

Methadone Maintenance in the Elderly

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Disclosure Information (Required)

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Learning Objectives

- ◆ 1. Describe potential health consequences prolonged methadone exposure and aging.
- ◆ 2. Identify health equity challenges of older people with OUD on methadone maintenance treatment (MMT) that may limit access to adequate medical care and adversely affect their health.
- ◆ 3. Describe indications for dose adjustments and/or transition to other medications for people with OUD who have been on long term methadone maintenance.

Outline

- ◆ Aging population on MMT
- ◆ Medical challenges for older adults with OUD on methadone
- ◆ Health equity issues for older adults taking methadone
- ◆ Case discussions (small groups)
- ◆ Groups summarize their discussions
- ◆ Comment / Question / Discussion

Definitions

- ◆ What is Elderly / Older Adult?
 - ◆ >50 years old
 - ◆ >55 years old
 - ◆ >60 years old
 - ◆ >65 years old
 - ◆ (one study >35 years old in people with OUD!)

What is old in MMT?

- ◆ No consensus in the literature on what old is, however the opioid treatment population is aging.
- ◆ The definition of “older” varies by study and country.
- ◆ Traditionally, opioid misuse has been perceived as a problem largely among those aged 40 years and younger

A.M. Carew, C. Comiskey

Treatment for opioid use and outcomes in older adults: A systematic literature review

Drug and Alcohol Dependence, 182 (2018), pp. 48-57, [10.1016/j.drugalcdep.2017.10.007](https://doi.org/10.1016/j.drugalcdep.2017.10.007)



Aging population who take methadone

CODAC Providence RI

	% >65 yrs old	%>55 yrs old	%<25 yrs old
2002	0.6%	3.7%	4.6%
2006	1.0%	10.3%	6.4%
2008	1.3%	13.2%	4.6%
2012	1.5%	18.0%	5.5%
2017	3.4%	18.8%	3.3%
2022	7.1%	20.3%	1.2%

Current # of patients age 65 years and older all CODAC OTPs = 137

Aging on MMT

- ◆ In New York City ~13% of adults receiving MMT are over 60 years of age.
- ◆ 50 – 59 years were among the largest age demographic receiving MMT
- ◆ Evidence that the total number of older adults receiving MMT will continue to rise



OUD over 65 years old and older

- ◆ Rates of problematic opioid use are increasing in the older adult population.
- ◆ No randomized control trials examining interventions for the management of problematic opioid use in this age group, with recommendations based on data from younger adults.
- ◆ Available observational data suggests that older adults respond well to opioid agonist therapy and age should not be a barrier to treatment.

Methadone and Health

- ◆ Do patients on methadone “age” faster?
- ◆ Have health conditions (morbidity/mortality) typically in people who are 20 years older
- ◆ Does long term methadone contribute to these conditions? Causal relationship?
- ◆ Other “environmental” influences cause health declines at younger age? (h/o IVDU, homelessness, poverty, nutrition, continued smoking, other substance use, etc.)

Homeless Develop Geriatric Conditions 20 Years Earlier (50% with Addiction)

- ◆ Despite this cohort's (from S.F.) relatively younger age, (median age 58 years) the prevalence of most geriatric conditions was higher compared to both the general older population and the older population living in poverty.
- ◆ Compared to a population-based cohort of adults with a median age of 79 years, rates of several conditions were higher in the older homeless cohort, including:
 - ◆ ADL impairment (38.9% older homeless vs. 22.6% general older population),
 - ◆ IADL impairment (49.4% vs. 40.4%),
 - ◆ cognitive impairment (25.8% vs. 12.0%),
 - ◆ visual impairment (45.1% vs. 13.8%), and
 - ◆ urinary incontinence (48.0% vs. 41.1%)

Geriatric conditions among middle-aged and older adults on methadone maintenance treatment: A pilot study

- ◆ Aim was to compare the prevalence of geriatric conditions among adults age ≥ 50 on MMT to a nationally representative sample of community dwelling older adults.
- ◆ Methods:
- ◆ Geriatric assessment on 47 adults age ≥ 50 currently on MMT enrolled in two opioid treatment programs (OTPs), in New York City and in East Providence, Rhode Island.
- ◆ Collected data on self-reported geriatric conditions, healthcare utilization, chronic medical conditions, physical function, and substance use.
- ◆ The results were compared to 470 age, gender, and race/ethnicity-matched adults in the national Health and Retirement Study (HRS).

Geriatric conditions among middle-aged and older adults on methadone maintenance treatment: A pilot study

Characteristic	New York City site (n=33)	Rhode Island site (n=14)	p-value	Total MMT cohort (n=47)	HRS cohort (n=470)	p-value
Primary opioid prior to MMT, n (%)						
Heroin	25 (75.8)	4 (30.8)	0.004	29 (63.0)	N/A ^e	
Prescription opioids	5 (15.2)	5 (38.5)	0.08	10 (21.7)	N/A ^e	
Both	3 (9.1)	4 (31.8)	0.05	7 (15.2)	N/A ^e	
Mean duration MMT in months (sd)	60.7 (100.4)	131 (107.4)	0.04	81.7 (106.4)	N/A ^e	
Mean methadone dose in mg (sd)	90.1 (46.1)	107.6 (78.6)	0.34	95.3 (57.4)	N/A ^e	
Substance use (past 3-month), n (%)						
Cannabis	6 (18.2)	5 (34.7)	0.22	11 (23.4)	N/A ^e	
Cocaine	8 (24.2)	0	0.05	8 (17.0)	N/A ^e	
Current smoker	21 (63.6)	4 (28.6)	0.03	25 (53.2)	93 (19.8)	<0.001
Positive AUDIT-c score ^f	5 (15.2)	1 (7.1)	0.45	6 (12.8)	N/A ^e	

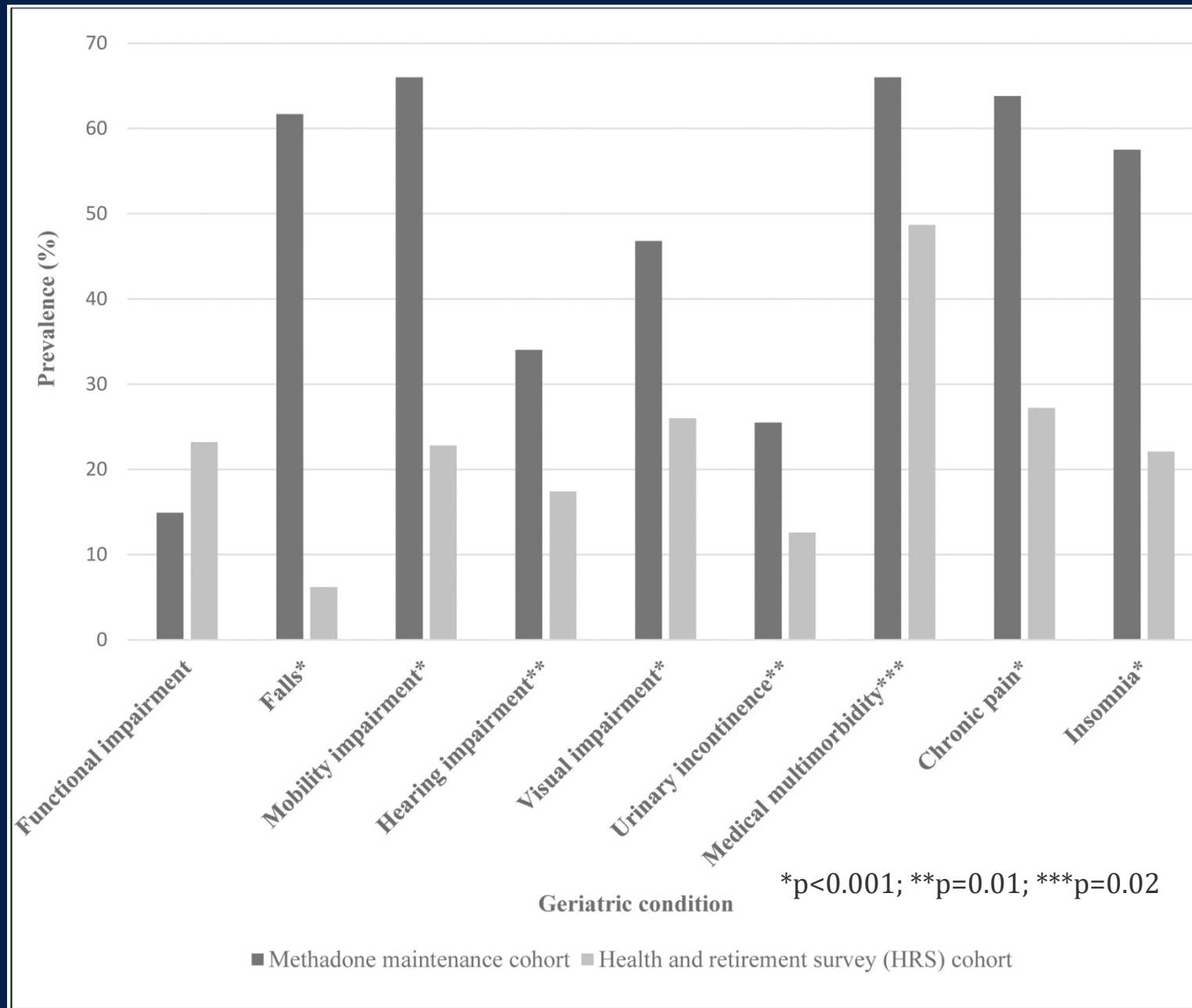
Han BH, Cotton BP, Polydorou S, Sherman SE, Ferris R, Arcila-Mesa M, Qian Y, McNeely J. Geriatric Conditions Among Middle-aged and Older Adults on Methadone Maintenance Treatment: A Pilot Study. *J Addict Med.* 2022 Jan-Feb 01;16(1):110-113. doi: 10.1097/ADM.0000000000000808. PMID: 33395146; PMCID: PMC8243387.



Characteristic	New York City site (n=33)	Rhode Island site (n=14)	p-value	Total MMT cohort (n=47)	HRS cohort (n=470)	p-value
Age						
Age, years mean (sd)	58.4 (5.8)	59.8 (5.8)	0.45	58.8 (5.8)	58.8 (5.7)	1.00
Age range, years	50–75	52–68		50–75	50–75	
Women, n (%)	7 (21.2)	4 (28.6)	0.59	11 (23.4)	110 (23.4)	1.00
Self-rated health, n (%)						
Poor/Fair	23 (69.7)	9 (64.3)	0.72	32 (68.1)	133 (28.3)	<0.001
Good	5 (15.2)	2 (14.3)	0.94	7 (14.9)	169 (36.0)	<0.001
Very Good/Excellent	5 (15.2)	3 (21.4)	0.61	8 (17.0)	168 (35.7)	<0.001
Chronic medical disease, n (%)						
Hypertension	19 (57.6)	9 (64.3)	0.67	28 (59.6)	267 (56.8)	0.72
Diabetes	5 (15.2)	4 (28.6)	0.29	9 (19.2)	109 (23.2)	0.78
Heart disease ^a	4 (12.1)	2 (14.3)	0.84	6 (12.8)	89 (18.9)	0.55
Stroke	2 (6.1)	2 (14.3)	0.36	4 (8.5)	21 (4.5)	0.22
Arthritis	19 (57.6)	7 (50.0)	0.64	26 (55.3)	193 (41.1)	0.06
Cancer ^b	6 (18.2)	3 (21.4)	0.80	9 (19.2)	42 (8.9)	0.03
Chronic lung disease ^c	15 (45.5)	5 (35.7)	0.54	20 (42.6)	36 (7.7)	<0.001
Psychiatric disease ^d	26 (78.8)	8 (57.1)	0.13	34 (72.3)	13 (27.7)	<0.001
Hepatitis C	14 (42.4)	5 (35.7)	0.67	19 (40.4)	N/A ^e	
HIV/AIDS	6 (18.2)	1 (7.1)	0.33	7 (14.9)	N/A ^e	

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OUD > 65 years old

Pharmacokinetic considerations

As individuals age, there are a number of normal physiological changes that occur, leading to notable alterations in opioid pharmacokinetics

Therefore older adults may be more at risk of a number of adverse effects as they age

Dufort A, Samaan Z. Problematic Opioid Use Among Older Adults: Epidemiology, Adverse Outcomes and Treatment Considerations.

Drugs Aging. 2021 Dec;38(12):1043-1053. doi: 10.1007/s40266-021-00893-z.

Epub 2021 Sep 7. PMID: 34490542; PMCID: PMC8421190.

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ODU > 65 years old

Pharmacokinetic considerations

Renal clearance declines by 1% per year after the age of 50. Decline in renal function reduces the clearance of most opioids and can lead to the build-up of metabolites, which are often active and/or neurotoxic

Metabolic activity of the liver is reduced by a decrease in size and reduced blood flow. With an associated decrease in first-pass metabolism that can increase the bioavailability of certain orally administered opioids (including methadone)



OUD > 65 years old

Pharmacokinetic considerations

- Aging is associated with an increase in the percentage of body fat, delaying the elimination of lipophilic agents (e.g. fentanyl and methadone) that accumulate in this tissue.
- Conversely, there is a decrease in total body water, reducing the volume of distribution and increasing the concentration of water-soluble metabolites
- Together, these changes can narrow the therapeutic index of methadone and increase the likelihood of adverse effects associated with opioid use in older adults



Potential Consequences of Long Term Methadone

- ◆ Constipation
- ◆ Respiratory Depression (worsening COPD sx's)
 - ◆ Hypercarbia & hypoxia
- ◆ Cardiac Dysrhythmia
 - ◆ Bradycardia
 - ◆ Tachyarrythmia (prolonged QTc -> TdP)
- ◆ Sedation / neurocognitive impairment / delirium
- ◆ Sleep-Disordered Breathing (-> HTN, Edema, MI, CVA)
- ◆ Endocrine System
 - ◆ Obesity /weight gain -> type II DM
 - ◆ Low blood glucose
 - ◆ Low testosterone / sexual dysfunction
 - ◆ Bone fractures / osteoporosis. (falls)



Potential Consequences of Long Term Methadone (continued)

- ◆ Peripheral Edema
- ◆ Chronic Venous Disease (?)
 - ◆ H/o injection drug use receiving methadone maintenance treatment, 87% point prevalence of CVD, with 52% of affected having the most advanced stages of disease.
- ◆ Urinary Retention / Hesitancy
- ◆ Opioid Induced Hyperalgesia
- ◆ Increased Serum Levels of methadone due to decreasing function of kidney and liver
- ◆ Sweating

Dufort A, Samaan Z. Problematic Opioid Use Among Older Adults: Epidemiology, Adverse Outcomes and Treatment Considerations. *Drugs Aging*. 2021 Dec;38(12):1043-1053. doi: 10.1007/s40266-021-00893-z.

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Aging on MMT

- ◆ Medical comorbidities, physical limitations, cognitive decline, and neurobehavioral changes often accumulate with age
- ◆ Older adults are more vulnerable to drug-drug interactions and potential side effects of MMT.
- ◆ Driving, utilizing public transportation can become increasingly difficult
- ◆ Reading bottle labels or accessing technology-based care
- ◆ These age-related changes pose potential challenges to remaining in MMT programs.

Aging on MMT (continued)

- ◆ Qualitative work with long-term MMT users in Rhode Island indicates many adults aged 65 years and older who have used MMT for decades have no immediate or long-term plans to taper methadone.
- ◆ For those who plan to discontinue treatment, such plans are often vague and ill-defined.
- ◆ Adults of advancing age report anxiety at the prospect of entering very-old age and being opiate dependent, yet also report anxiety at the prospect of discontinuing treatment.
- ◆ Cross-tapering to an alternative form of MAT, such as buprenorphine (agonist) or naltrexone (antagonist) may be a theoretical possibility, yet often provokes anxiety and distress for patients worried about potential rebound pain, opiate withdrawal, and the prospect of relapse

Aging on MMT (continued)

- ◆ Clinical guidelines which would assist in treatment decisions in determining when MMT should be tapered and/or discontinued are lacking.
- ◆ Determining when to consider either slow or rapid tapers, or switch to an alternative MAT option, is needed for healthy older adults who have received long-term MMT for years (decades)
- ◆ Also for those experiencing a decline in health status when the need for medication changes become more urgent.
- ◆ Equally important is ensuring that relevant structural supports are in place (i.e. continuing MMT within long-term care or skilled nursing facilities) when the decision to continue MMT is the optimal clinical choice.

Aging on MMT (continued)

- ◆ For those on long-term MMT, indefinite treatment into very-old age is likely.
- ◆ Older adults are also vulnerable to late-onset OUD.
 - ◆ MMT – a clinically- and cost-effective treatment option – will remain the optimal treatment choice for many.
- ◆ Yet understanding when treatment may no longer be clinically indicated – and developing treatment algorithms to assist providers and patients in treatment decisions – is especially important for adults advancing in age.
- ◆ **Research and clinical guidance is needed** to develop evidence-based guidelines which consider the physical, mental, and social health of older adults receiving MMT.

Canadian Guidelines on Opioid Use Disorder Among Older Adults

- ◆ Thirty-two recommendations were created.
- ◆ **Older Adults \geq 65 years of age**
- ◆ Prevention recommendations: prioritize non-pharmacological and non-opioid strategies to treat acute and chronic noncancer pain.
- ◆ Assessment recommendations: a comprehensive assessment is important to help discern contributions of other medical conditions.
- ◆ Treatment recommendations: buprenorphine is first line for both withdrawal management and maintenance therapy, while methadone, slow-release oral morphine, or naltrexone can be used as alternatives under certain circumstances; non-pharmacological treatments should be offered as an integrated part of care.



Rieb LM, Samaan Z, Furlan AD, Rabheru K, Feldman S, Hung L, Budd G, Coleman D.

Canadian Guidelines on Opioid Use Disorder Among Older Adults.

Can Geriatr J. 2020 Mar 30;23(1):123-134. doi: 10.5770/cgj.23.420. PMID: 32226571; PMCID: PMC7067148

Canadian Guidelines on Opioid Use Disorder Among Older Adults

Question G: What medications and protocol adjustments are safe and effective in the treatment of an OUD in older adults to improve outcomes?

-Recommendation 17

Buprenorphine maintenance should be considered a first-line treatment for an OUD in older adults.

GRADE Quality: Moderate; Strength: Strong

-Recommendation 18

Methadone maintenance treatment may be considered for those older adults who cannot tolerate buprenorphine maintenance or in whom it has been ineffective.

GRADE Quality: Moderate; Strength

Rieb LM, Samaan Z, Furlan AD, Rabheru K, Feldman S, Hung L, Budd G, Coleman D.

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Canadian Guidelines on Opioid Use Disorder Among Older Adults

Question H: In older adults, compared with younger adults, what dose/protocol adjustments are needed when initiating or maintaining medications to treat an OUD?

Recommendation 24

- ◆ Reduce initial doses of medications for treatment of an OUD (e.g., by 25–50%); slow dose escalation frequency (e.g., by 25–50%); use the lowest effective dose to suppress craving, withdrawal symptoms and drug use; and **monitor closely (especially for sleep apnea, sedation, cognitive impairment, and falls** with opioid agonists). GRADE Quality: Low; Strength: Strong

Recommendation 25

- ◆ The threshold to admit an older adult with social, psychological, or physical comorbidities to either residential or hospital care for opioid withdrawal management or induction onto medications for an OUD should be lower than for a younger adult. GRADE: Quality: Moderate; Strength: Strong

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NIH National Institute on Aging: Many complex and interacting factors can affect the health and quality of life of older adults

- ◆ **Environmental factors**: related to income, education, occupation, retirement, and wealth may have a serious impact on key determinants of health over the life course and ultimately the health and well-being of older adults.
- ◆ **Social factors**: such as individual and structural forms of discrimination and bias can shape the everyday experience of individuals from minority or vulnerable populations.
- ◆ **Cultural factors**: can have a tremendous influence on approaches for managing stress, diet and food preferences, attitudes toward physical activity, and other critical health/coping behaviors.
- ◆ **Behavioral factors and psychological processes**: represent major pathways by which environmental and social factors affect health. Optimism, pessimism, and sense of control serve as risk or resilience factors for impacting health, while chronic stress exposure can enhance vulnerability.
- ◆ **Biological factors**: that are influenced by environmental and sociocultural factors — and transduced through behavioral processes — may alter the course, severity and acceleration of disease and disability.



Equity Considerations

- ◆ OUD – historically considered a disease of younger adults
- ◆ People with addiction have reduced access to health care services
- ◆ Having addiction and associated socioeconomic factors lead to worsening health at younger ages
- ◆ There are no randomized control trials that have specifically examined the effectiveness of pharmacological strategies in adults over the age of 65 years with OUD

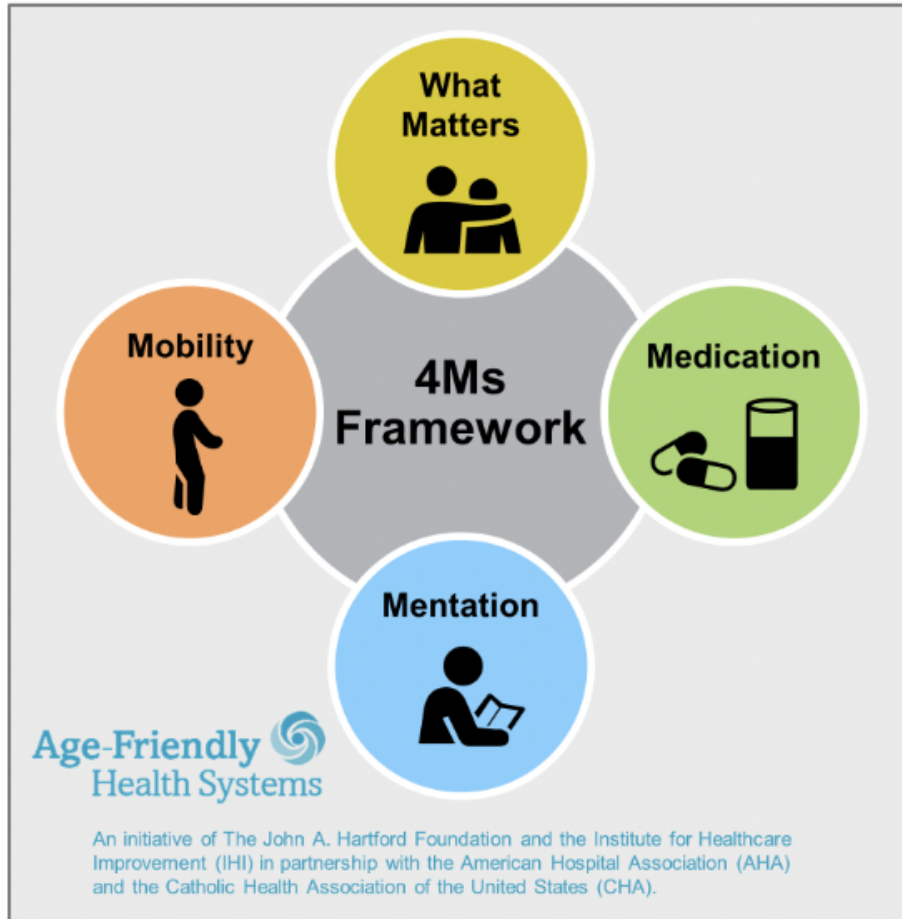


Equity Considerations – continued

- ◆ Current addiction treatment systems, influenced by structural ageism and racism, limit the ability of older adults to access evidence-based treatment that is age-friendly.
- ◆ Additionally, there are stark racial and ethnic disparities seen among older adults.
- ◆ Unequal access to buprenorphine for opioid use disorder
- ◆ Fewer investments in providing addiction treatment and harm-reduction interventions for minority populations, the homeless, and justice-involved persons.

What Does It Mean to Be Age-Friendly?

Becoming an Age-Friendly Health System entails reliably providing a set of four evidence-based elements of high-quality care, known as the “4Ms,” to all older adults in your system: What Matters, Medication, Mentation, and Mobility.



What Matters

Know and align care with each older adult's specific health outcome goals and care preferences including, but not limited to, end-of-life care, and across settings of care.

Medication

If medication is necessary, use Age-Friendly medication that does not interfere with What Matters to the older adult, Mobility, or Mentation across settings of care.

Mentation

Prevent, identify, treat, and manage dementia, depression, and delirium across settings of care.

Mobility

Ensure that older adults move safely every day in order to maintain function and do What Matters.

For related work, this graphic may be used in its entirety without requesting permission. Graphic files and guidance at ihi.org/AgeFriendly

<https://www.ihi.org/Engage/Initiatives/Age-Friendly-Health-Systems/Pages/default.aspx>

Case Discussions

Questions to consider / discuss

- ◆ Identify the potential medical issues that are possibly causing difficulties?
- ◆ What other information might be helpful in determining best course?
- ◆ How would you manage this patient in an “Age-Friendly” manner?
- ◆ Anything else?

Case 1

- ◆ KM - 66 yo male on MMTD continuously since 1991, dose = 150 mg (6-day THS). No illicit opioid use in decades.
- ◆ Chronic long term BZD use prescribed by his rheumatologist (alprazolam 1 mg TID) for over a decade.
- ◆ Admitted to hospital after found down (days?) rhabdo, ARF, MS change, likely seizures in 2/2022.
- ◆ Dose held then reduced to 60 mg in hospital after mental status improved. Pt left AMA.
- ◆ THS removed due to concerns of worsening neuro-cognitive decline, rheumatologist resumed Alprazolam but after call from PCP started rapid alprazolam taper.

Case 1 cont'd

- ◆ Pt with continued neurocognitive decline, could not manage cell phone, remember what prescriptions he takes, long term memory intact.
- ◆ PCP diagnoses with malnutrition (scurvy, low B vitamins, W-K syndrome). Unable to find guardian.
- ◆ Pt refusing NH placement despite over 20 ER visits/hospital admissions in last 12 months – despite questions of capacity
- ◆ Transitioned to low dose buprenorphine/nal (2/0.5 mg SL daily), pt doses daily at OTP due to wishing to continue relationship with counselor and safety concerns

Case 2

- ◆ FA - 60 yo male on and off MMTP since at least 1991 . On 130 mg of MTD, daily dosing due to EtOH and continued cocaine (smoked).
- ◆ Multiple admissions for hypoxic respiratory failure in last 12 months
- ◆ Dose reduced after hospital to 115 mg for concerns of respiratory depression from methadone then tapered 5 mg per week to 80 mg when patient agreed to attempt transition to buprenorphine.
- ◆ Continued use of EtOH and cocaine, detox admission resulting in NH stay, while in NH pt elected to remain on 80 mg of MTD.
- ◆ Subsequent hospitalization (after was d/c'd from NH for smoking on O2) dose was further reduced to 55 mg in 7/22. No use of illicit opioids but continued EtOH and cocaine. Wants to go up on his dose.

Case 2

- ◆ Dose denied due to no s/sx's of w/d, no illicit use of opioids, continued use of EtOH and cocaine, chronic hypoxic respiratory failure.
- ◆ Pt transferred to another MMTP after requested methadone dose increased denied in 8/22.

Case 3

- ◆ AS- 83 yo male in MMTP since 1994 on 137 mg of MTD, no other opioid use since beginning program. No other illicit use.
- ◆ Increasing hospital admissions for hypoxic respiratory failure. O2 dependent, on chronic BZD (Alprazolam 1 mg TID).
- ◆ Pt reluctantly agreed to decrease MTD dose in attempt to prevent worsening respiratory difficulties.

Case 3 follow-up

- ◆ During taper pt complained of night sweats, fatigue, and weight loss. He attributed these symptoms to his dose decreasing.
- ◆ Pt had not seen PCP, encouraged to engage in medical care to have symptoms evaluated
- ◆ Dx with advanced Hodgkins lymphoma, attempt at treatment failed due to poor underlying health. Coordination with palliative care pt died 8/22.

Case 4

- ◆ JC - 61 yo male on MMTP continuously since 1997 seen for routine annual in 2/22 pt. Pt on 185 mg. No illicit use in years
- ◆ Was transported on a stretcher by ambulance company from NH . He stated he was going back to his cousin's house. Pt was unable to answer questions reliably and appeared disoriented and confused.
- ◆ Dx from NH: morbid obesity, COPD, HTN, type II DM, liver disease / cirrhosis, anemia and “dementia”

Case 4 follow up

- ◆ Methadone dose decreased 5 mg per week due to multiple co-morbidities
- ◆ Return visit at patients request. Mental status improved returned to clinic 7/22 at 50 mg requesting to hold his taper, was feeling o/w well. Pt's cognition and comprehension improved dramatically. Able to understand risks and benefits, considering transition to buprenorphine in future.

Case 5

- ◆ JL 58 yo male on MMTP x 30 years, no illicit use in decades (never IVDU) on 230 mg of methadone (split 115 mg BID “to help with chronic pain”)
- ◆ Seen for routine Annual PE, pt with 4+ LE edema (weeping) / chronic venous stasis changes with ulcerations and frequent hospital admissions for cellulitis of LE causing difficulty ambulating
- ◆ Reluctant to decrease dose due to fears of worsening pain, although he admits he does not feel much relief with MTD

Case 5 follow - up

- ◆ Dose was reduced slowly over one year to 55 mg once a day.
- ◆ At next routine Annual PE he admitted his overall health has improved, edema improved to 2+, no longer weeping, no wounds and ambulating better.
- ◆ Says he has good days and bad days regarding pain is considering transition to buprenorphine.

Summary / Conclusions

- ◆ These case reports illustrate some of the shifts in wellbeing our patients experience as the age
 - ◆ Respiratory failure
 - ◆ Neurocognitive decline
 - ◆ Obesity / Sleep disordered breathing
 - ◆ Sequelae of chronic continued substance use (nicotine, cocaine, BZD's and EtOH)
 - ◆ Debilitating LE edema
 - ◆ Pain / Opioid Induced Hyperalgesia
- ◆ Awareness and intervention can improve quality and quantity of life if identified and interventions
- ◆ Lowered doses at people age is recommended to prevent / mitigate these consequences.
- ◆ However if people continue to use illicit opioids such as fentanyl the risk / benefit ratio supports continued methadone with cautious increases in dose depending on patient goals.

References - page 1

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