Multimorbidity and Dementia

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Disclosures

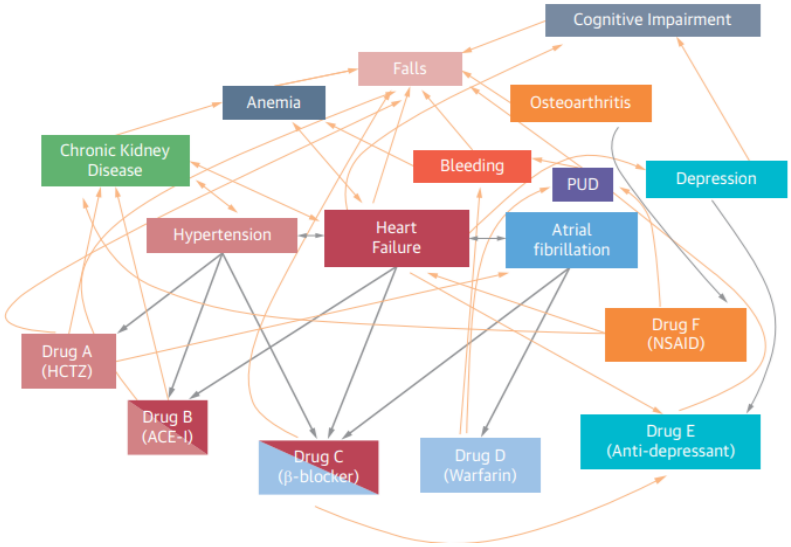
- No financial disclosures

Objectives

- Describe the prevalence of multimorbidity seen in patients with Dementia
- Distinguish the unique challenges of caring for patients with dementia and multiple chronic conditions
- Identify approaches to preventing complications and hospitalization for patients living with dementia and multiple chronic conditions.

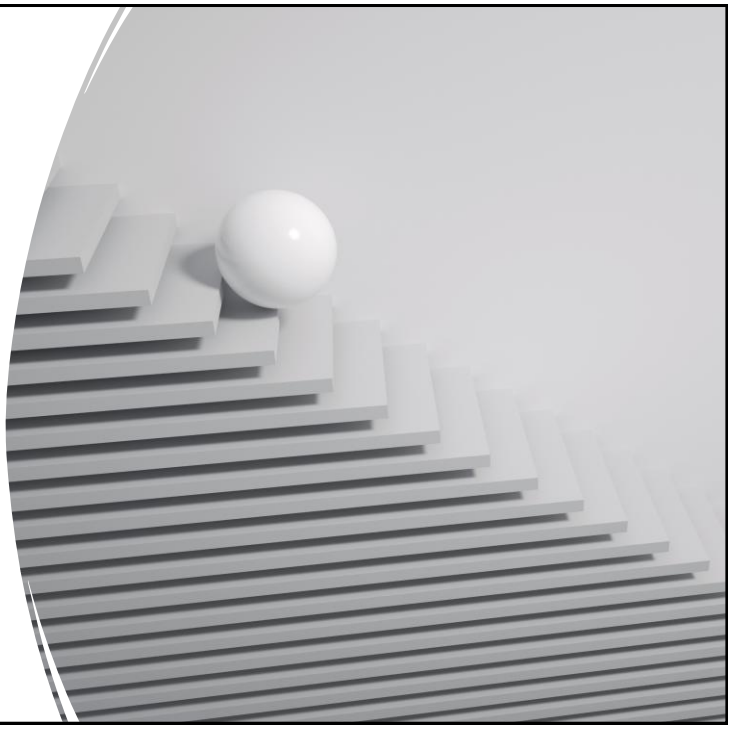
Case

- An 85 y/o male presents to your clinic with his granddaughter.
- He has a history of heart failure (HFrEF), Hypertension, Atrial Fibrillation, Chronic Kidney disease, Anemia, Arthritis, Depression and some “memory troubles”
- He takes HCTZ, Lisinopril, Carvedilol, Warfarin, Fluoxetine and Ibuprofen
- He has lived in an Assisted living facility for 2 years since his wife passed away
- He’s had a couple of falls in the last 6 months and on exam you notice he has large bruises on his legs and arms.
- His grand-daughter is most worried about his mood and “not taking his medications correctly”.



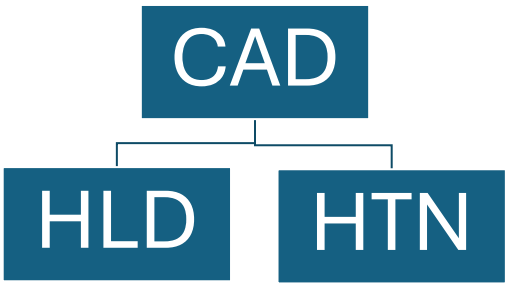
Forman, D, Maurer, M, Boyd, C. et al. Multimorbidity in Older Adults With Cardiovascular Disease. JACC. 2018 May, 71 (19) 2149–2161.

Setting the stage: Definitions and Epidemiology



Definitions: Comorbidity

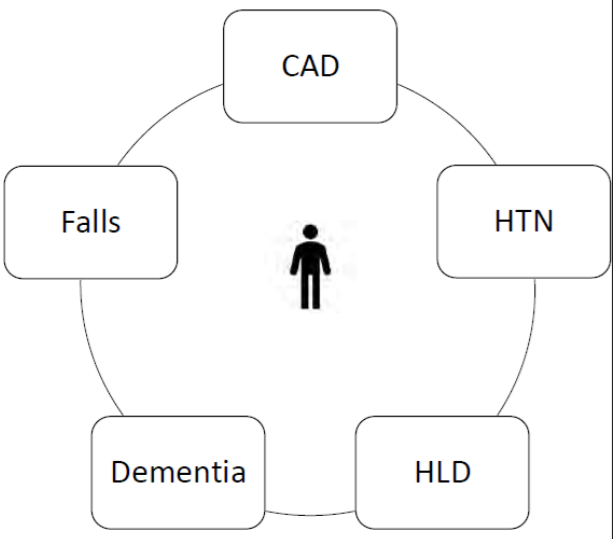
- Combined effect of additional conditions in reference to an index chronic condition
- Hierarchical (one condition holds priority over the others).



van den Akker, M., Buntinx, F., & Knottnerus, J. A. (1996). Comorbidity or multimorbidity: what's in a name? A review of literature. European Journal of General Practice, 2(2), 65–70. https://doi.org/10.3109/13814789609162146

Definitions: Multimorbidity

- Co-occurrence of medical conditions within a person
  - NICE 2016 guidelines: 2 or more long-term health conditions including
    - Physical and mental health conditions
    - Ongoing conditions such as learning disabilities
    - Symptom complexes such as frailty or chronic pain
    - Sensory impairment such as sight or hearing loss
    - Alcohol and substance misuse



National Institute for Health and Care Excellence (NICE). Multimorbidity: clinical assessment and management. London: NICE; 2016 Sep. NG56. URL: https://www.nice.org.uk/guidance/ng56.

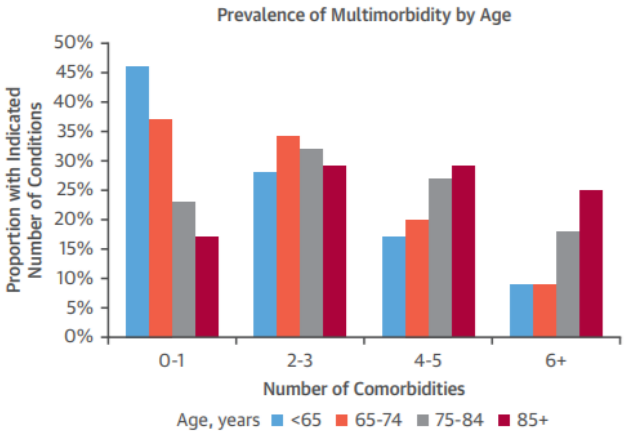
Person Centered Care

https://www.ihi.org/partner/initiatives/age-friendly-health-systems

Tinetti, M., Huang, A. and Molnar, F. (2017), The Geriatrics 5M's: A New Way of Communicating What We Do. J Am Geriatr Soc, 65: 2115-2115. https://doi.org/10.1111/jgs.14979

Prevalence of Multimorbidity

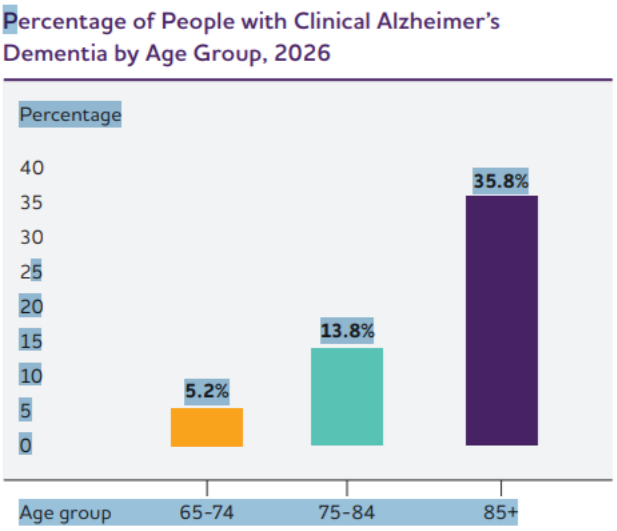
Multimorbidity is more common in older patients



Forman, D, Maurer, M, Boyd, C. et al. Multimorbidity in Older Adults With Cardiovascular Disease. JACC. 2018 May, 71 (19) 2149–2161.

Prevalence of Dementia

Dementia is more common in older patients



Alzheimer's Association. 2026 Alzheimer's Disease Facts and Figures. Alzheimers Dement. 2026;22. https://doi.org/10.1002/alz.71345.

Prevalence of Multimorbidity in Dementia

- UK study showed a mean of 4.6 concurrent conditions in addition to Dementia
- Most common current conditions (up to 25%) in patients with Dementia:
  - Diabetes
  - Stroke
  - Osteoporosis
  - Heart Failure
  - Falls
  - Osteoarthritis

Welsh, T. (2019). Multimorbidity in people living with dementia. Case Reports in Women's Health, 23. Article e00125. https://doi.org/10.1016/j.crwh.2019.e00125

Prevalence of Multimorbidity in Dementia

- Bidirectional Relationship seen between Dementia and other Disease states:
  - E.g. HTN leads to higher risk of Dementia and Dementia leads to higher risk of poorly controlled HTN
- Multimorbidity can impact amyloid blood test results (which are growing in frequency of use and may ultimately be used to diagnose Dementia)

Stirland LE, Choate R, Zanwar PP, Zhang P, Watermeyer TJ, Valletta M, Torso M, Tamburin S, Saeed U, Ridgway GR, Moukaled S, Lusk JB, Loi SM, Littlejohns TJ, Kuźma E, James SN, Grande G, Foote IF, Cousins KAQ, Butler J, AbuHamdia A, Avelino-Silva TJ, Suryadevara V. Multimorbidity in dementia: Current perspectives and future challenges. Alzheimers Dement. 2025 Aug;21(8):e70546. doi: 10.1002/alz.70546. PMID: 40755143; PMCID: PMC12319240

Negative Implications of Multimorbidity

- Financial: 14% of Medicare beneficiaries who report 6 or more chronic conditions consume 46% of Medicare's annual budget of over 500 billion.
- Increased risk of:
  - Death
  - Institutionalization
  - Hospitalization
  - Disability
  - Poor Quality of Life
  - Adverse Events from Treatments

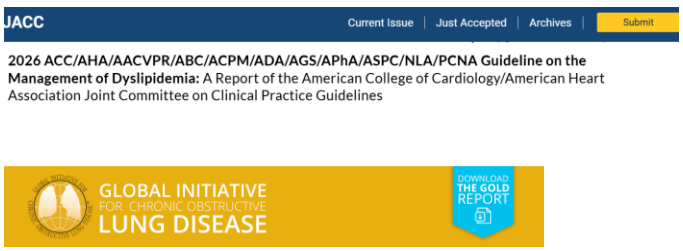
Boyd, C.M., Fortin, M. Future of Multimorbidity Research: How Should Understanding of Multimorbidity Inform Health System Design?. Public Health Rev 32, 451–474 (2010). https://doi.org/10.1007/BF03391611

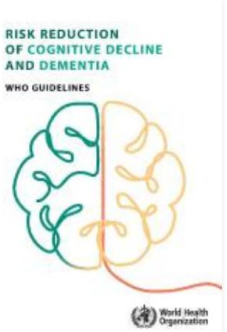
Caveat: Research Evidence

- Many studies exclude older patients
- Many studies exclude patients with dementia
- Many studies exclude patients with multimorbidity
- Studies that do include multimorbid dementia patients are often observational and at risk for bias in their design.
- Studies are often designed to track “major” events (e.g., stroke or death). “Minor” events that are are not measured may impact patients greatly (e.g., cognition, mobility and quality of life).

Caveat: Guidelines

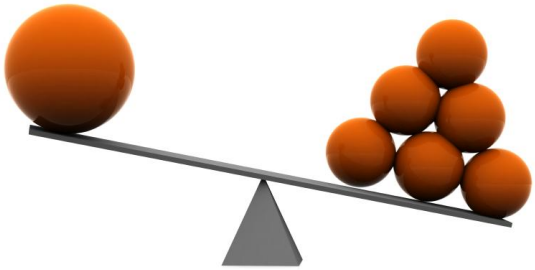
- Guidelines are typically designed with only one disease in mind.
- May be contradictory when enacting recommendations for more than one condition.
- Recommendations may not align with patient preferences.





Caveat: Either-or-Thinking

- Extremes:
  - Ignore dementia and proceed with condition specific guideline associated care
  - Focus on dementia and ignore other conditions
- Goal=Balance
  - Consider patient and caregiver preferences. What matters most?
  - Consider horizon to benefit of treatment in the context of prognosis
  - Consider the entire web of conditions that make up that person's multimorbidity

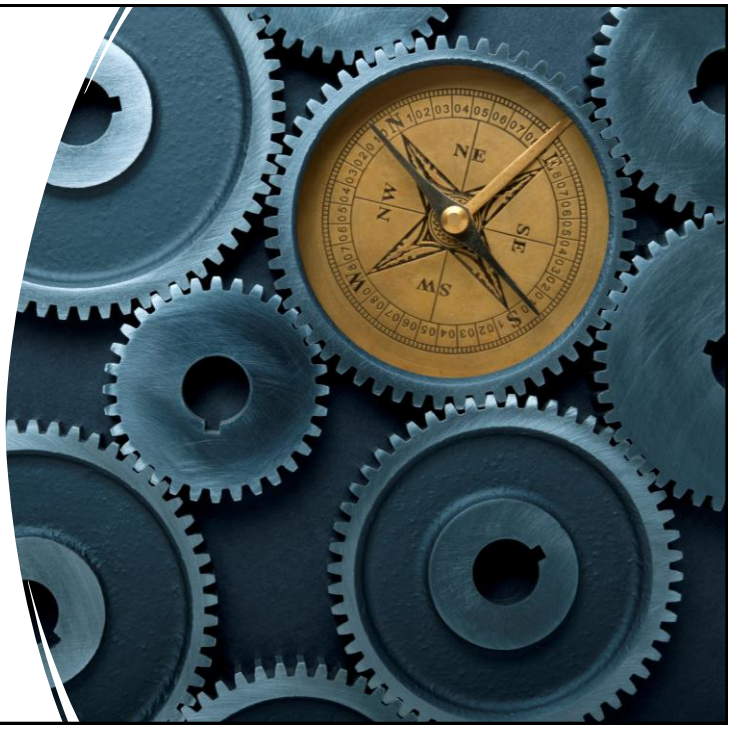


Caveat: Good Multimorbidity Care Takes Time

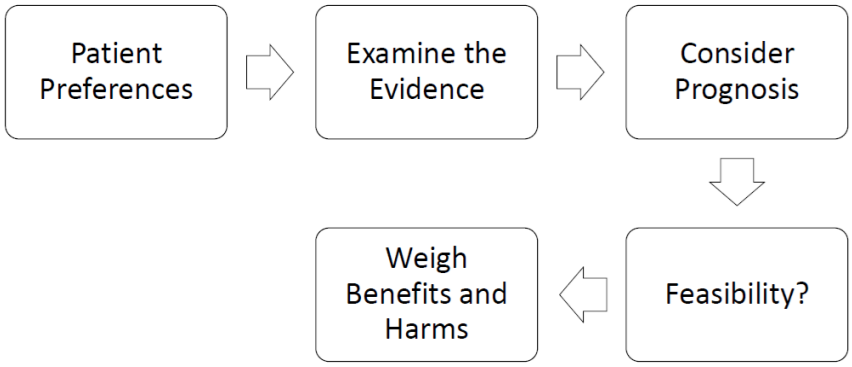
- "*We sit down and take time and actually listen. They don't get that in acute because no one has the time to explain anything…someone listening and looking at them as a person rather than the heart failure patient or the COPD patient, the breathless patient on that bed*"

Peart A, Lewis V, Barton C, Russell G. Healthcare professionals providing care coordination to people living with multimorbidity: An interpretative phenomenological analysis. J Clin Nurs. 2020 Jul;29(13-14):2317-2328. doi: 10.1111/jocn.15243. Epub 2020 Apr 12. PMID: 32221995.

Navigating the Complexity



One proposed pathway....



Guiding principles for the care of older adults with multimorbidity: an approach for clinicians. Guiding principles for the care of older adults with multimorbidity: an approach for clinicians: American Geriatrics Society Expert Panel on the Care of Older Adults with Multimorbidity. J Am Geriatr Soc. 2012 Oct;60(10):E1-E25. doi: 10.1111/j.1532-5415.2012.04188.x. Epub 2012 Sep 19. PMID: 22994865; PMCID: PMC4450364

1) Eliciting Patient Preferences

- Can be more complex when patient has Dementia.
  - Early documentation of goals of care is helpful
- Often talk to both patient and caregivers
- Dementia does not mean patient is without decisional capacity
  - Capacity can fluctuate
  - Capacity is decision specific
    - simple vs. complex decisions
    - high vs. low-risk decisions
- If patient is without decisional capacity work with DPOA to ensure substitute judgement is used

Elements of Capacity

- Communicating a choice
- Understanding
  - Recall conversation about the choice (requires memory, attention)
  - Assess possibilities for outcomes
- Appreciation
  - Of the likely outcome (can be swayed by emotion or denial)
- Rationalization/Reasoning
  - Of the unique risks and benefits to the patient themselves
  - Of how the treatment fits in with their values and goals

Dastidar, J. G., & Odden, A. (2011, August). How Do I Determine if My Patient has Decision-Making Capacity? . Retrieved from The Hospitalist: https://www.the-hospitalist.org/hospitalist/article/124731/how-do-i-determine-if-my-patient-has-decisionmaking-capacity

2) Examining the Evidence

- How closely does your patient resemble the research population?
- What is the strength of the evidence?
- What is the horizon to benefit of the treatment under consideration?
- What are the potential harms and burdens of the treatment?
  - Burden can change as dementia progresses
    - remembering to take multiple daily doses
    - Ability to stay still for an MRI
    - Accurate use of drug delivery device (COPD inhaler)
    - Risk of experiencing side effects

3) Prognosis

- Complex and influenced by age, concurrent illnesses, Dementia severity at time of diagnosis and many cofounders (race, socioeconomic status)
- 4-8 years on average from time of diagnosis to death for late onset (after age 65) Dementia
  - There is some evidence that those with Vascular Dementia survive for a shorter time due to risk of death by cardiovascular disease
  - Concurrent illnesses and/or age may result in shorter prognosis then the patient's Dementia diagnosis alone.

Alzheimer's Association. 2026 Alzheimer's Disease Facts and Figures. Alzheimers Dement. 2026;22. https://doi.org/10.1002/alz.71345.

4) Feasibility

- How complex is the treatment (risk of non-adherence)
- What is the risk for adverse events?
- Will the treatment impact caregiver burden/strain?
- What is the financial impact of the treatment?
- How will the treatment impact the patient's other treatments and conditions?

Therapeutic Competition

- A medication can benefit one condition and adversely affect a co-existing condition.
- One study look at US Medicare recipients from the Medicare Beneficiary Survey 2007-2009 showed 22.6% received a medication for one condition that may harm another condition.
  - Examples:
    - NSAIDs: (+) Osteoarthritis and (-) CAD/CKD
    - Non-Selective Beta Blocker and (+ acute CAD) and (-) COPD
    - PPI and (+) GERD and (-) Osteoporosis

Lorgunpai SJ, Grammas M, Lee DS, McAvay G, Charpentier P, Tinetti ME. Potential therapeutic competition in community-living older adults in the U.S.: use of medications that may adversely affect a coexisting condition. PLoS One. 2014 Feb 25;9(2):e89447. doi: 10.1371/journal.pone.0089447. PMID: 24586786; PMCID: PMC3934884.

Optimize Benefits/Minimize Risks

- Minimize polypharmacy as able
- Identify potentially inappropriate medications (Beer's List)
- Consider non-pharmacologic alternatives
  - TENS or PT for pain
  - Behavioral redirection for Dementia associated behaviors
- Prioritize medications patient is likely to get the most benefit from

Applying the Pathway to Our Case

- An 85 y/o multimorbid male living in an Assisted Living facility
- Problem List included:
  - Cognitive Impairment/early Dementia
  - Heart Failure on BB, ACEI, Diuretic
  - HTN
  - Afib on Warfarin
  - CKD
  - Osteoarthritis (on Ibuprofen)
  - Depression (on Fluoxetine)
  - Falls

Case Step 1: Patient Preferences

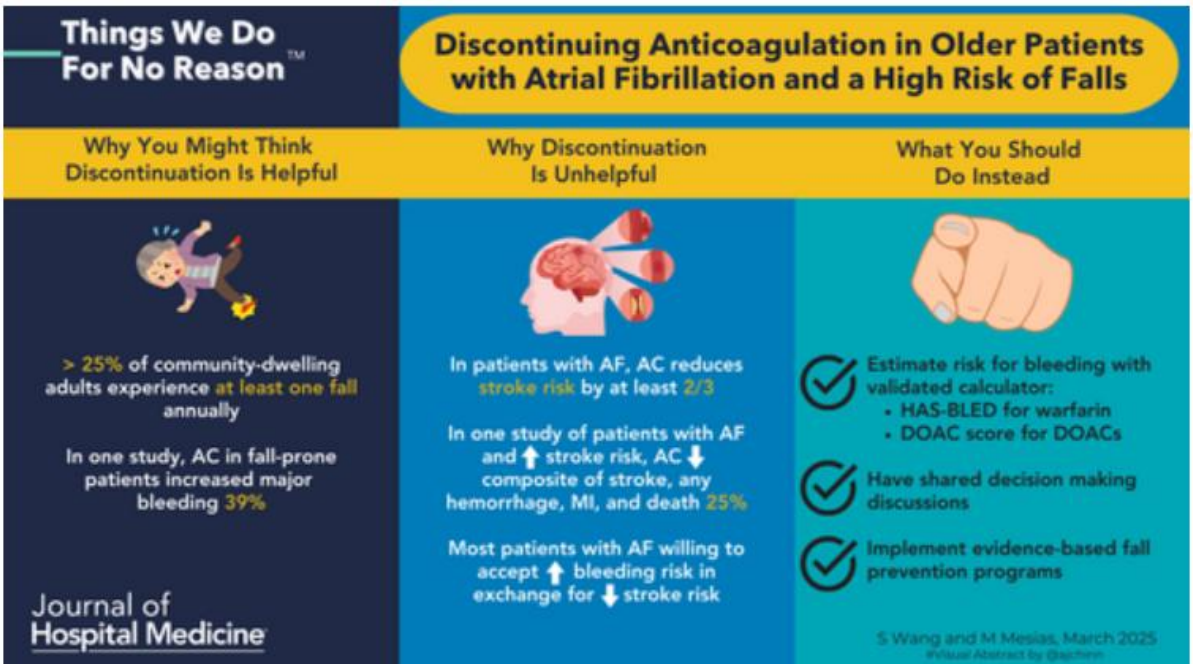
- Patient Preferences
  - Patient's highest priority is to maintain independence
    - Wife died in nursing home and he wants to avoid this if possible
    - Prefers quality of life over quantity ("I know ice-cream isn't good for me but I want it sometimes")
- Granddaughter's Preferences
  - Concern for patient safety is top priority
    - Should he stop blood thinner with his falls and bruising?
    - Is it safe to be prescribed medications if he forgets them or doesn't take the right amount?
    - Should his mood medication be changed? It doesn't seem to be helping him!

https://patientprioritiescare.org/wp-content/uploads/2021/06/Health-Priorities-Identificatin-template-note_Version2.pdf

Case Step 2: Examining the Evidence

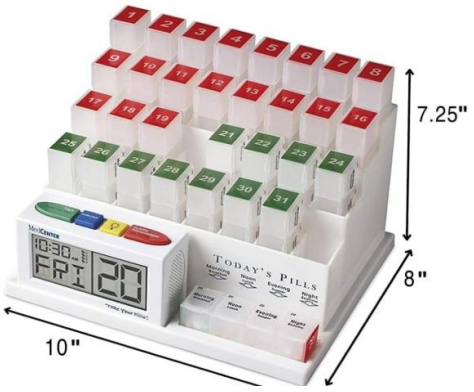
- Falls and Anticoagulation:
  - Would need to fall 295 times/year for risk of subdural hematoma (SDH) to outweigh risk of thrombosis in patient with non-valvuar Afib.
  - May have less risk of SDH with a direct oral anticoagulant (DOAC) as compared to Warfarin.

Wang S, Mesias M. Things We Do for No Reason™: Discontinuing anticoagulation in older patients with atrial fibrillation and a high risk of falls. J Hosp Med. 2025 Mar;20(3):288-290. doi: 10.1002/jhm.13464. Epub 2024 Jul 21. PMID: 39033419



Case Step 2: Examining the Evidence

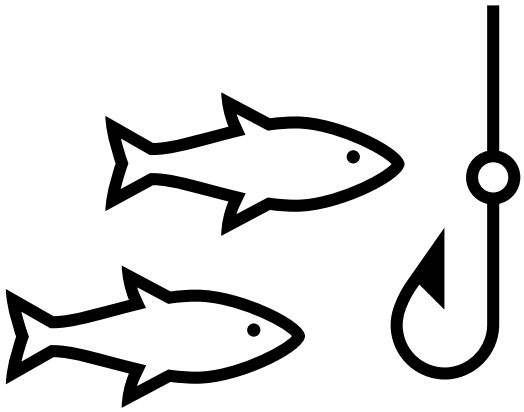
- Medication Management:
  - Consider options to assist with remembering medications.
    - Simplify medication regimen (daily dosing if possible)
    - Integrate into daily routine (e.g., put near toothbrush)
    - Medi sets
    - Reminder calls from family
    - Hired Medication Management at Assisted Living



Kamimura T, Ishiwata R, Inoue T. Medication reminder device for the elderly patients with mild cognitive impairment. Am J Alzheimers Dis Other Demen. 2012 Jun;27(4):238-42. doi: 10.1177/1533317512450066. PMID: 22739031; PMCID: PMC10697399

Case Step 2: Examining the Evidence

- Mood and Dementia
  - Pseudodementia vs. Dementia
  - Limited evidence of benefit for SSRI with low mood and Dementia (often Dementia associated apathy)
  - Fluoxetine can increase risk of Falls
  - Evidence for benefit of pleasurable activities



Dudas R, Malouf R, McCleery J, Dening T. Antidepressants for treating depression in dementia. Cochrane Database Syst Rev. 2018 Aug 31;8(8):CD003944. doi: 10.1002/14651858.CD003944.pub2. PMID: 30168578; PMCID: PMC6513376.

Case Step 3: Prognosis

- Recommend work-up of memory concerns to see if consistent with Dementia
  - Reminder Dementia survival estimate 4-8 years from diagnosis
- Consider current functional status (ADLs/IADLs)
- Does patient have other geriatric syndromes in addition to falls? (e.g., incontinence)
- What about the state of his other diagnoses?
  - Heart failure; Most recent TTE? How many exacerbations?
    - UK study showing mortality at 1,5 and 10 years from HF diagnosis as 81.3%, 51.5% and 29.5%
    - Concomitant CKD/Afib likely make the HF prognosis worse

Jones NR, Hobbs FR, Taylor CJ. Prognosis following a diagnosis of heart failure and the role of primary care: a review of the literature. BJGP Open. 2017 Oct 4;1(3):bjgpopen17X101013. doi: 10.3399/bjgpopen17X101013. PMID: 30564675; PMCID: PMC6169931.

E-Prognosis

https://eprognosis.ucsf.edu/calculators/

Case Step 4: Feasibility

- Consider anticoagulation option that allows once daily dosing to simplify regimen/limit costs if paying for assisted living facility to provide medication
- Consider checking orthostatic blood pressures to ensure that current HTN regimen isn't contributing to falls risk.
- Consider if nocturia is impacting falls risk, if possible, avoid diuretic dosing.
- Discuss benefit of Ibuprofen for pain vs. risk of bleeding and exacerbation of heart failure/CKD.
- Discuss patient interest and caregiver burden in considering a trial of PT to enhance mobility

Case Step 5: Optimize benefits, Minimize Risks

- Bleeding risk with DOAC but thrombotic risk off anticoagulation threatens goal to live independently.
- Patient's granddaughter not noting benefit to SSRI, research not supporting use in Dementia and Simplifying medication regimen will allow focus on highest importance medications.
- Consider alternate pain options for osteoarthritis (Acetaminophen, Topical Diclofenac, Wax Baths, Massage Therapy, etc.)

Don't forget

- Consider non-problem-list contributors to multimorbidity:
  - Geriatric Syndromes (falls, incontinence, frailty)
  - Sensory Impairment
  - Non-prescription intakes (marijuana, over the counter medications)
- Inter-disciplinary teams are essential to helping those with dementia and multimorbidity thrive
  - Help with both problem identification and solution generation

Case #2

- 79 y/o skilled nursing facility dwelling female with history of moderately severe Alzheimer's disease with recent fall
  - Initially fall classified as "non-injury"
  - Later, care team noticed she was refusing to turn her head to the right
    - Challenge on exam to determine if refusal to turn head was due to:
      - Pain?
      - Not understanding directions?
      - Irritability/lack of desire to follow directions?
  - Sent to hospital and found to have a dens fracture on cervical spine CT scan. Treated non-operatively with Miami J collar
    - Hospital stay complicated by patient agitation and attempts to remove collar
    - Agitation treated with antipsychotic therapies

Case 2: Moderately Severe Dementia

- Step 1: **Patient Preferences** can be hard to elicit in patients with limited communication or unreliable history.
  - To optimize data collection ask simple (one step or yes/no questions)
  - Limit questions to the "now".
  - Physical exam can play larger role in diagnosis
    - Look for facial grimaces/other non-verbal signs of pain
  - Caregivers/Informant histories can be very valuable
  - Documented goals of care (e.g. POLST forms) are essential

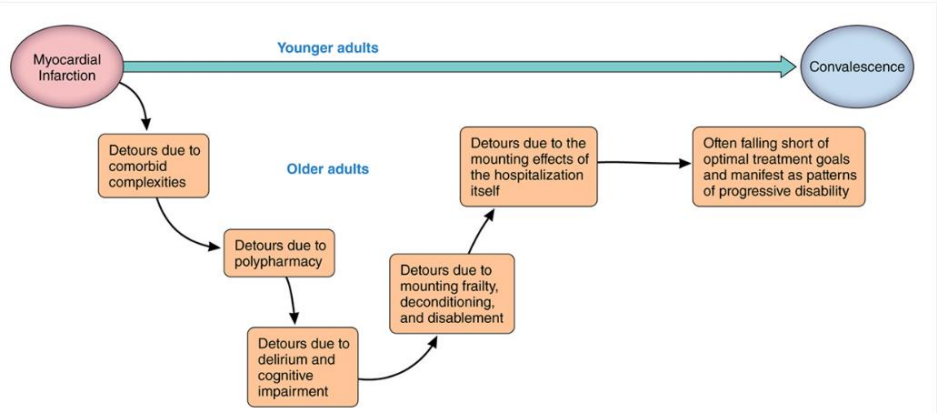
- Step 2: **Evidence**-avoid attributing rapid changes in health to underlying dementia.
  - Dementia progression is typically slow
  - Consider that delirium/agitation can be the canary in the coal mine

Case 2: Moderately Severe Dementia

- Step 2: **Evidence-**Patients with Dementia and patients with multimorbidity are both at increased risk of hospitalization
  - Systematic analysis estimated a pooled RR of hospitalization for individuals with dementia of 1.4 (CI: 1.21-1.66) in studies that adjusted for age, sex and physical comorbidity
  - Hospitalization and can lead to increased risk of:
    - Delirium
    - Falls
    - Medication errors/Inappropriate Medications
    - Functional Losses
    - Worsening Cognitive Performance

Shepherd H, Livingston G, Chan J, Sommerlad A. Hospitalisation rates and predictors in people with dementia: a systematic review and meta-analysis. BMC Med. 2019 Jul 15;17(1):130. doi: 10.1186/s12916-019-1369-7. PMID: 31303173; PMCID: PMC6628507.

Multimorbid Dementia Patients often have complex hospital admissions



Damluji AA, Forman DE, van Diepen S, Alexander KP, Page RL 2nd, Hummel SL, Menon V, Katz JN, Albert NM, Afilalo J, Cohen MG; American Heart Association Council on Clinical Cardiology and Council on Cardiovascular and Stroke Nursing. Older Adults in the Cardiac Intensive Care Unit: Factoring Geriatric Syndromes in the Management, Prognosis, and Process of Care: A Scientific Statement From the American Heart Association. Circulation. 2020 Jan 14;141(2):e6-e32. doi: 10.1161/CIR.0000000000000741. Epub 2019 Dec 9. PMID: 31813278.

Potential Solutions to Complex Hospitalizations?

- Avoid Hospitalization if appropriate
  - Ambulatory sensitive care conditions are associated with approximately 1/4th of admissions for patients with cognitive impairment
  - Caregiver support Interventions to minimize risk of overwhelm leading to hospitalization
    - Adult Day Health
    - Respite
    - Home Health Aids
    - GUIDE program
  - Hospital at Home Programs
  - Document goals of care for those who prefer to no longer return to the hospital or have invasive care

Wolf D, Rhein C, Geschke K, Fellgiebel A. Preventable hospitalizations among older patients with cognitive impairments and dementia. Int Psychogeriatr. 2019 Mar;31(3):383-391. doi: 10.1017/S1041610218000960. Epub 2018 Sep 17. PMID: 30221613.

Case 2 Pathway Challenges-Moderately Severe Dementia

- Step 5: **Risk/benefit assessment** can be impacted by implicit bias

"They're [nursing home staff] afraid to approach death with these families, and I'm beginning to see why. Because I've been met with a lot of opposition if I mentioned it and they never say well let's talk to the doctor and see what he thinks. They don't go there. They just don't want to give up. They just don't want them to die even though they're in their 90s."

"So that's what I mean by you have to learn to be poker-faced, be supportive. Don't put your own opinion into it. You know damn well if it was my family member there's no way. I'd be like 'no.' But you can't do that. Again, people have different life philosophies, if you would. So, you just give support and educate."

Palan Lopez R, Hendricksen M, McCarthy EP, et al. Association of Nursing Home Organizational Culture and Staff Perspectives With Variability in Advanced Dementia Care: The ADVANCE Study. JAMA Intern Med. 2022;182(3):313–323. doi:10.1001/jamainternmed.2021.7921

In Review

- Multimorbidity and Dementia Increase with age
- A roadmap:
  - Preferences
  - Evidence
  - Prognosis
  - Feasibility
  - Optimize Benefits/Minimize Risks

Questions?