UC San Diego
Health Sciences

San Diego / Imperial
Geriatric
Education Center

# AGE-FRIENDLY HEALTH CARE AND A FOCUS ON 4MS TO IMPROVE CARE OF OLDER ADULTS

## - A CME CONFERENCE SERIES

**DEVELOPED AND PRESENTED BY:**
**THE SAN DIEGO /IMPERIAL GERIATRIC EDUCATION CENTER (SDIGEC)**

**The SDIGEC is supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services under grant number U1QHP28717, Geriatric Workforce Enhancement Project award.**

# Polypharmacy Concerns and High-Risk Medications in Older Adults

January 20, 2022

Presented by:
Veronica Gonzalez, MD, Laura Hart, PharmD, MS and Anjoulie Pujji, DO

Please sign-in and complete an evaluation to receive CME credit for your participation using the link or QR code below:

https://ucsd.co1.qualtrics.com/jfe/form/SV_6ApnI5f0dVaDk10

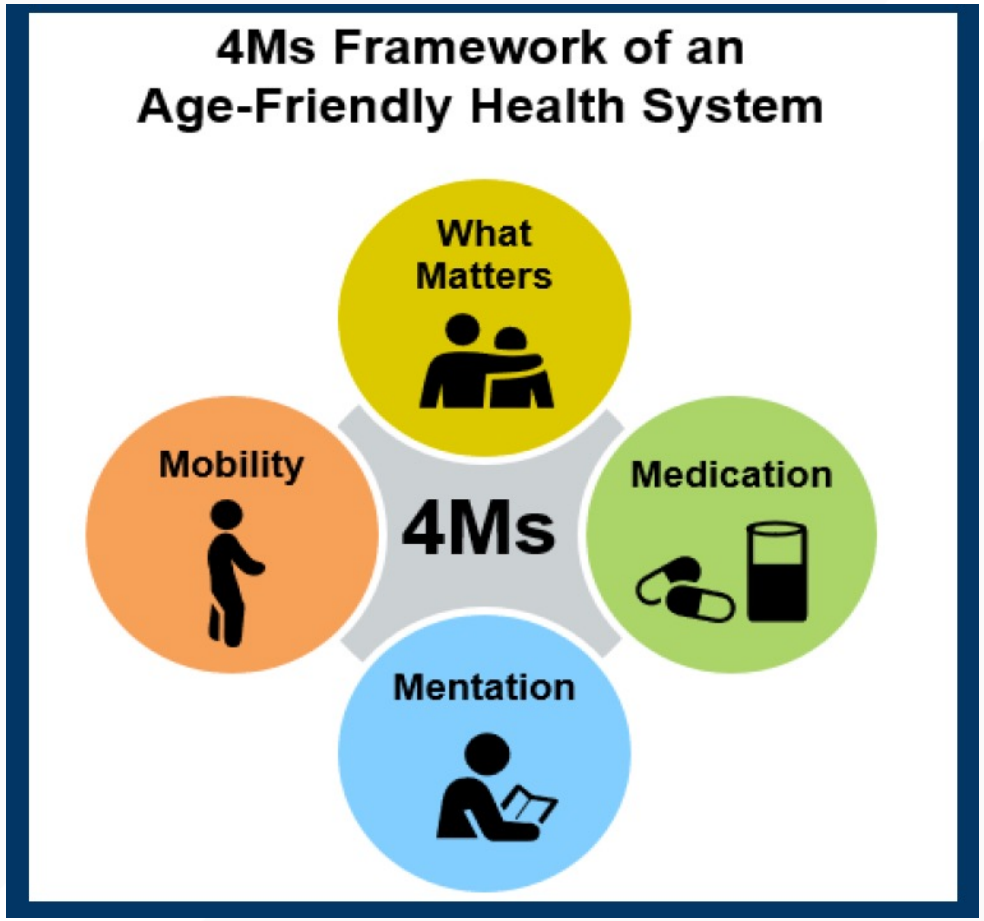
Please refer to the calendar invite for the syllabus for this series and useful handouts.

# OBJECTIVES

At the conclusion of this conference series, participants should be able to:

- Identify individual elements of the evidence-based Age-Friendly Health System framework for optimizing patient care
- Screen patients for dementia and depression and utilize resources for managing dementia and depression
- **Address and manage potentially inappropriate medication prescribing in older adults and choose age-friendly medication regimens**
- Ensure safe mobility for older adults by using screening tools and considering community resources
- Utilize techniques for identifying what matters to older adults and align care to individual goals and preferences.

# Refresher on 4Ms of Age-Friendly Care




## what Matters

**Know and align care with what Matters to each older adult**

## Medications

Deprescribe or do not prescribe high- risk meds considering what matters most

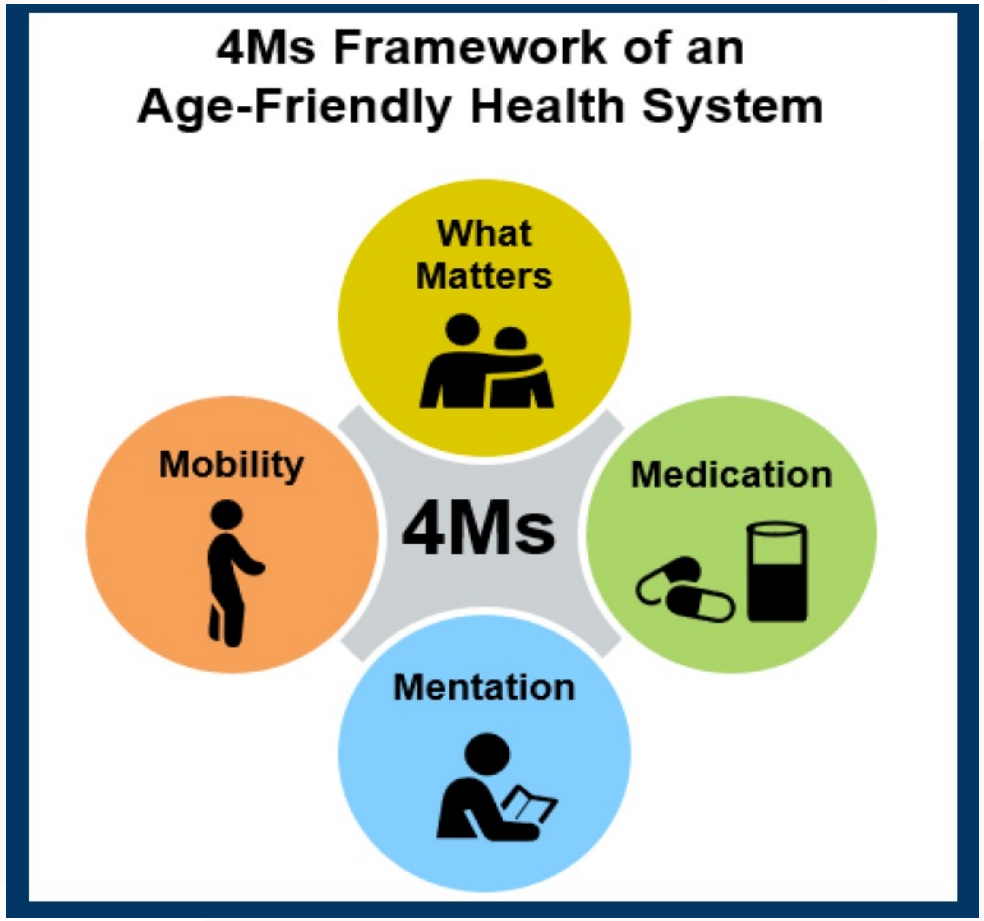
## Mobility

Promote safe mobility to maintain function and do what matters most

## Mentation / Mind

Prevent, diagnosis, and manage delirium, depression, and dementia to enjoy what matters most

# Refresher on 4Ms of Age-Friendly Care - *Continued*




Age-Friendly Healthcare aims to:

- Follow essential set of **evidence-based practices**
- Cause **no harm**
- Align care with **what Matters** to each older adult and their family

# 4 Ms: Medication Principles

- 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
- Deprescribe or do not prescribe high-risk medications
  - High-risk medications are those where harms outweigh benefits, and safer therapy (medication or non-medication) can be used to treat the same condition

# Medication Use in Older Adults

Older adults aged ≥65 years use more medications than younger adults

- 90% use at least 1 medication
- 40% use at least 5 medications
- 12% use at least 10 medications

National Center for Health Statistics. Health, United States, 2016.

# Risks of Medication Use in Older Adults

Older adults are more susceptible to risks of medication use (e.g., adverse drug reactions) due to various factors, including:

- Pharmacokinetic/pharmacodynamic changes with aging
- Multiple comorbidities
- Medication nonadherence
- Inappropriate prescribing
- Suboptimal monitoring

Nair NP et al. *Clin Interv Aging*. 2016;11:497–505.
Onder G et al. *J Gerontol A Biol Sci Med Sci*. 2012;67(6):698-704.
Onder G et al. *J Am Geriatr Soc*. 2002;50(12):1962-8.

# Adverse Drug Reactions in Older Adults

## Examples:

- Falls
- Gastrointestinal bleeding
- Delirium
- Disorientation

## Consequences:

- Emergency department visits
- Hospitalizations
- Functional decline
- Cognitive decline
- Mortality

Davies EA et al. *Br J Clin Pharmacol*. 2015; 80(4): 796–807.
Pretorius et al. *Am Fam Physician*. 2013;87(5):331-336.

# Polypharmacy

Many definitions of polypharmacy exist, including:

- Taking 5 or more medications
- Taking more medications than clinically indicated (i.e., unnecessary medication use)

Masnoon N et al. *BMC Geriatr*. 2017;17(1):230.

# Risk Factors for Polypharmacy

## Patient-level:

- Multiple comorbidities
- Multiple subspecialists
- Cognitive impairment
- Chronic mental health conditions
- Frailty
- Lack of PCP
- Residing in long-term care facility

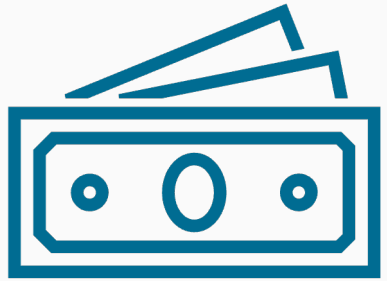
## Healthcare system-level:

- Poor transitions of care
- Poor medical record keeping
- Automated refill systems
- Prescribing to meet quality metrics

Halli-Tierney, et al. *American Family Physician*. 2019.

# Consequences of Polypharmacy

- Increased healthcare costs
- Adverse drug reactions
- Drug interactions
- Medication non-adherence
- Functional decline
- Cognitive impairment
- Falls

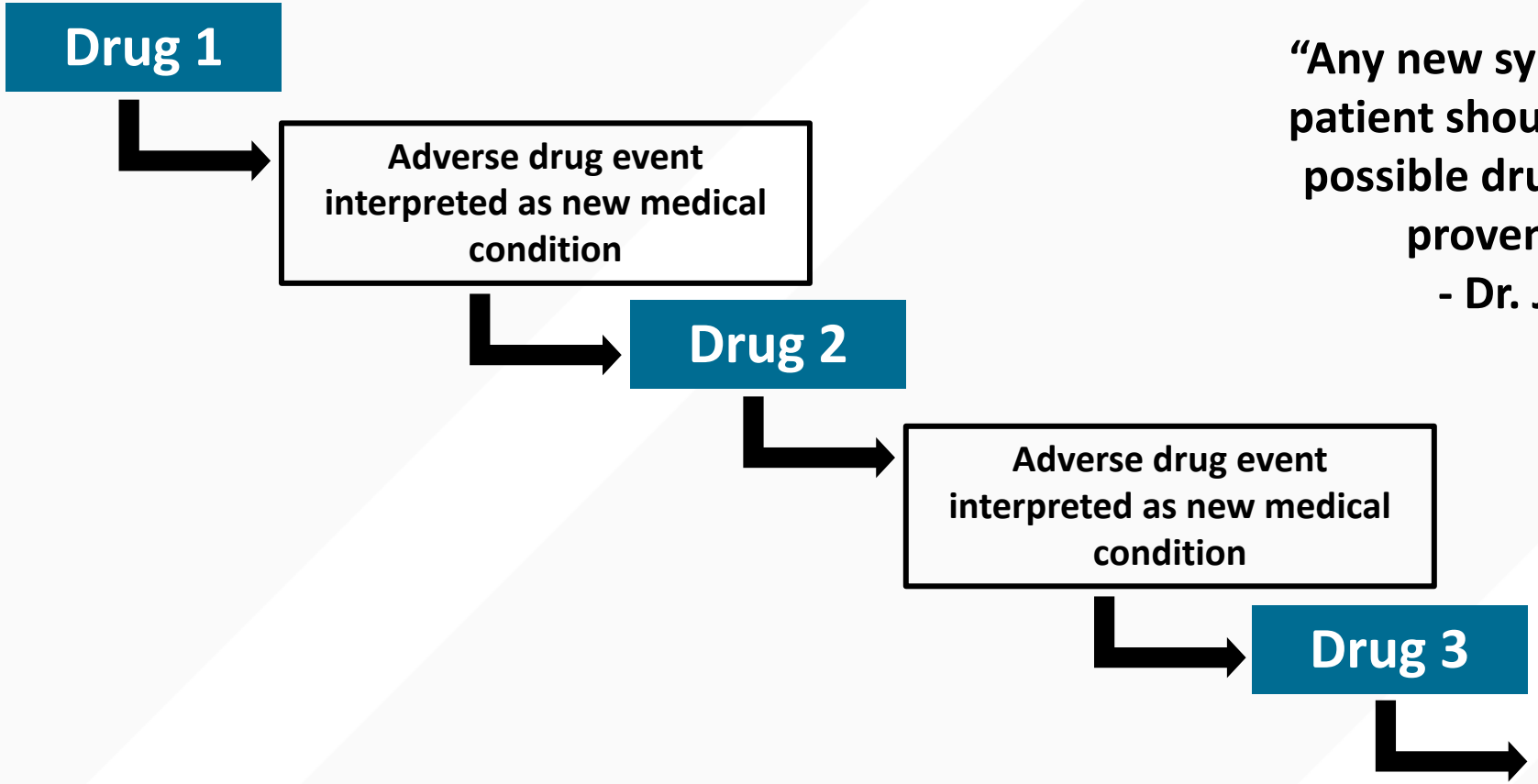


Maher RL et al. *Expert Opin Drug Saf*. 2014;13:57–65.

# Over-the-Counter (OTC) Medications and Supplements

- OTC medications and supplements contribute to polypharmacy
  - Increased risk of adverse drug reactions and drug interactions
- Many OTC medications are high risk in older adults
  - Examples: NSAIDs, oral antihistamines
- Many patients do not inform providers about OTC medication and supplement use

# Prescribing Cascade




**"Any new symptom in an older patient should be considered a possible drug side effect until proven otherwise."**
**- Dr. Jerry Avorn**

Rochon PA et al. *BMJ*. 1997; 5;315(7115):1096-9.

# Patient Case: Mrs. C

**Background:**

- Mrs. C is an 82-year-old female presenting to clinic today with daughter who helps manage her medications. Both patient and daughter express being overwhelmed with medication regimen. “I take too many pills.”
- PMH:
  - Dementia
  - Hypertension
  - Osteoarthritis
  - Osteoporosis
  - Peripheral neuropathy
  - Type 2 diabetes mellitus
  - Urinary incontinence

**Other Information:**

- Allergies: Penicillin (rash)
- Vitals:
  - BP: 132/84; HR: 72
  - Height: 5’2”; Weight: 128 lb
- Selected Labs:
  - SCr: 1.1 mg/dL
  - eCrCl: 36 mL/min
  - eGFR: 47 mL/min/1.73 $m^2$
  - A1c: 6.1%
  - Vitamin D: 45 ng/mL
- Other discussion today:
  - 3 episodes of hypoglycemia in last 2 weeks
  - 2 falls in home in last 2 weeks

# Patient Case: Mrs. C

**Medications:**

1. Alendronate 70 mg weekly (x7 years)
2. Amlodipine 5 mg daily
3. Docusate 250 mg daily
4. Donepezil 10 mg once daily
5. Enalapril 5 mg twice daily
6. Famotidine 20 mg twice daily
7. Fish oil 1,000 mg daily
8. Gabapentin 600 mg three times daily
9. Glucosamine/chondroitin 375/300 mg capsules: 4 capsules once daily
10. Glyburide 2.5 mg daily
11. Ibuprofen 400 mg three times daily
12. Metformin 500 mg twice daily
13. Multivitamin 1 tablet daily
14. Omeprazole 20 mg daily
15. Oxybutynin 5 mg twice daily
16. Vitamin B12 1,000 mcg daily
17. Vitamin C 500 mg daily
18. Vitamin E 1,000 units daily

# Patient Case: Mrs. C

**Questions:**

1. What are your initial impressions regarding Mrs. C’s medication list?
2. What potential prescribing cascades do you identify?

# American Geriatrics Society (AGS) Beers Criteria®

## American Geriatrics Society 2019 Updated AGS Beers Criteria® for Potentially Inappropriate Medication Use in Older Adults

*By the 2019 American Geriatrics Society Beers Criteria® Update Expert Panel**

AGS BEERS CRITERIA® 2019

American Geriatrics Society Beers Criteria® Update Expert Panel. *J Am Geriatr Soc*. 2019;67(4):674-694.

# American Geriatrics Society (AGS) Beers Criteria®

- Aims of the AGS Beers Criteria® include:
  - Improving medication selection in older adults
  - Educating clinicians and patients
  - Reducing adverse medication-related outcomes in older adults
- Intended for use in older adults aged ≥65 years across care settings, with important exceptions:
  - Hospice care
  - Palliative care

American Geriatrics Society Beers Criteria® Update Expert Panel. *J Am Geriatr Soc*. 2019;67(4):674-694.

# American Geriatrics Society (AGS) Beers Criteria®

The 2019 AGS Beers Criteria® is divided into 5 sections, outlining medications that should be:

1. **Avoided in most older older adults**
2. **Avoided in older adults with specific health conditions**
3. **Avoided in combination with other medications because of the risk of harmful drug-drug interactions**
4. **Used with caution because of the potential for harmful side effects**
5. **Dosed differently or avoided in older adults who have reduced kidney function**

American Geriatrics Society Beers Criteria® Update Expert Panel. *J Am Geriatr Soc*. 2019;67(4):674-694.

# Examples of medications that should be…

## 1 Avoided in most older older adults

- First-generation antihistamines
  - **Avoid** given highly anticholinergic properties, which can cause confusion, dry mouth, constipation, etc.
- Long-acting sulfonylureas
  - **Avoid** given higher risk of prolonged severe hypoglycemia in older adults

American Geriatrics Society Beers Criteria® Update Expert Panel. *J Am Geriatr Soc*. 2019;67(4):674-694.

# Examples of medications that should be…

## 2 Avoided in older adults with specific health conditions

- Dementia or cognitive impairment:
  - **Avoid** because of adverse CNS effects:
    - Anticholinergics
    - Benzodiazepines
    - Z drugs
    - Antipsychotics (also associated with greater risk of stroke and mortality in older adults with dementia)

American Geriatrics Society Beers Criteria® Update Expert Panel. *J Am Geriatr Soc*. 2019;67(4):674-694.

# Examples of medications that should be…

**3** **Avoided in combination with other medications because of the risk of harmful drug-drug interactions**

- Opioids + benzodiazepines → increased risk of overdose
- Warfarin + NSAIDs → increased risk of bleeding

American Geriatrics Society Beers Criteria® Update Expert Panel. *J Am Geriatr Soc*. 2019;67(4):674-694.

# Examples of medications that should be…

## 4 Used with caution because of the potential for harmful side effects

- Aspirin for primary prevention of cardiovascular disease and colorectal cancer:
  - **Use with caution** in adults ≥70 years old due to risk of major bleeding which increases markedly with age, and lack of benefit for primary prevention

American Geriatrics Society Beers Criteria® Update Expert Panel. *J Am Geriatr Soc*. 2019;67(4):674-694.

# Examples of medications that should be…

**5** **Dosed differently or avoided in older adults who have reduced kidney function**

- Apixaban → Avoid in CrCl <25 mL/min
- Duloxetine → Avoid in CrCl <30 mL/min
- Famotidine → Reduce dose in CrCl <50 mL/min
- Gabapentin → Reduce dose in CrCl <60 mL/min

American Geriatrics Society Beers Criteria® Update Expert Panel. *J Am Geriatr Soc*. 2019;67(4):674-694.

**Table 1. Key principles to guide optimal use of the American Geriatrics Society Beers Criteria®**

| |
|---|
| 1 Medications in the 2019 AGS Beers Criteria® are potentially inappropriate, not definitely inappropriate. |
| 2 Read the rationale and recommendations statements for each criterion. The caveats and guidance listed there are important. |
| 3 Understand why medications are included in the AGS Beers Criteria®, and adjust your approach to those medications accordingly. |
| 4 Optimal application of the AGS Beers Criteria® involves identifying potentially inappropriate medications and where appropriate offering safer nonpharmacologic and pharmacologic therapies. |
| 5 The AGS Beers Criteria® should be a starting point for a comprehensive process of identifying and improving medication appropriateness and safety. |
| 6 Access to medications included in the AGS Beers Criteria® should not be excessively restricted by prior authorization and/or health plan coverage policies. |
| 7 The AGS Beers Criteria® are not equally applicable to all countries. |

Steinman MA and Fick DM. *J Am Geriatr Soc*. 2019

# STOPP/START Criteria

**STOPP/START criteria for potentially inappropriate prescribing in older people: version 2**


Denis O'Mahony[1,2], David O'Sullivan[3], Stephen Byrne[3], Marie Noelle O'Connor[2], Cristin Ryan[4], Paul Gallagher[2]

[1]Geriatric Medicine, University College Cork, Cork, Munster, Ireland
[2]Geriatric Medicine, Cork University Hospital, Cork, Munster, Ireland
[3]School of Pharmacy, University College Cork, Cork, Munster, Ireland
[4]School of Pharmacy, Queen's University, Belfast, Northern Ireland, UK


**S**creening **T**ool of **O**lder **P**ersons' **P**rescriptions and
**S**creening **T**ool to **A**lert to **R**ight **T**reatment

O'Mahony et al. *Age and Ageing*. 2015

# STOPP/START Criteria

- Screening tool developed by expert panel in Europe
- Originally published in 2008 and updated in 2015
- Created to address inappropriate prescribing:
  - Potentially inappropriate medications (PIMs) – **STOPP**
  - Potential prescribing omissions (PPOs) – **START**
- Application of STOPP/START has shown:
  - Improved medication appropriateness
  - Reduced polypharmacy
  - Reduced adverse drug reactions (ADRs)
  - Fewer falls
  - Lower medication costs

O'Mahony et al. *Age and Ageing*. 2015

# STOPP/START Criteria

## STOPP Criteria

- 80 criteria
- Sections:
  A. Drug Indication
  B. Cardiovascular System
  C. Coagulation System
  D. Central Nervous System
  E. Renal System
  F. Gastrointestinal System
  G. Respiratory System
  H. Musculoskeletal System
  I. Urogenital System
  J. Endocrine System
  K. Drugs That Increase Fall Risk
  L. Analgesic Drugs
  M. Anticholinergic Drug Burden

## START Criteria

- 34 criteria
- Sections:
  A. Cardiovascular System
  B. Respiratory System
  C. Central Nervous System & Ophthalmic
  D. Gastrointestinal System
  E. Musculoskeletal System
  F. Endocrine System
  G. Urogenital System
  H. Analgesics
  I. Vaccines

O'Mahony et al. *Age and Ageing*. 2015

# STOPP Criteria Examples

| Section | Examples |
|---|---|
| **Drug Indication** | • Any drug prescribed without an evidence-based clinical indication<br>• Any drug prescribed beyond the recommended duration, where treatment duration is well defined<br>• Any duplicate drug class prescription (optimization of monotherapy within a single drug class should be observed prior to considering a new agent) |
| **Cardiovascular System** | • ACE inhibitors or angiotensin receptor blockers in patients with hyperkalemia<br>• Loop diuretic as first-line treatment for hypertension |
| **Urogenital System** | • Antimuscarinic drugs for overactive bladder syndrome with concurrent dementia or chronic cognitive impairment |
| **Endocrine System** | • Sulfonylureas with a long duration of action in type 2 diabetes mellitus (risk of prolonged hypoglycemia) |

O'Mahony et al. *Age and Ageing*. 2015

# START Criteria Examples

| Section | Examples |
|---|---|
| **Musculoskeletal System** | • Folic acid supplement in patients taking methotrexate<br>• Vitamin D and calcium supplement in patients with known osteoporosis and/or previous fragility fractures |
| **Endocrine System** | • ACE inhibitor or angiotensin receptor blocker (if intolerant of ACE inhibitor) in diabetes with evidence of renal disease |
| **Vaccines** | • Seasonal influenza vaccine annually<br>• Pneumococcal vaccine at least once after age 65 according to national guidelines |

O'Mahony et al. *Age and Ageing*. 2015

# Medication Appropriateness Index

- Prescribing quality measure developed in 1992
- Consists of 10 questions with 3 rating choices:
  - A = appropriate
  - B = marginally appropriate
  - C = inappropriate
- Accompanied by numerous appendices and references to aid use

Hanlon JT et al. *J Clin Epidemiol*. 1992;45:1045-51.
Samsa G et al. *J Clin Epidemiol*. 1994;47:891-1.

# Medication Appropriateness Index

1. Is there an indication for the drug?
2. Is the medication effective for the condition?
3. Is the dosage correct?
4. Are the directions correct?
5. Are the directions practical?
6. Are there clinically significant drug-drug interactions?
7. Are there clinically significant drug-disease/condition interactions?
8. Is there unnecessary duplication with other drug(s)?
9. Is the duration of therapy acceptable?
10. Is this drug the least expensive alternative compared to others of equal utility?

Hanlon JT et al. *J Clin Epidemiol*. 1992;45:1045-51.
Samsa G et al. *J Clin Epidemiol*. 1994;47:891-1.

# Screening for Opioid Misuse

- Prevalence of opioid misuse is increasing over time in older adults
- Between 2010-2015, opioid-related hospitalizations increased by 34% and ED visits by 74% in older adults
  - Driven by opioid misuse along with challenges of managing pain in older adults
- It is important to screen older adults for risk of opioid misuse

**Examples of Screening Tools:**

- Opioid Risk Tool
- Screener and Opioid Assessment for Patients with Pain- Revised (SOAPP®-R)

Weiss AJ et al. *Healthcare Cost and Utilization Project (HCUP) Statistical Briefs*. 2018.

# Revisiting Patient Case: Mrs. C

**Medications:**

1. Alendronate 70 mg weekly (x7 years)
2. Amlodipine 5 mg daily
3. Docusate 250 mg daily
4. Donepezil 10 mg once daily
5. Enalapril 5 mg twice daily
6. Famotidine 20 mg twice daily
7. Fish oil 1,000 mg daily
8. Gabapentin 600 mg three times daily
9. Glucosamine/chondroitin 375/300 mg capsules: 4 capsules once daily
10. Glyburide 2.5 mg daily
11. Ibuprofen 400 mg three times daily
12. Metformin 500 mg twice daily
13. Multivitamin 1 tablet daily
14. Omeprazole 20 mg daily
15. Oxybutynin 5 mg twice daily
16. Vitamin B12 1,000 mcg daily
17. Vitamin C 500 mg daily
18. Vitamin E 1,000 units daily

# Revisiting Patient Case: Mrs. C

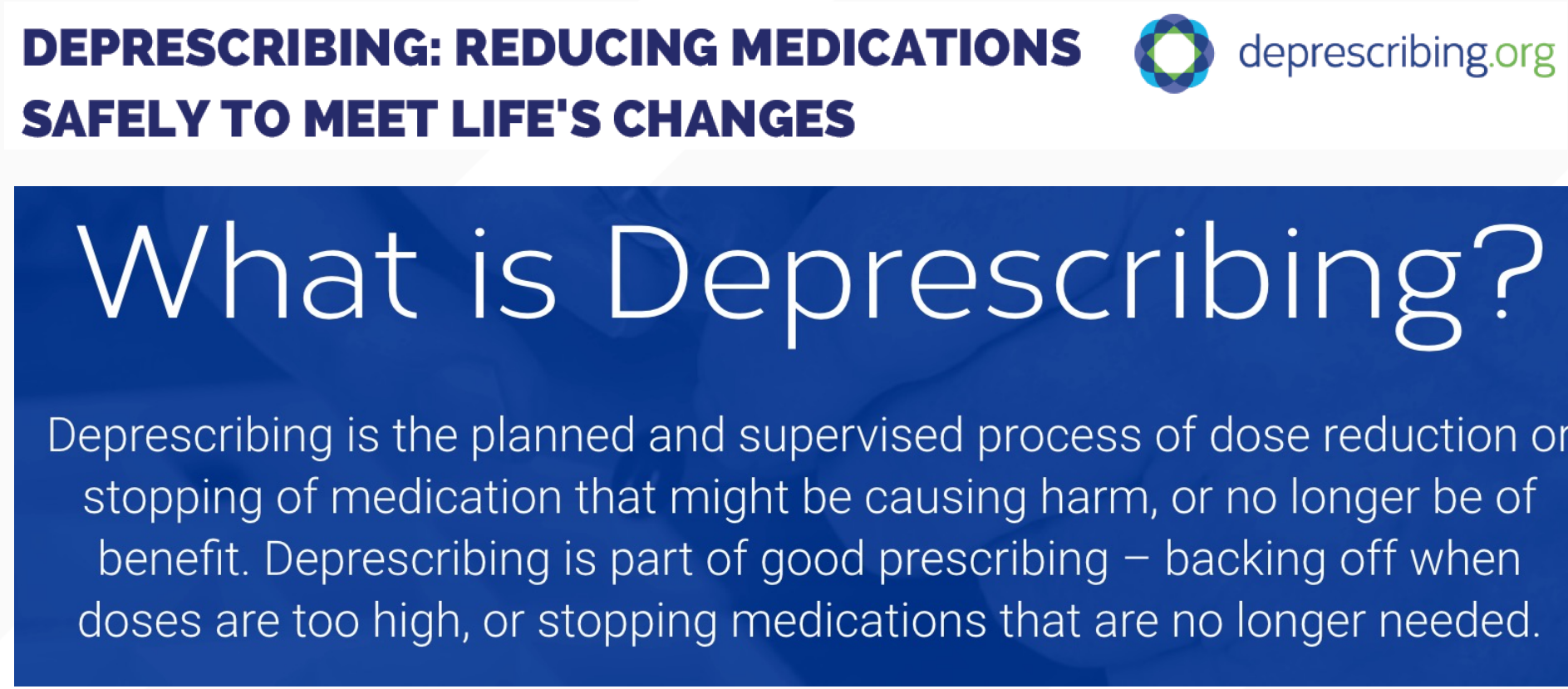
**Questions:**

1. What are examples of potentially inappropriate medications from Mrs. C's medication list?
2. Are there any medications without a clear indication or benefit?
3. Are there any therapeutic duplications?
4. Are there any prescribing omissions?
5. Do any medications require dose adjustment based on Mrs. C's kidney function?
6. What drug interactions do you identify (including supplements)?
7. What other ways can we optimize this patient's medication regimen?

# Deprescribing


Farrell B et al. https://deprescribing.org/

# What is Deprescribing?




Farrell B et al. https://deprescribing.org/

# Deprescribing Resources

Evidence-based deprescribing guidelines and algorithms available for the following medication classes:

1. Proton Pump Inhibitors
2. Antihyperglycemics
3. Antipsychotics
4. Benzodiazepine Receptor Agonists
5. Cholinesterase Inhibitors and Memantine

Available at: https://deprescribing.org/resources/deprescribing-guidelines-algorithms/

deprescribing.org

INSTITUT DE RECHERCHE Bruyère RESEARCH INSTITUTE

open ONTARIO PHARMACY+ EVIDENCE NETWORK

# Steps for Deprescribing

1. Identify potentially inappropriate medications
2. Determine if medication dosage can be reduced or if medication can be stopped
3. Plan tapering
4. Monitor for discontinuation symptoms or need to restart, and support patient
5. Document outcomes

Farrel et al. *American Family Physician*. 2019.

# Steps for Deprescribing

1. Identify potentially inappropriate medications

| Considerations | Resources |
| --- | --- |
| • Review all medications (prescription and OTC) and supplements<br>• Evaluate/consider:<br>  • Continued necessity and benefit<br>  • High risk medications<br>  • Adverse drug reactions<br>  • Drug interactions<br>  • Adherence<br>  • Patient preferences, goals of care, and life expectancy | • AGS Beers Criteria®<br>• STOPP/START Criteria<br>• Medication Appropriateness Index |

Farrel et al. *American Family Physician*. 2019.

# Steps for Deprescribing

2. Determine if medication dosage can be reduced or if medication can be stopped

3. Plan tapering

4. Monitor for discontinuation symptoms or need to restart, and support patient

| Considerations | Resources |
| --- | --- |
| • How to best engage patient in conversation about deprescribing<br>• Determining options for deprescribing<br>• Provide monitoring and support | • Deprescribing.org<br>  • Deprescribing information pamphlets<br>  • Deprescribing guidelines and algorithms<br>• MedStopper<br>• Prescribing information (drug product monographs) |

Farrel et al. *American Family Physician*. 2019.

# Steps for Deprescribing

## 5. Document Outcomes

| Considerations | Resources |
| --- | --- |
| • Documenting reasons for medication changes<br>• Documenting positive and negative outcomes to facilitate future care and prescribing decision-making | -- |

Farrel et al. *American Family Physician*. 2019.

# Revisiting Patient Case: Mrs. C

**Medications:**

1. Alendronate 70 mg weekly (x7 years)
2. Amlodipine 5 mg daily
3. Docusate 250 mg daily
4. Donepezil 10 mg once daily
5. Enalapril 5 mg twice daily
6. Famotidine 20 mg twice daily
7. Fish oil 1,000 mg daily
8. Gabapentin 600 mg three times daily
9. Glucosamine/chondroitin 375/300 mg capsules: 4 capsules once daily
10. Glyburide 2.5 mg daily
11. Ibuprofen 400 mg three times daily
12. Metformin 500 mg twice daily
13. Multivitamin 1 tablet daily
14. Omeprazole 20 mg daily
15. Oxybutynin 5 mg twice daily
16. Vitamin B12 1,000 mcg daily
17. Vitamin C 500 mg daily
18. Vitamin E 1,000 units daily

# Revisiting Patient Case: Mrs. C

**Questions:**

1. What other information would be helpful to gather from patient and/or daughter to guide deprescribing?
2. What medications would you consider for deprescribing?
    a. How would you prioritize medications for deprescribing?
    b. Are there any drug-specific algorithms available that would be beneficial in this case?
    c. Do any of these medications require tapering upon discontinuation?
3. How would you proceed with monitoring and follow-up?

# Resources to Optimize Medication Use and Guide Deprescribing

- AGS Beers Criteria®
- STOPP/START Criteria
- Medication Appropriateness Index
- Opioid Risk Tool
- Screener and Opioid Assessment for Patients with Pain- Revised (SOAPP®-R)
- Deprescribing.org
  - Deprescribing information pamphlets
  - Deprescribing guidelines and algorithms
- MedStopper
- Prescribing information (drug product monographs)

# Empowering Patients

There are several steps older adult patients can take to help lower risk of adverse medication-related outcomes, including:

1. Create and maintain an updated medication list and bring it to all healthcare visits
2. Review medications regularly with healthcare providers
3. Be aware of and report possible side effects from medications
4. Check with pharmacist or healthcare provider before using an over-the-counter medication or supplement
5. Check with pharmacist or healthcare provider before stopping any medications
6. Ask questions and bring up concerns about our medications when you have them

# THANK YOU!

Reminder: Please sign in and complete an evaluation to receive CME credit for your participation using the link or QR code below:

https://ucsd.co1.qualtrics.com/jfe/form/SV_6ApnI5f0dVaDk10

San Diego / Imperial
GERIATRIC
EDUCATION CENTER

**Questions**? Contact us at:

Roopali Gupta, MD: rog007@health.ucsd.edu

Jennifer Reichstadt, MSG: jreichst@health.ucsd.edu