Assessing Medication Appropriateness in the Elderly

Using Criteria: Beers & STOPP/START

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Objective

- To understand 2012 Beers Criteria
- To understand Beers Criteria’s impact on clinical decision making for elderly patients
- To understand how is the Beers Criteria and other similar criteria used
- To understand how you can help ensure inappropriate medications are avoided

What is the Beers Criteria?

- Original publication in 1991
- Access to current 2012 AGS Beers Criteria for Potentially Inappropriate Medication Use in Older Adults
Beers Original Intended Use

- Evaluate inappropriate Rx used in NH residents in "common" situations, but under "certain circumstances" might be appropriate (e.g., using amitriptyline to treat pt with both Parkinson's disease and depression): Guide for identifying medications for which risks > benefits
- Clinical research on use of Potentially Inappropriate medications (PIMs)
- QA/QI
- Education of students, residents, others

Beers Original Intended Use

- Not meant to be punitive
- Not meant to supersede clinical judgment or an individual patient's values & needs

Beers Criteria: History and Utilization

- Original 1991 – Nursing home patients
- Updates
  1997 All elderly; adopted by CMS in 1999 for nursing home regulation
  2003 Era of generalization to Med D, then NCQA, HEDIS
  2012 Further adoption into quality measures
Specific Aims 2012 AGS Beers Criteria

Update 2003 Beers Criteria using a comprehensive, systematic review and grading of evidence

Strategy:
1. Incorporate new evidence
2. Grade the evidence
3. Use an interdisciplinary panel
4. Incorporate exceptions

Intent of the AGS 2012 Beers Criteria

Goals:
- Improve care those aged 65 and older in all ambulatory and institutional settings by ↓ exposure to PIMS
- Educational tool
- Quality measure
- Research tool

Additional Intent/Outcome of the AGS 2012 Beers Criteria?

- Underscore the importance of using a team approach & use of non-pharmacological approaches
- Other criteria such as the STOPP/START criteria & Medication Appropriateness Index should be used in a complementary manner
Method to Develop 2012 Beers Criteria

Framework
- Expert panel
  - 11 members
- IOM 2011 report on guideline development
  - Includes a period for public comment
- Literature search

Designations of Quality and Strength of Evidence: ACP Guideline Grading System

Quality
- High Evidence
- Moderate Evidence
- Low Evidence

Strength of Recommendation

Strong
Benefits clearly > risks and burden OR risks and burden clearly > benefits

Weak
Benefits finely balanced with risks and burden

Insufficient
Insufficient evidence to determine net benefits or risks
Strong Recommendation on Weak Evidence?

<table>
<thead>
<tr>
<th>Quality of Evidence</th>
<th>Strength of Recommendation</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Mod</td>
<td>Low</td>
</tr>
<tr>
<td>Desiccated Thyroid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ticlopidine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pentazocine</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Not included in Beer’s List

- Drugs with risks not unique to elderly
  - Purpose is for PIMs specific to elderly
- Drug-drug interactions
  - Not unique to elderly
- List of alternatives
  - Too complex, requires patient specific judgment

Beers List Tables

- Table 2* – PIM list (with some selective caveats)
- Table 3* – PIMs due to Drug – Disease/Syndrome Interaction
- Table 4* – Medications to be used with caution
- Table 5 – Medications moved or modified
- Table 6 – Medications added
- Table 7 – Medications removed
- Table 8 – Antipsychotics
- Table 9 – Drugs with strong anticholinergic properties

* In Pocket Card
2012 AGS Beers Criteria
General Categories

<table>
<thead>
<tr>
<th>1st Category</th>
<th>2nd Category</th>
<th>3rd Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIMs for older people:</td>
<td>PIMs for older people:</td>
<td>Use with caution in older adults</td>
</tr>
<tr>
<td>• Pose high risks of adverse effects OR</td>
<td>• Who have certain diseases/disorders</td>
<td>• May be associated with more risks than benefits in general</td>
</tr>
<tr>
<td>• Appear to have limited effectiveness in older pts AND</td>
<td>• tic these drugs may exacerbate the specified health problems</td>
<td>• However, may be the best choice for a particular individual if administered with caution</td>
</tr>
<tr>
<td>• There are alternatives to these medications</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• 53 medications or medication classes that should be avoided in older adults</td>
<td>• 14 that should be used with caution</td>
</tr>
</tbody>
</table>

Pocket Card Review

Potentially Inappropriate Medications
Potentially Inappropriate Medications

<table>
<thead>
<tr>
<th>Organ System or TC or Drug</th>
<th>Rationale</th>
<th>Recommend</th>
<th>Quality of Evidence</th>
<th>Strength of Recommend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antipsychotics (conventional or atypical)</td>
<td>Increase CVA and CV mortality in dementia</td>
<td>Avoid unless danger to self, others, and non-pharm has failed</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Insulin, sliding scale</td>
<td>Hypoglycemia risk</td>
<td>Avoid</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Chlorpropamide, Glyburide</td>
<td>Hypoglycemia risk</td>
<td>Avoid</td>
<td>High</td>
<td>Strong</td>
</tr>
</tbody>
</table>
## Drugs to Avoid

<table>
<thead>
<tr>
<th>Organ System or TC or Drug</th>
<th>Rationale</th>
<th>Recommend</th>
<th>Quality of Evidence</th>
<th>Strength of Recommend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Megestrol</td>
<td>Minimal effect on weight; risk of thrombotic events and death</td>
<td>Avoid</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Metoclopramide</td>
<td>EPS and TD</td>
<td>Avoid, unless gastroparesis</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Non-COX NSAIDs, oral</td>
<td>GI bleeding; Protection w/ PPIs or misoprostol</td>
<td>Avoid chronic use</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
</tbody>
</table>

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## Drugs to Avoid

<table>
<thead>
<tr>
<th>Organ System or TC or Drug</th>
<th>Rationale</th>
<th>Recommend</th>
<th>Quality of Evidence</th>
<th>Strength of Recommend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estrogens with or w/o progestin</td>
<td>Carcinogenic potential, lack of efficacy in dementia/CV dz prevention</td>
<td>Avoid oral and topical patch. Topical cream safe and effective for vaginal symptoms</td>
<td>High</td>
<td>Strong</td>
</tr>
<tr>
<td>Muscle Relaxants</td>
<td>Ineffective at tolerated doses, antichol, falls</td>
<td>Avoid</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
</tbody>
</table>

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## Drug-disease/syndrome Interactions

<table>
<thead>
<tr>
<th>Disease or Syndrome</th>
<th>Drug</th>
<th>Rational</th>
<th>Recommend</th>
<th>Quality of Evidence</th>
<th>Strength of Recomm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insomnia</td>
<td>Oral decongestants, Stimulants, Theobromines</td>
<td>CNS stimulant effects</td>
<td>Avoid</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
</tbody>
</table>
Drug-disease/syndrome Interactions

**Dabigatran**
- **Rationale**: Risk of bleeding; lack of evidence if CrCl < 30mL/min
- **Recommendation**: Use with caution if ≥75 or if CrCl < 30mL/min
- **Quality of Evidence**: Moderate
- **Strength of Recommendation**: Weak

**Drugs linked to SIADH/\(\text{Hyponatremia}\)** (e.g. SSRI, TCA, CBZ, antipsychotics)
- **May exacerbate or cause SIADH/hyponatremia; monitor**
- **Recommendation**: Use with caution
- **Quality of Evidence**: Moderate
- **Strength of Recommendation**: Strong
Previous Drugs to Avoid Dropped in 2012 AGS Beers Criteria

- Cycandelate: Off market
- Guanethidine, guanadrel: Off market
- Propoxyphene: Off market
- Stimulant laxative, chronic: New safety info
- FeSO4 325mg daily: Not geriatric specific
- Amphetamines/anorexics: Risk not geriatric specific
- Cimetidine and Fluoxetine: DDRI risk not geri. specific
- Ethacrynic acid: Weak ototoxicity evidence

Drug-Disease Interactions Dropped from 2003 Beers Criteria

<table>
<thead>
<tr>
<th>Drug/Drug Class</th>
<th>Disease</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>CNS stimulants</td>
<td>Anorexia</td>
<td>Limited evidence</td>
</tr>
<tr>
<td>Antithrombotic</td>
<td>Bleed. dx/warfarin</td>
<td>Drug-drug interaction</td>
</tr>
<tr>
<td>Disopyramide</td>
<td>CHF</td>
<td>Seen with others</td>
</tr>
<tr>
<td>High sodium agents</td>
<td>CHF</td>
<td>Few agents</td>
</tr>
<tr>
<td>BZD, Beta blockers,</td>
<td>COPD</td>
<td>New safety evidence</td>
</tr>
<tr>
<td>BZD</td>
<td>Depression</td>
<td>Limited evidence</td>
</tr>
<tr>
<td>Select α blockers</td>
<td>Depression</td>
<td>Only in high doses</td>
</tr>
<tr>
<td>Barbiturates</td>
<td>Dementia</td>
<td>Low use</td>
</tr>
<tr>
<td>CNS stimulants</td>
<td>Dementia/HTN</td>
<td>Limited evidence</td>
</tr>
<tr>
<td>MAOIs</td>
<td>Insomnia</td>
<td>Occurs with only some</td>
</tr>
<tr>
<td>Sertraline</td>
<td>Obesity</td>
<td>Weight gain seen with all</td>
</tr>
</tbody>
</table>

Uses of the Beers Criteria in Clinical Care

- Patient-centered
- Patient-specific goals
- Tolerance for deviation from EBM care guidelines
- Requires system-level approaches
- Population-centered
- Benchmark goals
- Less tolerance for deviation from EBM care guidelines
- Requires system-level approaches
Beers Criteria only Part of Quality Prescribing

- Quality prescribing includes
  - Correct drug for correct diagnosis
  - Appropriate dose (label; dose adjustments for comorbidity, drug-drug interactions)
  - Avoiding underuse of potentially important medications (e.g., bisphosphonates for osteoporosis)
  - Avoiding overuse (e.g., antibiotics)
  - Avoiding potentially inappropriate drugs
  - Avoiding withdrawal effects with discontinuation
  - Consideration of cost

Perceived Barriers to Appropriate Prescribing

- Polypharmacy, can't review such a long list
- "Best" drugs may cost too much
- Worrying about drug interactions if making drug changes
- Time involved

Ramaswamy R et al, J Eval Clin Pract 2011

Perceived Barriers to Appropriate Prescribing

- Difficulty communicating with pt’s other prescribing clinicians
- Lack of knowledge re Beers
- Lack of therapeutic alternatives
- Patient unwillingness to change
- Discomfort changing a med another clinician prescribed

Ramaswamy R et al, J Eval Clin Pract 2011
Why are BEERS Drugs Used

- All of the previous mentioned barriers
- RN/Family Request
- Lack of Tested Non Drug Alternatives
- Multiple prescribers
- Risk of drug is less than risk of condition
- Palliative Care and other special cases and populations

Reducing PIMS

- 88 Year Old Patient Falling at Home
- Sticky Note from Nurse
- Importance of ALL PLAYERS in reducing PIMS

What can nurses do?

- Initiate non-drug approaches
- Admission and discharge teaching with family and patient about risks and alternatives to PIMs
- Review scheduled and non-scheduled meds when the older adult has a change in function
- Observe and communicate medication responses
- For behavioral issues—Use pharm as a last resort T-A-DA Anticipate, Tolerate, Don’t Agitate further (Flaherty & Tumos, 2011)
What can interdisciplinary team members do?

- Lead inter-professional practice rounds with other team members/disciplines using AGS BC POCKETCARDS

What can nurses do?

- Involve family & caregivers in care and non-drug approach—consider patient values/preferences
- For more—see teaching case study in June 2012 Journal of Gerontological Nursing on AGS Website under related resources

Interventions to Decrease Use of PIMs

- NonPharm Interventions
- Education
- Geriatric Medicine services
- Pharmacist interventions
- Computerized support systems
- Regulation

Kaur S et al, Drugs Aging 2009
Other Tools/Resources

- STOPP Criteria 2006
- START Criteria 2006
- Medication Appropriateness Index

STOPP Criteria

Screening Tool of Older Persons’ potentially inappropriate Prescriptions

65 rules relating to the most common and the most potentially dangerous instances of inappropriate prescribing in older people

STOPP Criteria

Gastrointestinal

- Diphenoxylate, loperamide or codeine phosphate for treatment of:
  - diarrhoea of unknown cause (risk of delayed diagnosis, may exacerbate constipation with overflow diarrhoea, may precipitate toxic megacolon in inflammatory bowel disease, may delay recovery in unrecognised gastroenteritis).
  - infective gastroenteritis i.e. bloody diarrhoea, high fever or severe systemic toxicity (risk of exacerbation or protraction of infection).

PPI for peptic ulcer disease at full therapeutic dosage for > 8 weeks (dose reduction or earlier discontinuation indicated).
Urology

Bladder antimuscarinic drugs:
- with dementia (risk of increased confusion, agitation).
- with chronic glaucoma (risk of acute exacerbation of glaucoma).
- with chronic constipation (risk of exacerbation of constipation).
- with chronic prostatism (risk of urinary retention).

Drugs that adversely affect those prone to falls

Benzodiazepines (sedative, may cause reduced sensorium, impair balance).
Neuroleptic drugs (may cause gait dyspraxia, Parkinsonism).
First generation antihistamines (sedative, may impair sensorium).

START Criteria

Screening Tool to Alert doctors to the Right Treatment

22 rules relating to common instances of prescribing omission

Cardiovascular

Warfarin in the presence of chronic atrial fibrillation, where there is no contraindication to warfarin.

Antihypertensive therapy where systolic BP consistently >160 mmHg, where antihypertensive therapy is not contraindicated.

Statin therapy in patients with documented history of coronary, cerebral or peripheral vascular disease, where the patients' functional status remains independent for activities of daily living and life expectancy is more than 5 years.

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 drugs?
9. Is the duration of therapy acceptable?
10. Is this drug the least expensive alternative compared with others of equal usefulness?
Summary: AGS 2012 Beers Criteria

- Are explicit criteria supported by evidence-based literature
- Guidelines for identifying medications whose risks > benefits in older adults
- Not meant to supersede clinical judgment or individual patient values or needs

Limitations

- Evidence base available
- What’s not covered
  - Dose-adjustments for kidney function
  - Drug-drug interactions
  - Therapeutic duplication
- Special populations within geriatrics
- Search strategy - missed information

Take homes

- Don’t let the perfect be the enemy of the good
- Beers PIMs are only part of appropriate prescribing
- Target initiatives to high prevalence/high severity meds (based on local data, where possible)
- Stopping meds should be done with same consideration as starting
- Beers Criteria = Patient-centered care
Potentially Inappropriate

Caution
- Slow down
- Monitor closely for effectiveness & adverse events
- Why is the patient on this drug?

Potentially Inappropriate

Caution
- Is this drug appropriate?
- Does the patient still require treatment?
- Does the risk of this medication outweigh the benefit?
- Is this the best drug for my patient? Is there a safer or more effective alternative?

Remember....

- Not intended to mandate drug prescribing
- Intended to serve as guidance to good geriatric care & principles
- Not meant to supersede the clinical judgement of the prescriber
- To help providers best monitor older patients, reduce risk & prevent harm that all too commonly occurs with medication use

Tools You Can Use

Pocket Card

AGS Guidelines
http://www.americangeriatrics.org/health_care_professionals/clinical_practice/clinical_guidelines_recommendations/2012

Tools You Can Use: App

Questions

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*Some of the slides in this presentation were used or adopted from AGS BEERS Criteria Training Slides