GERIATRICS POCKETBOOK

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Notice:

Every effort has been made to ensure the accuracy and relevance of the information presented in this pocketbook at the time of publication. However, medicine is a constantly evolving field, and new evidence may emerge that changes clinical best practices.

Readers are encouraged to use their clinical judgment, and refer to up-to-date guidelines and other literature as needed. The authors, editors and Canadian Geriatrics Society take no responsibility for medical errors in this resource.

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The Geriatric 5 Ms

Definition: A communication framework to describe the core competencies in Geriatric Medicine and Care of the Elderly.[1] The Geriatric 5 Ms defines the care issues that reflect the expertise of geriatric medicine and care of the elderly physicians.[1]

- Clinical pearl: Consider using the Geriatric 5 Ms when reviewing a medically complex and frail older adult to help plan care, including selecting patients to refer to Geriatric Medicine and Care of the Elderly physicians.

Framework[1]:

Geriatric 5 Ms	Description
Mind	• Mentation • Dementia • Delirium • Depression
Mobility	• Impaired gait and balance • Fall injury prevention
Medications	• Polypharmacy, deprescribing • Optimal prescribing • Adverse medication effects and medication burden
Multi-complexity	• Frailty • Multimorbidity • Complex psychosocial situations
Matters most	• Each individual's own meaningful health outcome goals and care preferences

References:

1. Molnar FJ, Huang A, Tinetti M. Update: the public launch of the geriatric 5Ms. Canadian Geriatrics Society Journal of Continuing Medical Education. 2017. p. 1–2.

Behavioural and Psychological Symptoms of Dementia (BPSD)

Definition: Behavioral and psychological symptoms of dementia, or BPSD, are neuropsychiatric symptoms that accompany the syndrome of dementia, such as delusions, hallucinations, apathy, anxiety, depression, euphoria, or disinhibition.[1]
Organized into 5 domains: cognitive or perceptual (delusions, hallucinations), motor (pacing, wandering, repetitive movements, physical aggression), verbal (yelling, calling out, repetitive speech, verbal aggression), emotional (euphoria, depression, apathy, anxiety, irritability), and vegetative (disturbances in sleep and appetite).[1]

Differential: Both delirium and BPSD can include symptoms of disturbed perception (hallucinations and delusions), thought content, and mood and behavior.

- Delirium will typically have an abrupt onset, fluctuating course, and disturbance in attention and awareness will be a key feature.
- Both delirium and dementia require ruling out reversible and treatable causes, and similar non-pharmacologic and/or pharmacologic strategies.[1]

Investigations: New or acutely worsening symptoms should prompt assessment for an underlying cause. Should use a targeted investigation approach, for example[1]:

- Chest x-ray to R/O pneumonia
- Abdo x-ray to R/O fecal loading
- Urinalysis to R/O UTI

Management: Behavioral abnormalities can arise from a variety of underlying causes in patients with dementia, and identifying the basis of the behavior is critical to effective management. In many patients, behavioral changes can indicate an infection, reaction to medication, pain, fear, confusion, or poor sleep.[2]

- Address reversible causes.[2]
- Non-pharmacological therapy: strategies involving distraction and redirection, structured routines, and providing calm, reassuring responses when patients seem anxious.[2]

Management of Agitation:
Non-pharmacotherapy:

- Interdisciplinary approaches to dementia care incorporating health care provider education on BPSD, structured approaches to assessment, individualized care plans, and personalized meaningful activities.[2]
- Robotic pets, animal assisted therapy.[2]
- Physical exercise, music-based interventions.[2]

Pharmacotherapy:

- Unique to each situation, can consider the following agents for the management of agitation in patients with Alzheimer's Disease or mixed (Alzheimer's Disease and vascular) type [see Table 1][2]
- Table 1 is mostly for BPSD agitation due to Alzheimer's Disease and mixed type (majority of cases of dementia).
    - Not to be used for Lewy Body dementia, Frontotemporal dementia, or other less common types. For example, cholinesterase inhibitors are contraindicated in Frontotemporal dementia, and antipsychotics cause increased sensitivity in Lewy Body dementia.[2]

Selected agents for the management of agitation in Alzheimer's Disease and mixed related dementia*

Class	Example starting dose
Analgesic	Acetaminophen 650 mg PO QID
Sleep aid	Melatonin 1 mg PO qHS
Cognitive enhancers: ● Cholinesterase Inhibitors ● Memantine	 Donepezil 5 mg PO OD Memantine 5 mg PO OD
SSRI (moderate agitation)	Citalopram 10 mg PO OD
Antipsychotic (severe agitation)	Risperidone 0.25 mg PO OD Aripiprazole 2 mg PO OD Brexpiprazole 0.5 mg PO OD

*__DOES NOT__ work for behaviors (e.g., calling out, wandering)[2]

References:

1. Bessey LJ., & Walaszek A. Management of Behavioral and Psychological Symptoms of Dementia. *Current psychiatry reports*. 2019, 21(8), 66. Available from: https://doi.org/10.1007/s11920-019-1049-5
2. Seitz D., Watt J., Bruneau M., et al. Canadian Clinical Practice Guidelines for Assessing and Managing Behavioural and Psychological Symptoms of Dementia (BPSD). Canadian Coalition for Seniors' Mental Health. 2024. Available from: https://ccsmh.ca/wp-content/uploads/2024/05/DIGITAL_CCSMH_BPSD-Clinical-Guidelines_May2024_ENG.pdf

Comprehensive Geriatric Assessment

Definition: A Comprehensive Geriatric Assessment (CGA) is a multidisciplinary diagnostic and treatment process focused on understanding the medical, psychosocial, and functional limitations of an older person with complex needs. The purpose of a CGA is to develop a coordinated plan to maximize overall health with aging.[1]

Premise: Older adults with complex needs are at increased risk of adverse outcomes because of the burden associated with this complexity. The underlying premise of the CGA is that a systematic evaluation of frail, older persons by a team of health professionals may identify a variety of treatable health problems and lead to better health outcomes.

Targeting: CGA can be provided in multiple settings, including community or inpatient consultation services, dedicated geriatric units (e.g. ACE units, Geriatric Rehabilitation Units, Day Hospitals), or in the context of interdisciplinary services (e.g. orthogeriatric units).

Outcomes: The CGA has been shown to have several benefits, including:

- Improved quality of life, function and cognition[2-4]
- Potentially reduced costs, premature institutionalization, and mortality[5-7]
- Reduced caregiver burden[4]

Moderators of CGA effectiveness: CGA is more likely to be effective if recommendations are fully implemented. Integrated models of care with longitudinal patient review may be more effective than traditional, often time-constrained, consultant models at ensuring improved outcomes. [6-8]

- Clinical pearl: Request that patients bring a friend/family member/caregiver to provide collateral history. This is particularly important if the older adult may be experiencing cognitive difficulties.

Elements of a CGA: The CGA consists of a history, physical exam and targeted diagnostic elements. Elements of the history are often elicited through the administration of tools to assess cognition, mood, anxiety, behaviours, function, and caregiver burden, and that are complemented by a narrative history to better understand the needs and goals of the older adult and their informal caregiver. These batteries can be assembled from individual instruments (e.g. MoCA, Geriatric Depression Scale, Barthel Index) or obtained through fully integrated systems such as those developed by interrai (www.interRAI.org).[9]

A CGA template can be downloaded from: https://www.cgatoolkit.ca/. Main sections include:

- Patient information
- History of Presenting Problems
- Geriatric Review of Systems
- Social History
- Functional History
- Allergies
- Medications
- Past Medical/Surgical history
- Physical exam
- Screening tools (e.g. MoCA, Geriatric Depression Scale)
- Investigations
- Assessment/Plan

References:

1. Pilotto A, Cella A, Pilotto A, Daragjati J, Veronese N, Musacchio C, et al. Three Decades of Comprehensive Geriatric Assessment: Evidence Coming From Different Healthcare Settings and Specific Clinical Conditions. J Am Med Dir Assoc [Internet]. 2017 Feb;18(2):192.e1-192.e11. Available from: https://linkinghub.elsevier.com/retrieve/pii/S1525861016305217
2. Crocker TF, Lam N, Ensor J, Jordão M, Bajpai R, Bond M, et al. Community-based complex interventions to sustain independence in older people, stratified by frailty: a systematic review and network meta-analysis. Health Technol Assess [Internet]. 2024 Aug 1 [cited 2025 Feb 4];28(48):1. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC11403382/
3. Ho L, Malden S, McGill K, Shimonovich M, Frost H, Aujla N, et al. Complex interventions for improving independent living and quality of life amongst community-dwelling older adults: a systematic review and meta-analysis. Age Ageing [Internet]. 2023 Jul 1 [cited 2025 Feb 4];52(7):afad132. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC10378722/
4. Chen Z, Ding Z, Chen C, Sun Y, Jiang Y, Liu F, et al. Effectiveness of comprehensive geriatric assessment intervention on quality of life, caregiver burden and length of hospital stay: a systematic review and meta-analysis of randomised controlled trials. BMC Geriatr [Internet]. 2021 Dec 1 [cited 2025 Feb 4];21(1). Available from: https://pubmed.ncbi.nlm.nih.gov/34154560/
5. Stuck AE, Aronow HU, Steiner A, Alessi CA, Büla CJ, Gold MN, et al. A Trial of Annual in-Home Comprehensive Geriatric Assessments for Elderly People Living in the Community. N Engl J Med. 1995;333(18):1184–9.
6. Ellis G, Whitehead MA, Robinson D, O'Neill D, Langhorne P. Comprehensive geriatric assessment for older adults admitted to hospital: Meta-analysis of randomised controlled trials. BMJ. 2011;343(d6553):1–10.
7. Deschodt M, Flamaing J, Haentjens P, Boonen S, Milisen K. Impact of geriatric consultation teams on clinical outcome in acute hospitals: a systematic review and meta-analysis. BMC Med [Internet]. 2013 Feb 22 [cited 2025 Feb 4];11(1). Available from: https://pubmed.ncbi.nlm.nih.gov/23433471/
8. Béland F, Hollander MJ. Integrated models of care delivery for the frail elderly: international perspectives. Gac Sanit. 2011 Dec 1;25(SUPPL. 2):138–46.
9. Heckman GA, Gray LC, Hirdes JP. Addressing Health Care Needs For Frail Seniors In Canada: The Role of InterRAI Instruments. CGS J C [Internet]. 2013 Dec 30 [cited 2025 Mar 5];3(1):8–16. Available from: http://canadiangeriatrics.ca/2013/12/volume-3-issue-1-addressing-health-care-needs-for-frail-seniors-in-canada/

Constipation

Definition: Rome IV criteria, functional constipation is defined as any two of the following features: straining, lumpy hard stools (Bristol Stool 1-2), sensation of incomplete evacuation, use of digital maneuvers, sensation of anorectal obstruction or blockage with 25% of bowel movements, and decrease in stool frequency (less than 3 times/week).[1,2]

Normal aging of the GI system[5]:

Oropharynx, esophagus, and stomach

- Dental wear and tear
- Dysphagia incidence increases
- Pharyngeal and Esophageal peristalsis
- Increased gastric acid exposure and duration of reflux episodes
- Prolonged gastric emptying times
- Decrease in pepsin and gastric acid production

Small intestine

- Moderate villus atrophy
- Mucosal coarsening, increased fibrous tissue

Large intestine

- Elastin building up between myocytes
- Tinea coli > curricular muscle layers
    - Combined with decreased water reabsorption = harder stools

Etiology:

Primary[3]:

1. *Normal Transit*: perception of constipation on patient self-report; however, stool movement is normal throughout the colon. Other symptoms reported include abdominal pain and bloating.
2. *Slow-transit*: prolonged stool transit through colon. This can result from primary dysfunction of colonic smooth muscle and/or its innervation. This can also occur in the setting of generalized intestinal motility disorder.
3. *Outlet constipation*: incoordination of the muscles of the pelvic floor during attempted evacuation. Stool is not expelled when it reaches the rectum. Common features include: prolonged or excessive straining, soft stools that are difficult to pass, and rectal discomfort.

Secondary[3]:

1. *Cancer*: colorectal cancer, tumor compression of large intestine
2. *Endocrine/ Metabolic*: DM, hypothyroidism, hyperparathyroidism, hyper/hypocalcemia, hypokalemia, hypopituitarism, uremia
3. *Neurologic*: Parkinson, dementia, spinal cord injury, multiple sclerosis
4. *Drugs*: analgesics (opiates, NSAIDS), iron, anti-Parkinsonian (anticholinergic or dopaminergic), antihypertensives, anticonvulsants, tricyclic antidepressants
5. *Myogenic*: scleroderma, amyloidosis
6. *Anorectal*: anal fissure or hemorrhoids, IBD, proctitis
7. *Diet / Lifestyle*: low-fiber diet, dehydration, inactive lifestyle
8. *Psychological*: anxiety, depression, eating disorders

History:

- Rule out red flags: hematochezia, positive fecal occult blood test, obstructive symptoms, acute onset of constipation in older age, severe persistent constipation that is unresponsive to treatment, weight loss ≥10 pounds, fever, nocturnal symptoms, a change in stool caliber, family history of colon cancer, celiac or IBD.[1]
    - Note: onset and duration of constipation, nutrition, medications, PMHx.[1]

Physical exam:

- Rectal exam: palpate for hard stool, assess for masses, anal fissures, hemorrhoids, sphincter tone, prostatic hypertrophy in males, and posterior vaginal masses in females.[1]
- Abdo exam: listen for bowel sounds, assess for masses.[1]

Investigations:

- The American College of Gastroenterology guidelines states that there is inadequate data to make a recommendation for routine use of lab tests in patients with chronic constipation without red flag symptoms.[2]
- Colonoscopy: Indicated for red flag symptoms and for colon cancer screening.[2]
- Inpatient setting: Occasionally send for abdo x-ray to R/O fecal loading (aka overflow diarrhea).[2]

Treatment: Organized by sequence of management[3,4]

1. Lifestyle and dietary: increase physical activity, fluid intake, dietary fibre, daily regimented bowel routine
2. Bulk laxatives: psyllium husk (e.g., Metamucil) 3.4 to 6.8 g PO OD up to TID (max 30 g/day), must be taken with 250 mL of liquids
3. Osmotic laxatives: PEG 3350 (e.g., Restoralax) 17g PO OD, take with 250 mL of liquids
4. Stimulant laxatives: Bisacodyl (e.g., Dulcolax) 5 to 10 mg PO HS, avoid milk, antacids, H2 blockers or PPIs within 1 hour.
5. Other agents: Lubiprostone, Linaclotide, Peripherally Acting mu-Opioid Antagonists

References:

1. Lacy BE, Mearin F, Chang L, Chey WD, Lembo AJ, Simren M, Spiller R. Bowel disorders. Gastroenterology. 2016;150(6):1393-407. Available from: https://pubmed.ncbi.nlm.nih.gov/27144627/
2. American College of Gastroenterology Chronic Constipation Task Force. An evidence-based approach to the management of chronic constipation in North America. Official journal of the American College of Gastroenterology. 2005;100:S1-4. Available from: https://pubmed.ncbi.nlm.nih.gov/16008640/
3. Mounsey A, Raleigh M, Wilson A. Management of constipation in older adults. American family physician. 2015 Sep 15;92(6):500-4.
4. Schuster BG, Kosar L, Kamrul R. Constipation in older adults: stepwise approach to keep things moving. Canadian Family Physician. 2015 Feb 1;61(2):152-8.
5. Soenen S, Rayner CK, Jones KL, Horowitz M. The ageing gastrointestinal tract. Current Opinion in Clinical Nutrition & Metabolic Care. 2016 Jan 1;19(1):12-8.

Fecal Incontinence

Definition: The involuntary passage of stool.[1]

- Passive: involuntary discharge of stool without awareness
- Urge: discharge of fecal matter despite active attempts to retain bowel contents
- Fecal seepage: leakage of stool following otherwise normal evacuation

Clinical pearl:

- Patients with urge incontinence often describe being unable to make it to the bathroom on time, whereas patients with fecal seepage often present with fecal staining of undergarments.

Aging results in several physiological changes that can predispose to fecal incontinence[2]:

- Reduced anal resting and squeeze pressures
- Reduced rectal compliance
- Reduced rectal sensation
- Increased threshold to sense volume

Differential for fecal incontinence by anatomy[3]:

1. Anus:
   - *Traumatic*: surgical or obstetrical injury
   - *Non-traumatic*: radiation, fibrosis, neuropathy (e.g., diabetes)
2. Pelvic floor:
   - *Traumatic*: surgical or obstetrical injury, chronic straining
   - *Non-traumatic*: obesity, sarcopenia, poor muscle coordination
3. Rectum:
   - *Traumatic*: surgical injury
   - *Inflammation*: inflammatory bowel disease, radiation, infection, neoplasm
   - *Reduced sensation*: neuropathy, constipation
4. Bowel:
   - *Diarrhea*: infection, inflammation, medications
   - Constipation with overflow diarrhea
5. Central nervous system:
   - *Brain*: neurodegenerative disorders, stroke, brain tumor, MS
   - *Spinal cord*: spinal cord injury, spinal stenosis, myelopathy

History:

- **Ask the patient directly about fecal incontinence!** Consider using the term “accidental bowel leakage”.[4]
- Characterize nature of incontinence: stool consistency, history of urgency, onset, duration, and timing
- Assess for red flag symptoms:
  - Unexplained change in bowel habits for 3 months
  - Rectal bleeding or mucus
  - Unexplained weight loss
  - New onset fecal incontinence associated with back pain and new neurological abnormalities in the lower extremities

- Impact on quality of life
- History of constipation
- Medications that can cause constipation or diarrhea:
    - Magnesium, antibiotics, metformin, proton pump inhibitors, cholinesterase inhibitors, antifungals, calcium channel blockers, and laxatives
- Medical history:
    - Irritable bowel disease, diabetes mellitus, thyroid problems, spinal problems, neurological diseases, and urinary incontinence
- Obstetric history in females:
    - Use of forceps, perineal tears, number of deliveries

Physical exam:

- Abdominal exam: examine for scars and palpate for masses
- Neurological exam
- Gait assessment
- Rectal exam:
    - Inspect perineum for signs of skin breakdown
    - Digital rectal exam to check for the presence of impacted stool and to assess tone

Investigations:

Features on history and physical	Investigations
Loose stools or those with suspected constipation + overflow incontinence	CBC Ca TSH HBA1C Albumin
Chronic loose stools + flatulence + bloating	Hydrogen breath test for lactose intolerance +/- trial of lactose free diet
Suspected structural cause and surgical candidate for repair	Consider endorectal U/S, rectal MRI, defaecography
Unexplained change in bowel habits for three months, or rectal bleeding or mucus, or unexplained weight loss	Colonoscopy
New onset fecal incontinence + back pain + new neurological abnormalities in the lower extremities	Urgent MRI
Undifferentiated FI	Anal manometry

Management:

- Treatment is based on the underlying etiology
- Non-pharmacological:
  - Food diaries to identify dietary triggers
  - Optimizing fluid intake
  - Skin-care regimens to prevent skin breakdown
  - Pelvic floor PT
  - Disimpaction if trapped stool
- Pharmacological:
  - Fiber supplements if loose stools
  - Loperamide to decrease bowel movements
  - Suppositories/enema
- Surgical management (e.g. sphincter repair, colostomy)

References:

1. Bharucha AE, Wald A, Enck P, Rao S. Functional Anorectal Disorders. Gastroenterology. 2006;130(5):1510–8.
2. Pasricha T, Staller K. Fecal Incontinence in the Elderly. Clin Geriatr Med [Internet]. 2021 Feb;37(1):71–83. Available from: file:///C:/Users/Carla Carolina/Desktop/Artigos para acrescentar na qualificação/The impact of birth weight on cardiovascular disease risk in the.pdf
3. Martha Spencer. Fecal Incontinence in Older Adults: A Practical Approach. Can Geriatr J C [Internet]. 2019;9(1). Available from: https://canadiangeriatrics.ca/2019/07/fecal-incontinence-in-older-adults-a-practical-approach/
4. Brown HW, Wexner SD, Lukacz ES. Factors Associated With Care Seeking Among Women With Accidental Bowel Leakage. Female Pelvic Med Reconstr Surg [Internet]. 2013 Mar;19(2):66–71. Available from: https://journals.lww.com/01436319-201303000-00003

Urinary Incontinence

Definition[1]: The involuntary loss of urine/bladder control.

- Stress: incontinence during physical exertion, coughing, or sneezing due to insufficient bladder sphincter from weak supporting pelvic muscles
- Urge: sudden desire to urinate due to involuntary detrusor contractions that are mediated by the muscarinic receptors
- Overflow: leakage as a result of urinary retention and bladder distension
- Functional: leakage secondary to cognitive, functional or mobility difficulties
- Mixed: combination of stress and urge urinary incontinence

Differential diagnosis:

- DIAPERS mnemonic[1]:
  - Delirium, dementia, or other cognitive impairments
  - Infection (e.g., acute cystitis, chronic bacteriuria)
  - Atrophic urethritis or vaginitis
  - Pharmaceuticals or substances (e.g., diuretic, caffeine, alcohol)
  - Psychological disorder
  - Excessive urine output (e.g., diabetes, diabetes insipidus)
  - Reduced mobility or reversible urinary retention
  - Stool impaction
- Other conditions: anatomic abnormalities (e.g., urogenital fistula, diverticuli)[1], urolithiasis[1], bladder carcinoma[3]
- For overflow incontinence[3]: prostatic enlargement, autonomic neuropathy, or anticholinergic drugs

Risk factors:

- Older age
- Parity
- Obesity
- Lifestyle: caffeine and alcohol consumption
- Family history
- Medications: diuretics, sedative, hypnotics, antidepressants, muscle relaxant[4]
- Hysterectomy[5]
- Diabetes due to reduced sensory reflexes, detrusor hyper-contractibility, residual urine, increased bladder capacity[3]

History[1]:

- Ask about: duration (sudden/chronic), daytime frequency, nocturia, urgency, incontinence in relation to exertion, amount of urine loss during void
- Rule out: UTI symptoms (dysuria, hematuria)
- Evaluate effect on quality of life and any aggravating or alleviating factors
- Have patient complete drinking and voiding diary for 2 days and 2 nights[3]

Physical exam:

- Perform abdominal examination[1]

- Perform pelvic exam (to assess for mass, prolapse with POP-Q or Baden-Walker, vulval appearance) and rectal examination for tone[6]
    - o Additional tests: cough stress test, pad weighing test, Q-tip test[1]
- Perform neurological examination on lower perineal sensation and assess reflexes (bulbocavernosus)[7]

Investigations:

- Urine culture and sensitivity, urinalysis and cytology if hematuria[1]
- Post-void residual to rule out urinary retention[1]
- If the cause is not readily apparent, cystometrography is indicated[3]
- If the bladder is normal, cystoscopy should be done immediately[3]

Treatment:

- Conservative treatment: lifestyle modification (e.g., weight loss, decreasing caffeine or alcohol use, altered fluid intake), pelvic floor contraction, bladder training[1]
- Devices: pessaries, vaginal cones, urethral plugs[1]
- Medical treatments for urgency incontinence[1]:
    - Anticholinergic medications (e.g., oxybutynin, tolterodine, solifenacin, darifenacin)[3]
    - B3 agonist (mirabegron)
    - Intravesical botox and periurethral collagen to bladder wall
- Medical treatments for stress incontinence[2]:
    - Duloxetine
- If conservative and medical treatments fail, refer to urologist and can consider surgical treatments including midurethral sling or TURP[2]

References:

1. Leslie SW, Tran LN, Puckett Y. Urinary Incontinence. [Updated 2024 Aug 11]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan-. Available from: https://www.ncbi.nlm.nih.gov/sites/books/NBK559095/
2. Brocklehurst JC. Differential diagnosis of urinary incontinence. Geriatrics. 1978 Apr;33(4):36-9. PMID: 631564.
3. Goepel M, Kirschner-Hermanns R, Welz-Barth A, Steinwachs KC, Rübben H. Urinary incontinence in the elderly: part 3 of a series of articles on incontinence. Dtsch Arztebl Int. 2010 Jul;107(30):531-6. doi: 10.3238/arztebl.2010.0531. Epub 2010 Jul 30. PMID: 20737059; PMCID: PMC2925344.
4. Schneidinger CS, Umek W, Böhmdorfer B. The Problem of Polypharmacy in Female Patients with Overactive Bladders - Cross-Sectional Study in a Specialist Outpatient Department. Geburtshilfe Frauenheilkd. 2016 Dec;76(12):1318-1324. doi: 10.1055/s-0042-114221. PMID: 28042169; PMCID: PMC5193149.
5. Brown JS, Sawaya G, Thom DH, et al. Hysterectomy and urinary incontinence: a systematic review. 2000. In: Database of Abstracts of Reviews of Effects (DARE): Quality-assessed Reviews [Internet]. York (UK): Centre for Reviews and Dissemination (UK); 1995-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK68434/
6. Barbier H, Carberry CL, Karjalainen PK, Mahoney CK, Galán VM, Rosamilia A, Ruess E, Shaker D, Thariani K. International Urogynecology consultation chapter 2 committee 3: the clinical evaluation of pelvic organ prolapse including investigations into associated morbidity/pelvic floor dysfunction. Int Urogynecol J. 2023 Nov;34(11):2657-2688. doi: 10.1007/s00192-023-05629-8. Epub 2023 Sep 22. PMID: 37737436; PMCID: PMC10682140.
7. Perez NE, Godbole NP, Amin K, Syan R, Gater DR Jr. Neurogenic Bladder Physiology, Pathogenesis, and Management after Spinal Cord Injury. J Pers Med. 2022 Jun 14;12(6):968. doi: 10.3390/jpm12060968. PMID: 35743752; PMCID: PMC9225534.

Delirium

Definition:

- An acute, fluctuating disturbance in attention and cognition often caused by a medical condition, substance, or medication side effect
- Symptoms not better explained by another neurocognitive disorder (e.g., dementia)

Delirium subtypes:

- *Hyperactive*: characterized by agitation and/or hallucination symptoms
- *Hypoactive*: characterized by excessive drowsiness and decreased level of consciousness
- *Mixed delirium (majority of cases)*: variable course with alternating hyperactive and hypoactive features

Distinguishing features between delirium and dementia:

Features	Delirium	Dementia
Onset	Abrupt	Insidious
Course	Fluctuating, usually reversible	Slowly progressive
Duration	Days to weeks	Years
LOC	Hyperactive or hypoactive	Affected in late stages
Attention span	Usually affected	Affected in late stages
Orientation	Usually affected	Usually affected
Memory	May be affected	Usually affected
CT head	May be normal	White matter changes, atrophy

Differential diagnosis: DIMES-3Ps

Drugs:

- Alcohol (e.g., intoxication, withdrawal, Wernicke-Korsakoff)
- Anticholinergic (e.g., atropine, benztropine, scopolamine, gravol)
- Antidepressant (e.g., SSRIs, TCA)
- Benzodiazepines and barbiturates
- Cardiac (e.g., amiodarone, beta blockers, digoxin)
- Dopamine agents (e.g., amantadine, bromocriptine, levodopa)
- Sedating antihistamines (e.g., diphenhydramine/ benadryl)

Infection:

- Pneumonia, UTI (but not asymptomatic bacteriuria), meningitis, encephalitis, abscess, sepsis

Metabolic:

- *Organ failure*:
    - Hepatic

    - Hypothyroidism
    - Hypoxia, hypercapnia, hypothermia, hypertensive
- *Electrolyte imbalance*:
    - Ketoacidosis
    - Glucose (e.g., hyperglycemia, hypoglycemia)
    - Hyponatremia
    - Hypernatremia
    - Hypomagnesemia
    - Hypercalcemia

Environment:

- Hospitalization (i.e., overnight blood work, overhead announcements, no windows, no clocks, disruptive neighbours, restraints, room changes, isolation)

Structural/ Systemic:

- Hemorrhage
- Stroke
- Tumor
- Abscess
- Seizure
- Cardiac ischemia

3Ps:

- Pain
- Pee (urinary retention)
- Poo (constipation)

History and physical exam: **4AT** screening tool administered at bedside.

Investigations:

- Basic/General:
    - *Labs*: CBC/D, electrolytes, urea, creatinine, glucose, urinalysis
    - *Imaging*: CXR, head CT
    - *Microbiology*: urine C&S, blood C&S (if fever)
- Targeted:
    - *Metabolic workup*: TSH if suspecting thyroid dysfunction, AST, ALT, ALP, bilirubin, INR, PTT, NH_4, Mg, PO_4
    - *Cardiac workup*: ECG, CK, troponin if suspecting ACS
    - *Seizure workup*: EEG
- Drug overdose workup: medication serum levels, alcohol levels, osmolarity
- Meningitis workup: lumbar puncture

Management:

Prevention:

- Ensure adequate O_2, fluid, and electrolyte balance
- Pain management
- Reduction in the use of anticholinergics, benzodiazepines, and opioids, if clinically appropriate
- Bowel and bladder function
- Nutrition

- Early mobilization
- Appropriate environmental stimuli

Treatment:

- *General principles*:
  - Treat underlying cause
  - Discontinue offending medications (see 'Drugs' heading above)
- *Non-pharmacological*:
  - Orient patient frequently (i.e., person, place, date)
  - Provide hearing and visual aids, if applicable
  - Provide clock/calendar and familiar objects (personal photos, etc.)
  - Meal supervision for nutrition support, ensure well hydrated
  - Restoration of day-night cycle (optimal lighting during day, promote sleep hygiene at night)
  - Avoidance of unnecessary interventions (physical or chemical restraints, urinary catheters, central lines)
  - Maximize mobility
- *Pharmacological*:
  - Neuroleptics for agitated patient (i.e., hyperactive delirium or mixed delirium)
    - Quetiapine 12.5-25 mg PO BID PRN
    - Haloperidol 0.5-2 mg PO/IV/SC q4-6h and q1h PRN
    - Loxapine 2.5-5 mg PO/SC BID and q6h PRN
    - Risperidone 0.25 mg PO BID PRN
    - Olanzapine 2.5-5 mg PO daily PRN

*Benzodiazepines may precipitate or worsen delirium and should generally be avoided except for patients with alcohol or benzodiazepine withdrawal.

- Lorazepam 0.5-1 mg PO/SL daily QID PRN

References:

1. UpToDate®. Delirium and acute confusional states: Prevention, treatment, and prognosis. Available from: https://www.wolterskluwer.com/en-ca/solutions/uptodate
2. Hui D. Approach to Internal Medicine: A Resource Book for Clinical Practice. New York, Ny: Springer Us; 2011. 4AT - RAPID CLINICAL TEST FOR DELIRIUM. 2017. Available from: https://www.the4at.com

Dementia and Cognitive Impairment

Definition: A chronic acquired decline in one or more cognitive domains (e.g., learning and memory, language, executive function, complex attention, perceptual-motor, social cognition) sufficient to affect daily life.[1,2] There are different types of dementia, including:

- Alzheimer's disease: The most common type of dementia among older adults aged ≥ 60 years. It is associated with abnormal deposits of amyloid plaques and tau tangles throughout the brain.[1,2]
- Vascular dementia: This form of dementia occurs when blood vessels in the brain are damaged, and the flow of blood, oxygen and nutrients are disrupted.[1,2]
- Frontotemporal dementia: This is a rare form of dementia; however, it is more common in people aged 45-64 years. It is associated with abnormal amounts or forms of tau and TDP-43 proteins within the neurons in the frontal and temporal lobes of the brain.[1,2]
- Lewy body dementia: This form of dementia is caused by abnormal deposits of the alpha-synuclein protein (Lewy bodies), which affect chemical messengers in the brain. The typical age of diagnosis is ≥ 50 years.[1,2]
- Mixed dementia: A combination of two or more types of dementia listed above.[1,2]

Clinical criteria: DSM-5: Mild and major neurocognitive disorder

	Mild neurocognitive disorder/ Mild cognitive impairment[3]	**Major neurocognitive disorder/ Dementia[4]**
A	Modest cognitive decline in ≥1 cognitive domain (see below). Based on: 1. Concern of individual, knowledgeable informant, or clinician that there has been a significant decline in cognitive function; and 2. Modest impairment in cognitive performance, preferably documented by standardized neuropsychological testing or, in its absence, another qualified clinical assessment.	Significant cognitive decline in ≥1 cognitive domain (see below). Based on: 1. Concern of individual, knowledgeable informant, or clinician that there has been a significant decline in cognitive function; and 2. Significant impairment in cognitive performance, preferably documented by standardized neuropsychological testing or, in its absence, another qualified clinical assessment.
B	Cognitive deficits do NOT interfere with independence (i.e., IADLs and ADLs are still preserved).	Cognitive deficits interfere with independence in everyday activities • Mild: affects IADLS • Moderate: affects ADLs • Severe: Fully dependent
C	Cognitive deficits do not occur exclusively in the context of delirium.	
D	Cognitive deficits are not better explained by another mental health disorder (e.g., major depressive disorder, schizophrenia).	

Risk factors[5-7]:

- Older age
- FHx of dementia
- PMHx of diabetes, obesity, dyslipidemia, HTN, stroke, peripheral atherosclerosis, cerebrovascular disease, traumatic brain injury, smoking, and sleep difficulties
- Low socioeconomic status and/or educational status

Clinical features[1-7]:

- Shared symptoms for different types of dementia
    - Cognitive impairment (e.g., decline in memory, trouble with speech, impaired executive function, decreased spatial-temporal awareness, apathy)
    - Changes in personality, mood, and behaviour
- Frontotemporal dementia
    - Disinhibited behaviour (e.g., offensive language, inappropriate touching)
    - Aphasia
    - Later stages: Parkinsonism and pyramidal signs (e.g., hyperreflexia, frontal primitive reflexes – glabellar blink, snout, palmomental)
- Lewy body dementia
    - Parkinsonism (e.g., bradykinesia, rigidity, masked facies)
    - Visual hallucinations and paranoid episodes
    - Rapid eye movement sleep behaviour disorder
    - Frequent falls

History[5-7]:

- Patient and/or care partner's concerns related to cognition and day-to-day function
- Cognitive domains
    - Complex attention (e.g., difficulty with multi-tasking/ mental calculations, thinking is easier when other stimuli are eliminated)
    - Executive function (e.g., need to focus on one task at a time, abandons complex projects, cannot do hobbies)
        - Apraxia: difficulty performing familiar tasks, despite intact motor and sensory function (e.g., turning on stove, using remote, brushing hair)
    - Language (e.g., word-finding difficulties, paraphasias, neologisms)
        - Aphasia: difficulty with speech production and/or comprehension
    - Learning and memory (e.g., repeating questions/ stories, losing objects, heavily relying on lists)
        - Amnesia: partial or total loss of memory for recent events
        - Agnosia: inability to recognize persons, objects, sounds with one or more senses, despite otherwise normally functioning senses (e.g., can recognize a fork by touch but not by sight)
    - Perceptual motor (e.g., wearing clothes incorrectly, visual hallucinations, worse coordination, getting lost in familiar places)
    - Social (e.g., personality changes, disinhibition, hyperorality, apathy, decreased empathy, OCD behaviours, aggression)

- Review medications, particularly for the presence of anticholinergic agents
- Ask about the use of alcohol, recreational substances, and the possibility of heavy metal toxicity
- Evaluate safety (e.g., driving, finances, cooking, taking medications, way-finding, firearms, care partner burnout, knowing how to call for help in an emergency)
- Assess for concurrent or confounding neuropsychiatric conditions and/or delirium

Physical exam[5-7]:

- Cardiovascular exam
- Neurological exam, including gait assessment, upper motor neuron features, and Parkinsonism
- Cognitive assessment (e.g., MMSE, MoCA)
    - Note: These are screening tests, NOT diagnostic tests. Factors such as education level, first language, and illness can impact results.

Investigations[5-7]:

- Laboratory studies: CBC, TSH, B_{12}, homocysteine, methylmalonic acid, sodium, calcium, liver and kidney function tests, electrolytes, glucose, urinalysis and urine toxicology screen, HIV, and serological test for syphilis
- Neuroimaging with CT and/or MRI without contrast
- PET scan can be used to distinguish between different neurocognitive disorders
- EEG to evaluate for seizures, subcortical dementia, and frontal lobe degeneration
- Lumbar puncture if there is suspicion of meningitis/ encephalitis or prion disease
    - CSF Aβ42, phospho-tau (p-tau) 217 and total tau (t-tau) can be diagnostic for Alzheimer's disease

Treatment[7]:

Drug class	Drug	Dosing	Common side effects
Cholinesterase inhibitors	Donepezil (Aricept)	Starting: 5 mg PO qd Min. effective: 5 mg PO qd Usual: 10 mg PO qd	• GI sx (nausea, vomiting, diarrhea) and/or weight loss • Urinary urgency • Rhinorrhea • Nightmares • Dizziness/ syncope • Bradycardia/ heart block/ QTc prolonged
	Rivastigmine (Elexon)*	Starting: 1.5 mg PO BID Min. effective: 3 mg PO BID Usual: 4.5 mg PO BID	
	Galantamine (Reminyl)	Starting: 8 mg PO qd Min. effective: 16 mg PO qd Usual: 16-24 mg PO qd	
NMDA receptor antagonists	Memantine (Ebixa)	Starting: 5 mg PO qd Min. effective: 10 mg PO qd Usual: 10 mg BID	• Dizziness • HTN • Headache • Constipation

*Transdermal patch also available (dosing is different).

Note: Non-pharmacological management of people living with dementia is important. This includes managing other associated symptoms (e.g., mood, sleep), ensuring that their living environment is safe (e.g., OT home assessment), and encouraging regular exercise, a healthy diet, and social interaction. Providing resources for supporting their care partner is also valuable.

References:

1. National Institute on Aging. Understanding different types of dementia. 2023 Sept 25 [cited 2024 July 29]. Available from: https://www.nia.nih.gov/health/alzheimers-and-dementia/understanding-different-types-dementia#:~:text=Frontotemporal%20dementia%3A%20Abnormal%20amounts%20or,affect%20the%20brain%27s%20chemical%20messengers
2. National Institute on Aging. What is dementia? Symptoms, types, and diagnosis. 2022 Dec 8 [cited 2024 July 29]. Available from: https://www.nia.nih.gov/health/alzheimers-and-dementia/what-dementia-symptoms-types-and-diagnosis
3. PsychDB. Mild neurocognitive disorder/ mild cognitive impairment (MCI). 2024 Jan 2 [cited 2024 July 29]. Available from: https://www.psychdb.com/cl/3-mild-neurocog-disorder
4. PsychDB. Major neurocognitive disorder. 2023 Oct 27 [cited 2024 July 29]. Available from: https://www.psychdb.com/cl/2-major-neurocog-disorder#primer
5. Kadota L. UBC geriatrics learner guide 2023: Practice resource for clinical rotations in B.C. 2023 July 23 [cited 2024 July 29].
6. UpToDate. Evaluation of cognitive impairment and dementia. 2022 Nov 2 [cited 2024 July 29]. Available from: https://www-uptodate-com.proxy.lib.nosm.ca/contents/evaluation-of-cognitive-impairment-and-dementia?search=dementia&source=search_result&selectedTitle=1%7E150&usage_type=default&display_rank=1
7. Reuben DB, Herr KA, Pacala JT, et al. Geriatrics at your fingertips: 2022, 24th edition. New York: The American Geriatrics Society; 2022.

Late-Life Depression

The following guidelines are from the *Canadian Guidelines on Prevention, Assessment and Treatment of Depression Among Older Adults (2021)*.

Definition: Late-life depression includes both older adults who present with depressive symptoms for the first time later in life (i.e., late-onset depression) and aging patients whose depressive disorders initially presented in earlier life, who now present with a recurrent episode.

Screening:

- In all settings:
  - Geriatric Depression Scale-15 item version (GDS-15)
  - Patient Health Questionnaire-9 item version (PHQ-9)
- Depression with dementia or significant cognitive difficulties:
  - Cornell Scale for Depression in Dementia

Diagnosis: See the DSM-5-TR (APA, 2022) for the diagnostic criteria for major depressive disorder, also known as clinical depression. A diagnosis of a major depressive episode requires the presence of ≥5 symptoms, of which at least 1 must be either depressed mood or anhedonia. These symptoms must continue for 2 weeks, cause significant distress or functional impairment, and not be better explained by other psychiatric disorders, other medical disorders, or the effect of a substance. Older adults with major depressive disorder are more likely to present with cognitive symptoms such as impaired concentration and memory, decreased processing speed, and executive dysfunction, which may resemble symptoms similar to dementia. Major depressive disorder is comorbid with multiple systemic medical conditions (e.g., arthritis, migraine and other pain syndromes, chronic pulmonary obstructive disease, hypertension).

Predisposing and precipitating factors of depression:

Predisposing factors	Precipitating factors
• Female • Widowed/divorced • Previous depression history • Brain changes due to vascular problems • Physical illness, pain, disability, frailty • Medications/polypharmacy • Excessive alcohol use • Low social support, loneliness, isolation • Care partner for person with major disease such as dementia	• Bereavement • Moving away from home (e.g., to long-term care) • Adverse life events (e.g., losses, separation, financial crises) • Chronic stress • Chronic sleep difficulties • Social isolation

Comprehensive biopsychosocial assessment:

- Physical exam and lab investigations to rule out medical causes of depressive symptoms
- Review DSM-5-TR diagnostic criteria
- Assess severity (e.g., presence of catatonic or psychotic symptoms)

- Rule out bipolar disorder
- Perform a mental status exam and assessment of cognitive function
- Assess risk of suicide by directly asking patients about suicidal intent, ideation, and plan
- Ask about personal or family history of mood disorders
- Review medication use and substance use
- Explore the patient's life situation, including stressors, recent losses, social support, family situation, and caregiving burden
- Assess level of functioning, disability, and pain
- Explore social determinants of health (e.g., poverty, ageism, racism)

Management:

Nonpharmacological interventions:

- *Psychosocial interventions*
  - Exercise in accordance with the patient's abilities
  - Mindfulness and other mind-body practices such as yoga or tai-chi
  - Social support and activity
  - Self-help resources
- *Psychotherapies*
  - Best evidence for effectiveness in older adults: cognitive behavioural therapy (individual and group), and problem-solving therapy
  - Other evidence-based therapies: behaviour therapy, behavioural activation, reminiscence, psychodynamic therapy, and interpersonal therapy

Pharmacotherapy:

- Outcomes are best when medications are combined with psychotherapy and psychosocial interventions.
- See table below for commonly used antidepressants. For an acute episode of major depression in older adults, it is recommended to consider *duloxetine* and *sertralin*e as first-line medications.

Recommended antidepressant medications:

Medication	Class	Starting Dose	Maximum Dose	Considerations
First-Line Antidepressants for Acute Episode of Major Depression				
Sertraline	SSRI	25 mg daily	200 mg daily	
Duloxetine	SNRI	30 mg daily	120 mg daily	May increase blood pressure.
First-Line Alternatives				
Escitalopram	SSRI	2.5-5 mg daily	10 mg daily	Possible QTc prolongation.

Citalopram	SSRI	5-10 mg daily	20 mg daily	Possible QTc prolongation.
Other Antidepressants				
Venlafaxine XR	SNRI	37.5 mg daily	225 mg daily	May increase blood pressure.
Mirtazapine	Tetracyclic	7.5-15 mg qhs	45 mg qhs	Sedating, weight gain.
Bupropion SR	NDRI	100 mg qam	200 mg BID	Activating. Risk of seizure with high dosage.
Bupropion XL	NDRI	150 mg daily	300 mg daily	
Nortriptyline	Tricyclic	10-25 mg qhs	150 mg qhs	Not first-line. Anticholinergic properties, cardiovascular side effects. Monitor blood levels.
Vortioxetine	SSRI	10 mg daily	20 mg daily	

Table modified from the *CCSMH Pocket card on Depression Assessment and Treatment of Older Adults.*

Antidepressant monitoring:

- Serum sodium levels should be checked 2-4 weeks after initiation of SSRI/SNRI medications. Consider further monitoring of sodium levels for patients on diuretics or with a history of hyponatremia.
- Close monitoring is necessary for suicidal ideation, medication compliance, potential side effects, and substance use.
- Close monitoring required for those with concomitant use of SSRIs and oral anticoagulants due to increased risk of major bleeding, especially in the first 6 months.

Antidepressant agents to AVOID in older adults:

- Amitriptyline
- Amoxapine
- Doxepin
- Imipramine
- Ketamine
- Maprotiline
- Protriptyline
- St. John's wort
- Trimipramine

Options if first-line treatment is unsuccessful:

- Switch to a different antidepressant

- Augment with an antidepressant from a different class, or an antipsychotic (e.g., aripiprazole), or lithium, or psychotherapy
- Repetitive transcranial magnetic stimulation (rTMS)
    - Unipolar depression
    - Failed at least 1 adequate trial of antidepressants
    - **NOT** recommended for patients who failed a course of ECT or who have a seizure disorder
- Electroconvulsive therapy (ECT)
    - Severe unipolar depression
    - Failed at least 1 adequate trial of antidepressants
    - Health deteriorating rapidly due to depression
    - Previous good response to ECT
    - Can be first-line treatment in older, severely depressed patients at high risk of poor outcomes (suicidal ideation/intent, severe physical illness, or psychotic features)

Monitoring and maintenance therapy:

- Monitor for recurrence of depression (i.e., the appearance of a new episode after a period of recovery) in the first 2 years after treatment.
- Remission (i.e., the virtual absence of depressive symptoms) from the first episode should be treated for 1-2 years from time of improvement (i.e., a 50% reduction in total symptom severity is considered a response to treatment).
- Recurrent episodes of depression should be treated with indefinite maintenance therapy.
- In long-term care homes, recurrence of symptoms should be evaluated every month after initial improvement, then every 3 months.

When to refer to a psychiatric clinic:

- Minimal improvement despite interventions
- Safety concerns (e.g., poor self-care, suicidality)
- Psychotic depression
- Bipolar disorder
- Severe impairment secondary to distress
- Depressive disorder with comorbid dementia
- Diagnostic clarification to rule out primary or comorbid psychiatric disorders

References:

1. Canadian Coalition for Seniors' Mental Health (CCSMH). Pocket card on Depression Assessment and Treatment of Older Adults. Based on: Canadian Guidelines on Prevention, Assessment and Treatment of Depression Among Older Adults (2021). For more information visit: www.ccsmh.ca.
2. Rahman AA, Platt RW, Beradid S, Boivin JF, Soham Rej, Renoux C. Concomitant Use of Selective Serotonin Reuptake Inhibitors With Oral Anticoagulants and Risk of Major Bleeding. JAMA network open. 2024 Mar 22;7(3):e243208–8.
3. Reuben DB, Keela Herr, Pacala JT, Pollock BG, Potter JF, Semla TP, et al. Geriatrics at your fingertips. New York: American Geriatrics Society; 2019.

Driving

Medical reporting requirements for drivers in Canada:

- Legislation and guidelines for reporting patients with medical conditions that make it dangerous to drive vary by province.
- In Alberta, Quebec and Nova Scotia, reporting is not mandatory.

Medical reporting in Ontario:

- *The Highway Traffic Act* **requires physicians** in Ontario to report to the Ministry of Transportation (MTO) patients aged 16 or over who have certain medical or visual conditions that may make it dangerous to drive.[1]

Conditions that require reporting as per *The Highway Traffic Act*:

Condition or impairment	Selection criteria
Cognitive impairment	Cognitive impairment that results in substantial limitation of the ability to perform ADLs.
Sudden incapacitation	A disorder that has a moderate or high risk of sudden incapacitation, or that has resulted in sudden incapacitation and that has a moderate or high risk of recurrence.
Motor or sensory impairment	Severe motor impairment that affects co-ordination, muscle strength and control, flexibility, motor planning, touch or positional sense.
Visual impairment	• A best corrected visual acuity that is below 20/50 • A visual field that is less than 120 continuous degrees along the horizontal meridian
Substance use disorder	Uncontrolled substance use disorder and the person is non-compliant with treatment.
Psychiatric illness	Acute psychosis or severe abnormalities of perception.

- Physicians also have the discretion to report patients who, in their opinion, have a condition that may make it dangerous to drive.

How to report:

Complete the Medical Reporting Form found **here** and submit to the MTO.

Clinical approach to assessing fitness to drive:

- Please see *CMA Driver's Guide: Determining medical fitness to operate motor vehicles*[2] for guidance on the effects of various conditions on fitness to drive.
- The mnemonic CanDRIVE[3] can be used as a guide to what information physicians should gather to help make a clinical judgement regarding fitness to drive.

CanDRIVE[3]:

Domain	Description
Cognition	Dementia, delirium, depression, executive function, memory, judgment, psychomotor speed, attention, reaction time, and visuospatial function.
Acute or fluctuating illness	Delirium, seizures, Parkinson disease, and presyncope or syncope (cardiac ischemia, arrhythmia, postural hypotension).
Neuromusculoskeletal disease	Speed of movement, speed of mentation, level of consciousness, stroke, Parkinson disease, syncope, hypoglycemia or hyperglycemia, arthritis, cervical arthritis, and spinal stenosis.
Drugs	Drugs that affect cognition or speed of mentation, such as benzodiazepines, narcotics, anticholinergic medications (eg, tricyclic antidepressants, antipsychotics, oxybutynin, dimenhydrinate), and antihistamines.
Record	Patient or family report of accidents or moving violations.
In car experiences	Patient or family descriptions of near accidents, unexplained damage to car, change in driving skills, loss of confidence or self-restriction, becoming lost while driving, others refusing to be driven by patient, need for assistance of a copilot (particularly concerning would be the need for cues to avoid dangerous situations that could result in a crash), and other drivers having to drive defensively to accommodate changes in the patient's driving skills.
Vision	Acuity, visual field defects, glare, contrast sensitivity, and comfort driving at night.
Ethanol use	Physician's opinion regarding whether ethanol use is excessive and whether alcohol is imbibed before driving.

Focus on cognition and driving:

- Introduce discussions about "retirement from driving" once patients are diagnosed with MCI or early dementia even if they may be able to continue driving safely.
- According to the Canadian Medical Association, patients with moderate dementia (change in ≥2 IADLs or ≥1 ADLs due to cognition) should not be driving.
- In-office cognitive exams can be helpful but should not be used alone in determining one's fitness to drive:
    - **Trails B** has best evidence in assessing fitness to drive[4]
        - Trails A – Unsafe: > 2 min or ≥ 2 errors
        - **Trails B – Unsafe: > 3 min or ≥ 3 errors**

- A comprehensive on-road driving assessment (e.g., DriveABLE) is the gold standard for assessing the impact of condition(s), including dementia, on driving function.
    - It is paid for out-of-pocket and involves pre-testing and an on-road component.

References:

1. Highway Traffic Act: Ontario Regulation 340/94: Drivers' Licences [Internet]. Government of Ontario. 2024. Available from: https://www.ontario.ca/laws/regulation/940340
2. Canadian Medical Association. CMA Driver's Guide: Determining medical fitness to operate motor vehicles. 10th ed. Ottawa; 2023.
3. Molnar FJ, Simpson CS. Approach to assessing fitness to drive in patients with cardiac and cognitive conditions. Can Fam Physician. 2010;56(11):1123–9.
4. Roy M, Molnar F. Systematic review of the evidence for Trails B cut-off scores in assessing fitness-to-drive. Can Geriatr J. 2013;16(3):1–23.

Elder Abuse

Definition: RCMP defines elder abuse as “violence, mistreatment or neglect towards older adults” (RCMP). Abuse broadly can be broadly categorized into:

1. Physical abuse (ex. hitting, causing falls, forced confinement)
2. Psychological abuse (ex. social isolation, verbal threats and harassment)
3. Sexual abuse (ex. sexual assault, recording sexually inappropriate media without consent, forced indecent exposure)
4. Financial exploitation (ex. seizing bank funds, financial extortion)
5. Neglect (ex. refusing/ignoring care requests, withholding necessities, failure to provide basic services that the elder is unable to perform themselves)

Elder abuse can take other forms such as removal of autonomy and inappropriate invasion or removal of privacy.

Legislation:

- Elder abuse is not a specific single crime per the *Criminal Code of Canada.*
- Despite amendments in legislation to improve prevention and reporting, there remains a significant discrepancy between the actual prevalence and number of reported cases.
- There is currently **NO** federal obligation for reporting elder abuse.
- Provinces and territories have separate criteria for submitting a report.
    - There are mandatory reporting requirements in the following provinces:
        - AB
        - MB
        - NL
        - NS
        - ON
        - PE
        - QC
    - Reporting is discretionary when there is reasonable suspicion of abuse in the following provinces/territories:
        - BC
        - NB
        - NU (with consent from victim)
        - NT
        - SK (with consent or court orders)
        - YK

Risk Factors:

Older adult characteristics:

- Physical and/or social impairment of the patient (including dementia)
- Social isolation
- History of abuse

Caregiver characteristics:

- Alcohol or substance abuse

- Perceived or apparent lack of attention to the patient's health (e.g., caregiver burnout)
- Noticeable difference in financial status from patient

Clinical features:

- EASI (Elder Abuse Screening Index) can be used to quickly screen for and identify potential elder abuse[3]
- CGA and physical exam[5]
    - Exam signs suggestive of abuse:
        - Various injuries in different stages of healing
        - Injuries inconsistent with history/exam (e.g., irregular bruising patterns, injuries on inner thighs/ulnar diaphysis/uncommonly exposed areas)
        - Delay in seeking treatment without plausible explanation
        - Unintended weight loss
        - Unexplained rhabdomyolysis or dehydration
- Some signs may be behavioural
    - Psychological signs suggestive of abuse:
        - Unexpected agitation towards certain gestures or reaching for certain areas on the body
        - Disproportionate fear and/or anxiety
        - Signs of PTSD

Investigations: Depend on the clinical presentation, and may include:

- Metabolic (extended electrolytes, albumin)
- Tox/drug screen, ethanol
- STI testing
- Imaging

Elder abuse can be reasonably part of most differentials until further investigated, especially in atypical presentations or complaints. Remember that no clinical sign is definitive of elder abuse. Always consider non-abuse related mechanisms of injury/illness.

Approach to intervention:

- Assessing patient's decision-making capacity should be the priority (Wang)
    - If there is suspicion that the POA/SDM is the perpetrator or generally not acting in the best interests of the patient, consider contacting other family members and/or legal agencies that can assume responsibility
- Address immediate medical and safety concerns, with consideration of admission to hospital as necessary
- Consider consultation to interdisciplinary services such as social work and community resources (home care, respite agencies, shelters, legal services, etc.)
- Report to the responsible government agency (if applicable)
- Arrange appropriate follow-up

EASI Questionnaire:
Answers "YES" to any of questions 2-6 indicate potential abuse.

1	Have you relied on people for any of the following: bathing, dressing, shopping, banking, or meals?
2	Has anyone prevented you from getting food, clothes, medication, glasses, hearing aids, or medical care, or from being with people you wanted to be with?
3	Have you been upset because someone talked to you in a way that made you feel shamed or threatened?
4	Has anyone tried to force you to sign papers or to use your money against your will?
5	Has anyone made you afraid, touched you in ways that you did not want, or hurt you physically?
6	Doctor: Elder abuse **may** be associated with findings such as poor eye contact, withdrawn nature, malnourishment, hygiene issues, cuts, bruises, inappropriate clothing, or medication compliance issues. Did you notice any of these today or in the last 12 months?

References:

1. Burnett J, Achenbaum WA, Murphy KP. Prevention and Early Identification of Elder Abuse. Clinics in Geriatric Medicine. 2014 Nov;30(4):743–59.
2. John T. Elder Abuse Clinical Presentation: History, Physical, Causes [Internet]. Medscape.com. Medscape; 2025. Available from: https://emedicine.medscape.com/article/805727-clinical#b4
3. Yaffe MJ, Wolfson C, Lithwick M, Weiss D. Development and Validation of a Tool to Improve Physician Identification of Elder Abuse: The Elder Abuse Suspicion Index (EASI)©. Journal of Elder Abuse & Neglect. 2008 Jun 12;20(3):276–300.
4. Medico-legal matters | Duty to report | CMPA Good practices [Internet]. CMPA. Available from: https://www.cmpa-acpm.ca/en/education-events/good-practices/medico-legal-matters/duty-to-report
5. Alqadiri S, MacLeod H, Huang SCC, Molnar F, Frank C. Key signs and strategies for recognizing elder abuse. Canadian family physician Medecin de famille canadien. 2022 Oct 1;68(10):746–7. Available from: https://web.p.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=3&sid=9e857075-eaae-4123-9731-4f47e4db32db%40redis

Falls

Definition: An event which results in a person coming to rest inadvertently on the ground, floor, or other lower level.[1-3] Falls can result from a failure of consciousness, balance, anticipation, judgement, or an overwhelming external force.[1-3]

Risk factors[1-7]:

- Intrinsic factors (e.g., poor balance, weakness, chronic illness, incontinence, sensory deficits, cognitive impairment, previous history of falls/ fear of falls)
- Medications associated with increased fall risk (e.g., psychoactive medications, opioids, sedatives, medications that cause hypotension, polypharmacy; refer to “Beers Criteria”)
- Environmental hazards at home (e.g., floor surface, poor lighting, furniture location)

Screening[2-3]: Older adults should be screened for fall risk annually, or any time they present with a fall.

1. Have you fallen in the past year? (If yes: How many times? Were you injured?)
2. Do you feel unsteady when standing or walking?
3. Are you worried about falling?

If they answer yes to any question, perform a fall risk assessment using the history and physical exam guidelines outlined below. A Comprehensive Geriatric Assessment is also recommended. If they answer no to all questions, recommend general fall prevention strategies.

History[2,3,5-7]:

- Circumstances of the fall (e.g., activity, location, time, footwear, and lighting when the fall occurred)
- Associated symptoms (e.g., lightheadedness, vertigo, syncope, weakness, confusion, palpitations, joint/foot pain, joint stability)
- Functional status and use of mobility aids
- Relevant comorbid conditions (e.g., prior stroke, Parkinsonism, cognitive impairment, cardiac disease, diabetes, urinary incontinence, seizure disorder, anemia, sensory deficit, osteoarthritis, osteoporosis, hyperthyroidism, chronic renal disease, pain)
- Medication review, including over the counter medications; note recent changes
- Alcohol and recreational substance use

Physical exam and Assessment[2,3,5-7]:

- Postural vital signs to identify orthostatic hypotension (a decrease in SBP ≥20 mmHg, a DBP ≥10 mmHg, or lightheadedness/ dizziness from lying to standing)
- Mobility:
    - MSK and neuro (cranial and peripheral nerve) physical exams, including strength testing
    - Gait: 4-metre gait speed, functional gait assessment, Timed Up and Go test (TUG), Get Up and Go test (GUG)
    - Balance: 4-stage balance test, Berg balance scale, Tinetti test, functional reach test, Short Physical Performance Battery (SPPB)
    - Strength and endurance: 30-second chair stand
    - Feet and footwear assessment
    - Consider assessment by physiotherapist

- Sensory assessment: Visual acuity testing (e.g., Snellen chart), hearing assessment. If indicated, Dix-Hallpike, head impulse test
- Cardiovascular and peripheral vascular exam (e.g., arrhythmias, valvular dysfunction, bruits, pulses)
- Cognitive assessment (e.g., MMSE, MoCA)
- Frailty assessment (e.g., Clinical Frailty Scale, FRAIL questionnaire)
- Home safety assessment by occupational therapy

Investigations[6,7]: Will be based on the history and physical exam findings, but may include:

- Laboratory studies: CBC, serum electrolytes, BUN, Cr, glucose, B_{12}, TSH
- Imaging:
    - Head if there is injury or if there are new, focal neurological findings on exam/ if CNS involvement is suspected
    - Spine to exclude spondylosis or lumbar stenosis in patients with abnormal gait, neurological exam, or lower extremity spasticity or hyperreflexia
    - Other area of injury, if relevant
- Surface 12- lead ECG and further cardiac workup if symptoms of syncope or presyncope
- Bone mineral density scan to assess for osteoporosis

Management[2-7]:

- All patients should receive a multidomain intervention, based on findings from falls risk assessment, including:
    - General education (e.g., medication risks, proper footwear, reduction of environmental hazards, falls alert device)
    - Regular exercise as supervised by a trained professional, including activities that challenge balance and incorporate strength training
    - Nutrition optimization, including foods rich in protein, calcium, and vitamin D. A vitamin D supplement may also be considered
- Manage medical comorbidities, if present:
    - Orthostatic hypotension treatment
    - Optimize vision and hearing
    - Continence management
    - Medication review and appropriate deprescribing
    - Refer to occupational therapy for a home hazard assessment and modification
    - Refer to physical therapy for targeted exercise interventions
    - Consult additional specialists as required (e.g., ophthalmologist, cardiologist)

References:

1. World Health Organization. Falls. 2021 April 26 [cited 2024 July 29]. Available from: https://www.who.int/news-room/fact-sheets/detail/falls
2. Montero-Odasso M, Van Der Velde N, Martin FC, Petrovic M, Tan MP, Ryg J, Aguilar-Navarro S, Alexander NB, Becker C, Blain H, Bourke R. World guidelines for falls prevention and management for older adults: a global initiative. Age and ageing. 2022 Sep [cited 2024 Nov 25];51(9):afac205. Available from: https://academic.oup.com/ageing/article/51/9/afac205/6730755?login=false
3. Panel on Prevention of Falls in Older Persons, American Geriatrics Society and British Geriatrics Society. Summary of the updated American Geriatrics Society/British Geriatrics Society clinical practice guideline for prevention of falls in older persons. Journal of the American Geriatrics Society. 2011 Jan [cited 2024 July 29];59(1):148-57. Available from: https://geriatrictoolkit.missouri.edu/balance/AGS-BGS-CPG-Fall-Prevention-JAGS-2011.pdf

4. The American Geriatrics Society. A pocket guide to the 2023 AGS Beers Criteria®. 2023 [cited 2024 July 29]. Available from: https://gwep.usc.edu/wp-content/uploads/2023/11/AGS-2023-BEERS-Pocket-PRINTABLE.pdf
5. Centers for Disease Control and Prevention. STEADI: Older adult fall prevention. 2024 Apr 22 [cited 2024 July 29]. Available from: https://www.cdc.gov/steadi/hcp/clinical-resources/index.html
6. UpToDate. Falls in older persons: Risk factors and patient evaluation. 2023 Nov 29 [cited 2024 July 29]. Available from: https://www-uptodate-com.proxy.lib.nosm.ca/contents/falls-in-older-persons-risk-factors-and-patient-evaluation?search=falls%20in%20elderly&source=search_result&selectedTitle=1%7E150&usage_type=default&display_rank=1
7. Reuben DB, Herr KA, Pacala JT, et al. Geriatrics at your fingertips: 2022, 24th edition. New York: The American Geriatrics Society; 2022.

Frailty

Definition:

- A state of decreased reserve in older adults with increased vulnerability to acute internal and/or external stressors[1]
- Caused by an overall functional decline across multiple physiologic systems due to an accumulation of deficits[2]
    - Functional decline: Progressive limitation or impediment in ability to perform routine activities[3]
- Resulting in increased healthcare dependency (e.g., increased length of stay, higher likelihood of readmission to hospital) and more adverse health outcomes both in hospital and in the community[3]

Clinical Relevance: Identification of frailty can help inform patient-centred care regarding interventions as well as alert care providers to enhanced consequences of iatrogenic injury.

Models of frailty:

1. Physical Frailty Phenotype (PF) (Fried)
    - Frail: ≥3 criteria; at-risk or pre-frail = 1 or 2 criteria
        - *Shrinking*: unintentional weight loss (baseline: >=10 lbs or 5% total body weight lost in prior year)
        - *Weakness*: grip strength in lowest 20% (by gender, BMI)
        - *Poor endurance*: as indicated by self-report of exhaustion
        - *Slowness*: walking time per 15ft in slowest 20% (by gender, height)
        - *Low activity*: calorie expenditure per week in lowest 20% (by weight)
2. Cumulative Deficit Approach and the Frailty Index (FI)
    - Balance between assets (e.g. health, attitudes, resources, caregiver) and deficits (e.g. illness, disability, dependence, caregiver burden) that determines whether a person can maintain independence in the community
    - Frailty index: Divide number of deficits present/number of deficits possible. A denominator of 30+ deficits is necessary, although the exact index may vary
    - The Clinical Frailty Scale is a simplification of the Frailty Index, based on functional deficits
    - While several other tools exist for rapid assessment of frailty, management usually requires a comprehensive and multidisciplinary approach[4]

Etiology:

- Multifactorial and complex, involving biological, psychological, and social factors[4]
- Many causes are driven by age-related biological changes[1]
- Manifestation of causes typically involves decreased organ function and adaptability to stressors

Clinical features: Frailty should always be evaluated based on a patient's baseline status, not on the effects of their current acute illness.

- Frailty is determined based on the cumulation of chart review and examination of current and baseline patient conditions.
    - Treating acute pathology will often improve patient conditions back to baseline – less important for long-term management.

- Comprehensive Geriatric Assessment (CGA) includes factors such as past medical history, medications, allergies, and social history.
    - Geriatric review of systems (e.g., cognition, mood, sleep, pain, nutrition, falls, continence, vision/hearing, skin, and safety)
- Physical exam based on history

Investigations: Chronic imbalances in serology include, but are not limited to:

- CBC
- LFTs
- Extended electrolytes
- TSH
- CRP and other inflammatory markers
- Vitamin D

Management:

- Focusing on holistic treatments to address needs according to CGA
- <u>CGA itself is the most impactful intervention for frailty</u>:
    - Emphasis on increasing exercise (as tolerated)
    - Reduction of polypharmacy via medication optimization
    - Interdisciplinary primary care follow-up
    - Psychological and social supports
    - Caregiver support
    - Community- and home- health supports where possible to reduce functional decline
    - Monitoring diet and supplementing nutrients with emphasis on calorie and protein intake
        - Note: Hormonal supplementation (e.g., vitamin D, sex hormones) has not been shown to provide any significant benefit[4]

References:

1. Lee H, Lee E, Jang IY. Frailty and Comprehensive Geriatric Assessment. Journal of Korean Medical Science [Internet]. 2020;35(3). Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6970074/
2. Li N, Liu Gao-lin, Gao H, Wu Q, Meng J, Wang F, et al. Geriatric syndromes, chronic inflammation, and advances in the management of frailty: A review with new insights. BioScience Trends. 2023 Aug 31;17(4):262–70.
3. Woolford SJ, Sohan O, Dennison EM, Cooper C, Patel HP. Approaches to the diagnosis and prevention of frailty. Aging Clinical and Experimental Research. 2020 Apr 30;32(9):1629–37.
4. Dae Hyun Kim, Rockwood K. Frailty in Older Adults. New England Journal of Medicine. 2024 Aug 8;391(6):538–48.

Nutrition Risk and Malnutrition

Definition: Nutrition risk represents the factors that place an individual at risk for inadequate nutrient intake.[1,2] If left untreated, this can lead to malnutrition.[1-3] Malnutrition is a clinical disorder that occurs when an individual's diet does not provide adequate nutrients for proper health and/or when the body cannot absorb or utilize the nutrients effectively.[1-3]

Risk factors[1-3]:

- Cognitive and/or mood disorders
- Poor functional status (e.g., strength, balance, coordination, endurance)
- Medical conditions and/or medications that affect appetite, digestion, absorption and metabolism of nutrients
- Masticatory and/or swallowing difficulties
- Living alone, care partner loss or burnout, and/or low social support
- Low socioeconomic status
- Poor knowledge of nutrition, food, and/or cooking

Screening[4,5]:

- Community/ home care/ primary care: Seniors in the Community Risk Evaluation for Eating & Nutrition (SCREEN), Mini Nutritional Assessment (MNA), MNA-short form (MNA-SF), Malnutrition Universal Screening Tool (MUST), Global Leadership Initiative on Malnutrition (GLIM)
- Hospital: Canadian Nutrition Screening Tool (CNST), MNA, MNA-SF, MUST and GLIM
- Residential care: MNA, MNA-SF, MUST and Malnutrition Screening Tool (MST)

If an older adult is found to be at moderate or high nutrition risk, they should be referred for a Subjective Global Assessment (SGA). A SGA requires the skills of a registered dietitian or a specially trained healthcare professional.

History[4-7]:

- Nutrition intake (e.g., fruits, vegetables, protein, whole grains, vitamins, minerals, fluids, meal replacements, dietary restrictions/ preferences)
- Weight changes in the past 6 months (e.g., gain/ loss, amount, intentional/ unintentional, perception)
- Associated symptoms (e.g., appetite, dental/ chewing problems, odynophagia, dysphagia, anorexia, early satiety, nausea, vomiting, constipation, diarrhea ± blood/ mucus, night sweats, fever, fatigue)
- Physical activity level and functional capacity (e.g., fatigue, ADLs, IADLs)
- Relevant comorbid conditions (e.g., cancer, HIV/AIDS, Celiac disease, chronic renal failure, chronic liver disease, congestive heart failure, COPD, hyperthyroidism, psychiatric conditions, eating disorder, dementia, surgery, trauma/ burns)
- Medication review, including over the counter medications
- Caffeine, alcohol, smoking, and recreational substance use
- Travel history and exposure to sick contacts

Physical exam[4-7]:

- Anthropometric measures (e.g., weight, height, body mass index (BMI), waist circumference, mid-upper arm circumference); compare to previous measurements, if available

- Subcutaneous fat (e.g., cheeks, triceps, ribs, lower back, sides of trunk, buttock area)
- Muscle wasting (e.g., temple, clavicle, shoulder, upper arm scapula/ ribs, quadriceps, interosseous muscle)
- Examine for signs of possible nutrient deficiency (e.g., pallor, dry mucous membranes, angular stomatitis)
- Fluid retention (e.g., edema, ascites)
- Additional considerations:
    - Abdominal exam (e.g., palpable masses/ lymph nodes)
    - Musculoskeletal and neurological exams, including strength, balance, and coordination testing
    - Cognitive assessment (e.g., MMSE, MoCA)
    - Frailty assessment (e.g., Clinical Frailty Scale, FRAIL questionnaire)

Investigations[7,8]:

- Laboratory studies: CBC, serum electrolytes, albumin, pre-albumin, BUN, Cr, glucose, lipid profile, B_{12}, folate, vitamin D, TSH, CRP, ESR
- Bone mineral density scan to assess for osteoporosis
- If there is suspicion of GI pathology, refer for endoscopy or colonoscopy, or order imaging modality (e.g., CT, MRI)
- If there are swallowing difficulties, order a swallow study
- Infectious screening if there is suspicion (e.g., ova and parasites in stool, HIV, TB)
- Age-appropriate malignancy screening (e.g., CT chest, FIT)

Management[1,4-8]:

- Educate the patient about nutrition risk factors and the consequences of poor nutrition
- Treat the underlying cause of nutrition risk or malnutrition
- Minimize the number of medications that may be contributing to the patient's condition
- Encourage the patient to eat healthy foods and maintain a healthy weight (e.g., follow Canada's Food Guide, eat with others, and in some cases add oral nutritional supplements)
- Refer patients who are at nutrition risk or malnourished to a registered dietitian
- Consult additional specialists as required (e.g., dentist, social worker)
- Recommend community services based on the patient's needs (e.g., meal programs, grocery and cooking support, transportation programs, financial aid)

References:

1. Regional Geriatric Program of Toronto. Introduction to nutrition: Clinician learning series. n.d. [cited 2024 July 29]. Available from: https://rgptoronto.ca/resource/introduction-to-nutrition-clinician-learning-series/
2. Cederholm T, Barazzoni RO, Austin P, Ballmer P, Biolo GI, Bischoff SC, Compher C, Correia I, Higashiguchi T, Holst M, Jensen GL. ESPEN guidelines on definitions and terminology of clinical nutrition. Clinical nutrition. 2017 Feb 1 [2024 July 29];36(1):49-64. Available from: https://www.sciencedirect.com/science/article/abs/pii/S0261561416312420
3. Cederholm T, Jensen GL, Correia MITD, Gonzalez MC, Fukushima R, Higashiguchi T, et al. GLIM criteria for the diagnosis of malnutrition - A consensus report from the global clinical nutrition community. Clin Nutr. 2019;38: 1–9. Available from: https://pubmed.ncbi.nlm.nih.gov/30181091/
4. Canadian Malnutrition Task Force. Nutrition screening tools for community-dwelling older adults. n.d. [cited 2024 July 29]. Available from: https://nutritioncareincanada.ca/sites/default/uploads/files/Pathways/Guide_to_Nutrition_Screening%20Tools%20for_Community-Dwelling_Older%20.pdf
5. Canadian Malnutrition Task Force. Nutrition screening. n.d. [cited 2024 July 29]. Available from: https://nutritioncareincanada.ca/resources-and-tools/hospital-care-inpac/screening

6. Canadian Malnutrition Task Force. Basic nutrition care plan: For healthcare providers. n.d. [cited 2024 July 29]. Available from: https://nutritioncareincanada.ca/sites/default/uploads/files/Pathways/Basic%20Nutrition%20Care%20Plan%20for%20Healthcare%20Providers_V10.pdf
7. UpToDate. Geriatric nutrition: Nutritional issues in older adults. 2023 Mar 23 [cited 2024 July 29]. Available from: https://www-uptodate-com.proxy.lib.nosm.ca/contents/geriatric-nutrition-nutritional-issues-in-older-adults?search=malnutrition%20in%20elderly&source=search_result&selectedTitle=1%7E150&usage_type=default&display_rank=1
8. Reuben DB, Herr KA, Pacala JT, et al. Geriatrics at your fingertips: 2022, 24th edition. New York: The American Geriatrics Society; 2022.

Osteoporosis

Definition: Clinical diagnosis made in the presence of:
- Fragility fracture (particularly at spine, hip, distal radius, humerus, rib and pelvis), OR
- T-score ≤-2.5 SD of BMD based on DEXA scan[1]

Risk factors[1]:
- Previous fracture after age 40
- Glucocorticoids (> 3 months in the last year, prednisone dose > 5 mg daily)
- Falls ≥ 2 in the last year
- Current smoking
- ETOH ≥ 3 drinks/day
- Secondary osteoporosis due to endocrine disorders (e.g., hyperthyroidism, hyperparathyroidism), chronic kidney disease, inflammatory conditions (e.g., RA), gastrointestinal disorders (e.g., celiac, Crohn's), and certain cancers
- Body mass index < 20 kg/m^2
- Parent fractured hip
- High risk medications, such as aromatase inhibitors, androgen deprivation therapy, PPIs, SSRIs, and antiepileptics

Differential diagnosis: Osteomalacia, malignancy (e.g., multiple myeloma), Paget disease of bone.[2]

History[1]:
- Lifestyle factors like smoking, ETOH, physical inactivity, and poor nutrition
- FMHx of fragility fracture

Physical exam[2]:
- Height
- Weight
- Occiput-to-wall distance (>5 cm is a positive sign)
- Rib-to-pelvis distance (less than 3 fingers increases LR)
- Kyphosis (self-reported)

Investigations[2]:
- CBC
- Biochemistry profile (Ca, phos, albumin, total protein, Cr, ALP, electrolytes)
- 25-hydroxyvitamin D
- PTH
- TSH
- BMD via DEXA scan
    - o + / - myeloma screen and celiac screen to check for secondary causes of osteoporosis

Fracture Risk Assessment Tool (FRAX)[3]:
- *Low risk*: 10 year fracture risk <15% or T Score >-2.5 → do **not** recommend pharmacotherapy[1]
- *Moderate risk*: 10 year fracture risk 15%-19.9% or T Score ≤-2.5 and age <70 → suggest pharmacotherapy (intermediate benefit)[1]

- *High risk*: 10 year fracture risk ≥20% or T Score ≤-2.5 and age ≥70 → recommend pharmacotherapy (largest benefit)[1]

Management:
Lifestyle measures: adequate intake of calcium and vitamin D, exercise, smoking cessation, and avoidance of heavy alcohol use. Receive assessment and counseling on falls prevention.[1]

Treatment principles:
- One of the newer treatment principles is in very high-risk patients, to consider anabolic therapy first (before bisphosphonates and denosumab). High risk defined as recent severe vertebral fracture, or ≥ 2 vertebral fractures and T-score ≤ –2.5. Anabolic therapy includes medications like Romosozumab or Teriparatide. Please, consult an endocrinologist or geriatrician for consideration of anabolic therapy.[1]
- Optimize Vitamin D levels (25[OH]D > 75 nmol/L) before starting pharmacotherapy since bisphosphonates and denosumab can precipitate symptomatic hypocalcemia if Vit D is low.[1]
- When initiating treatment with bisphosphonates or denosumab, discuss the risk factors: osteonecrosis of the jaw (increased by IV administration, cancer, steroid use, smoking, DM, pre-existing dental disease), reflux, esophagitis, upper GI ulcers, and increased risk of atypical femoral fractures with longer duration of use.[1]

Pharmacotherapy:
Anti-resorptive:
- *Bisphosphonates*: oral (Alendronate and Risedronate) and IV (Zoledronate) - for those who meet criteria for initiation of pharmacotherapy.[1]
    - *Contraindication:* renal failure (CrCl less than 30 ml/min).
    - Choose IV bisphosphonates if contraindications to PO, such as esophageal disorders (Barrett's, stricture, achalasia), inability to sit up after oral dosing, intolerance of oral bisphosphonates, or poor medication adherence.
- *Denosumab*: for those meeting criteria for initiation of pharmacotherapy who have contraindications, substantial intolerance or barriers to bisphosphonates.[1]
    - Discontinuation of denosumab results in bone loss to pretreatment levels within 2 years and vertebral fractures, particularly multiple fractures, within 8-16 months. If denosumab is discontinued, start a bisphosphonate if CrCl >30ml/min.

Estrogen:
- Perimenopausal females aged < 60 yr or within 10 yr of menopause initiating pharmacotherapy who prioritize alleviation of substantial menopausal symptoms, suggest menopausal hormone therapy as an alternative option to bisphosphonate therapy.[1]
- *Raloxifene*: postmenopausal females initiating pharmacotherapy who have contraindications, or substantial intolerance to or who choose not to take other suggested therapies, we suggest raloxifene rather than no treatment. Do not use it in those at high risk of venous thromboembolism.

Anabolic Agents:
- *Teriparatide (recombinant PTH), Romosozumab (monoclonal anti-sclerostin Ab)*: patients who have had a recent severe vertebral fracture, or ≥ 2 vertebral fractures and T-score ≤ –2.5, suggest seeking advice from a consultant with expertise in anabolic therapy.[1]

References:

1. Morin SN, Feldman S, Funnell L, Giangregorio L, Kim S, McDonald-Blumer H, Santesso N, Ridout R, Ward W, Ashe MC, Bardai Z. Clinical practice guideline for management of osteoporosis and fracture prevention in Canada: 2023 update. Cmaj. 2023 Oct 10;195(39):E1333-48.
2. Diab DL, Watts NB. Secondary osteoporosis: differential diagnosis and workup. Clinical obstetrics and gynecology. 2013 Dec 1;56(4):686-93.
3. Leslie WD, Majumdar SR, Lix LM, Josse RG, Johansson H, Oden A, McCloskey EV, Kanis JA. Direct comparison of FRAX R and a simplified fracture risk assessment tool in routine clinical practice: a registry-based cohort study. Osteoporosis International. 2016 Sep;27:2689-95.

Parkinsonism

Definition:

- A clinical syndrome presenting with any combination of bradykinesia, rest tremor, rigidity, and postural instability
- The most common etiology of parkinsonism is Parkinson's Disease (PD)

Differential diagnosis:

- PD (most common)
- Basal ganglia pathology (e.g., stroke, bleeds, tumors, infections)
- Neurodegenerative syndromes (e.g., Multiple System Atrophy, Progressive Supranuclear Palsy, Lewy Body Dementia, corticobasal degeneration)
- Repeated head trauma
- Drug-induced (e.g., antipsychotics and antiemetics that centrally-act and block dopamine receptors)
- Toxins (e.g., carbon monoxide, cyanide)

Clinical features: Parkinsonism requires any 2 of the following signs/symptoms:

- Tremor
- Rigidity
- Akinesia/bradykinesia
- Postural instability

Investigations:

- MRI head (preferred over CT to identify structural abnormalities and ischemic changes)

Management:

- Parkinsonism does not require treatment if the symptoms are not functionally limiting
- Non-pharmacologic management:
  - Education, support, exercise, speech therapy
- Avoidance or discontinuation of causative drugs:
  - *Antipsychotics*: Consider stopping offending drugs in sequence. May need to start atypical neuroleptic antipsychotics, such as quetiapine or clozapine. Avoid older neuroleptic antipsychotics, such as haloperidol.
  - *Antiemetics*: Stop antidopaminergic medications, such as metoclopramide and phenothiazines (e.g., prochlorperazine, chlorpromazine). Domperidone is safe since it does not cross the blood brain barrier.
- Pharmacologic management of motor symptoms:
  - For management of parkinsonism caused by PD, treatment of the underlying disease is required (see management of PD).
  - Parkinsonism not caused by PD is less responsive to medication management (i.e., levodopa-carbidopa). However, it is sometimes trialed, with close monitoring for side effects

References:

1. UpToDate®. Diagnosis and differential diagnosis of Parkinson disease. Available from: https://www.wolterskluwer.com/en-ca/solutions/uptodate

2. Hui D. Approach to Internal Medicine: A Resource Book for Clinical Practice. New York, Ny: Springer Us; 2011.

Prescribing in Geriatrics and Polypharmacy

Introduction:

- Optimizing drug therapy is an essential part of caring for an older person.
- Avoidable adverse drug events (ADEs) are the serious consequences of inappropriate drug prescribing.
- Prescribing for older patients presents unique challenges. Many medications need to be used with special caution because of age-related changes in pharmacokinetics (i.e., absorption, distribution, metabolism, and excretion) and pharmacodynamics.[1]

Polypharmacy: The concurrent use of multiple medications. Although there is no standard definition, polypharmacy is often defined as the routine use of 5 or more medications.[1] This includes over-the-counter, prescription, and alternative medicines used by a patient. Polypharmacy can be appropriate or inappropriate. Geriatric patients are especially impacted by polypharmacy due to:

- Pharmacokinetic and pharmacodynamic changes with aging and multimorbidity, which increase the risk of ADEs; this risk is compounded by increasing numbers of drugs used.[1]
- Increased potential for drug-drug interactions, prescription of inappropriate medications, and "prescribing cascades" (occurs when an ADE is misinterpreted as a new medical condition and additional drug therapy is then prescribed to treat this medical condition).[1]
- Problems with drug adherence, especially if compounded by visual or cognitive impairment.[1]

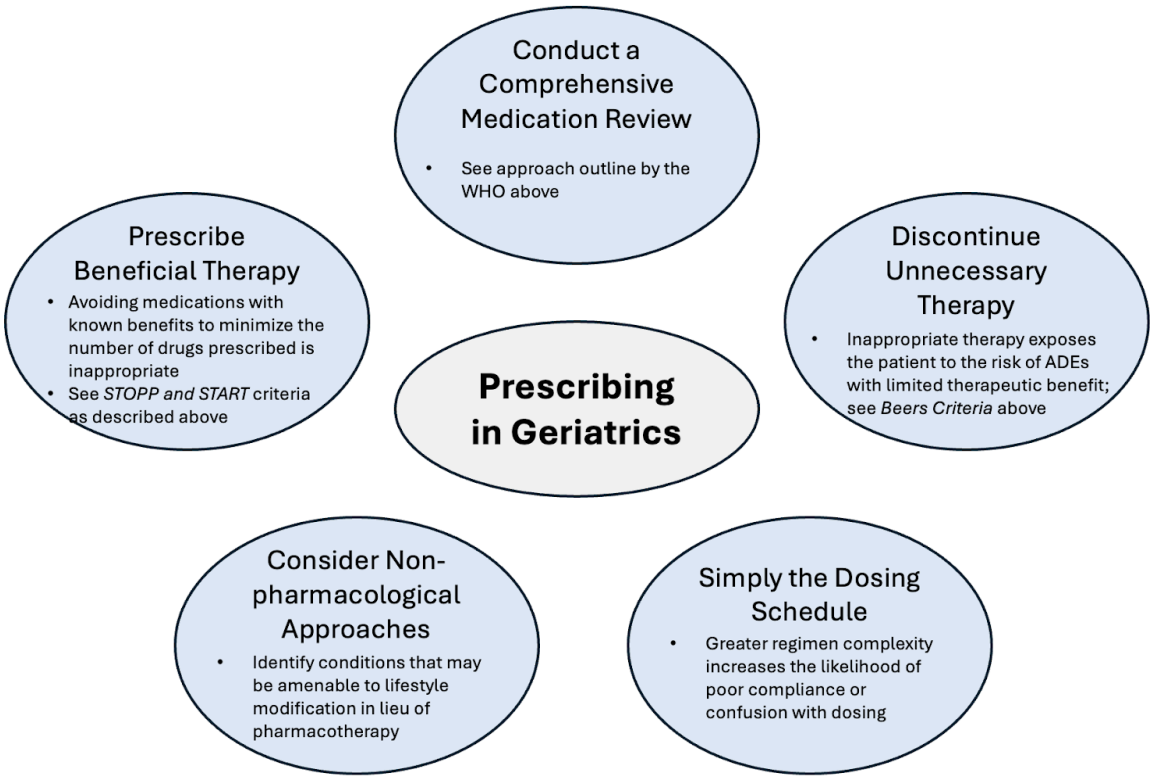
Medication review frameworks:

The most widely used criteria for inappropriate drug prescribing in older adults are the *Beers Criteria*. Other commonly used criteria include *STOPP and START*, which address inappropriate prescribing and underprescribing.

The World Health Organization (WHO) has outlined a step-by-step approach[2] for conducting a comprehensive, patient-centered medication review:

- Aims: Identify patient-specific goals and therapeutic objectives
- Need:
  - Identify essential medications
  - Does the patient take unnecessary medications?
    - ***MedStopper**: A deprescribing tool for physicians
    - See *Beers Criteria* as described above
- Effectiveness: Assess need for adding/intensifying medication therapy based on patient symptoms and clinical/biochemical targets
- Safety:
  - Is the patient at-risk of drug-drug interactions?
    - ***LexidrugTM**: Provides access to drug information database and drug interactions tool
    - Does the patient know what to do if they become ill?
- Costs: Is the therapy cost-effective?
- Patient-centeredness: Is the patient willing and able to take medication as intended?

Approach to prescribing in geriatrics:



References:

1. UpToDate®. Drug prescribing for older adults. Available from: https://www.wolterskluwer.com/en-ca/solutions/uptodate
2. World Health Organization. Medication Safety in Polypharmacy [Internet]. World Health Organisation. 2019. Available from: https://www.who.int/docs/default-source/patient-safety/who-uhc-sds-2019-11-eng.pdf

Geriatric Assessment Tools
All resources and links were last accessed February 2025.
Comprehensive geriatric assessment: Interprofessional Comprehensive Geriatric Assessment Toolkit
Cognitive ability: Standardized Mini-Mental Status Exam (SMMSE) Montreal Cognitive Assessment (MoCA) Alzheimer Society of Canada
Delirium: 4AT - Rapid clinical test for delirium Confusion Assessment Method
Depression: Geriatric Depression Scale (GDS) Patient Health Questionnaire-9 (PHQ-9) Cornell Scale for Depression in Dementia
Falls: CDC STEADI - Clinical resources for older adult fall prevention CDC STEADI Algorithm - Fall risk screening, assessment, and intervention STOPPFall - Deprescribing decision tree CDC Medications Linked to Falls
Frailty: Clinical Frailty Scale FRAIL Questionnaire
Function: Katz Index of Independence in Activities of Daily Living Barthel Index for Activities of Daily Living Lawton-Brody Instrumental Activities of Daily Living Scale SF-36 - Instrumental activities of daily living
Nutrition risk and malnutrition: SCREEN-14, English, Metric SCREEN-8, English, Metric SCREEN-3 Extended, English, Metric MNA MNA-SF Self-MNA MUST CNST MST

Subjective Global Assessment
Osteoporosis: FRAX - Fracture risk assessment tool
Prescribing in geriatrics: Beers Criteria Deprescribing.org Deprescribing Network Choosing Wisely Canada STOPP-START V.2