meta-analysis of studies with global outcomes (subjective assessment by clinician and/or caregiver of change overall), the number needed to treat (NNT) is 12 (3-6 months) for one additional patient to experience stabilization or improvement on global response.[8] In the literature, there is little definitive evidence for duration of efficacy beyond two years.
- While some evidence suggests a role for AChEIs in the treatment of symptoms associated with severe AD and in other types dementias (VaD and DLB), [9,10] the clinical meaningfulness of randomized controlled trial outcome measures is controversial and donepezil is the only AChEI currently approved by Health Canada for these indications.
- 8% more patients experience adverse events on AChEIs compared to placebo (number needed to harm [NNH] =12)

Summary of the most common adverse events by AChEI type[11]

AChEI	Common adverse effects	NNH
donepezil	Diarrhea	**8**
	Nausea	**20**
rivastigmine	Nausea	**6**
	Vomiting	**7**
galantamine	Nausea at 24mg/d	**5**

- Sleep disturbances (nightmares/abnormal dreams) and muscle/leg cramps may also be observed with donepezil. Slow titration of all three medications may reduce adverse events

- Attrition associated with AChEI treatment groups in clinical trials is greater (approximately 29%) due to adverse events than that of placebo groups (18%)[8, 12]

Deciding on a trial of AChEIs:

- Do the patient/caregivers have enough clinical information to understand their present condition and prognosis, and have they been able to participate in the development of goals and realistic expectations for treatment?
- Is the patient a suitable candidate (consider the presence of serious co-morbidity and reduced life expectancy with dementia)?
- Is the patient likely able to take medications as prescribed (considering current supports and level of function)?

Effective October 22, 2007, PharmaCare, through the Alzheimer's Drug Therapy Initiative, will provide coverage of donepezil, rivastigmine and galantamine for eligible individuals diagnosed with mild to moderate Alzheimer's disease, including patients with Alzheimer's disease with a vascular component or Parkinsonian features. For details on this initiative please visit: http://www.health.gov.bc.ca/pharme/adti

If a trial of AChEIs is initiated:

- Develop and implement a follow-up plan
- Caregivers may be asked to keep a written record of personal impressions, comment on adverse drug reactions, sleep disturbances etc., to support assessment
- After initiation of the medication, the initial visit schedule will be determined by the titration schedule (i.e. every 2-6 weeks until dose reached)
- A review for side effects should be carried out within the first 3 months, usually at the titration visit(s)
- Every 6 months, monitor for changes from baseline in stabilization or deterioration of cognition, function, behaviour and global assesment of change
- Use patient-specific information to inform reassessment of continued drug therapy
- Current literature is controversial with respect to adverse effects from discontinuing treatment

Table 3. Starting dose and titration schedule of AChEIs

Drug*	Starting Dose	Titration Period	Dose Increase Per Titration	Usual Effective Max Dose
donepezil	5 mg daily**	4-6 wks	5 mg daily	10 mg daily
rivastigmine	1.5 mg b.i.d.	2-4 wks	1.5 mg b.i.d.	3-6 mg b.i.d.
galantamine	8 mg ER daily	4-6 wks	8 mg ER daily	16 mg ER daily-24 mg ER daily

Potential Drug Interactions

Toxicity of donepezil and galantamine may be INCREASED by the concomitant use of cytochrome P450 inhibitors (e.g., paroxetine, erythromycin, prednisone, grapefruit juice and nefazodone). Effectiveness of donepezil and galantamine may be DECREASED by the concomitant use of cytochrome P450 inducers (e.g., carbamazepine, phenytoin and rifampin). Rivastigmine is mainly metabolized through hydrolysis; therefore cytochrome P450 drug interactions are not expected.

**AChEI cost approximately $5.00/day Adapted from Hsiung, G., Loy-English, I. BCMJ 2004;46(7):338-343*
***Consider 2.5 mg daily in very frail patients*

AChEI Relative Contraindictions
Peptic ulcer disease, hepatic or renal disease, significant bradycardia or AV block, significant bronchospastic disease, obstructive urinary disease, epilepsy or history of seizure.

Strategies to Reduce Side Effects of AChEIs

a. Take AChEI with meals (specifically indicated for rivastigmine)
b. Use a longer titration period, temporarily reduce the dose or plan skipped doses
c. If above measures are ineffective, take anti-emetics for limited periods during the titration period e.g. domperidone (avoid OTC anti-emetics with their anti-cholinergic effects that can worsen cognition and/or cause delirium)
d. Avoid sleep disturbances with donepezil by morning dose administration
e. Consider another AChEI if the first is not tolerated (taper first agent over 1-2 weeks and start new agent at lowest possible dose). An alternate AChEI may be offered for issues of tolerability and adverse effects. There is insufficient evidence to recommend switching AChEIs due to ineffectiveness

Memantine (Ebixa®): Health Canada has granted memantine a *Notice of Compliance with Conditions* as monotherapy or as adjunctive therapy with cholinesterase inhibitors for the symptomatic treatment of patients with moderate to severe Alzheimer's Disease. The product monograph advises against the use of memantine in patients with renal disease, cardiovascular disease and seizure disorders. Adverse effects of memantine may include: fatigue, pain, dizziness, constipation, anxiety and hallucinations.

Table 4. Starting dose and titration schedule of memantine

Drug	Starting Dose	Titration Period	Dose Increase Per Titration	Usual Effective Max Dose
memantine	5 mg	4 wks	5 mg	10 mg b.i.d.

Potential Drug Interactions

Major drug interactions associated with memantine include drugs which increase the pH in urine (e.g. carbonic anhydrase inhibitors). Exercise caution when prescribing memantine with other drugs which undergo renal tubular secretion. Dofetilide is considered a very severe risk, due to the potential for causing arrhythmias. The effects of dopamine agents will be increased when co-administrated with memantine.

Other Agents: Use of Ginkgo Biloba, Vitamin E, anti-inflammatory drugs (such as NSAIDs), estrogen and statins is not recommended. There is insufficient evidence of treatment efficacy and/or concerns have been raised about possible increased risk of negative health impacts.

RECOMMENDATION 10 **Behavioural and Psychological Symptoms of Dementia (BPSD)**

a. Symptoms

- Psychosis (hallucinations or delusions)
- Depression
- Anxiety
- Sleep disturbances
- Behavioural problems of aggression or agitation

b. Assessment

Upon symptom onset, establish an understanding of the origins of behaviours before developing a management strategy.

- Assess and treat medical conditions (consider the influence of pain, dysuria, dyspnea, abdominal discomfort and pruritus)
- Review and optimize current medications
- Assess and treat concurrent psychiatric conditions

c. Management

Treatment goals should include:

- Decreasing or removing the symptom(s) entirely while preserving maximal function
- Reducing caregiver burden

Potential Interventions

a. Environmental and behavioural modifications are recommended as first line management.

- Identify and minimize environmental and behavioural precipitants (use record keeping by caregivers to identify potential triggers such as physical treatments, meal time, bathing and company)

b. Psychosocial interventions are recommended.

- Offer psychosocial support and education for caregivers
- Suggest activities such as music therapy, pet therapy, walking or other forms of light exercise

c. Pharmacotherapeutic interventions for BPSD:

- Treat depression or anxiety with antidepressants
- Treat sleep disorders when necessary with trazodone 25-75 mg at the hour of sleep (*Benzodiazepines are not recommended due to their high potential for adverse events such as confusion and falls)
- Treat psychosis (hallucination or delusions) with antipsychotic medications only when the patient is particularly disturbed by these symptoms
- Treat aggression or agitation with:
  - Cholinesterase inhibitors, or
  - Trazodone 25-50 mg does up to 200 mg a day, or
  - Antipsychotics: typical (Loxapine) or atypical (risperidone, olanzapine or quetiapine) only after environmental and psychosocial interventions have been considered, except in urgent situations

Exercise caution when prescribing antipsychotic medications. All antipsychotics have side effects and a risk-benefit assessment needs to be carefully adjudicated in each case.

Antipsychotic medications are only recommended when:

- Alternate therapies are inadequate on their own
- There is an unidentifiable risk of harm to the patient and others
- Symptoms are severe enough to cause suffering and distress

When using antipsychotics, initiate a careful trial of a low dose antipsychotic and slow upward titration (e.g. risperidone 0.125 mg in very frail patients with slow upward titration to 1.5 – 2 mg maximum a day). In patients with DLB and PDD, consider sensitivity to medication (e.g. increased risk of extrapyramidial side effects when using antipsychotics). Monitor the effects closely and review to determine whether a maintenance dose may be needed (it may be possible to discontinue maintenance dose over time).

- Atypical antipsychotics include: risperidone, quetiapine and olanzapine. Risperidone has been favoured as the most efficacious for agitation in dementia, but with modest outcomes. It is the only atypical antipsychotic approved for the short-term treatment of aggression or psychosis in patients with severe dementia.
- Atypical antipsychotics have been associated with severe adverse events such as increased risk of falls, cerebrovascular events* (stroke and transient ischemic attacks), and increased mortality in the elderly†. While recent population based observational studies have shown that there is a similar risk of stroke, cerebrovascular events and drug-induced movement disorders with typical antipsychotics as with atypicals, reviews of randomized controlled trials indicate that atypical antipsychotics, at lower doses are associated with fewer extrapyramidal side effects and less somnolence than typical antipsychotics in the treatment of BPSD.[13-15]

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* Health Canada/Janssen Ortho released a Drug Safety Update in 2002 detailing reports of strokes and stroke-like events in elderly patients taking risperidone in clinical studies.

† The US Food and Drug Administration issued a health advisory in March 2005 reporting increased mortality (1.6 -1.7 fold increase in relative risk, 1.9% increase in absolute risk, NNH: 52) in elderly patients taking atypical anti-psychotics to treat BPSD.

d. Follow-up

Once symptoms are controlled, regularly evaluate the need for continuing treatment (ongoing review for adverse events and effectiveness) and consider withdrawal of medication with close monitoring for re-emergence of symptoms.

Recommendation 11 End-of-Life Care

a. Review patient/family expectations for quality of life and intensity of care and support
b. Discuss initiation or revision of advance care planning with patient and family
c. Clarify specific care decisions pertaining to:
    - Pain (commonly occurs in this phase of the life course). A high index of suspicion is necessary with agitation or other behavioural changes; may need a closely monitored therapeutic trial
    - Nutrition and hydration
    - Treatment of recurrent infections
    - Provision for increased services at home
    - Indications for transfer to hospital or to a higher level of care

Recommendation 12 Caregiver Support

Caregivers need to be well supported. Determine your capability to provide ongoing, regular support, and/or refer out to other agencies (See Recommendation 13 for working with community and health care services).

- Ask about the caregiver's needs, coping strategies, support system and burden
- Educate patients and caregivers about the disease and how to cope, including advance care planning (consider cultural context for understanding and acceptance of dementia; see Patient & Caregiver Guide)
- Coordination, communication and planning during transition between care environments
- Respite for caregivers including adult day centre referral for patient etc.

Recommendation 13 Community Care, Mental Health and Specialty Services Resources

a. Timely referral to the Alzheimer Society of BC (ASBC). The ASBC assists people with all types of dementia and their caregiver's particularly:
    - People with early stage dementia
    - Caregivers for people with dementia at any stage
      Note: Disclosure of the diagnosis or suspected diagnosis of dementia should occur before referral to ASBC
b. Ask the opinion of a dementia specialist (geriatrician, neurologist, psychiatrist) when diagnosis or management is problematic
c. Refer to Home and Community Care services in each of the Health Authorities for long-term case management, home support, home safety assessment, respite care, adult day care or transitions to alternate living situations
d. Refer to Community Mental Health Services for significant and complex mental health conditions affecting the health and care of the patient and caregiver

Rationale

Alzheimer's disease (AD) and related dementias are progressive, irreversible degenerative brain diseases that lead to a decline in memory and other cognitive functions sufficient to affect daily life in an alert person. AD is the most common type of dementia representing approximately 67% of all cases nationally. Examples of related dementias include: vascular dementia (VaD), mixed dementia (AD and VaD together), dementia with Lewy Bodies (DLB), fronto-temporal dementia, and Creutzfeldt-Jakob disease.[16]

It is estimated that AD and related dementias affect 8% of Canadians over the age of 65. Nationally, this translates to approximately 420,000 people. Pending a validated dementia registry in British Columbia, it is estimated that between 51,000 and 64,000 people are currently affected, approximately 41,000 of whom are female. Dementia prevalence is positively correlated with age. Historically, 2.4% of people age 65 to 74, 11.1% of people age 75 to 84, and 34.5% of those 85 years and older in Canada have some form of dementia. Ostbye and Crosse (1994) estimated the total annual net cost of dementia in Canada (health care and paid/unpaid caregiving) to be $3.9 billion.[17] Based on this study, the Alzheimer Society of Canada recently updated this figure to $5.5 billion to reflect 2003 dollars.[18]

The current and projected burden of AD and related dementias has led the National Advisory Council on Aging and the Alzheimer Society of Canada to call for the development and implementation of a national strategy dealing with dementia. Their position paper outlines 30 recommendations which include increased research into the causes, prevention and treatment of progressive cognitive impairment, increased allocation of resources for long term care facilities, caregiver support and home care, increased physician training and education in AD and related dementias.

List of Abbreviations

AChEI	Acetylcholinesterase Inhibitor
AD	Alzheimer's disease
ASBC	Alzheimer Society of British Columbia
BPSD	Behavioural and Psychological Symptoms of Dementia
CAM	Confusion Assessment Method
CDM	chronic disease management
CDT	Clock Drawing Test
CHF	congestive heart failure
CT	(CAT) computerized axial tomography
DLB	Dementia with Lewy Bodies
DSM IV-TR	Diagnostic and Statistical Manual of Mental Disorders, Fourth Ed., Text Revision
GDS	Geriatric Depression Scale (Yesavage et al.)
GDS	Global Deterioration Scale (Reisberg et al.)
MCI	mild cognitive impairment
MDD	major depressive disorder
MoCA	Montreal Cognitive Assessment
MRI	magnetic resonance imaging
NNH	number needed to harm
NNT	number needed to treat
NPH	normal pressure hydrocephalus
NSAID	non-steroidal anti-inflammatory drug
OTC	over-the-counter
PDD	Parkinson’s Disease Dementia
SMMSE	Standardized Mini Mental State Exam
SR	slow release
SSRI	Selective Serotonin Reuptake Inhibitor
TBI	traumatic brain injury
TIA	transient ischemic attack
TSH	thyroid stimulating hormone
VaD	Vascular Dementia

Resources

DriveSafe
The BC Medical Association's Guide for Physicians in Determining Fitness to Drive a Motor Vehicle (with updates) can be accessed online at: www.drivesafe.com. This site contains a number of links to resources for physicians such as:

- *British Columbia: Report a Medical Condition Affecting Fitness and Ability to Drive,* MV2351, updated November 2003;
- *AMA Physician's Guide to Assessing and Counselling Older Drivers*

Drive ABLE Assessment Centres Inc.
For an assessment centre in your region, please call 1-877-433-1494 or go to: www.driveable.com or www.candrive.ca.

HandyDART is a door-to-door, share ride, custom transportation service. This service is for people who are unable to use the regular transit service some or all of the time due to mobility issues associated with a permanent or temporary physical or cognitive disability: www.busonline.ca/regions/vic/accessible/handydart.cfm

TaxiSavers provides greater convenience for one-time trips when handyDART cannot accommodate your travel needs: www.busonline.ca/regions/vic/accessible/taxi_saver.cfm

Community Living BC has been designated under guardianship legislation to investigate situations of potential self neglect, neglect and abuse: www.communityliving.bc.ca

Alzheimer Society of BC assists people with all types of dementia and their caregivers 1-800-667-3742 or go to: www.alzheimerbc.org/

Alzheimer's Drug Therapy Initiative
All questions, clinical and administrative, can be directed to Health Insurance BC at 1 800 663-7100 or go to: www.health.gov.bc.ca/pharme/adti

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Revised Date: January 30, 2008

This guideline is based on scientific evidence current as of the Effective Date.

This guideline was developed by the Guidelines and Protocols Advisory Committee, approved by the British Columbia Medical Association and adopted by the Medical Services Commission.

Contact Information

Guidelines and Protocols Advisory Committee
PO Box 9642 STN PROV GOVT
Victoria BC V8W 9P1

Phone: 250 952-1347 E-mail: HLTH.Guidelines@gov.bc.ca
Fax: 250 952-1417 Web site: www.BCGuidelines.ca

The principles of the Guidelines and Protocols Advisory Committee are to:

- encourage appropriate responses to common medical situations
- recommend actions that are sufficient and efficient, neither excessive nor deficient
- permit exceptions when justified by clinical circumstances.

Appendices

Appendix A The Confusion Assessment Method (CAM) Diagnostic Algorithm
Appendix B Geriatric Depression Scale (GDS)
Appendix C Standardized Mini-Mental State Exam (SMMSE)
Appendix D Clock Drawing Test
Appendix E Montreal Cognitive Assessment (MoCA)
Appendix F Global Deterioration Scale
Appendix G Cognitive Impairment in the Elderly Flow Sheet (Optional)

Associated Documents

The following documents accompany this guideline:

- Summary
- Patient and Caregiver's Guide

The Confusion Assessment Method (CAM)
Diagnostic Algorithm

Feature 1: Acute Onset and Fluctuating Course

This feature is usually obtained from a family member or nurse and is shown by positive responses to the following questions:

Is there evidence of an acute change in mental status from the patient's baseline? Did the (abnormal) behaviour fluctuate during the day, that is, tend to come and go, or increase and decrease in severity?

Feature 2: Inattention

This feature is shown by a positive response to the following question:

Did the patient have difficulty focusing attention, for example, being easily distractible or having difficulty keeping track of what was being said?

Feature 3: Disorganized Thinking

This feature is shown by a positive response to the following question:

Was the patient's thinking disorganized or incoherent, such as rambling or irrelevant conversation, unclear or illogical flow of ideas, or unpredictable switching from subject to subject?

Feature 4: Altered Level of Consciousness

This feature is shown by any answer other than "alert" to the following question:

Overall, how would you rate this patient's level of consciousness? (alert [normal]), vigilant [hyperalert], lethargic [drowsy, easily aroused], stupor [difficult to arouse], or coma [unarousable])

The diagnosis of delirium by CAM requires the presence of features 1 and 2 and either 3 or 4

Adapted from:
Inouye VD, Alessi C, Balkin S, et al. Clarifying confusion: the confusion assessment method. Annals of Internal Medicine 1990;113(12):941-948.

GERIATRIC DEPRESSION SCALE (GDS)*

Directions to Patient:	Please choose the best answer for how you have felt over the past week
Directions to the Examiner:	Read the questions to the patient and record their responses. If appropriate, allow the client to complete the form on his/her own.

NAME OF PATIENT	DATE

		(PLEASE ✓)	
1.	Are you basically satisfied with your life?	❑ Yes	❑ No
2	Have you dropped many of your activities and interests?	❑ Yes	❑ No
3	Do you feel that your life is empty?	❑ Yes	❑ No
4	Do you often get bored?	❑ Yes	❑ No
5	Are you in good spirits most of the time?	❑ Yes	❑ No
6	Are you afraid that something bad is going to happen to you?	❑ Yes	❑ No
7	Do you feel happy most of the time?	❑ Yes	❑ No
8	Do you often feel helpless?	❑ Yes	❑ No
9	Do you prefer to stay at home, rather than going out and doing new things?	❑ Yes	❑ No
10	Do you feel you have more problems with memory than most?	❑ Yes	❑ No
11	Do you think it is wonderful to be alive now?	❑ Yes	❑ No
12	Do you feel pretty worthless the way you are now?	❑ Yes	❑ No
13	Do you feel full of energy?	❑ Yes	❑ No
14	Do you feel that your situation is hopeless?	❑ Yes	❑ No
15	Do you think that most people are better off than you are?	❑ Yes	❑ No

Total Score:

**This is the Yesavage et al. short form – 1983/86*

A score greater than 5 is suggestive of depression, however, full scoring information for the GDS is available at: http://www.stanford.edu/~yesavage/GDS.english.long.html

Yesavage: The use of Rating Depression Series in the Elderly, in Poon (ed.): *Clinical Memory Assessment of Older Adults,* American Psychological Association, 1986.

Sheikh JI, Yesavage JA: Geriatric Depression Scale (GDS): Recent evidence and development of a shorter version. *Clinical Gerontology: A Guide to Assessment and Intervention* 165-173, NY: The Haworth Press, 1986.

The following Web site allows you to download the GDS in English or other languages.
http://www.stanford.edu/~yesavage/GDS.html

STANDARDIZED MINI-MENTAL STATE EXAMINATION (SMMSE)

NAME OF PATIENT | DATE

Directions for administration of the SSMSE:

1. Before the questionnaire is administered, try to get the person to sit down facing you. Assess the person's ability to hear and understand very simple conversation, e.g. *What is your name?* If the person uses hearing or visual aids, provide these before starting.
2. Introduce yourself and try to get the person's confidence. Before you begin, get the person's permission to ask questions, e.g. *Would it be alright to ask you the same questions about your memory?* This helps to avoid catastrophic reactions.
3. Ask each question a maximum of three times. If the subject does not respond, score 0.
4. If the person answers incorrectly, score 0. Accept that answer and do not ask the question again, hint, or provide any physical clues such as head shaking, etc.
5. The following equipment is required to administer the instrument: A watch, a pencil, Page 3 of this SMMSE with CLOSE YOUR EYES written in large letters and two five-sided figures intersecting to make a four-sided figure, and Page 4, a blank piece of paper.
6. If the person answers: What did you say?, do not explain or engage in conversation. Merely repeat the same directions a maximum of three times.
7. If the person interrupts (e.g. What is this for?), reply: *I will explain in a few minutes, when we are finished. Now if we could proceed please… we are almost finished.*

I am going to ask you some questions and give you some problems to solve. Please try to answer as best as you can.

1. Time: 10 seconds for each reply:

a)	*What year is this?* (accept exact answer only).	/1
b)	*What season is this?* (accept either: last week of the old season or first week of a new season).	/1
c)	*What month is this?* (accept either: the first day of a new month or the last day of the previous month).	/1
d)	*What is today's date?* (accept previous or next date).	/1
e)	*What day of the week is this?* (accept exact answer only).	/1

2. Time: 10 seconds for each reply:

a)	*What country are we in?* (accept exact answer only).	/1
b)	*What province are we in?* (accept exact answer only).	/1
c)	*What city/town are we in?* (accept exact answer only).	/1
d)	(In home) *What is the street address of this house?* (accept street name and house number or equivalent in rural areas). (In facility) *What is the name of this building?* (accept exact name of institution only).	/1
e)	(In home) *What room are we in?* (accept exact answer only). (In facility) *What floor of the building are we on?* (accept exact answer only).	/1

3. Time: 20 seconds

Say: *I am going to name three objects. When I am finished, I want you to repeat them. Remember what they are because I am going to ask you to name them again in a few minutes.* (Say the following words slowly at approximately one-second intervals): *Ball / Car / Man.*

For repeated use: Bell, jar, fan; Bill, tar, can; Bull, bar, pan.
Please repeat the three items for me. (score one point for each correct reply on the first attempt.)
If the person did not repeat all three, repeat until they are learned or up to a maximum of five times (but only score first attempt). /3

4. Time: 30 seconds

Spell the word WORLD. (you may help the person to spell the word correctly) **Say:** *Now spell it backwards please.* If the subject cannot spell world even with assistance, score 0. Refer to Page 3 for scoring instructions. /5

***5.* Time: 10 seconds**

Say: *Now what were the three objects I asked you to remember?*

(score one point for each correct answer regardless of order) /3

6. Time: 10 seconds

Show wristwatch. Ask: *What is this called?*

(score one point for correct response: accept "wristwatch" or "watch"; do not accept "clock" or "time", etc.). /1

7. Time: 10 seconds

Show pencil. Ask: *What is this called?*

(score one point for correct response; accept "pencil" only; score 0 for pen) /1

8. Time: 10 seconds

Say: *I would like you to repeat a phrase after me: No ifs, ands or buts.*

Score one point for a correct repetition. Must be exact, e.g. no ifs or buts, score 0). /1

9. Time: 10 seconds

Say: *Read the words on this page and then do what it says.* Then, hand the person the sheet with CLOSE YOUR EYES on it. If the subject just reads and does not close eyes, you may repeat: *Read the words on this page and then do what it says* (a maximum of three times). Score one point only if the subject closes eyes. The subject does not have to read aloud. /1

10. Time: 30 seconds

Hand the person a pencil and paper (Page 3). **Say:** *Write any complete sentence on that piece of paper.*

Score one point. The sentence must make sense. Ignore spelling errors. /1

11. Time: 1 minute maximum

Place design, eraser and pencil in front of the person. **Say:** *Copy this design please.* Allow multiple tries. Wait until the person is finished and hands it back. Score one point for a correctly copied diagram. The person must have drawn a four-sided figure between two five-sided figures. /1

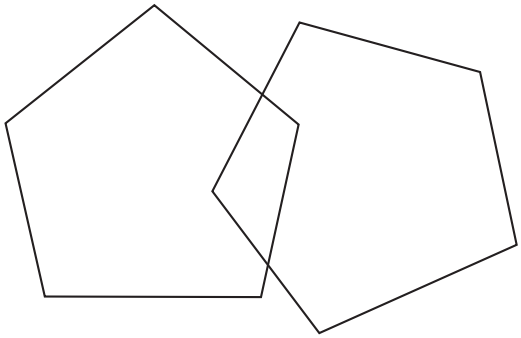
12. Time: 30 seconds

Ask the person if he is right or left handed. Take a piece of paper, hold it up in front of the person and **say:** *Take this paper in your right/left hand* (whichever is non-dominant), *fold the paper in half once with both hands and put the paper down on the floor.* Score one point for each instruction executed correctly.

Takes paper in correct hand	/1
Folds it in half	/1
Puts it on the floor	/1

Total Test Score:	**/30**
Adjusted Score	**/**

Item 11



Foldline

Scoring WORLD backwards (instructions for item #4)

Write the person's response below the correct response.
Draw lines matching the same letters in the correct response and the response given.
These lines MUST NOT cross each other. Draw only one line per letter.
The person's score is the maximum number of lines that can be drawn without crossing any.

Examples:

D	L	R	O	W
D	L	R	O	W

= Score 5

D	L	R	O	W
D	R	W	O	D

= Score 3

D	L	R	O	W
L	O	W	R	O

= Score 3

D	L	R	O	W
L				

= Score 1

D	L	R	O	W
L	R	R	W	O

= Score 3

D	L	R	O	W

= Score 0

Fold along this line and show instructions to person

Item 9

Close your eyes

Item 10

Sentence Writing

Appendix C

Standardized Mini Mental State Examination (SMMSE) *Cont'd*

Table 1. Stages of Cognitive Impairment as Defined by SMMSE Scores

SCORE	DESCRIPTION	STAGE	DURATION (Years)
30-26	Could be normal	Could be normal	Varies
25-20	Mild	Early	0 to 23
19-10	Moderate	Middle	4-7
9-0	Severe	Late	7-14

Table 2. Areas of Functional Impairment

SMMSE SCORE	ACTIVITIES OF DAILY LIVING	COMMUNICATION	MEMORY
30-26	Could be normal	Could be normal	Could be normal
25-20	Driving, finances, shopping	Finding words, repeating, going off topic	Three-item recall, orientation to time then place
19-10	Dressing, grooming, toileting	Sentence fragments, vague terms (i.e: this, that)	Spelling WORLD backward, language, and three-step command
9-0	Eating, walking	Speech disturbances such as stuttering and slurring	Obvious deficits in all areas

Adapted from: Vertesi A, Lever JA, Molloy DW, et al. Standardized mini-mental state examination: Use and interpretation. Canadian Family Physician 2001;47:2018-2023.

Appendix D

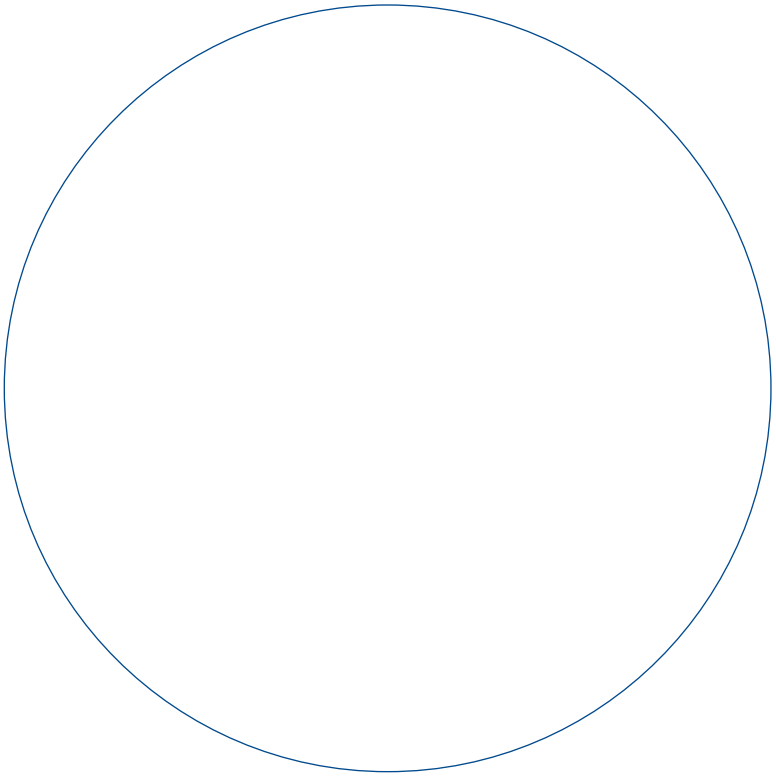
Clock Drawing Test

The clock drawing test (CDT) is a very appealing supplement to the SMMSE because it draws on a number of cognitive domains such as working memory, executive functioning (planning, conceptualizing), and visuoconstructional skills. It is also less affected by language, culture and education than many other tests.

The CDT may be completed and scored according to one of many different protocols, or more commonly, it can be administered and rated in an informal and subjective manner such as the following:

- Present the patient with a pre-drawn circle about 10 cm in diameter
- Ask the patient to place the numbers on the circle like a clock. Note whether the patient uses appropriate planning in distributing the numbers properly, or whether the patient perseverates or forgets the task and continues numbering past 12
- Ask the patient to place hands on the clock showing the time to be 10 minutes after 11. Patients with faulty conceptualization may be drawn to placing the hands at 10 and 11 rather than at 11 and 2, or they may fail the task completely

Fold along this line to administer

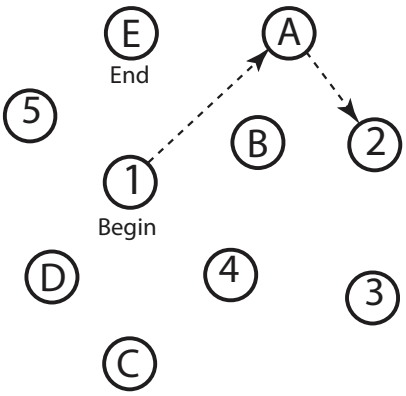


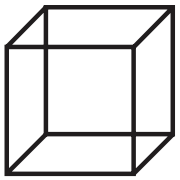
Appendix E

MONTREAL COGNITIVE ASSESSMENT (MOCA)

NAME :
Education : Date of birth :
Sex : DATE :

VISUOSPATIAL / EXECUTIVE





Copy cube

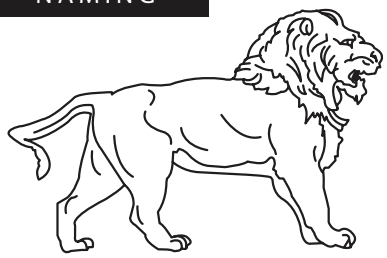
[ ] [ ]

Draw CLOCK (Ten past eleven)
(3 points)

[ ] Contour [ ] Numbers [ ] Hands

POINTS ___/5

NAMING



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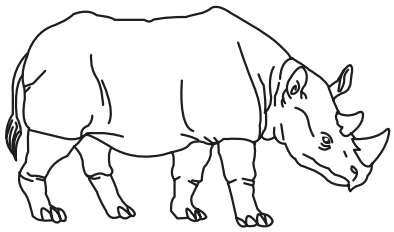

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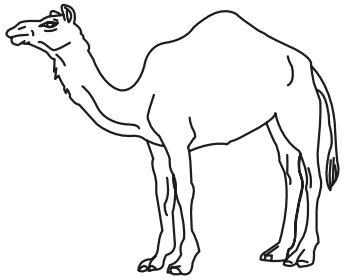

[ ]

___/3

MEMORY

Read list of words, subject must repeat them. Do 2 trials. Do a recall after 5 minutes.

	FACE	VELVET	CHURCH	DAISY	RED
1st trial					
2nd trial					

No points

ATTENTION

Read list of digits (1 digit/ sec.).

Subject has to repeat them in the forward order [ ] 2 1 8 5 4

Subject has to repeat them in the backward order [ ] 7 4 2

___/2

Read list of letters. The subject must tap with his hand at each letter A. No points if ≥ 2 errors

[ ] F B A C M N A A J K L B A F A K D E A A A J A M O F A A B

___/1

Serial 7 subtraction starting at 100 [ ] 93 [ ] 86 [ ] 79 [ ] 72 [ ] 65

4 or 5 correct subtractions: **3 pts**, 2 or 3 correct: **2 pts**, 1 correct: **1 pt**, 0 correct: **0 pt**

___/3

LANGUAGE

Repeat : I only know that John is the one to help today. [ ]

The cat always hid under the couch when dogs were in the room. [ ]

___/2

Fluency / Name maximum number of words in one minute that begin with the letter F [ ] _____ (N ≥ 11 words)

___/1

ABSTRACTION

Similarity between e.g. banana - orange = fruit [ ] train – bicycle [ ] watch - ruler

___/2

DELAYED RECALL

	Has to recall words **WITH NO CUE**	FACE [ ]	VELVET [ ]	CHURCH [ ]	DAISY [ ]	RED [ ]	Points for UNCUED recall only
Optional	Category cue						
	Multiple choice cue						

___/5

ORIENTATION

[ ] Date [ ] Month [ ] Year [ ] Day [ ] Place [ ] City

___/6

 Version November 7, 2004

www.mocatest.org

Normal ≥ 26 / 30

TOTAL ___/30

Add 1 point if ≤ 12 yr edu

Administration and scoring instructions available at www.mocatest.org (English, French, Dutch & Spanish)

Appendix F

Global Deterioration Scale

Level	Clinical Characteristics
1. No cognitive decline	No subjective complaints of memory deficit. No memory deficit evident on clinical interview.
2. Very mild cognitive decline (Forgetfulness)	Subjective complaints of memory deficit, most frequently in following areas: (a) forgetting where one has placed familiar objects; (b) forgetting names one formerly knew well. No objective evidence of memory deficit on clinical interview. No objective deficits in employment or social situations. Appropriate concern with respect to symptomatology.
3. Mild cognitive decline (Early Confusional)	Earliest clear-cut deficits. Manifestations in more than one of the following areas: (a) patient may have become lost when traveling to an unfamiliar location; (b) co-workers become aware of patient's relatively poor performance; (c) word and name finding deficit becomes evident to intimates; (d) patient may read a passage or a book and retain relatively little material; (e) patient may demonstrate decreased facility in remembering names upon introduction to new people; (f) patient may have lost or misplaced an object of value; (g) concentration deficit may be evident on clinical testing. Objective evidence of memory deficit obtained only with an intensive interview. Decreased performance in demanding employment and social settings. Denial begins to manifest in the patient. Mild to moderate anxiety accompanies symptoms.
4. Moderate cognitive decline (Late Confusional; Mild Dementia)	Clear-cut deficit on careful clinical interview. Deficits manifest in following areas: (a) decreased knowledge of current and recent events; (b) may exhibit some deficit in memory of ones personal history; (c) concentration deficit elicited on serial subtractions; (d) decreased ability to travel, handle finances, etc. Frequently no deficit in following areas: (a) orientation to time and place; (b) recognition of familiar persons and faces; (c) ability to travel to familiar locations. Inability to perform complex tasks. Denial is dominant defense mechanism. Flattening of affect and withdrawal from challenging situations frequently occur.
5. Moderately severe cognitive decline (Early Dementia; Moderate Dementia)	Patient can no longer survive without some assistance. Patient is unable during interview to recall a major relevant aspect of their current lives, e.g., an address or telephone number of many years, the names of close family members (such as grandchildren), the name of the high school or college from which they graduated. Frequently some disorientation to time (date, day of week, season, etc.) or to place. An educated person may have difficulty counting back from 40 by 4s or from 20 by 2s. Persons at this stage retain knowledge of many major facts regarding themselves and others. They invariably know their own names and generally know their spouse's and children's names. They require no assistance with toileting and eating, but may have some difficulty choosing the proper clothing to wear.
6. Severe cognitive decline (Middle Dementia; Moderately Severe Dementia)	May occasionally forget the name of the spouse upon whom they are entirely dependent for survival. Will be largely unaware of all recent events and experiences in their lives. Retain some knowledge of their past lives but this is very sketchy. Generally unaware of their surroundings, the year, the season, etc. May have difficulty counting from 10, both backward and, sometimes, forward. Will require some assistance with activities of daily living, e.g., may become incontinent, will require travel assistance but occasionally will be able to travel to familiar locations. Diurnal rhythm frequently disturbed. Almost always recall their own name. Frequently continue to be able to distinguish familiar from unfamiliar persons in their environment. Personality and emotional changes occur. These are quite variable and include: (a) delusional behavior, e.g., patients may accuse their spouse of being an impostor, may talk to imaginary figures in the environment or to their own reflection in the mirror; (b) obsessive symptoms, e.g., person may continually repeat simple cleaning activities; (c) anxiety symptoms, agitation and even previously nonexistent violent behavior may occur; (d) cognitive abulia, i.e., loss of willpower because an individual cannot carry a thought long enough to determine a purposeful course of action.
7. Very severe cognitive decline (Late Dementia; Severe Dementia)	All verbal abilities are lost over the course of this stage. Frequently there is no speech at all, only unintelligible utterances and rare emergence of seemingly forgotten words and phrases. Incontinent of urine, requires assistance toileting and feeding. Basic psychomotor skills, e.g., ability to walk, are lost with the progression of this stage. The brain appears to no longer be able to tell the body what to do. Generalized rigidity and developmental neurologic reflexes are frequently present.

Reisberg B, Ferris SH, Leon MJ, et al. The global deterioration scale for assessment of primary degenerative dementia. American Journal of Psychiatry 1982;139:1136-1139.

COGNITIVE IMPAIRMENT IN THE ELDERLY FLOW SHEET

This optional Flow Sheet is based on the Guideline,
Cognitive Impairment in the Elderly – Recognition, Diagnosis and Management
Web site: www.BCGuidelines.ca

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BRITISH COLUMBIA MEDICAL ASSOCIATION | Guidelines & Protocols Advisory Committee

NAME OF PATIENT	SEX ☐ M ☐ F	DATE OF BIRTH	EDUCATION
DIAGNOSIS		DATE OF DIAGNOSIS	OCCUPATION

CARE OBJECTIVES

RISK FACTORS AND CO-MORBID CONDITIONS

☐ Obesity
☐ Smoker
☐ Alcohol
☐ Diabetes
☐ HTN
☐ CAD
☐ Atrial fib
☐ Asthma
☐ COPD
☐ Renal disease
☐ Depression
☐ Other: _____

Baseline Investigations (✓ when done; normal or add values prn)

☐ FBG _____
☐ TSH _____
☐ eGFR _____
☐ CBC _____
☐ B_{12} _____
☐ Ca _____
☐ STS _____
☐ ECG _____
☐ Other _____
_____

SMMSE Score: _____ Date: _____

MoCA Score: _____ Date: _____

SELF MANAGEMENT (Discuss with patient & caregiver)

☐ Define management goals (Risk factor reduction; Treat co-morbid conditions; case management)
☐ Functional status (Baseline & review at each visit)

IADLs:
- Housework
- Meal prep
- Shopping
- Transportation
- Finances
- Managing meds

ADLs:
- Bathing/Toileting
- Dressing
- Mobility

☐ Supports (home care, family, case manager, living situation)
☐ Caregiver issues (behaviour/sleep/mood)
☐ Living will/DNR discussion

VISITS

DATE	BP	HR	WEIGHT Lbs | Kg	(Review care objectives, management goals, functional status, symptoms, medications/pharmacy)
				BASELINE
				REVIEW CLINICAL ACTION PLAN

ANNUALLY

VACCINATIONS

Annual Flu: DATE _____ DATE _____ Pneumovax: DATE _____

HLTH/BCMA 6009 (06/07)

DIAGNOSTIC CODE (Dementia): 290

*For information on billing incentive fees, please visit www.health.gov.bc.ca/phc