The Path to Geriatric Sensitive Evidence - Based Care: Medications and Older Adults

Barberton Hospital

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We specialize in you.
Aging Population

By 2030, older adults will make up 20% of the population

U.S. Census Bureau, Population Estimates and Projections 2014
Average 75 year old has 3 chronic conditions and takes $\geq 5$ medications

The State of Aging and Health in America, 2013
Geriatric Syndromes

- Dementia
- Delirium
- Depression
- Functional decline
- Falls
- Pressure ulcers
- Sensory Loss

- Urinary retention
- Incontinence
- Constipation
- Malnutrition
- Dehydration
- Difficulty swallowing
- Poly pharmacy
Older Adult Consumers of Health Care

- 57% of visits to generalist physicians
- Recipients of 50% of hospital spending
- 80% of home care visits
- 90% of nursing home care
- Highest rate of readmission and LOS

- More likely to experience a loss of function
- Suffer complications
- Experience adverse drug events
- 50% who present to the ED with an ADR – Coumadin, oral antiplatelets, insulin, and oral hypoglycemics
Challenges with Older Adults and Medications

- Prescribed medications more frequently than any other age group
- Medication dosages are generally determined by clinical trials done in relatively young healthy people
- Affected by age related changes in metabolism and body composition
- Cognition – MCI, dementia, delirium
- Function – IADL’s and ADL’s
Summa Health Barberton Hospital

- Community Hospital - Founded in 1915
- Average daily census 150
- 53% older adults
Barberton

Population 26,337  >65 4,345 (16.5%)

Distribution of Residents' Ages

US Census Bureau quickfacts.census.gov
Geriatric Services Introduced in 2012

SWOT Analysis

- SHS recognized nationally for advances in Geriatric medicine
- Minimal presence of Geriatric focused services
- Recognition and agreement by leadership
- Apprehension by some physician groups

- Acute Care for the Elderly (ACE) Unit
- Acute Palliative Care Unit
- Inpatient Geriatric Consult
ACE Model of Care

The Acute Care for Elders Model - Integrates principles of geriatric assessment and continuous quality improvement

1. Patient-centered care
   - Prehab - Functional assessment (Barthel Index)
   - Guidelines for plans of care for geriatric syndromes

2. Interdisciplinary Team

3. Home - like environment

4. Early discharge planning: target date
Interdisciplinary Team

- Geriatrician
- Geriatric CNS
- Caring RN
- Case Management
- Rehab
- Social Work
- Dietary
- Pharmacist
ACE Unit

- Medical – Surgical Unit
- 29 beds with ADC 25
- 60% of patients >65
- 80% are community dwellers
- 26% have documented history of dementia
- 41% experience delirium during their stay
- 90% present with functional decline
- 87% are on ≥ 5 or more medications

Summa Health Barberton Hospital, ACE Data, 2013-2014
Guiding Resource

Beers Criteria for Potentially Inappropriate Medication (PIM) use in Older Adults

- Initially developed in 1991 for nursing home residents
- Updated and expanded in 1997 and 2003 to include all settings
- Revised by an interdisciplinary panel of 11 experts in geriatric care and pharmacotherapy 2012
  - Used a rigorous comprehensive, systematic review (2001-2011) to update and expand criteria
- Commitment by American Geriatric Society to regularly review and update in accordance with Institute of Medicine standards
- Next update to be published early 2016

Beers Criteria Components

- Organ System or Therapeutic Category of Drug
- Rationale for potential inappropriate use
- Recommendation: Avoid or use in certain circumstances
- Quality of Evidence: high, moderate, low
- Strength of recommendation: strong, weak, insufficient
Classifications

- PIMs and classes to avoid in older adults
- PIMs and classes to avoid in older adults with certain diseases and syndromes that the drugs can exacerbate
- Medications to be used with caution
### Central Nervous System

**Benzodiazepines**

**Short- and intermediate-acting:**
- Alprazolam
- Estazolam
- Lorazepam
- Oxazepam
- Temazepam
- Triazolam

**Long-acting:**
- Clorazepate
- Chlordiazepoxide
- Chlordiazepoxide-amitriptyline
- Clidinium-chlordiazepoxide
- Clonazepam
- Diazepam
- Flurazepam
- Quazepam

**Rationale:**

Older adults have increased sensitivity to benzodiazepines and decreased metabolism of long-acting agents. In general, all benzodiazepines increase risk of cognitive impairment, delirium, falls, fractures, and motor vehicle accidents in older adults.

May be appropriate for seizure disorders, rapid eye movement sleep disorders, benzodiazepine withdrawal, ethanol withdrawal, severe generalized anxiety disorder, peri-procedural anesthesia, end-of-life-care.

**Recommendation:**

Avoid benzodiazepines (any type) for treatment of insomnia, agitation, or delirium

**Quality of Evidence:** High

**Strength of Recommendation:** Strong

**References:**
- Allain 2005
- Cotroneo 2007
- Finkle 2011
- Paterniti 2002
Incorporating the Beers Criteria on the ACE Unit

High Risk Medications in Elderly Patients

<table>
<thead>
<tr>
<th>Medications of Risk</th>
<th>Considerations</th>
<th>Examples of Alternatives</th>
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<tbody>
<tr>
<td><strong>Benzodiazepines</strong></td>
<td>Adverse effects: confusion, falls, functional decline, dependence, delirium. Long acting agents have a prolonged half-life (up to 4 days). If use is necessary, use low dose short period of time. If patient is already on, decrease dose by 25% initially and give as scheduled doses. Weaning may take months.</td>
<td>Slow Onset (long-term use): Sertraline 25mg po daily-titrate prn Venlafaxine (Effexor) XR 37.5-75mg daily**-titrate prn Fast Onset: For Anxiety: Lorazepam (Ativan) 0.25-0.5mg po bid-tid</td>
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<tr>
<td>Alprazolam (Xanax)</td>
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<td>Chlordiazepoxide (Librium)*</td>
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<td>Clonazepam (Klonopin)</td>
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<td>Clorazepate (Tranxene)</td>
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<td>Diazepam (Valium)*</td>
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<td>Flurazepam (Dalmane)*</td>
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<td>Lorazepam (Ativan)</td>
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<td>Oxazepam (Serax)</td>
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<td>Temazepam (Restoril)</td>
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<td><strong>Tricyclic Antidepressants, tertiary amines</strong></td>
<td>Most anticholinergic of tricyclics. Adverse effects: confusion, oversedation, orthostatic hypotension, falls, and urinary retention.</td>
<td>For neuropathy: Gabapentin (Neurontin)-dose renally Lidocaine 5% Patch: 12 hrs on, 12 hrs off Duloxetine 30 mg daily-titrate prn For depression: Sertraline 25mg daily-titrate prn Venlafaxine (Effexor) XR 37.5-75mg daily**-titrate prn</td>
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<td>Amitriptyline (Elavil)</td>
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<td>Doxepin (Sinequan)</td>
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<td>Imipramine (Tofranil)</td>
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<td><strong>Antipsychotic Agents</strong></td>
<td>All have anticholinergic effects. Adverse effects: confusion, oversedation, orthostatic hypotension, falls, urinary retention, parkinsonism, tardive dyskinesia. Studies show increased risk of mortality in elderly patients: weigh benefit vs risks</td>
<td>Avoid haloperidol use in Parkinson’s pts Haloperidol (Haldol) loading dose of 0.5-1mg po q2hrs prn until pt is calm or 0.5-1mg IM q30 minutes until pt is calm then 0.5 mg po q6hrs prn (max dose=5mg/day) Risperidone (Risperdal) 0.5 mg po bid Quetiapine (Seroquel) 12.5 mg po bid, at 5pm and 10pm</td>
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<tr>
<td>Chlorpromazine (Thorazine)</td>
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<td>Thioridazine (Mellaril)</td>
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<td>Haloperidol (Haldol) &gt;5 mg</td>
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Prevalence of PIM Use

- **Retrospective Cohort Study 2015**
  - Medical Expenditure Panel Survey (MEPS) 2006-2010
    - Ongoing, overlapping survey sponsored by AHRQ – collect detailed and nationally representative information on healthcare use and expenditures, insurance coverage, sources of payment, health status, and sociodemographic variables
  - Beer’s Criteria 2012

- **Observations**
  - 42.6% had at least one medication fill of a PIM
  - PIM use by drug category: NSAIDs 10.9%; Benzodiazepines 9.3%
  - 2006-2007 45.5%  2009-2010 40.8%
  - Largest decline in NSAIDs, sulfonylureas, and estrogens
Quality Improvement

- Nursing Driven Delirium Prevention
- GRN Model of Care
- Pharmacist presence on ACE Unit
Delirium

Prior to the implementation of the Nursing Driven Acute Delirium Prevention Protocol –

- The prevalence of delirium on the ACE Unit was 52.8%. One year later, the prevalence decreased to 29.8% (p=0.001)
- Discharges to home increased significantly from 56.8% to 73.2% (p=0.02)
- Length of stay was significantly shorter after 1 year 4.08 vs 5.27 days (p=0.02)
GRN Model of Care

- Focus on education and clinical interventions in geriatric best practices at the bedside
- 20 hour course of study and opportunity for board certification
- Geriatric Resource Nurse
  - Model best practice in geriatrics
  - Educate, inform, and mentor
  - Decrease exposure to PIMs
  - Promote non-pharmacologic approaches to care
- Serve as an extension of geriatric sensitive care throughout the hospital
Pharmacist on Location

- Focus on medication reconciliation through transitions
- Review of PIMs
- Poly pharmacy – drug/drug, dosage, side effects
- Educate, inform, mentor
- Discharge teaching
- Collaborate with physicians
Who do you see?
Meet Don Luzio…….Don owns Don’s Mower Service which is located in North Canton by Ernie’s Bike Shop. I met Don when I took my weed whacker in for repair. Don was just a cool guy and I really connected with him. Don has been at the current location since 1999 but has been in business for over 30 years.

In 2001, Don gave the business to his older son who did a great job of running it but unfortunately he passed away in 2008 so Don came back and has been running it with his younger son, Dale.

Don was telling me about his military service in Korea. Don was in the USMC. He said he volunteered for cleanup there in Korea and he was there for a little over a year and he loved it there. He said he got into a routine and enjoyed the people.

During our conversation, he looked away and said that his wife of 59 years had just passed away. You could see the sadness in his eyes. Not only was she his wife but she also helped as their bookkeeper.

Don is 81 and still manages to go every day and help out. If you need your mower or small engine repaired give Don a try! – Joe Alberts, "Characters of Canton"
PEARLS

- Beers Criteria is an evidence-based tool used to guide medication selection in older adults
- Medications - start low and go slow
- In the acute care environment identify those at risk for delirium and maximize non pharmacologic interventions
- Accurate medication reconciliation is imperative
References


- HealthinAging.org, *The American Geriatrics Society*, (20150


