

Seniors Guidance Document

The purpose of this document is to provide developers of clinical knowledge topics and order sets with guidance around how and when incorporation of 'senior health considerations' may be required. The target audience for this document is towards individuals working in either a speciality or generalist environment in which seniors are encountered on a regular basis. This document will be not be relevant for individuals working in specialities in which seniors are not encountered.

While there will be many knowledge topics and order sets that do not require the incorporation of seniors health considerations, there are a considerable number in which seniors health considerations will be required. Unfortunately, there is no standardized format that can be utilized for the development and presentation of these seniors health considerations, as the format that these will take will vary, depending on the amount of information and degree of modifications required, clinical topic / order set, and scenario.

Therefore, our goal with this document is to provide the reader with some basic background information about aging physiology, relevant changes in pharmacodynamics and pharmacokinetics, and basic clinical information about the common geriatric problems and syndromes that are experienced by the aging population. The hope is to provide readers with sufficient information to decide whether seniors health considerations are required for the proposed clinical topic or order set, and, if so, what modifications or considerations are required. The information contained in this document is for guidance purposes only, and does not substitute the need to obtain specialist advice where this is thought to be necessary.

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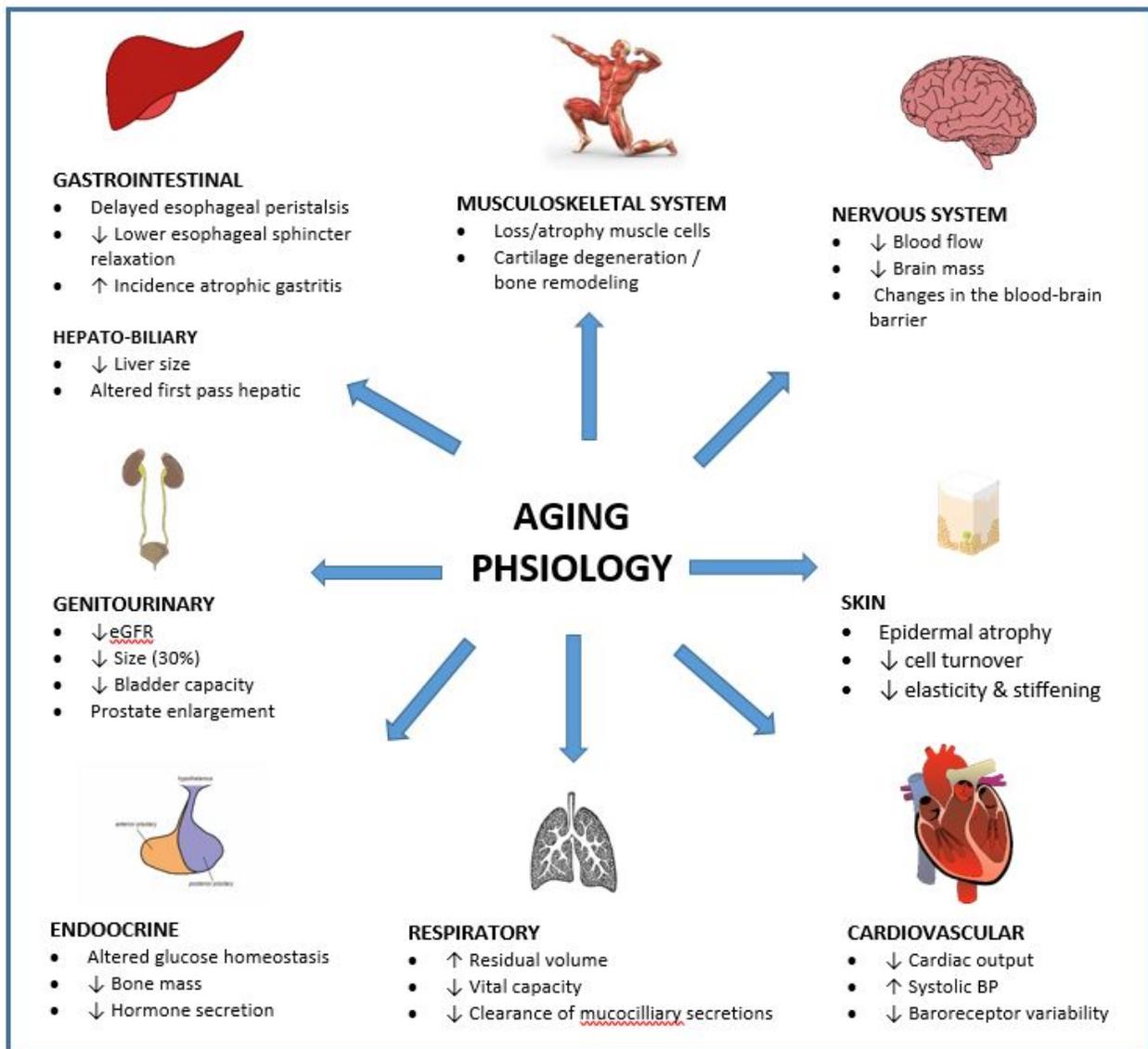
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Background

Across the world, the aging population is expanding at a significant rate. The WHO estimates that the world's senior population (>65 years) by 2050 will reach 1.5 billion¹. Consequently, most physicians will encounter and be expected to provide clinical care to older adults. Therefore, there is an increasing need for most physicians to have a basic understanding of geriatric medicine – in particular, aging physiology, pharmacokinetic changes from aging, and some of the commonly encountered geriatric problems and syndromes - in order to allow them to provide optimal care and meet the unique needs of this growing, aging, population.

Highlighted below are the key clinically significant physiological changes that occur with advancing age.

FIGURE 1 - Aging physiology



Pharmacology – Pharmacokinetics and Pharmacodynamics

Significant pharmacological changes occur with aging, which affect drug pharmacokinetic and pharmacodynamics. As a consequence, the drug's effect, dosing required, drug elimination and the risk of adverse drug events (ADE) are all impacted by increasing age.

Table 1 highlights relevant key pharmacokinetic changes, while Table 2 highlights key changes in pharmacodynamics.

TABLE 1 – Pharmacokinetic changes

Pharmacokinetic changes	Consequence
<p><u>Absorption</u></p> <ul style="list-style-type: none"> - Altered supplement / nutrient absorption for those which are actively transported 	<ul style="list-style-type: none"> - ↓ Oral absorption of B12/calcium/Iron - Intramuscular absorption may be affected by blood flow in bedridden or immobile patients
<p><u>Distribution</u></p> <ul style="list-style-type: none"> - Altered body composition: ↓ total body water content & ↑ total fat content - Small changes in blood protein levels 	<ul style="list-style-type: none"> - ↓ Volume of distribution (Vd) of water soluble drugs, resulting in ↑ serum levels (gentamicin, digoxin, ethanol, theophylline); ↑ Vd of lipid soluble drugs, resulting in ↑ half-life ((e.g. long acting benzodiazepines (diazepam), metronidazole, rifampin) - Protein bound medications to albumin or alpha-1 acid glycoprotein may have slightly higher free levels.
<p><u>Metabolism</u></p> <ul style="list-style-type: none"> - ↓ First pass hepatic metabolism - Reduction in liver size - Reduction in oxidation / reduction reactions (including CYP 450 system) - Relative stability for conjugation enzymes 	<ul style="list-style-type: none"> - ↑ Bioavailability of drugs with extensive first pass metabolism (propranolol, verapamil, labetalol) - ↓ Activation / availability of pro-drugs requiring first pass metabolism (ACEi e.g. enalapril, perindopril) - Decrease in oxidation / reduction reactions through CYP P450 system (e.g. warfarin, olanzapine, carbamazepine)
<p><u>(Renal) Elimination</u></p> <ul style="list-style-type: none"> - ↓ eGFR 	<ul style="list-style-type: none"> - Prolongation in half-life of renally cleared medications - most important for drugs with a narrow therapeutic windows and in medications that are exclusively renally eliminated (i.e. gabapentin, allopurinol, gentamicin, dabigatran)

TABLE 2 – Pharmacodynamics changes

Pharmacodynamics changes	Consequence
1. ↓ Receptor sensitivity, especially beta-receptors +/- alpha-receptors, which are not dose responsive	- Reduced sensitivity to beta-adrenergic agonists or antagonists (e.g. dobutamine, salbutamol, metoprolol)
2. Alteration in signal transduction	- ↑ Risk of ADE; ↑ sensitivity to CNS medications, especially benzodiazepines, anticholinergics and dopaminergic agents
3. ↓ Neuronal reserve / altered neurotransmitters balance	- ↑ Sensitivity to anticholinergics peripherally (e.g. constipation)
4. ↑ Blood-brain barrier permeability	
5. Altered homeostatic mechanisms	
- Alteration in postural blood pressure control (↓ baroreceptor reflex & ↓arterial compliance)	- ↑ Risk of arrhythmia
- Blunted thermoregulation	- ↑ Risk of falls
- Altered ability to maintain fluid homeostasis	- ↑ Risk of drug induced orthostasis
- Altered electrolyte handling	- ↓ Thirst response
- Immunosenescence	- ↑ Risk of electrolyte abnormalities / imbalances
- ↓ Hematopoiesis	- ↓ Levels of immunosuppression biomarkers; high likelihood of having a negative purified protein derivative (PPD) skin test
- Altered GI Mucosal protection	- ↑ Risk of hematological toxicity from chemotherapy medications.
	- ↑ Risk of mucosal damage & GI bleeding

Geriatric Syndromes

With advancing age comes an increased incidence and prevalence of comorbidities, which commonly includes one or more of the recognized geriatric syndromes (e.g. polypharmacy, frailty, falls, delirium, cognitive impairment and urinary incontinence). Acquiring a basic understanding of these geriatric syndromes is important due to the significant impact they can have on patient care and clinical outcomes, in addition to their high prevalence and (potential) treatability. Therefore, we have presented a brief summary of each the syndromes below, which we hope will guide you towards incorporating, where appropriate, relevant and feasible seniors' health considerations into your clinical knowledge topics.

1. Polypharmacy

Polypharmacy can be defined according the number or type of medications prescribed, the use of high-risk or potentially inappropriate medications (PIM), or by the use of chronic disease management guidelines, which can contribute to increased medication use. Any medication which generally causes more harm than benefit in seniors, especially when there are other treatment options available, can be considered as being a high risk or being PIM. Probably the simplest definition for polypharmacy has referred to polypharmacy being 'the intake of more medications by a patient than is clinically justified'².

The incidence of polypharmacy increases with age, which can be attributed to the increasing comorbidity burden that typically develops. This results in a predisposition to adverse drug reactions due to aging physiology and changes in drug pharmacokinetics and pharmacodynamics.

There are a large number of tools available to assist with reducing polypharmacy, encourage appropriate prescribing and deprescribing, and to assist with prescribing in the presence of multiple co-morbidities. The most commonly recognized and utilized tools include the Updated Beers Criteria³ which is updated every 3 years by the American Geriatric Society, and the Screening Tool of Older Persons Prescriptions (STOPP)⁴ and the Screening Tool to Alert doctors to the Right Treatment (START) tools⁴, which were developed in Europe.

The Updated Beers Criteria 2015 provides an advisory list of PIM for seniors which are categorized into 5 groups: 1. PIM use; 2. PIM use due to drug-disease / drug syndrome interaction; 3. PIM to be used with caution in older adult; 4. Potentially Clinically Important Non-Anti-infective Drug-Drug interactions that should be avoided in older adults, and 5. Non-anti-infective medications that should be avoided or have their dosage reduced with varying levels of Kidney function in older adults.

The STOPP and START tools address inappropriate prescribing. Inappropriate prescribing includes mis-prescribing, and under and over prescribing. The STOPP tool focuses on mis-prescribing and over prescribing, whilst the START tool focuses on under prescribing. These tools provide a list of recommendations for when certain medications should not be used in the presence of certain conditions (STOPP), or when they should be prescribed (START). The STOPP and START tools are designed to used together to achieve optimal and appropriate prescribing.

Before starting or prescribing a new medication in this population, consider alternative treatment options. If medications are required, careful usage is required, which requires observation and monitoring over time. Below are some general recommendations around drug prescribing and polypharmacy.

Prescribing guidance

- Always perform a medication review prior to initiating a new medication.
- Ensure that a fully informed discussion has been held with the patient (and their caregiver) about their medication and treatment, and ensure that they are aware of the risks and benefits of the treatment, and available alternatives.
- Consider incorporating the use of the one of the aforementioned tools when performing medication reconciliation to improve appropriate prescribing (STOPP/START criteria) and to aid with the recognition of high risk/PIM (Beers criteria).
- Avoid prescribing a new medication to treat the side effects caused by a pre-existing medication (e.g. 'prescribing cascade').
- Consider requesting a medication review by a pharmacist for patients with multiple co-morbidities who are on complex medication schedules or for monitoring high risk medications (anticoagulants, insulins, opioids etc).

Dosing guidance

- When starting a new medication, 'start low and go slow' with regards to dosing.

- When starting or adjusting the dose for any medications, start at the lowest dose (or even 50% of the recommended starting adult dose) and titrate up slowly to the lowest effective dose.
- Consider reviewing clinical, laboratory and other investigation findings prior to adjusting medication dosages to identify other non-medication related causes for the patients clinical presentation.

High risk medications

- Avoid prescribing high risk/PIM for older/frail adults, as these individuals are at high-risk of side effects. Commonly recognized high-risk medications include benzodiazepines, anticholinergics (antihistamines, older antidepressants e.g. Tri-cyclic antidepressants) and certain analgesics (NSAIDs, codeine, and meperidine) to name a few. However, this list is not exhaustive, and the use of a tool such as the Updated Beers Criteria is recommended to assist with identifying high risk or PIM.

2. Frailty

See also the [Frailty, Seniors – Acute Care](#) Clinical Guidance Viewer.

Frailty is a health status and clinical syndrome associated with an increased vulnerability due to reduced physical reserve and loss of function across multiple body systems. Although the exact pathophysiological mechanisms behind frailty have not been well defined, evidence has shown dysregulation in the endocrine (in particular, the stress response), and the immune system, occurring in the setting of a generalized pro-inflammatory state.

Recognizing and diagnosing frailty is important. Frailty has been associated with increased mortality⁵, hip fractures, disability and hospitalization⁵. The presence of frailty is also thought to be predictive of adverse outcomes after general⁶ and cardiac surgery⁷.

The frailty assessment should involve conducting a comprehensive geriatric assessment (for a full definition of comprehensive geriatric assessment, please visit the the [Frailty, Seniors – Acute Care](#) Clinical Knowledge Topic) for full definition of , with the focus being towards the identification of treatable conditions (e.g. nutrient deficiencies) in addition to recognizing for the presence of geriatric syndromes or component deficits that may be amenable to intervention. The history should incorporate a review of current symptoms of fatigue and weight loss in addition to reviewing comorbidities, medications, and current levels of physical performance and functioning. On physical examination, the incorporation of one or more measures of physical functioning is supported, e.g. assessing the ability to raise from the chair 5 times without using the arms, in addition to assessing cognition and functional capacity. A set of basic laboratory investigations are also suggested to identify any treatable conditions (e.g. CBC, electrolytes, urea, creatinine, Vitamin B12, Vitamin D and TSH).

All patients living with frailty should undergo discussions around advance care planning and goals of care preferences, as expected for all individuals (see the Clinical Knowledge Topic [Advanced Care Planning and Goals of Care Designation, All Ages – All locations](#)). The only evidence-supported recommended interventions for improving frailty are exercise, nutritional supplementation and medication reviews, where the emphasis is on focusing on preventative

treatments that could be tapered or discontinued. Other interventions that have been investigated include supplementation with testosterone, GH and DHEA, which have all been found to be ineffective.

Screening for the presence of frailty is important due to its clinical significance on patient and clinical outcomes. The use of a validated screening tool is recommended for case finding / screening. As per the Clinical Knowledge Topic [Frailty, Seniors – Acute Care](#), the use of the Electronic Frailty Index / Edmonton Frail Scale is recommended. Once recognized, the use of a multicomponent tool such as the Edmonton Frail Scale can then help assist with component definition and development of an appropriate care plan.

Some general recommendations around the recognition and management of frailty are provided below. Please also refer to the clinical knowledge topic on [Frailty, Seniors – Acute Care](#) for more information.

- Case finding for frailty should use a validated screening instrument, such as the Electronic Frailty Index or the Edmonton Frail Scale. Case finding for the presence of frailty should be considered in all health settings, which should include the Emergency room and the pre-operative setting, as the presence of frailty may influence post-operative outcomes.
- Frailty status should be incorporated into all discussions around advance care planning, including goals of care, and during discussions about future patient care and treatment.
- A multidisciplinary approach is important for managing frail patients, which should include input from a variety of different disciplines including pharmacists, physiotherapists, occupational therapist and physicians, in addition to other team members.
- Consider the need to consult or involve geriatric medicine services for individuals with moderate to severe frailty.
- Palliative care consultation or input should be considered for those individuals with advanced frailty, as such interventions can improve symptoms and quality of life.

3. Falls

Falls are a common occurrence amongst the aging population, and can occur anywhere and anytime. Up to 50% of people over 80 yrs of age will fall over the span of a year⁸. The consequences from falling are significant, and can range from no injuries to soft tissue injuries, fractures and head trauma, or worse. Fall-related injuries are associated with significant morbidity, decline in functional status⁹, and an increased likelihood of nursing home placement¹⁰. There are also significant financial implications arising from the associated increase in healthcare utilization and costs associated with falling. In addition, the psychological impact from falling should not be overlooked - the development of the 'post fall anxiety syndrome'¹¹ is unfortunately not uncommon and can result in self-restriction of further activities as a consequence.

Recognized risk factors for falling include a previous history of falling, increasing age, being female, lower extremity weakness, balance problems, history of cognitive impairment, stroke, anemia, orthostatic hypotension, dizziness, arthritis and the use of certain drug groups of 'high risk medications' for falling. High risk medications include anticholinergic medications

(especially antipsychotic medications), sedative hypnotics (including Z-drugs and benzodiazepines), and antidepressants.

The American and British Geriatric Societies have issued a fall prevention guideline¹². They recommend screening all older patients for any history of falls over the past year, or for gait or balance difficulties. Individuals who answer positively with a history of 2 or more falls or have gait or balance difficulties should then undergo or be referred for a multifactorial falls assessment. This multifactorial falls assessment should include a targeted history focusing on events and details around the falls and whether any injuries were sustained, a review of medical history to identify the presence of chronic diseases associated with falling, a full medication review, an environmental history and a social history including alcohol use. The physical examination should include assessment of musculoskeletal functioning and gait and balance assessment, in addition to assessment of postural vital signs, visual acuity, hearing, extremity examination and a focused neurological examination focusing on lower extremity strength, coordination, and sensation. The requirement for diagnostic testing is dependent on the findings from the history and physical examination, but commonly requested standard investigations includes CBC, creatinine and urea, glucose and Vitamin D. Further investigations are not usually required unless clinically indicated from the results of the assessment. Other resources includes AHS which provides a number of resources on their Falls Risk Management Insite page¹³ and 'Finding Balance Alberta'¹⁴, which is an Alberta based program targeted towards educating practitioners and seniors towards falls prevention.

Specific interventions have been found to be effective for reducing the risk and/or rate of falling, which are dependent on the target population (i.e. acute care, community, or facility/long term care). However, regardless of the setting, exercise has been shown to reduce the risk and rate of falling¹⁵. All patients should receive a medication review to identify high-risk medications (including psychotropics¹⁵, sedative-hypnotics, and antidepressants, which have been associated with an increased risk of falling.

- For community dwelling seniors, the use of multifactorial intervention programs may reduce the risk of falling¹⁵. The use of hip protectors is generally not recommended¹⁶.
- In hospitals or facilities, the use of bed restraints can increase the risk of falling, including injurious falls, and thus should not be used to prevent falls in hospital.

Some general recommendations around falls and their prevention are provided below:

- All patients at risk of or have a history of falls should receive Vitamin D supplementation (800-1000units at least).
- All older patients admitted to hospital should be screened for a history of falls. If they have a history of falls, instigate a medication review and ensure minimum intake of Vitamin D supplementation (800-1000units), and assess their gait and balance.
- Avoid using full length side rails (bed restraints) in hospital to prevent falls as they have been associated with an increased risk of injurious falls.
- In the community, screen all older patients for falls. If they have a history of 2 or more falls or gait / balance difficulties, refer or perform a multifactorial falls assessment. Fall prevention strategies involving the use of multi-component targeted intervention programs have been shown to be effective.

- The prevention of falls is important, and should include performing a medication review to identify and deprescribe high-risk medications, avoiding the use of bed restraints, and ensuring the use of Vitamin D supplementation.

4. Delirium

See also the [Delirium, Seniors – Inpatient](#) Clinical Knowledge Topic.

Delirium has been defined as being an ‘acute (hours to days) change in cognition and inattention, with fluctuating severity throughout the day, and is associated with disorganized thinking and/or an altered level of consciousness’¹⁷. This change ‘must not be better explained by a pre-existing condition, and is supported by the history, physical examination and laboratory findings showing evidence of a medical condition and / or intoxication / withdrawal from a toxic substance’¹⁷. While the pathophysiology of delirium is likely multifactorial, there is a probable acetylcholine deficiency, in addition to abnormal levels of other neurotransmitters.

Delirium is a common problem amongst older adults. Delirium develops in up to 50% of hospitalized seniors at some point during their hospital stay¹⁸, with the figure rising up to 80% for the ICU population¹⁹ and those individuals reaching the terminal stages of life²⁰. The consequences from delirium are considerable. Delirium is associated with an increased risk of new or worsening cognitive impairment, functional decline, institutionalization, and death, particularly in patients with co-morbid depression and/or dementia²¹⁻²².

Risk factors which predispose to the development of delirium include: increasing age, dementia or other causes of cognitive impairment, depression or other mental illness, complex medical comorbidities, polypharmacy, anticholinergic burden of medications, functional and/or sensory impairments and frailty²¹. Risk factors which may precipitate the development of delirium includes acute illness, surgery, certain medications, dehydration, malnutrition, and iatrogenic events such as urinary catheterization and restraint use²¹⁻²².

Preventing the onset of delirium is better than treating it after it has developed. The use of a multi-component program that addressed multiple risk factors revealed a reduction in the duration and incidence of delirium²². Even more important, is ensuring that all basic human needs are met, which includes ensuring adequate hydration and nutrition, avoiding / treating constipation and urinary retention and predicting and managing pain.

Recognizing and diagnosing delirium at an early stage is important. One of the recommended tools to assist with screening for and diagnosing delirium is the Confusion Assessment Method (CAM) tool. The CAM tool has been well validated and shown to be sensitive, specific, and easy to use²³.

The management of delirium is focused towards addressing and reversing the underlying cause of the delirium, in addition to addressing any precipitating risk factors and mitigating predisposing factors as much as possible. Conservative management is first line, and involves the provision of frequent and regular graded orientation strategies, familiar faces, using sensory aids (e.g. eyeglasses, hearing aids) maintaining the sleep wake cycle, and addressing basic human needs such as elimination, hydration and treatment of pain²². The use of pharmacological, physical, mechanical and / or environmental restraints are reserved for

situations when there is a danger to the patient or other parties, or when other measures have failed.

The use of pharmacological restraints, such as antipsychotics, should be avoided, due their considerable risks, and should only be used when the use of non-pharmacological person centered approaches (as mentioned above) have failed, and only after a full discussion has been had with the patient and carer about the possible risks and benefits of using these agents. Benzodiazepines should be avoided except in the situation of either alcohol or benzodiazepine withdrawal, as they can worsen behavior and are associated with other complications. For further information, please refer to the Alberta Health Services [Appropriate Use of Antipsychotics \(AUA\) Toolkit](#).

Please refer to the [Delirium, Seniors – Inpatient](#) Clinical Knowledge Topic for more information and for a copy of the investigation and management, and prevention order set.

Some general recommendations around the importance, recognition and management of delirium are provide below:

- Delirium is associated with significant negative outcomes. Therefore, prevention is better than cure!
- Avoid the use of the high risk medications (e.g. anticholinergic medications) in patients who already have established predisposing risk factors for developing delirium (e.g. cognitively impaired individuals).
- The use of a validated screening tool such as the CAM tool to recognize delirium is recommended.
- Avoid the use of pharmacological, physical, environmental and mechanical restraints in the management of delirious patients, as these measures can make the situation worse. If pharmacological restraints are deemed necessary, AVOID benzodiazepines UNLESS they are delirious from status epilepticus or delirious from either alcohol or benzodiazepine withdrawal.

5. Dementia

See also the [Dementia, Seniors – Inpatient](#) Clinical knowledge topic.

According to the new DSM 5 criteria, dementia (now referred to as ‘Major Neurocognitive Disorder’) requires ‘evidence of a significant cognitive decline in one or more of the cognitive domains (learning and memory, language, executive functioning, complex attention, perceptual-motor and social cognition) from a prior, higher level of performance, to the extent that these deficits interfere with independence in day-day functioning, and must not occur in the setting of delirium and or be better explained by another mental disorders²⁴.

Dementia is common amongst the aging population, primarily because one of the most significant risk factors for developing dementia is advancing age. The term ‘dementia’ is an umbrella term that encompasses all types of dementia. Alzheimer’s is the most common form and accounts for up to 60-80% of cases²⁵. The other major syndromes include Vascular dementia, mixed, Dementia of Lewy Bodies, Parkinson’s disease and Frontotemporal dementia.

The initial assessment approach for dementia should begin with obtaining a substantial collateral cognitive history from someone who knows the patient well, to identify a history of cognitive deficits and functional impairment. A medication review is also important, in addition to reviewing all relevant co-morbidities, risk factors, and social history. The social history should include a review of alcohol intake, maximum education achieved, advance care documentation, and a review of pre-morbid cognition and level of physical and functioning capacity. The physical examination should look for evidence of differential diagnoses, evidence of neurological deficits (suggestive of cerebrovascular disease), or neurological signs suggesting Parkinson plus syndromes, and incorporate a gait and balance assessment.

Objective cognitive testing is important for identifying cognitive deficits. In acute care, the MiniCog is recommended by the Dementia Clinical Knowledge Topic, after first ruling out delirium using the CAM tool. If the MiniCog is positive and there is evidence of functional impairment, then further assessment is required, which may include referrals to geriatric medicine, psychiatry or neurology. Further cognitive assessment tools may include the use of the standardized Mini Mental State Examination (MMSE), which provides an overall general screen of cognitive functioning but does not include an in-depth assessment of executive functioning. The Montreal Cognitive Assessment (MoCA) is another brief screening tool which covers a wider range of cognitive domains, and has been shown to be more sensitive for diagnosing Mild Cognitive Impairment. Other more in-depth cognitive screening tests include the Executive Interview (EXIT25), and the Frontal Assessment Battery (FAB).

Neuropsychological testing is generally reserved for patients with subtle cognitive deficits or with unusual presentations.

In addition to cognitive testing, the dementia assessment should include a baseline set of standard laboratory investigations including B12, CBC, TSH, calcium and albumin levels, with additional tests indicated only as clinically indicated. Although not routinely recommended by many authorities, the American Academy of Neurology (AAN) does recommend some form of neuroimaging (non contrast CT or MRI) in the routine evaluation of dementia²⁵. The main reason for doing these investigations are to identify any reversible / correctable causes for the cognitive impairment.

The general approach to managing cognitively impaired patients should focus on providing education to the patient and their caregiver / family about the diagnosis and prognosis, balancing the patients autonomy with maintaining their (and loved ones) safety, assistance with advance care planning, recognizing the presence of any behavioral or psychological symptoms or mood disorders, identifying and addressing safety concerns (i.e. driving, wandering, access to weapons), and discussions about their current care needs, aging in place and the need for assistance.

When interacting with and providing patient care, consideration and attention should be made towards the use of non-verbal body language. The use of a recommended approach, such the ['Nice and Easy Approach'](#) (which was created by and is incorporated within the Dementia Clinical Knowledge Topic²⁶) can be very effective in aiding communication and reducing the incidence and severity of troublesome behavior. Where communication is significantly impaired, a referral to a Speech and Language Therapist may be beneficial to help with augmenting the communication process.

The incidence and prevalence of behavioral and psychological symptoms of dementia (BPSD) is common in the cognitively impaired population, and increases as the disease progresses. In order to identify, monitor, and target such behaviors, behavior mapping is important for ensure optimal patient care, and allow delivery of patient focused and behavior-responsive patient care individualized to the patient. The use of a standardized mapping tool, such as the behavior-mapping tool by AHS, is recommended for this.

Pharmacological treatment in dementia is aimed towards mitigating the trajectory of disease progression, with the goal being to stabilize cognitive symptoms and preserve their current level of functioning. Current treatment approaches involve the use of cholinesterase inhibitors. While they are not disease modifying and do not reverse or prevent disease progression, a lack of change in status with cholinesterase inhibitors is suggestive of benefit by cholinesterase inhibitors.

Currently, three cholinesterase inhibitors are used to treat dementia, which includes donepezil, rivastigmine and galantamine. The majority of research has been done around the use of donepezil in Alzheimer's disease, with considerably less research done around their use in other types of dementia, although evidence of benefit exists for the use of rivastigmine and donepezil in Dementia of Lewy Body and Parkinson's disease. No evidence exists for the use of cholinesterase inhibitors in Frontotemporal Dementia; instead, the use of an serotonergic antidepressant may provide more benefit in controlling mood fluctuations. Relative contraindications to the use of cholinesterase inhibitors include their presence of left bundle branch block (not paced, active bleeding, active PUD, untreated or uncontrolled asthma, weight loss and anorexia. The use of estrogen, anti-inflammatory drugs, herbal supplements (ginkgo biloba), statins and dietary supplements have been studied with no clear benefit identified for preventing the onset or progression of dementia.

Although not formally recommended by Health Canada and FDA and despite being strongly discouraged due to their association with increased risk of cerebrovascular events and mortality, the use of antipsychotics to manage BPSD. Health Canada has provided very tight restrictions around the use of risperidone, approving it for use only to *'the short-term symptomatic management of aggression or psychotic symptoms in patients with severe dementia of the Alzheimer type unresponsive to non-pharmacological approaches and when there is a risk of harm to self or others'*²⁷.

While the use of risperidone and other antipsychotics is strongly discouraged amongst this population (please refer to the Alberta Health Services [Appropriate Use of Antipsychotics \(AUA\) Toolkit](#)), they may have a limited role for reducing the severity of certain behaviors, primarily agitation, aggression, paranoia, hallucinations and psychosis. They are also recommended for the treatment of a select number of medical and psychiatric conditions (e.g. schizophrenia). However, the majority of BPSD are unresponsive to pharmacological treatment and are best-managed using environmental and non-pharmacological measures. These include: addressing body language and communication techniques, using the ABC (Antecedents, Behavior, Consequences) approach to manage behaviors, addressing the environment (i.e. regulating stimulation), promoting social and mental stimulation, and ensuring all necessary human requirements are met – e.g., ensuring adequate hydration, nutrition, elimination, addressing pain, optimizing sleep, social contact. In addition, the use of the PIECES approach (physical, intellectual, emotional, capabilities, environmental, social / cultural) can also help with

understanding what and why certain behaviors are happening, and can help aid in the development of non-pharmacological management plans.

Cognitively impaired patients may not be able to communicate their needs or wishes, and these needs to be taken into account. For instance, if a patient who is cognitively impaired falls and breaks their hip, although they will almost definitely be in pain, they may be unable to communicate this, and their pain may be displayed in an alternative format, i.e. as agitation, physical aggression. Therefore, it is important to preempt this and provide appropriate treatment accordingly, and ensure basic needs such as hydration, elimination and sensory deprivation are addressed.

Some general recommendations are provided below:

- The use of cholinesterase inhibitors in the treatment of dementia provide modest benefit at best in both stabilization of the cognitive symptoms, delay cognitive decline, and help preserve functioning.
- Although frequently prescribed, the role of antipsychotics for managing BPSD symptoms are mostly off-label, with only risperidone being approved for use with patients with severe Alzheimer's dementia to control aggression or psychotic symptoms. Therefore, consideration of its risks and benefits are important prior to its use.
- The assessment of cognitively impaired patients can be challenging and will often require patience and time. Addressing body language and non-verbal displays communication is important to enhance such encounters.
- The assessment of pain can be challenging due to impaired communication. Therefore, such assessments should be based on changes in patient's demeanor, body language. The use of validated pain assessments tools for this population is recommended – i.e. PAIN-AD²⁸ or the faces scale²⁹.

6. Urinary incontinence

Urinary incontinence (UI) refers to 'any involuntary leakage of urine'³⁰. Although there are several different classification systems used for UI, AHS classifies UI into either stress, urge, overflow, functional, mixed (combination of urge and stress UI), or total UI³¹. The prevalence of UI increases with advancing age. UI can impair an individual's quality of life, and has been associated with increased risk of falls and fracture, deconditioning, social isolation, depression and an increased likelihood of institutionalization.

The general assessment of UI should include obtaining an accurate history of voiding and storage symptoms, toileting and fluid habits, and identifying the presence of underlying comorbidities and risk factors, including environmental risk factors. The physical examination should focus on ruling out co-existing fecal loading, in addition to identifying the presence of urogenital atrophy or pelvic organ prolapse in females. In males, examination of the external genitalia and an assessment of prostate size should be performed.

For patients presenting with new onset of lower urinary tract (LUTS) symptoms, the investigative work up should include a urinalysis to rule out a UTI and/or hematuria, in addition to obtaining a post void residual for all men and for women with voiding symptoms, neurological diagnoses or history of surgery for incontinence or prolapse / prostatic surgery.

General management of UI should include aiming for a normalized fluid intake, minimizing alcohol and a trial of caffeine restriction, weight reduction, and pelvic floor muscle therapy (for women). Bladder retraining is also recommended as first line for over active bladder and urgency incontinence. Scheduled toileting programs are also effective (such as prompted or scheduled voiding), but require active assistance from the caregiver or nursing staff.

The use of pharmacological treatment for managing UI is recommended after an adequate trial of conservative management. For stress incontinence, duloxetine has shown some evidence in women³² but is associated with significant side effects, and its use is off-label for LUTS use in Canada, with the doses provided based on antidepressant doses rather than those used in LUTS studies. The use of newer anti-muscarinic agents for the management of urgency incontinence or overactive bladder have been shown to be effective, which are associated with significant lower rate of anti-cholinergic side effects compared to the older agents (i.e. xerostomia, constipation). Avoidance of the immediate release form of oxybutynin is recommended due to its association with a greater risk of harm and non-adherence compared to the other agents. The newer antimuscarinic agents such as darifenacin, fesoterodine, solifenacin, tolterodine or trospium, are generally recommended due to their lower side effects. For the medically complex older person, fesoterodine has a wealth of data supporting its use. Mirabegron, a beta 3 agonist, is a similarly efficacious agent which may be an effective alternative to antimuscarinics.

One situation commonly encountered is the presence of UI in an individual with dementia. Although the prescription of cholinesterase inhibitors for treatment of dementia can worsen pre-existing symptoms of over active / urgency symptoms, such treatment is not contraindicated, but possible benefits and side effects need to be clearly discussed with the patient and caregiver. Although the use of both a cholinesterase inhibitor and antimuscarinic may appear to be a counterintuitive intervention, research has shown this not be the case when selective antimuscarinic agents are used, and is a valid approach for individuals with disabling symptoms.

Some general recommendations are provided below:

- Rule out UTI in any patient presenting with new onset UI.
- Do not treat a positive dipstick in a person with chronic UI.
- Incontinence in older people is typically multifactorial and needs multicomponent intervention to address the underlying causes.
- Recommendations on the assessment and management of UI in frail older people can be found at: *Neurourol Urodyn*. 2018 Aug 14. doi: 10.1002/nau.23551³³.

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Appendix A Nice & Easy Document*

 N.I.C.E & E.A.S.Y. Approach for the Cognitively Impaired	
Provide a calm & safe environment. Promote normal ADL routines; consistent staff & robust comfort rounds.	
Prior to communication attempt, optimize lighting. Ensure eyeglasses hearing aides are clean, working and used.	
N	Name they prefer to be called
I	Introduce yourself each time you interact N.O.D. = give the person your: Name - Occupation – Duty
C	Contact! <ul style="list-style-type: none"> - Offer to shake hands - If the person is sleeping, use <i>firm</i> pressure on knee / shoulder to announce your physical presence - Soft touch is 'arousing' touch (think spiders crawling across your skin...)
E	Explain what you are going to do BEFORE you do it! <ul style="list-style-type: none"> - No one likes 'surprises'... - Use <i>single step instructions</i> (5 words or less) combined with gestures / props to demonstrate what you are going to do
E	Eye contact <ul style="list-style-type: none"> - Demonstrates 'authentic listening' - 'Helps' the person focus on you (not what you may be doing)
A	Avoid Arguments <ul style="list-style-type: none"> - If <i>any</i> resistance (physical or verbal), consider trying the intervention at a later time period - Ensure you have been 'NICE' before you trial any intervention
S	Smile <ul style="list-style-type: none"> - Take a moment to '<i>breathe</i>', calm yourself, smile and you will present as a 'safer', less 'threatening' care provider
Y	You are the key! You are in control and have the ability to change your approach to ensure a successful interaction with your patient.

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