AGS UPDATED 2012 BEERS CRITERIA
FOR POTENTIALLY INAPPROPRIATE MEDICATION USE IN OLDER ADULTS

THE AMERICAN GERIATRICS SOCIETY
Geriatrics Health Professionals.
Leading Change. Improving care for older adults.
Disclosures

Conflict of Interest

Drs. Dombrowski, Fick, Flanagan, Hanlon, Hollmann, Rehm, Sandhu, and Steinman indicated no conflicts of interest. Dr. Beizer is an author and editor for LexiComp, Inc. She is on the Pharmacy and Therapeutics Committee for Part D at Medco Health Solutions. Dr. Brandt is on the Pharmacy and Therapeutics Committees at Omnicare and receives grants from Talyst (research grant), Econometrics (research grant), Health Resources and Services Administration (educational grant), and the State of Maryland Office of Health Care Quality (educational grant). Dr. Dubeau serves as a consultant for Pfizer, Inc. (urinary incontinence) and the New England Research Institute (nocturia). Dr. Hanlon is supported in part by National Institute on Aging grants and contracts (R01AG027017, P30AG024827, T32 AG021885, K07AG033174, R01AG034056), a National Institute of Nursing Research grant (R01 NR010135), and an Agency for Healthcare Research and Quality grants (R01 HS017695, R01HS018721). Dr. Linnebur receives an honorarium for serving as a member of the Pharmacy and Therapeutics Committee for Colorado Access (a health plan serving indigent children and adults and Medicare members). Dr Nau works for the PQA, which has received demonstration project grants from Pfizer, Inc., Merck & Co, Inc, sanofi-aventis, and GlaxoSmithKline. He also has held shares with CardinalHealth in the past 12 months. Dr. Semla receives honoraria from AGS for his contribution as an author of Geriatrics at Your Fingertips and for serving as a Section Editor for the Journal of the American Geriatrics Society. He is a past President and Chair of the AGS Board of Directors. His spouse is an employee of Abbott Laboratories. He serves on the Omnicare Pharmacy and Therapeutics Committee (long-term care). He is an author and editor for LexiComp, Inc.

Author Contributions

All panel members contributed to the concept, design, and preparation of the manuscript.

Sponsor’s Role

AGS staff participated in the final technical preparation and submission of the manuscript.

The American Geriatrics Society gratefully acknowledges the support of Bristol-Meyers Squibb, the John A. Hartford Foundation, Retirement Research Foundation and Robert Wood Johnson Foundation for the dissemination of the 2012 Beers Criteria.
Objectives

- Understand commonly used medications that should be avoided in the elderly.
- Understand how to use the 2012 Beer’s list in clinical decision making.
- Understand coding and payment for pharmacotherapy management.
Mark H Beers, MD 1954-2009

- MD, Univ of Vermont
- First med student to do a geriatrics elective at Harvard’s new Division on Aging
- Geriatric Fellowship, Harvard
- Faculty, UCLA/RAND
- Co-editor, Merck Manual of Geriatrics
- Editor in Chief, Merck Manuals

“A ballet-dancing opera critic who hiked the Alps and took up rowing after diabetes cost him his legs”
Original Purpose

**1991 Original Beers Criteria**

- 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)
- Clinical research on use of Potentially Inappropriate medications (PIMs)
- QA/QI
- Education of students, residents
Beers Criteria: History and Utilization

- Original 1991 – Nursing home pts
- 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

Specific aim: 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 by ↓ exposure to PIMS
- Educational tool
- Quality measure
- Research tool

Prescribing measure vs. Quality measure
Method

Framework

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

- Co-chairs
  - Donna Fick, PhD, RN, FAAN
  - Todd Semla, MS, PharmD

- Panelists (voting)
  - Judith Beizer, PharmD
  - Nicole Brandt, PharmD
  - Catherine DuBeau, MD
  - Nina Flanagan, CRNP, CS-BC
  - Joseph Hanlon, PharmD, MS
  - Peter Hollmann, MD
  - Sunny Linnebur, PharmD
  - Stinderpal Sandhu, MD
  - Michael Steinman, MD

- Nonvoting Panelists
  - Robert Dombrowski, PharmD (CMS)
  - David Nau, PhD (PQA)
  - Bob Rehm (NCQA)

- AGS Staff
  - Christine Campenelli
  - Elvy Ickowicz, MPH

- Others
  - Sue Radcliff (research)
  - Susan Aiello, DVM (editing)
Designations of Quality and Strength of Evidence: ACP Guideline Grading System, GRADE

Quality

- High Evidence
  - Consistent results from well-designed, well-conducted studies that directly assess effects on health outcomes (2 consistent, higher-quality RCTs or multiple, consistent observational studies with no significant methodological flaws showing large effects)

- Moderate Evidence
  - Sufficient to determine effects on health outcomes, but the number, quality, size, or consistency of included studies, generalizability, indirect nature of the evidence on health outcomes (1 higher-quality trial with > 100 participants; 2 higher-quality trials with some inconsistency, or 2 consistent, lower-quality trials; or multiple, consistent observational studies with no significant methodological flaws showing at least moderate effects) limits the strength of the evidence

- Low Evidence
  - Insufficient to assess effects on health outcomes because of limited number or power of studies, large and unexplained inconsistency between higher-quality studies; important flaws in study design or conduct, gaps in the chain of evidence
  - Or lack of information on important health outcomes
Designations of Quality and Strength of Evidence: ACP Guideline Grading System, GRADE

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></td>
<td>High</td>
<td>Mod</td>
</tr>
<tr>
<td>Desiccated Thyroid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ticlopidine</td>
<td></td>
<td>X</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
Tables (*pocket card limited to first 3 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 removed
- Table 7 – Medications added
- Table 8 – Antipsychotics
- Table 9 – Drugs with strong anticholinergic properties
Table 2. Drugs to Avoid (except if...)

<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>Nitrofurantoin</td>
<td>Pulmonary tox Alternatives Lack of efficacy &lt;60 mL/min</td>
<td>Avoid long term suppression; avoid if CrCl &lt;60 mL/min</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<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>
## Table 2. Drugs to Avoid (except if...)

<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>Benzodiazepines Short and long acting</td>
<td>Risk cognitive effects and injury (fall/MVA); rare use appropriate eg benzo withdrawal</td>
<td>Avoid for treatment of insomnia, agitation, or delirium</td>
<td>High</td>
<td>Strong</td>
</tr>
<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>Metclopramide</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>
<tr>
<td>Organ System or TC or Drug</td>
<td>Rationale</td>
<td>Recommend.</td>
<td>Quality of Evidence</td>
<td>Strength of Recommend.</td>
</tr>
<tr>
<td>----------------------------</td>
<td>-----------</td>
<td>------------</td>
<td>---------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>Non Benzodiazepines Hypnotic s (“z” drugs)</td>
<td>Risk cognitive effects and injury (fall/MVA); same ADE as benzo’s</td>
<td>Avoid chronic use, &gt;90 days</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<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>
## Table 3. Drug-disease/syndrome Interactions

<table>
<thead>
<tr>
<th>Disease or Syndrome</th>
<th>Drug</th>
<th>Rationale</th>
<th>Recomm.</th>
<th>Quality of Evidence</th>
<th>Strength of Recomm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Syncope</td>
<td>AChEIs Peripheral α-blockers</td>
<td>Orthostatic hypotension or bradycardia</td>
<td>Avoid</td>
<td>α-blockers: High TCAs, AChEls, antipsych: Moderate</td>
<td>AChEls, TCAs: Strong α-blockers, antipsych: Weak</td>
</tr>
<tr>
<td></td>
<td>Tert. TCAs Chlorpromazine</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Thioridazine</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Olanzapine</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insomnia</td>
<td>Oral decongestants Stimulants</td>
<td>CNS stimulant effects</td>
<td>Avoid</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td></td>
<td>Theobromines</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Use of Caveats

- “Z” drugs for sleep: avoid *chronic* use
- Testosterone: avoid *unless indicated* for moderate to severe hypogonadism
- Topical vaginal estrogen: acceptable *low dose* use for specific conditions
- Spironolactone: avoid >25 mg/day in pts with heart failure or CrCl <30
- Antipsychotics: avoid *unless* nonpharm treatment has failed or threat to self/others
### Table 4. Use with Caution

<table>
<thead>
<tr>
<th>Drug</th>
<th>Rationale</th>
<th>Recommend</th>
<th>Quality of Evidence</th>
<th>Strength of Recommend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dabigatran</td>
<td>Risk of bleeding; lack of evidence if CrCl &lt; 30mL/min</td>
<td>Use with caution if &gt;75 or if CrCl &lt; 30mL/min</td>
<td>Moderate</td>
<td>Weak</td>
</tr>
<tr>
<td>Drugs linked to SIADH/ Hyponatremia (eg SSRI, TCA, CBZ, antipsychotics)</td>
<td>May exacerbate or cause SIADH/ hyponatremia; monitor</td>
<td>Use with caution</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
</tbody>
</table>
## Previous Drugs to Avoid Dropped from 2012 AGS Beers Criteria

<table>
<thead>
<tr>
<th>DRUGS</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyclandelate</td>
<td>• Off market</td>
</tr>
<tr>
<td>Guanethidine, guanadrel</td>
<td>• Off market</td>
</tr>
<tr>
<td>Propoxyphene</td>
<td>• Off market</td>
</tr>
<tr>
<td>Stimulant laxative, chronic</td>
<td>• New safety info</td>
</tr>
<tr>
<td>FeSo4 325mg daily</td>
<td>• Not geriatric specific</td>
</tr>
<tr>
<td>Amphetamines/anorexics</td>
<td>• Risk not geriatric specific</td>
</tr>
<tr>
<td>Cimetidine and Fluoxetine</td>
<td>• DDI risk not geri. specific</td>
</tr>
<tr>
<td>Ethacrynic acid</td>
<td>• Weak ototoxicity evidence</td>
</tr>
</tbody>
</table>
## Previous 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>TCA</td>
<td>Cardiac conduction</td>
<td>Primarily with OD</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</td>
<td>Limited evidence</td>
</tr>
<tr>
<td>CNS stimulants</td>
<td>Hypertension</td>
<td>Limited evidence</td>
</tr>
<tr>
<td>MAOIs</td>
<td>Insomnia</td>
<td>Occurs with only some</td>
</tr>
<tr>
<td>Pseudoephedrine</td>
<td>LUTS</td>
<td>Limited evidence</td>
</tr>
<tr>
<td>Olanzapine</td>
<td>Obesity</td>
<td>Weight gain seen with all</td>
</tr>
</tbody>
</table>
# Uses of the Beers Criteria in Clinical Care

<table>
<thead>
<tr>
<th>Quality Prescribing</th>
<th>Quality Performance Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Patient-centered</td>
<td>▪ Population-centered</td>
</tr>
<tr>
<td>▪ Patient-specific goals</td>
<td>▪ Benchmark goals</td>
</tr>
<tr>
<td>▪ Tolerance for deviation from EBM care guidelines</td>
<td>▪ Less tolerance for deviation from EBM care guidelines</td>
</tr>
<tr>
<td>▪ Requires system-level approaches</td>
<td>▪ Requires system-level approaches</td>
</tr>
</tbody>
</table>
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
- 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
What are the challenges of using them in clinical care?

- All of the above perceived 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
Coding and Payment for Rx Management

- Traditional FFS Physician (and NPPs)
- Part D
- PQRS
- Pay for Performance – 5 Star; negotiate
Most management occurs in context E/M
  - If counseling and coordination of care dominate service report using F2F time

Transition Care Management
  - 2013 Medicare Proposes TCM services
    - 30 days of management
    - E/M separately reported
    - Major aspect is Rx management and education
Part D

- MTM services by pharmacists
- Traditionally by PBM
- Make a case for use of pharmacists in your practice if multi-disciplinary service, negotiate contract
PQRS

- 0.5% Incentive 2012
  - Penalty 2015
- Reporting by Claims, Registry, EMR, Groups
- Several Pharmacotherapy Measures
  - #46 Medication Reconciliation with 60 days of D/C
    - Claims/Registry
  - #130 Rx List every visit, includes OTC
    - Claims/Registry
  - #238 Drugs to Avoid in the Elderly
    - Electronic Record
5 Star (Medicare Advantage Plans)

- Incentive Program for Part C Plans
  - HEDIS, CAHPS, Complaints etc.
- Includes Part D related metrics
  - DAE, Adherence, Appropriate Drug for Condition
- Large Financial Impact to Plans
  - Your superior performance helps plan performance
  - P4P opportunity in your plan?
  - If you negotiate P4P remember Plan performance is not just about your Rx, but your performance measure possibly should be
Reducing PIMS

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

“Pt. takes Tylenol PM at home for sleep and would like it or it’s equivalent ordered for here.”

Thanks
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 nurses & other 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

## Non-Drug Approaches

**Targeting Behavior and Symptoms**
- Dementia
- “TADA” VA Health
- Resistive Behaviors
- Needs Based Approach
- Sleep
- Cardiovascular

**Educational Interventions**
- AGS Website Materials
- Interprofessional
- Use of EHR/CDSS
- Target Groups
- Consumers
NON-DRUG SLEEP PROTOCOL

(Agostini et al., 2007; McDowell et al., 1998)
Examples of Non-Drug Alternatives

- Sleep protocol (Agostini et al., 2007)
- Bright Light Therapy (Taguchi et al 2007) for delirium, sleep, depression
- Physical Activity/Exercise
- Diet
- Cognitive Stimulation, Music
- Olfactory Stimulation (Sakamoto et al., 2012)
- http://clinicaltrials.gov/

CAVEATS

The area of non-drug therapies is:

- Lacking in RCT’s
- Can be expensive and time-consuming to conduct
- But important & usually low risk
- Search on clinical trials
Interventions to Decrease Use of PIMs

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

Kaur S et al, Drugs Aging 2009
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
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
Summary: AGS 2012 Beers Criteria

- Beers Criteria have come a long way since 1991
- 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

The American Geriatrics Society gratefully acknowledges the support of the John A. Hartford Foundation, Retirement Research Foundation and Robert Wood Johnson Foundation.
AGS Beers Criteria Website

Criteria
- Full Article
- Editorial
- Perspective

Available at: Americangeriatrics.org

Beers Criteria Pocket Card
Beers Criteria App

Public Education Resources for Patients & Caregivers
- AGS Beers Criteria Summary
- 10 Medications Older Adults Should Avoid
- Avoiding Overmedication and Harmful Drug Reactions
- What to Do and What to Ask Your Healthcare Provider if a Medication You Take is Listed in the Beers Criteria
- My Medication Diary - Printable Download
- Eldercare at Home: Using Medicines Safely - Illustrated PowerPoint Presentation
FREE Beers Criteria Apps