

# LESS IS MORE! DEPRESCRIBING AND MEDICATION MANAGEMENT CONSIDERATIONS FOR OLDER ADULTS



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# CONFLICTS OF INTEREST

- The presenter has no relevant financial relationships with ineligible companies to disclose.
- The presenter's preceptor is a member of the speaker's bureau with AstraZeneca.
- None of the planners for this educational activity have relevant financial relationships to disclose with ineligible companies whose primary business is producing, marketing, selling, re-selling or distributing healthcare products used by or on patients.

# OBJECTIVES FOR THE PHARMACIST

1

Identify risk factors for potentially inappropriate medication (PIM) prescribing in older adults.

2

Recall criteria to evaluate drug appropriateness and use of PIMs in older adults.

3

Recognize the role of the pharmacist in evaluating use of PIMs in older adults.

# OBJECTIVES FOR THE PHARMACY TECHNICIAN

1

Recall common PIMs in older adults.

2

Identify side effects and risks associated with use of PIMs by older adults.

3

Recognize the role of the pharmacy technician with PIMs in older adults.

# ABBREVIATIONS

- ADME = absorption, distribution, metabolism, excretion
- ADR = adverse drug reaction
- ARMOR = assess, review, minimize, optimize, reassess
- FORTA = fit for the aged list
- H2RA = histamine-2 receptor antagonist
- MAI = medication appropriateness index
- NAAL = National Assessment of Adult Literacy
- NSAID = non-steroidal anti-inflammatory drug
- PIM = potentially inappropriate medication
- POM = prescribing optimization method
- PPI = proton pump inhibitor
- STOPP/START = Screening Tool of Older Persons' Prescriptions/Screening Tool to Alert to Right Treatment

# OLDER ADULTS ARE SUSCEPTIBLE TO MEDICATION-RELATED HARM

- 54.1 million individuals in the U.S. aged 65 and older
  - Expected to increase to 80.8 million by 2040
- Up to 30% of hospital admissions of individuals aged 65 and older are medication-related
  - Emergency department visits account for more than double that of younger adults
  - Approximately half of these admissions can be prevented



# PHYSIOLOGY OF AGING

- Aging may increase the susceptibility of older adults to medication misadventures
  - Alterations in absorption, distribution, metabolism and elimination (ADME) of medications
  - Altered drug responsiveness, reduced physiologic reserve
  - Geriatric syndromes
- Older adults are susceptible to multimorbidity associated with advancing age
  - Comorbid heart disease
  - Diabetes
  - Chronic kidney disease
  - Arthritis
  - Depression
  - Other concomitant medical conditions

# GERIATRIC SYNDROMES

Frailty

Functional  
limitations

Falls

Malnutrition

Delirium



# ASSESSMENT QUESTION #1

Which of the following represent a risk factor for PIM use by older adults?

- A. Multimorbidity
- B. Age-related pharmacokinetic/pharmacodynamic changes
- C. Reduced physiologic reserve
- D. Geriatric syndromes
- E. All of the above

# CORRECT RESPONSE

Which of the following represent a risk factor for PIM use by older adults?

- A. Multimorbidity
- B. Age-related pharmacokinetic/pharmacodynamic changes
- C. Reduced physiologic reserve
- D. Geriatric syndromes
- E. All of the above**

# MEDICATION-RELATED GERIATRIC SYNDROMES

## Falls, dizziness, syncope

- Anticholinergics
- Antihypertensives
- Sedatives

## Confusion, delirium, cognitive issues

- Antiarrhythmics
- Anticholinergics
- Corticosteroids
- Opioids
- Sedatives

## Constipation

- Anticholinergics
- Calcium channel blockers
- Opioids

# ADVERSE DRUG EVENTS

- Response to a drug that is noxious and unintended
  - Occurs at doses used in humans for prophylaxis, diagnosis, or therapy
- National surveillance of emergency department visits for outpatient adverse drug events
  - Older adults are **seven times** more likely than younger persons to experience adverse drugs events that require hospitalization
  - Important cause of morbidity in the U.S.

# WHO-UMC CAUSALITY CATEGORIES FOR ADR REPORTING

Causality Term	Assessment Criteria (reasonably complied)
Certain/very likely	<ul style="list-style-type: none"> <li>• Event or laboratory test abnormality, with plausible time relationship to drug intake</li> <li>• Cannot be explained by disease or other drugs</li> <li>• Response to withdrawal plausible (pharmacologically, pathologically)</li> <li>• Event definitive pharmacologically or phenomenologically (i.e., an objective and specific medical disorder or a recognized pharmacological phenomenon)</li> <li>• Rechallenge satisfactory, if necessary</li> </ul>
Probable/likely	<ul style="list-style-type: none"> <li>• Event or laboratory test abnormality, with reasonable time relationship to drug intake</li> <li>• Unlikely to be attributed to disease or other drugs</li> <li>• Response to withdrawal clinically reasonable</li> <li>• Rechallenge not required</li> </ul>
Possible	<ul style="list-style-type: none"> <li>• Event or laboratory test abnormality, with reasonable time relationship to drug intake</li> <li>• Could also be explained by disease or other drugs</li> <li>• Information on drug withdrawal may be lacking or unclear</li> </ul>
Unlikely	<ul style="list-style-type: none"> <li>• Event or laboratory test abnormality, with a time to drug intake that makes a relationship improbable (but not impossible)</li> <li>• Disease or other drugs provide plausible explanations</li> </ul>
Conditional/unclassified	<ul style="list-style-type: none"> <li>• Event or laboratory test abnormality</li> <li>• More data for proper assessment is needed, or additional data under examination</li> </ul>
Unassessable/unclassifiable	<ul style="list-style-type: none"> <li>• Report suggesting an adverse reaction</li> <li>• Cannot be judged because the information is insufficient or contradictory</li> <li>• Data cannot be supplemented or verified</li> </ul>

# KEY CONCEPTS: MEDICATION MANAGEMENT FOR OLDER ADULTS

## Deprescribing

- The planned and supervised process of reducing the dose of or stopping medications

## Polypharmacy

- Using multiple drugs to treat a single condition

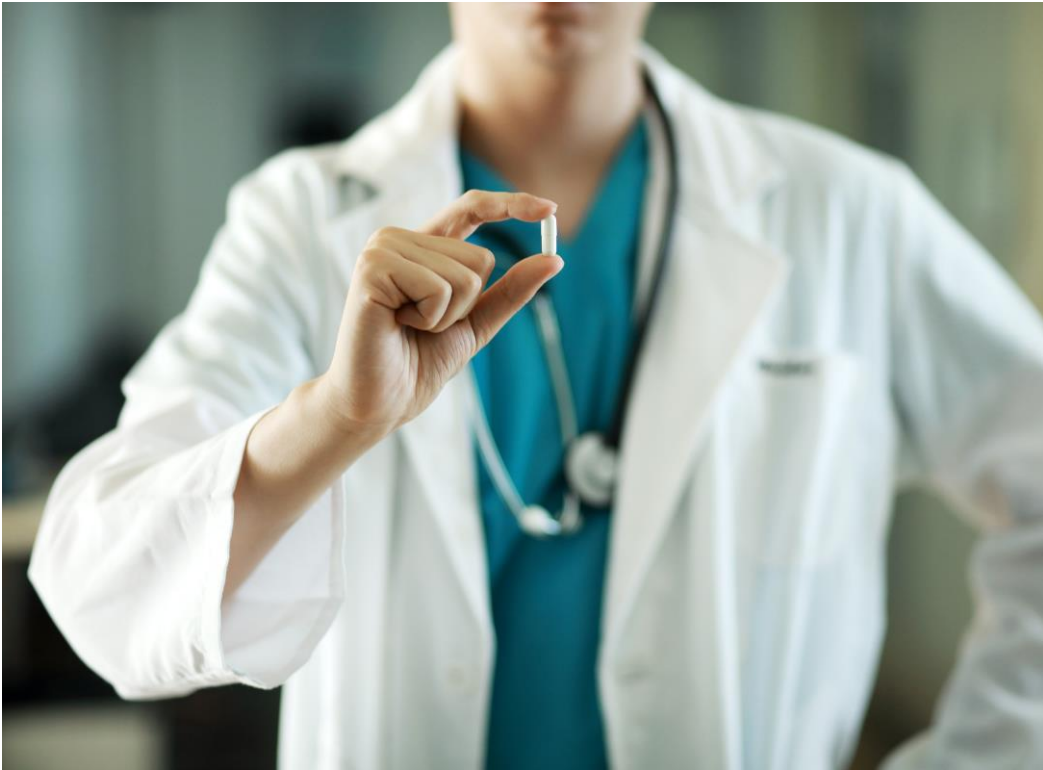
## Prescribing cascades

- Prescribing a new drug to treat a side effect from another drug

## Potentially inappropriate medications

- Medications that may no longer be indicated or effective

# DEPRESCRIBING



- Evaluating medications that could be causing a patient **no benefit** or **potential harm**
- **Deprescribing = optimal prescribing**
  - **Dose reductions** when medication doses may be too high based on organ function or concomitant medications
  - **Stopping medications** that are no longer needed or potentially causing harm

# BENEFITS OF DEPRESCRIBING





# POLYPHARMACY



- **Simultaneous use of multiple drugs by a single patient**
  - Serious adverse events
  - Drug interactions
  - Increased healthcare costs
- Analysis of a large European cohort has found polypharmacy (five or more medications) to be present in **32.1%** of citizens aged 65 years and older

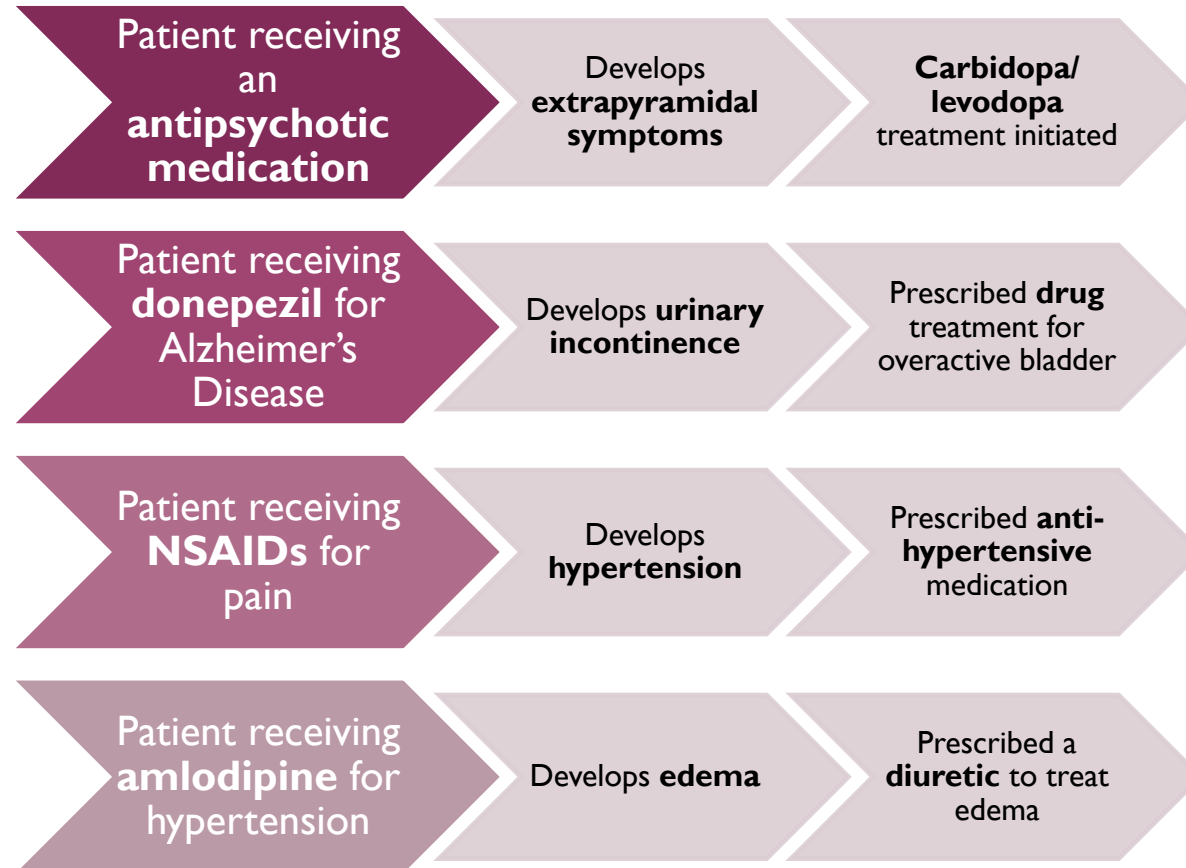
# PRESCRIBING CASCADES

A **first drug** is prescribed to a patient to treat a problem

An **adverse effect** from that first drug is thought to be a **new condition** requiring treatment

A **second new drug** is prescribed

# EXAMPLES OF PRESCRIBING CASCADES



# ASSESSMENT QUESTION #2

Which PIM is matched with its correct side effect?

- A. Olanzapine – extrapyramidal symptoms
- B. Ibuprofen – hypotension
- C. Omeprazole – blurred vision
- D. Diphenhydramine – hypertension

# CORRECT RESPONSE

Which PIM is matched with its correct side effect?

- A. Olanzapine – extrapyramidal symptoms**
- B. Ibuprofen – hypotension
- C. Omeprazole – blurred vision
- D. Diphenhydramine – hypertension

# POTENTIALLY INAPPROPRIATE MEDICATIONS (PIMS)



- Medications with high **risk-benefit** ratio
- Key word = **potentially!**
  - Medications with increased risk for adverse effects in geriatric patients
  - Unnecessary medications that increase pill burden and cost for the patient

# EXAMPLES OF PIMS

## NSAIDs

- When utilized for long-term treatment of pain

## PPIs/H2RAs

- When utilized for long-term acid suppression without clear indication

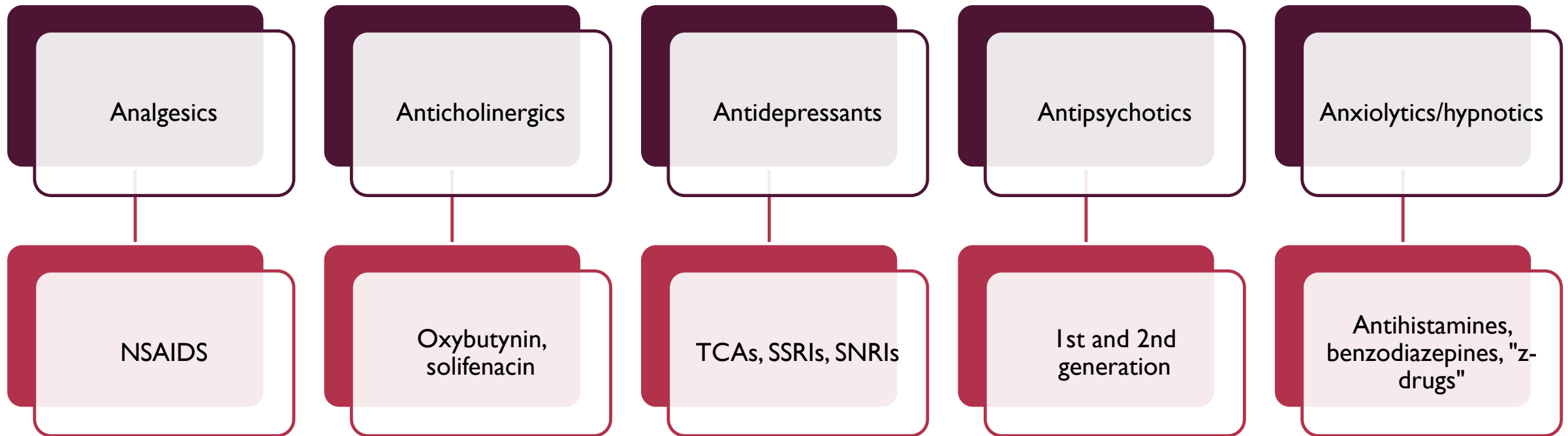
## Laxatives

- When prescribed without a review of diet, fluids, exercise and medications first

## Vitamins

- Without an indication for use

# COMMON MEDICATIONS OF CONCERN IN OLDER ADULTS





# MEDICATION DISCONTINUATION AND WITHDRAWAL SYNDROMES

- Common medications may be associated with discontinuation or withdrawal syndromes
  - Alpha blockers (**doxazosin, silodosin, tamsulosin**) → rebound hypertension, headaches
  - Benzodiazepines (**alprazolam, diazepam, lorazepam**) → agitation, confusion, delirium, seizures
  - Beta blockers (**metoprolol, atenolol, carvedilol**) → rebound tachycardia
- **Important counseling point!**
  - Do not discontinue medications without having a discussion with your doctor

# CRITERIA FOR DEPRESCRIBING

## Implicit

- Judgement-based
- Combine research data with clinical evaluation
- Consideration of patient/caregiver preference
- Assess the quality of prescriptions

## Explicit

- Item-based
- Indicators for inappropriate medication use for several disease states or "drugs to avoid" list

# ASSESSMENT QUESTION #3

A common PIM prescribed to older adults includes which of the following?

- A. Alprazolam
- B. Losartan
- C. Ciprofloxacin
- D. Oxycodone

**CORRECT  
RESPONSE**

A common PIM prescribed to older adults includes which of the following?

- A. Alprazolam**
- B. Losartan
- C. Ciprofloxacin
- D. Oxycodone

# IMPLICIT & EXPLICIT CRITERIA

## Implicit

- Comprehensive Geriatric Assessment
- ARMOR
- Prescribing Optimization Method

## Explicit

- Beers Criteria
- STOPP/START
- FORTA
- MAI

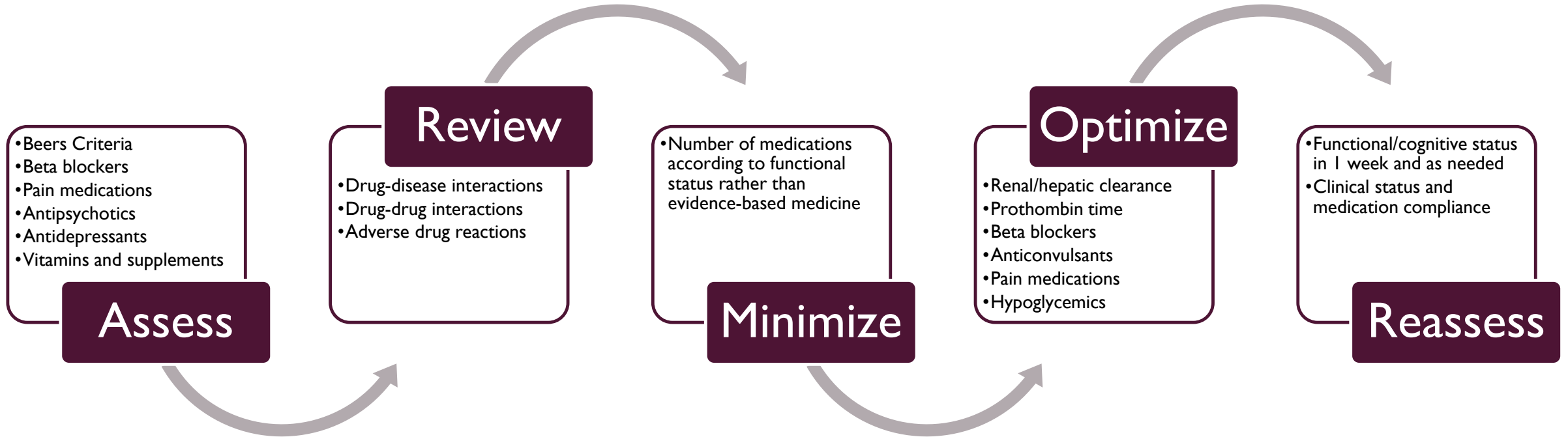


# IMPLICIT CRITERIA

# COMPREHENSIVE GERIATRIC ASSESSMENT

- Multidisciplinary diagnostic and treatment process that identifies medical, psychosocial and functional limitations of a frail older person to develop a coordinated plan to maximize overall health with aging
- Consists of a treatment team
- Key components
  - Functional status
  - Fall risk
  - Polypharmacy
  - Cognition
  - Social support
  - Financial concerns
  - Goals of care

# ARMOR (ASSESS, REVIEW, MINIMIZE, OPTIMIZE, REASSESS)





# PRESCRIBING OPTIMIZATION METHOD (POM)

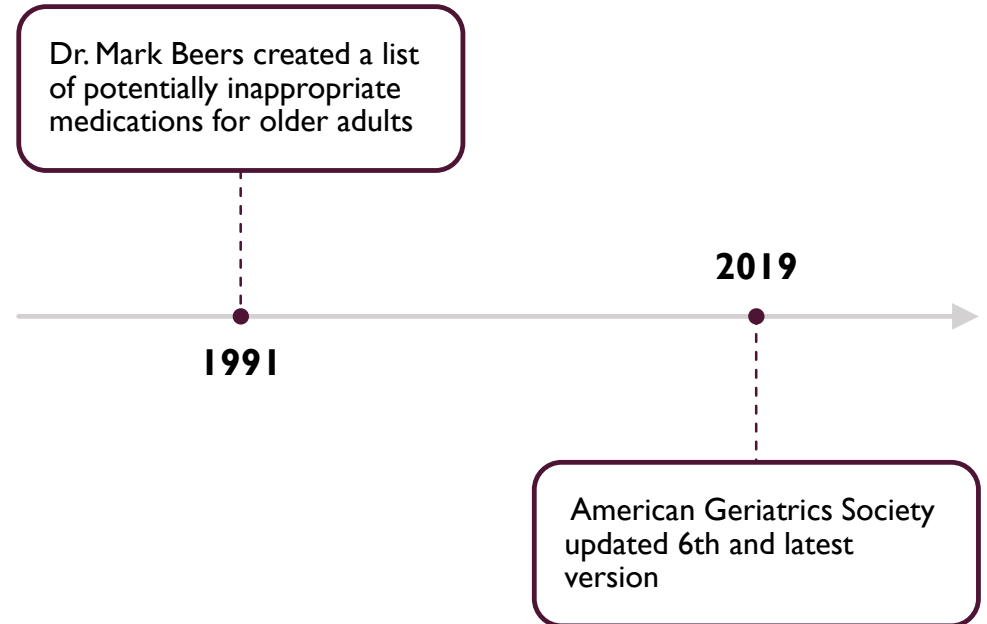
- Six open-ended questions to help physicians determine if their elderly patients are receiving the best pharmacotherapeutic treatment possible
  - Is undertreatment present and addition of medication indicated?
  - Does the patient adhere to his/her medication schedule?
  - Which drug(s) can be withdrawn, or which drugs(s) is/are inappropriate for the patient?
  - Which adverse effects are present?
  - Which clinically relevant interactions are to be expected?
  - Should the dose, dose frequency and/or form of the drug be adjusted?



# EXPLICIT CRITERIA

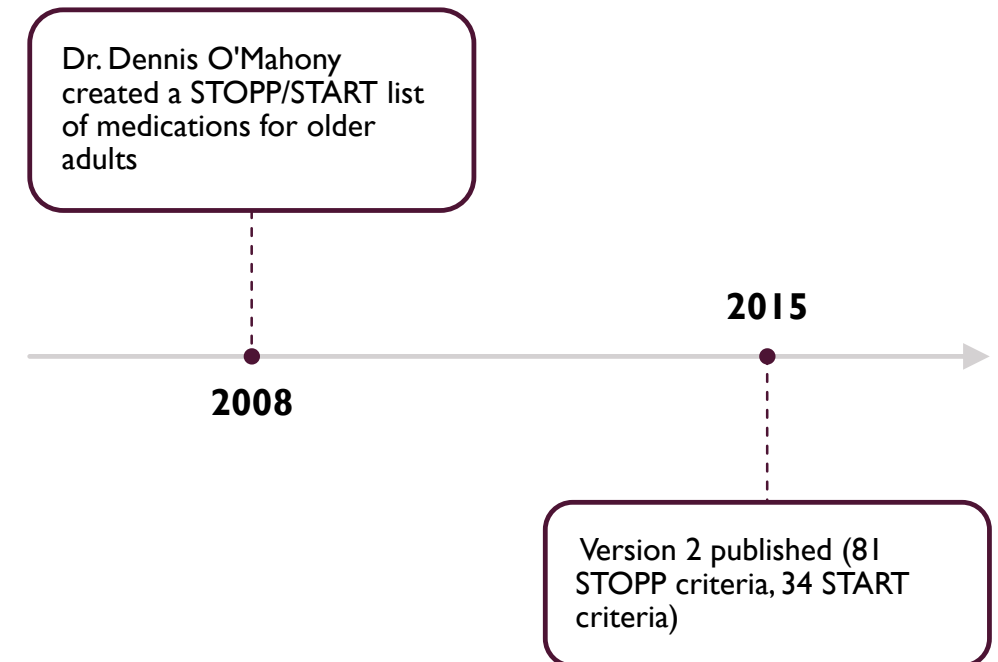
# BEERS CRITERIA

- Evidence-based recommendations for medication use in patients 65 and older
  - “Potentially inappropriate medications in older adults”
  - “Potentially inappropriate medications to avoid in older adults with certain conditions”
  - “Medications to be used with considerable caution in older adults”
  - “Medication combinations that may lead to harmful interactions”
  - “Medications that should be avoided or dosed differently for those with poor renal function”



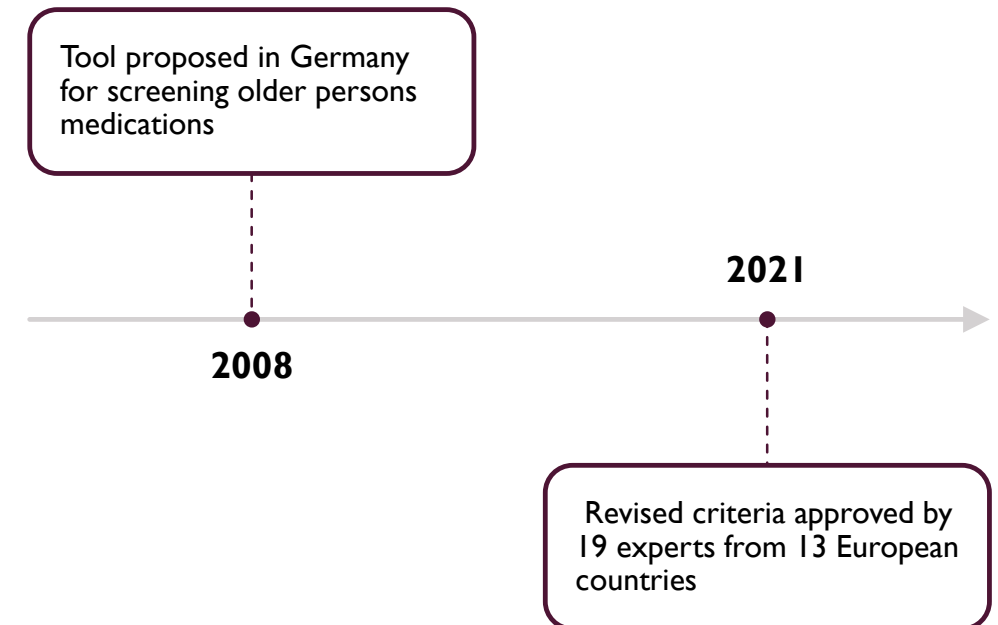
# SCREENING TOOL OF OLDER PERSONS' PRESCRIPTIONS/SCREENING TOOL TO ALERT TO RIGHT TREATMENT (STOPP/START)

- STOPP criteria
  - Potentially inappropriate medications
- START criteria
  - Potential prescription omissions



# FORTA (FIT FOR THE AGED)

- Based on evidence for safety, efficacy and age appropriateness
  - A = indispensable
  - B = beneficial
  - C = questionable
  - D = avoid



# MEDICATION APPROPRIATENESS INDEX (MAI)

- Created by clinical pharmacist John Hanlon in 1992
  - Ten question criteria for each drug prescribed
    - Score of 0 to 18
  - Time-consuming

Item	Weighing
Is there an indication for the drug?	3
Is the medication effective for the condition?	3
Is the dosage correct?	2
Are the directions correct?	2
Are the directions practical?	2
Are there clinically significant drug-drug interactions?	2
Are there clinically significant drug-disease interactions?	1
Is there unnecessary duplication with other drugs?	1
Is the duration of therapy acceptable?	1
Is the drug the least expensive alternative available compared with others of equal utility?	1

# ASSESSMENT QUESTION #4

Which of the following is an example of implicit criteria to evaluate PIM use in older adults?

- A. Beers Criteria
- B. STOPP/START
- C. ARMOR
- D. FORTA

CORRECT  
RESPONSE

Which of the following is an example of implicit criteria to evaluate PIM use in older adults?

- A. Beers Criteria
- B. STOPP/START
- C. **ARMOR**
- D. FORTA



# PATIENT CASE

An 81-year-old male has been hospitalized for a urinary tract infection. His medication list is provided to you.

What medications are potentially inappropriate for this patient and why?

What are some suggestions you could make to his provider to optimize his medication regimen?

## **Medications:**

- Alprazolam 1 mg 1 tablet PO BID PRN
- Ceftriaxone 1 g IV daily
- Citalopram 40 mg PO daily
- Fluticasone/vilanterol inhale 1 puff daily
- Ibuprofen 800 mg 1 tablet PO daily
- Losartan 25 mg 1 tablet PO daily
- Metoprolol succinate 50 mg 1 tablet PO daily
- Oxybutynin ER 10 mg 1 tablet PO daily
- Spironolactone 25 mg 1 tablet PO daily
- Zolpidem 10 mg 1 tablet PO QHS

# PATIENT CASE

- Alprazolam
  - Switch to LOT drug (lorazepam, oxazepam, temazepam)
  - Lower dose
- Citalopram
  - Recommended dose for patients over 60 years old = 20 mg/day
  - Recommend behavioral therapy
- Ibuprofen
  - Switch to acetaminophen
  - Lower dose
  - Prescribe as needed
- Oxybutynin
  - Lower dose
  - Recommend behavioral therapy
- Zolpidem
  - Switch to melatonin
  - Lower dose
  - Recommend sleep hygiene

## Medications:

- **Alprazolam 1 mg 1 tablet PO BID PRN**
- Ceftriaxone 1 g IV daily
- **Citalopram 40 mg PO daily**
- Fluticasone/vilanterol inhale 1 puff daily
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- Metoprolol succinate 50 mg 1 tablet PO daily
- **Oxybutynin ER 10 mg 1 tablet PO daily**
- Spironolactone 25 mg 1 tablet PO daily
- **Zolpidem 10 mg 1 tablet PO QHS**

# PHARMACIST'S ROLE IN REDUCING MEDICATION RISKS

## ■ American Society of Consultant Pharmacists Drug Regimen Review Checklist

### Indications

Does each prescribed medication have a current and valid indication?

Does the patient have appropriate indications for the medication, but it is not being used?

### Effectiveness

Is the medication appropriate for the indication being treated?

Is the dose of medication adequate?

### Safety

Is the dose of medication excessive?

Is the patient experiencing signs or symptoms of adverse medication effects?

Is the patient experiencing a problem resulting from drug-drug, drug-food, or drug-lab interactions?

### Monitoring

Are monitoring parameters in place to evaluate medication effectiveness and safety?

Do results of medication monitoring indicate a need for intervention?

### Errors

Is there any evidence of a medication error?

### Cost

Do any issues related to cost need to be addressed?

# ASSESSMENT QUESTION #5

What would be an appropriate intervention by a pharmacist to reduce PIMs in older adults?

- A. Tell their doctor they cannot be prescribed this medication due to their age
- B. Talk to the patient about the medication and its use, offering to reach out to their doctor for an alternative
- C. Tell the patient this medication is not appropriate for them
- D. Refuse to give the patient the medication

# CORRECT RESPONSE

What would be an appropriate intervention by a pharmacist to reduce PIMs in older adults?

- A. Tell their doctor they cannot be prescribed this medication due to their age
- B. Talk to the patient about the medication and its use, offering to reach out to their doctor for an alternative**
- C. Tell the patient this medication is not appropriate for them
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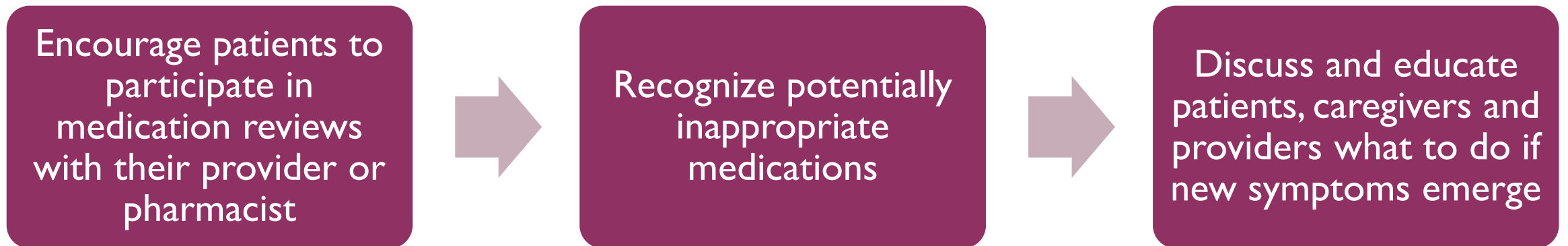
# THE HEALTHCARE PROVIDER'S ROLE IN REDUCING MEDICATION RISKS

**Information** – Encourage patients and caregivers to keep an accurate, up-to-date list of medications (including prescriptions, over-the-counter medications, herbals and supplements), medical providers and pharmacies

**Instruction** – Teach patients and caregivers about the medications, including potential adverse effects and the importance of taking them as prescribed

**Organization** – Remind patients to avoid sharing medications, how to appropriately store medications and ways to dispose of unwanted medications

# HOW CAN YOU SUPPORT GOOD MEDICATION PRESCRIBING PRACTICES?



It is important to advocate for the **expansion** of health-system pharmacist roles!

## ASSESSMENT QUESTION #6

What would be an appropriate intervention by a pharmacy technician to reduce PIMs in older adults?

- A. Tell caregivers to refuse prescriptions for their patients
- B. Inform providers that they cannot prescribed a PIM under any circumstances
- C. Tell patients not to take the PIM in question without discussing with their provider first
- D. Encourage patients and caregivers to keep an accurate, up-to-date list of medications



# CORRECT RESPONSE

What would be an appropriate intervention by a pharmacy technician to reduce PIMs in older adults?

- A. Tell caregivers to refuse prescriptions for their patients
- B. Inform providers that they cannot prescribed a PIM under any circumstances
- C. Tell patients not to take the PIM in question without discussing with their provider first
- D. Encourage patients and caregivers to keep an accurate, up-to-date list of medications**

# EDUCATING PROVIDERS – APPROPRIATENESS OF MEDICATION

- Four questions to ask:
  1. Is it an inappropriate prescription?
    - Without a clear indication, obvious contraindications, consequence of prescribing cascade
  2. Does the drug lead to adverse effects or interactions that mitigate potential benefits?
  3. If the drug is taken for symptom relief, are the symptoms stable?
  4. Is the drug intended to prevent serious future events, but potential benefit from prescribing may be low due to limited life expectancy?
- If the answer to any of these questions is yes, then the medication should be considered for deprescribing.

# EDUCATING PATIENTS - HEALTH LITERACY

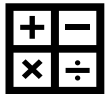
- National Assessment of Adult Literacy (NAAL) indicates the following for adults 60 years of age and older



- 71% had difficulty in using print materials



- 80% had difficulty using documents such as forms or charts



- 68% had difficulty with interpreting numbers and doing calculations

# IMPLEMENTING CRITERIA

- Be aware of evidence-based guidelines for older adults
- Perform and encourage medication regimen review
- Educational programs
- **Clinical decision support systems**
- If you see something – say something!

# CLINICAL DECISION SUPPORT SYSTEMS

## START/STOPP Program Summary

### STARTing and STOPPing Medications in the Elderly

STOPP (Screening Tool of Older Persons' potentially inappropriate Prescriptions) and START (Screening Tool to Alert doctors to Right Treatment) criteria are used to address concerns about inappropriate medication use in the elderly population. Use this scoring system to identify red flags that may require intervention, not as the final word on medication appropriateness.

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**Documenting "Mark as Reviewed" using the Hyperlink below will remove the patient from the Clinical Overview score until a new condition is met.**

### START/STOPP Medication Usage in the Elderly : 7

[Document Scoring System Review](#)

#### **STOPP - proton pump inhibitor: 1 points (Up 1 points since last review) - [Last updated: 10/15/22 0825]**

[Comment](#)

Proton pump inhibitors are not recommended at a full dose for over eight weeks as long-term use at full dose is not indicated for peptic ulcer disease, esophagitis or GERD. Recommend adjusting dose.

#### **START - ACE inhibitor or ARB: 1 points (Up 1 points since last review) - [Last updated: 10/15/22 0825]**

[Comment](#)

Consider starting an ACE inhibitor or ARB for patients with heart failure, post-MI or diabetic nephropathy

#### **START - aspirin: 1 points (Up 1 points since last review) - [Last updated: 10/15/22 0637]**

[Comment](#)

Consider starting aspirin for patients with atrial fibrillation (if warfarin, but not aspirin, contraindicated); cardiovascular, cerebrovascular or peripheral vascular disease in sinus rhythm; primary prevention in diabetes with at least one major cardiovascular risk factor (hypertension, hyperlipidemia, smoking history).

#### **START - clopidogrel: 1 points (Up 1 points since last review) - [Last updated: 10/15/22 0637]**

[Comment](#)

Consider starting clopidogrel as an alternative to aspirin for patients with cardiovascular, cerebrovascular or peripheral vascular disease in sinus rhythm.

#### **START - statin: 1 points (Up 1 points since last review) - [Last updated: 10/15/22 0637]**

[Comment](#)

Consider starting a statin for patients with cardiovascular, cerebrovascular or peripheral vascular disease; independent functional status for activities of daily living and expected to live for more than five years; diabetes plus additional cardiovascular risk factors

#### **START - warfarin: 1 points (Up 1 points since last review) - [Last updated: 10/15/22 0637]**

[Comment](#)

Consider starting warfarin for patients with chronic atrial fibrillation.

#### **START - metFORMIN: 1 points (Up 1 points since last review) - [Last updated: 10/15/22 0637]**

[Comment](#)

Consider starting metFORMIN for patients with type II diabetes.

# WRAP UP

- There are many interventions pharmacists and pharmacy technicians can make when reviewing drug regimens for older adults
- Interventions are not standardized
  - Patient-specific!
- Teamwork-oriented approach to optimizing care for older adult patients is essential
  - This is a growing problem!
  - Collaboration, technology, communication, integration

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A close-up photograph of various pharmaceuticals, including capsules and tablets in shades of red, white, yellow, green, and blue, scattered on a light-colored surface. The focus is sharp on the central pills, with others blurred in the foreground and background.

**THANK YOU!!**

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