OBJECTIVE

Alberta primary care physicians and their interdisciplinary teams will be able to assess patients presenting with cognitive concerns and manage the majority of these patients and support their caregivers.

TARGET POPULATION

Older adults (65 years of age and greater)

EXCLUSIONS

Children

Younger adults (<65 years of age) with early onset dementia

RECOMMENDATIONS

See Appendix A for clinical care algorithm. The proposed approach for addressing cognitive impairment is to organize and divide all of the tasks into four specific steps that will allow for logical, timely flow and prioritizing care. Each step may be completed in as many visits as necessary to complete the tasks recommended within each step.

> **PRACTICE POINT**
>
> *A stepwise/phased approach is used that divides the process into manageable parts.*
>
> *Team-based care is often needed to deal with the complex and evolving needs of patients with cognitive impairment.*

1ST STEP GOAL: RECOGNIZE SUSPICIOUS FEATURES, PERFORM AN INITIAL ASSESSMENT & ADDRESS RISKS

- ✓ Be alert to personal observations and reports from patients or collateral sources suggesting cognitive decline (see Table 1).

> **PRACTICE POINT**
>
> *Initial concerns often relate to memory loss, declining ability to perform familiar tasks, and changes in behaviour.*
>
> *All such observations and reports should be taken seriously and carefully assessed as outlined.*

Table 1: Examples of Early Warning Signs

Early Warning Signs Suggesting Cognitive Decline	
Examples of possible signs detected by patient, family or other caregivers:	**Examples of possible signs detected by the primary care provider:**
• Difficulty performing familiar tasks (e.g., managing financial affairs, driving) or learning to use a new device (e.g., remote) because of cognitive changes. • Frequent memory problems, repeating things over and over again, problems with language, disorientation to time (specifically month or year) or places previously known, and/or poor judgment. • Misplacing things. • Changes in mood, behavior, and personality such as loss of initiative or less interest in hobbies/ activities.	• Formerly reliable but now misses or comes on wrong day for appointments. • Vague, repetitive, forgetful, poor comprehension, and/or word-finding difficulties in conversation. • Poor adherence with meds/ instructions. • Changes in appearance, mood, behavior, and/or personality such as withdrawal. • Unexplained change in function (e.g., driving) or weight loss. • Head turning sign (turning to caregiver for help answering).

- ✓ Be aware of common risk factors for dementia such as advancing age, family history, limited education, head injuries, and vascular risk factors. See Table 8 for an example of a validated tool for assessing the likelihood of a middle-aged person developing dementia within 20 years.
- ✓ Perform an initial assessment that considers whether the presentation might be from a delirium or depression and identify immediate risks (see Table 2 and Appendix B).

Table 2: Key Features & Approach

Key Features & Approach to Detecting Delirium and Depression as Cause of Cognitive Decline	

Delirium	• Symptoms (inattention, disorganized thinking, altered level of consciousness) occur suddenly and fluctuate during an acute illness, following medication changes, or subsequent to trauma or surgery.
	• Use Mnemonic: A-FACT
	  ○ Acute – onset
	  ○ Fluctuation – course
	  ○ Attention - ↓ concentration
	  ○ Consciousness - ↓ level
	  ○ Thoughts – disorganized
	• Defer dementia assessment until delirium has resolved but note that dementia is a strong risk factor for delirium and dementia is more likely to occur or worsen after a delirium in older patients (i.e., need follow-up).

Key Features & Approach to Detecting Delirium and Depression as Cause of Cognitive Decline	
	• If delirium is suspected, use the Confusion Assessment Method (CAM) to diagnose delirium - www.albertahealthservices.ca/assets/about/scn/ahs-scn-bjh-hf-delirium-screening-tool.pdf.
Depression	• Symptoms of guilt, sadness and anhedonia (inability to feel pleasure) predominate. • To assess for possible depression consider using screening test (e.g., Geriatric Depression Scale - http://consultgerirn.org/uploads/File/trythis/try_this_4.pdf). • Please note that it is not unusual for depressive symptoms to co-exist with a dementia. • If depression present, assess for suicide risk (e.g., SAD PERSONS scale - www.camh.ca/en/hospital/health_information/a_z_mental_health_and_addiction_information/suicide/Documents/sp_handbook_final_feb_2011.pdf).

✓ Always conduct a safety assessment (e.g., stove, financial, driving, wandering, abuse) at each visit.

2ND STEP GOAL: GATHER INFORMATION

✓ Details of cognitive issues (onset & duration, types of cognitive problems [e.g., memory and learning, language, reasoning], progression [if occurring, rate & pattern e.g., gradual, step-wise]).

✓ Assessment of function (note –instrumental activities of daily living (IADL) typically affected first with a dementia).

- BADLs: basic activities of daily living (i.e., functional mobility/transferring, bathing/showering, personal hygiene/grooming, dressing, toileting, eating).
- IADLs: instrumental activities of daily living (i.e., SHAFT – shopping, housekeeping, accounting, food preparation/meds, telephone/transportation).

✓ Assessment of mood and behaviour – ask about:

- Apathy
- Anxiety
- Agitation
- Aggression
- Dysphoria/depression
- Delusions
- Hallucinations
- Irritability
- Disinhibition
- Sleep and changes in night-time behaviour

✓ Perform a brief cognitive test. Options include:

- Mini-Mental State Examination (MMSE) www4.parinc.com/products/product.aspx?productID=MMSE
- Mini-Cog is an alternative to the MMSE for the assessment of suspected dementia. See www.alz.org/documents_custom/minicog.pdf.

- Montreal Cognitive Assessment (MoCA) is particularly useful as a screening test for mild cognitive impairment (MCI). Versions of the test and instructions on its administration can be found at: www.mocatest.org.

Table 3: Brief Cognitive Test and Results

When and What Type of Brief Cognitive Test to Administer and the Probable Results of These Tests.		
Patient signs and symptoms	**What brief cognitive test(s) to administer**	**Findings and probable diagnosis**
Patients with cognitive complaints and functional impairments	✓ Consider administering MMSE or Mini-Cog.*	Abnormal result suggests the patient likely has a dementia.
Patients with cognitive complaints and no functional impairments	✓ Consider administering the MoCA.**	Normal result suggests the patient likely has subjective complaints but no significant objective cognitive impairment. Abnormal result suggests the patient likely has mild cognitive impairment (MCI).***
**If a normal result is obtained with these tests, consider administering the MoCA.* ***The MoCA is also generally better than the MMSE at detecting deficits in non-Alzheimer causes of impaired cognition.* ****In patients without functional impairments the MMSE or Mini-Cog will likely be normal.*		

- ✓ Order routine laboratory testing including:
  - Complete blood count
  - Serum B12 (if low, oral or parenteral vitamin B12 should be given)
  - Thyroid stimulating hormone (TSH)
  - Serum electrolytes
  - Serum calcium (with albumin in order to calculate corrected calcium)
  - Serum glucose
- ✓ The need for additional laboratory tests is determined by the results of the history, physical examination, and initial investigations.
- ✓ Structural neuroimaging is recommended if the patient meets any of the criteria listed in Appendix C.
- ✓ Neuropsychological testing is a useful adjunct in the diagnosis and differential diagnosis of dementia but should be used selectively.
- ✓ Always conduct a safety assessment (e.g., stove, financial, driving, wandering, abuse) at each visit.

PRACTICE POINT

Connect with caregiver(s) and home care at an early stage (see Supplement to the CPGs).

3RD STEP GOAL: COMPLETE ASSESSMENT AND CONFIRM DIAGNOSIS

✓ Conduct a complete physical (including a detailed neurological) examination.

PRACTICE POINT

In early AD the neurological examination is typically unremarkable except for subtle findings like hyposmia (reduced ability to smell and detect odors). Non-Alzheimer dementias are more likely to have associated abnormalities on the neurological examination – see Table 4.

Table 4: Signs, Specific Features and Suggested Disorders

Signs	Specific Features	Suggested Disorders
Observation of gait	Gait disorders such as:	
	• Ataxic (wide-base of support, staggering).	• Cerebellar atrophy possibly from alcohol abuse.
	• Parkinsonian (flexed posture, narrow base of support, slow gait with short shuffling steps, diminished arm swing, festination).	• Parkinson's disease or Dementia with Lewy Bodies(DLB)
	• Hemiplegic (on involved side toes scuff with each step and circumduction of leg with abduction of ipsilateral arm).	• Vascular Dementia (VaD) or a mixed dementia
	• Frontal (variable broad base of support, short shuffling steps, hesitation [with starts and turns] and freezing, unsteady, preserved arm swing, upright posture).	• Variety of conditions including: cerebrovascular disease, Frontotemporal Dementia (FTD) and Normal Pressure Hydrocephalus
Search for signs of stroke.	• Focal or lateralizing signs such as hyperreflexia, Babinski response, or pseudobulbar palsy (e.g., dysarthria, dysphagia, emotional lability).	• VaD or mixed dementia
Look for involuntary movement.	• Chorea, tremor, dystonia, myoclonus and fasciculations.	• A variety of rarer forms of dementia (e.g., Huntington's disease)
Examine for parkinsonism.	• Rest tremor, bradykinesia, rigidity, postural deficits, and parkinsonian gait (see above).	• Parkinson Disease (PD) or DLB

Signs	Specific Features	Suggested Disorders
References: Snijders AH, et al: Neurological gait disorders in elderly people: clinical approach and classification. Lancet Neurol 2007, 6: 63-74. Wherrett JR: The Role of the neurological examination in the diagnosis and categorization of dementia. Geriatr Aging 2008. 11(4):203-8.		

- ✓ Review results of laboratory and radiological (if carried out) investigations.
- ✓ Decide on the presence of a dementia using DSM-5 Diagnostic Criteria for Major Neurocognitive Disorder (see Table 5).

Table 5: DSM-5 Diagnostic Criteria for Major Neurocognitive Disorder

DSM-5 Diagnostic Criteria for Major Neurocognitive Disorder
A. Evidence of significant cognitive decline from a previous level of performance in one or more cognitive domains (complex attention, executive function, learning and memory, language, perceptual-motor, or social cognition) based on: **a.** Concern of the individual, a knowledgeable informant, or the clinician that there has been a significant decline in cognitive function, and **b.** A substantial impairment in cognitive performance, preferably documented by standardized neuropsychological testing or, in its absence, another quantified clinical assessment.
B. The cognitive deficits interfere with independence in everyday activities (i.e., at a minimum, requiring assistance with complex instrumental activities of daily living such as paying bills or managing medications).
C. The cognitive deficits do not occur exclusively in the context of a delirium.
D. The cognitive deficits are not better explained by another mental disorder (e.g., major depressive disorder, schizophrenia).
Ref: American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders (5th ed.).

See Appendix D for common symptoms in neurocognitive domains noted in first DSM-5 criteria.

- ✓ If dementia is present, determine the most likely type of dementia see Table 6.

PRACTICE POINT

In *older individuals it is common to have a mixed dementia with more than one cause found (e.g., Alzheimer disease plus cerebrovascular disease).*

Table 6: Clinical Features of the Commoner Causes of Dementia in Older Individuals

Disease	Typical Symptoms	Cognitive Testing	Behavioural Symptoms	Neurological Examinations
Alzheimer Disease (AD)	Insidious onset and gradual progression of a dementia with prominent and early deficits of memory and learnings	Evidence of episodic memory loss (e.g., impaired delayed recall) plus at least one other cognitive domain	Apathy and depressive symptoms common early in the disease	Initially unremarkable
Frontotemporal Dementia (FTD)	Insidious onset and gradual progression of a dementia with either behavioural symptoms (behavioural variant) or language problems (primary progressive aphasia)	Prominent decline in executive (with behavioural variant) or language (with primary progressive aphasia) function with relative sparing of learning and memory and perceptual-motor function	In behavioural variant form, early and prominent symptoms that include: • Disinhibition • Apathy or inertia, • Loss of sympathy or empathy • Perseverative, stereotyped or compulsive/ ritualistic behaviour • Hyperorality and dietary changes	In form associated with amyotrophic lateral sclerosis may find weakness, wasting and fasciculations
Dementia with Lewy Bodies (DLB)	Insidious onset and gradual progression of a dementia with fluctuating cognition, recurrent visual hallucinations, parkinsonism, REM sleep behaviour disorder, and/or severe neuroleptic sensitivity	Problems with complex attention, visuospatial, and executive functioning with relative sparing of memory and learning early on	Detailed and recurrent visual hallucinations often an early and prominent feature. Depression, systematized delusions, or hallucinations in other sensory and perceptual modalities are supportive features.	Parkinsonism
Vascular Dementia (VAD)	Onset of cognitive deficits is temporally related to one or more	Prominent decline in complex attention (including processing speed)	Mood depression, (emotional lability) and behavioural manifestations can	Evidence of cerebrovascular disease on physical examination (focal

Disease	Typical Symptoms	Cognitive Testing	Behavioural Symptoms	Neurological Examinations
	cerebrovascular events.	and executive functioning	be prominent.	or lateralizing signs)

- ✓ Always conduct a safety assessment (e.g., stove, financial, driving, wandering, abuse) at each visit.

4TH STEP GOAL: DISCLOSE DIAGNOSIS, DEVELOP CARE PLAN AND INITIATE ONGOING CARE

PRACTICE POINT

Develop comprehensive care plans that anticipate the patient's evolving needs to reduce crises and allow for the early and meaningful involvement of patients and families in decision-making

GENERAL APPROACH

Table 7: Possible Scenarios and How to Approach

Clinical Scenario	How to Approach
If a diagnosis of dementia is not supported by the information gathered.	✓ If no objective cognitive concerns, reassure patient, encourage healthy lifestyles, and develop follow-up plan.
If there are cognitive concerns but not to the extent where a diagnosis of dementia can be made.	✓ Consider the possibility of Mild Cognitive Impairment (MCI). ✓ If MCI is diagnosed: ○ Search for potential cause (e.g., depressed mood, anticholinergic medications). ○ Suggest advance planning (i.e., updated will, Personal Directive, Enduring Power of Attorney). ○ Recommend heart healthy diet and being physical, mentally, and socially active. ○ Follow patient every six months to re-assess cognition, behaviour and/or function.

Clinical Scenario	How to Approach
If a diagnosis of dementia is supported by the information gathered.	✓ Discuss the diagnosis and general prognosis with the patient and caregiver. ✓ Consider referral to specialist/specialty service for patients with early-onset or rapidly progressive dementia (defined as progression to dementia within 12 months of the appearance of the first cognitive symptoms). ✓ For other patients, determine dementia stage as this might help inform management plan (optional). ✓ See accompanying documents: ○ Supplement to the CPGs: Professional Services and Resources in Alberta for Patient/Family/Caregiver and Future/Advanced Planning Tools and Tips for Aging Individuals

NEXT STEP: TREATMENT/MANAGEMENT

See TOP CPG Cognitive Impairment Part 2: Diagnosis to Management.

BACKGROUND

MILD COGNITIVE IMPAIRMENT (MCI)

Mild cognitive impairment (MCI) and also referred to as mild neurocognitive disorder, is a term for modest acquired cognitive deficits (usually with memory) that is more than expected for the person's age but not enough for a diagnosis of dementia. The problems don't lead to a loss of independence though greater effort, compensatory strategies, or accommodation may be required for complex activities.

MCI affects 10-20% of persons 65 years of age and older. Those with MCI are at increased risk of a dementia compared to similarly aged individuals with normal cognition (i.e., 5-15% with MCI develop a dementia per year compared to 1-2% among those with normal cognition). Individuals with MCI should undergo an evaluation similar to what is done for suspected dementia in order to look for any underlying cause (e.g., depression, adverse drug effects). Patients with MCI should be followed because of their heightened risk of progression to dementia, but should not be labeled as having early AD, as the outcome for a given individual is not certain. Advance planning and a healthy lifestyle should be encouraged.[1,2] There are no medications approved for MCI.

DEMENTIA

The Alzheimer Society of Canada estimated there were 564,000 Canadians living with dementia in 2016. This is expected to rise to 937,000 in 2031.[3] Dementia can be diagnosed when the acquired cognitive deficits are of sufficient severity to interfere with independence in a person without a delirium or where it could be better explained by another mental disorder like depression. Neurodegenerative dementias are progressive. Unfortunately, dementia is rarely reversible.[4] Once a diagnosis has been made, the physician should try to determine the specific cause of the dementia (see below Common Causes). Most cases can be assessed and managed by primary care physicians with support as needed from specialists and other services within the health care system. The two exceptions to this are patients with early onset dementia (defined as the development of symptoms before 65) and patients with rapidly progressive dementia (defined as progression to a dementia within 12 months of the appearance of the first cognitive symptoms). These patients should be referred to a specialist or specialty service when detected.[5]

COMMON CAUSES OF DEMENTIA IN OLDER ADULTS

ALZHEIMER DISEASE (AD)

AD is the most common cause of dementia and is characterized by an insidious onset and gradual progression of memory and learning problems over time. See Appendix D for diagnostic criteria and an overview of the features of AD. Obtaining a history of a gradual and progressive decline in memory and at least one other cognitive domain coupled with an unremarkable physical examination and investigations would be suggestive of AD. There are symptomatic drugs for AD, but the benefits are modest.

MIXED DEMENTIA

This form occurs when there are coexisting brain diseases that collectively are felt to be causing the dementia. A mixed etiology is quite common especially among older individuals - most patients 85 years of age and older with a dementia have two or more underlying causes though their presence may only be detected after an autopsy is performed. The most common combination is AD plus cerebrovascular disease (some restrict the term “mixed dementia” to this particular combination). AD and DLB also often coexist.[6] Symptoms and signs vary depending on the underlying diseases, their severity, and the locations of lesions. Many mixed dementia cases are clinically indistinguishable from “pure” AD or other types of dementia but with others their presentation suggests more than one underlying cause. Treatment is directed towards the identified brain diseases that are felt to be contributing to the person’s dementia.

FRONTOTEMPORAL DEMENTIA (FTD)

FTD is an umbrella term for a complex group of neurodegenerative disorders that affect the frontal and temporal lobes of the brain. They lead to behavioural issues and/or language difficulties. Patients with the behavioural form of FTD show progressive deterioration of interpersonal skills and behavioural problems (e.g., disinhibition, apathy, loss of empathy, compulsions, hyperorality, loss of insight). From a cognitive standpoint, deficits in executive functioning with relative sparing of memory and visuospatial abilities are seen early on. Those presenting with the language form can have either a non-fluent aphasia or speak fluently but with trouble comprehending words and naming items. FTD

tends to affect younger patients than AD. Because of the younger age and the nature of their problems, patients with suspected FTD are generally referred to specialists/ specialty services.[7,8]

DEMENTIA WITH LEWY BODIES (DLB)

With DLB memory issues may not predominate early on. Deficits in attention, executive functioning and visuospatial abilities may be more prominent. Core features of DLB are fluctuating cognition with pronounced variations in attention and alertness, recurrent well-formed and detailed visual hallucinations, and spontaneous features of parkinsonism. Suggestive clinical features include marked sensitivity to antipsychotics and a rapid eye movement (REM) sleep behaviour disorder. Probable DLB is diagnosed when two plus core features OR one core and one plus suggestive feature are present.[9,10] Dementia can also occur in the setting of established Parkinson's disease, when it is called Parkinson's disease dementia (PDD). If dementia develops before or within a year of the parkinsonism DLB is diagnosed. With PDD dementia develops within the context of established Parkinson's disease.

VASCULAR DEMENTIA (VAD)

A diagnosis of VaD can be made when there are cognitive deficits severe enough to permit a diagnosis of dementia coupled with clinical and imaging evidence of cerebrovascular disease, clear temporal relationship between a vascular event and the onset or progression of the cognitive deficits, and there is no history of gradually progressive cognitive deficits. The presence of diffuse subcortical cerebrovascular disease and prominent deficits in attention, information processing and executive function on cognitive testing would also suggest VaD.[11]

ASSESSMENT

RISK FACTORS

The Cardiovascular Risk Factors, Aging and Dementia (CAIDE) is a risk score that predicts the likelihood of a middle- aged person developing dementia within 20 years.[13,14] It has been independently validated in an ethnically diverse population. The risk of dementia was found to be 1% for patients with a score of 0-5; 1.9% for patients with a score of 6-7; 4.2% for those with a score of 8-9; 7.4% for a score of 10-11; and 16.4% for patients with a score of 12-15[14] The CAIDE Risk Assessment is available as an App for iphones/ipads and can be found on the Apple store. See Table 8.

Table 8: CAIDE Risk Assessment

RISK	SCORE
Age	
<47 years	0
47-53 years	3
≥53 years	4
Education	
>10 years	0
7-9 years	2
0-6 years	3
Sex	
Female	0
Male	1
Systolic Blood Pressure	
<140 mm Hg	0
≥140 mm Hg	2
Body Mass Index	
<30 kg/m^2	0
≥30 kg/m^2	2
Total Cholesterol	
<6.5 mmol/L	0
≥6.5 mmol/L	2
Physical Activity	
Active	0
Inactive	1
TOTAL	

Patient History

This should focus on how the illness developed and whether there were any precipitating factors (e.g., vascular event). Background health information (e.g., medical problems, medications, alcohol and other recreational drug use, social history including years of education and presence of potential caregivers, family history) should be ascertained.[12]

Family/Caregiver Interview

A separate history should be obtained from someone who knows the patient well to determine whether the cognitive and non-cognitive complaints represent a change from prior performance. A

collateral source is generally a more accurate source of data on function and behaviour than the patient. The interview can also be used to gauge the extent of family support.[12]

Physical Examination

The physical examination should include a detailed neurological examination. Observing involuntary movements could suggest rare but specific causes for dementia (e.g., Huntington's disease - chorea, Creutzfeldt-Jakob disease - myoclonus, amyotrophic lateral sclerosis - fasciculations). In the early stages of dementia an abnormal gait (which can be observed as they walk into your office) suggests non-Alzheimer causes. Focal or lateralizing signs (e.g., hemiplegia, hyperreflexia, Babinski response, pseudobulbar palsy [dysarthria, dysphagia, emotional lability]) are suggestive of cerebrovascular disease. Finding parkinsonism (i.e., rest tremor, bradykinesia, rigidity, postural deficits, parkinsonian gait) in early dementia would indicate PDD or DLB.[12,15]

Brief Cognitive Instruments

All patients with cognitive complaints should have a brief screening test of cognition done to document the presence and severity of any deficits.[16] Serial observations with these tests at intervals of three to six months may be necessary to confirm the progressive nature of a cognitive concern.[17] Patients with cognitive complaints and functional impairments likely have a dementia. The MMSE or Mini-Cog should be used for these patients, as they likely will be abnormal (if normal, the MoCA can then be administered). Patients with cognitive complaints and no functional impairments will likely be either normal or have MCI. In these patients, the MoCA should be used, as the MMSE or Mini-Cog will likely be normal.[18] The MoCA is generally better than the MMSE at detecting deficits in non-Alzheimer causes of impaired cognition & should be considered if these conditions are suspected.

Mini-Mental State Examination

The Mini-Mental State Examination (MMSE) is historically the most widely used test for dementia. Many practitioners are familiar with it and have committed it to memory. Psychological Assessment Resources (PAR) has obtained an exclusive copyright license for it. The enforcement of the copyright by PAR has led to a search for other brief cognitive tests that can be used to assess cognition.[19] A systematic review concluded that the Montreal Cognitive Assessment (MoCA) and Mini-Cognitive Assessment (Mini-Cog) are alternatives for detecting MCI and dementia respectively.[20]

Montreal Cognitive Assessment©

The MoCA© was developed as a rapid screening tool for MCI. This 30-point test can be administered in about 10 minutes and assesses several cognitive domains (visuospatial/executive, naming, attention, language, abstraction, delayed recall, orientation). Various versions of the MoCA and instructions can be downloaded from www.mocatest.org/. On the website it states that the MoCA© may be used for clinical use without permission.

Mini-Cog TM

The Mini-Cog TM (© S. Borson) consists of 3-item recall and a clock drawing. It takes approximately three minutes to administer. Language skills and educational attainment have little impact on test performance. It can be downloaded from www.alz.org/documents_custom/minicog.pdf. It was reprinted with permission of the author solely for clinical and educational purposes.

STAGING

Staging dementia severity can be useful in determining which problems might be anticipated, provides information on prognosis to patients and families, and determining whether there are any incongruities in the presentation that raise questions about the diagnosis. A commonly used and feasible staging instrument is the Global Deterioration Scale[21] found in Appendix C.

LABORATORY TESTING AND NEUROIMAGING

Laboratory testing & structural neuroimaging with computed tomography (CT) or magnetic resonance imaging (MRI) can help with the differential diagnosis of dementia. Unfortunately truly reversible dementias are rare (accounting for less than 1% of dementia cases).[13] The 3rd Canadian Consensus Conference on the Diagnosis and Treatment Dementia (CCCDTD)[12] recommended that all patients should have a complete blood count, thyroid stimulating hormone, and serum calcium, electrolytes, fasting glucose and vitamin B12 level done. Other laboratory tests would be determined on a case-by-case basis depending on the history, physical examination and initial laboratory findings. Neuroimaging (usually CT scanning) has a role in detecting certain causes of dementia like cerebrovascular disease, brain tumours, subdural hematomas, and normal pressure hydrocephalus.[23] A CT scan or MRI should only be undertaken if it would change clinical management.[17] Consider neuroimaging for patients meeting the criteria outlined in Appendix C. Physicians must use caution in interpreting amyloid PET results obtained outside Canada. Used in isolation this test cannot diagnose AD or MCI, or differentiate normal from abnormal aging. Consultation with a dementia specialist familiar with this test in their interpretation and advising patients against undertaking such investigations is recommended.[17] Measuring CSF amyloid-β1-42 and tau levels is not recommended for clinical practice.[17]

NEUROPSYCHOLOGY

While neuropsychological testing (NPT) should not be used alone for the diagnosis & differential diagnosis of a dementia, it can be used selectively to address early diagnosis of MCI & dementia, risk for progression of MCI to dementia, differential diagnosis of dementia, and determination whether progression of cognitive impairment has occurred[16] It should be considered if patient management would be influenced by test results addressing these scenarios.[12] Disadvantages of NPT would include limited access, time required, and cost.

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Guideline Committee

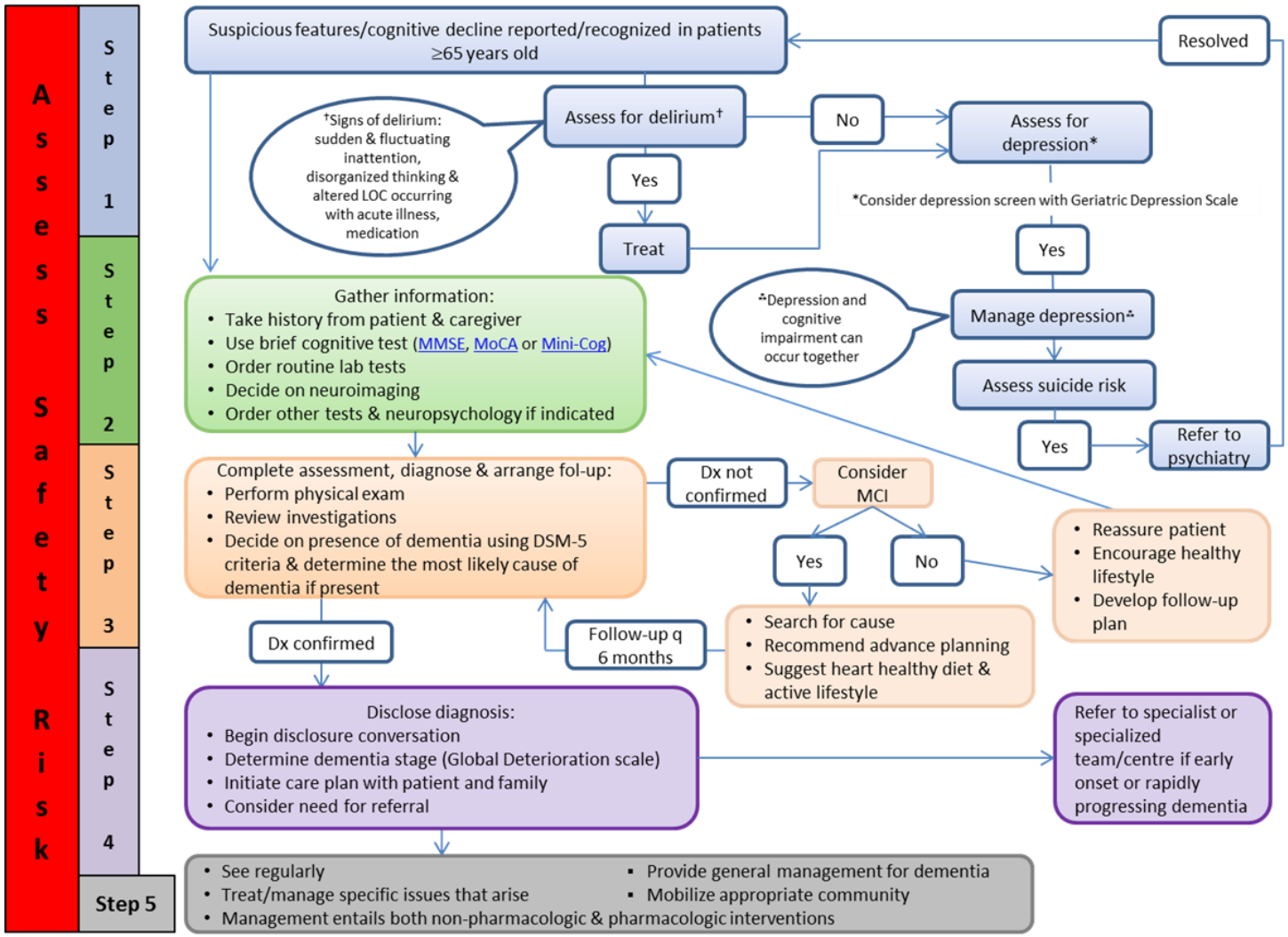
The committee consisted of representatives of family medicine, geriatric medicine and internal medicine.

Dates

February 2017

APPENDIX A

Cognitive Impairment CPG Summary Algorithm



APPENDIX B

DIFFERENTIATING DEPRESSION AND DELIRIUM FROM DEMENTIA

DEPRESSION

Many patients in the early stages of dementia experience depression. Occasionally, depression can present with prominent cognitive impairment[24]

FEATURES OF DEPRESSION

- Sad or depressed most of the time
- Reduced energy, interest, capacity to enjoy (i.e., anhedonia):
- Sleep disturbed
- Concentration poor
- Memory problems (same duration as other symptoms - weeks to months, not years)
- Psychomotor agitation and anxiety (can be prominent)
- Decreased appetite and weight loss (10% of body weight in 6 months in the elderly population)

ATYPICAL FEATURES OF DEPRESSION COMMON IN THE ELDERLY

- Psychotic features (paranoid delusions)
- Somatization
- Associated risks of depressed older patients
- Suicide risk is high - assess suicide risk.
- Depression is an unusual sole cause of cognitive impairment.
- Depression often co-exists with dementia, cognitive impairment and delirium.

DELIRIUM

COMMON RISK FACTORS AND CAUSES FOR DELIRIUM [25,26]

- Increasing age
- Pre-existing dementia
- Severe illness

- Poor vision
- Use of urinary catheter
- Polypharmacy
- Low albumin

Dementia is a strong risk factor for delirium and dementia is more likely to occur or worsen after a delirium in older patients (i.e., patient will need follow-up). [25,26]

Months of the year backwards can be used to test for inattention when assessing a patient for possible delirium. To perform you ask patient if you can do a simple test of concentration. Ask them to first say the months of the year from start to finish in the usual order starting with January (this is done to ensure the patient can be engaged and follow simple commands). After that is done they are asked to say the months again but in reverse order starting with December. Performance is assessed in terms of the ability to complete the task with errors and the time required. Cognitively intact individuals can perform the task without error and within 20 seconds. It is a sensitive test for delirium but can be abnormal from other causes of impaired cognition such as a dementia.[27,28]

APPENDIX C

CRITERIA FOR NEUROIMAGING

A cranial computerized tomography (CT) scan or magnetic resonance imaging (MRI) is recommended if one or more of the following criteria are present:[5,12]

- Age less than 60 years
- Rapid (e.g., over one to two months) unexplained decline in cognition or function
- Short duration of dementia (less than two years)
- Recent and significant head trauma
- Unexplained neurologic symptoms (e.g., new onset of severe headache or seizures)
- History of cancer (especially types that metastasize to the brain)
- Use of anticoagulants or history of a bleeding disorder
- History of urinary incontinence and gait disorder early in the course of dementia (as may be found in normal pressure hydrocephalus)
- Any new localizing sign (e.g., hemiparesis or a Babinski reflex)
- Unusual or atypical cognitive symptoms or presentation (e.g., progressive aphasia)
- Gait disturbance

APPENDIX D

DEMENTIA SYMPTOMS IN DSM-5 NEUROCOGNITIVE DOMAINS

COMPLEX ATTENTION

Easily distracted and has increased difficulty when there are multiple stimuli (e.g., TV, radio, and multiple participants in a conversation). Has trouble focusing attention unless input is restricted and simplified. Has trouble holding new information in mind and performing mental calculations. Thinking slower than before.

EXECUTIVE FUNCTIONING

Has to focus on one task at a time. Need help from others in planning or making decisions.

LEARNING AND MEMORY

Repeats self in conversations, cannot remember short lists, and requires frequent reminders.

LANGUAGE (EXPRESSING AND COMPREHENDING)

Trouble recalling names and words and uses general terms and pronouns when speaking rather than specific ones. Has trouble understanding complex instructions.

PERCEPTUAL MOTOR

Has trouble with previously familiar activities (e.g., using tools, driving, dressing) and knowing where they are in familiar surroundings.

SOCIAL COGNITION

Their behaviour is outside the range of acceptable behaviour with evidence of insensitivity and making decisions without regard of safety. Person shows no insight.