IMPROVING MEDICATION SAFETY AMONG ELDERLY PATIENTS IN AN AMBULATORY SETTING

Alyssa Berry, Rebecca Burgett, Erin Day, Aron Hrubetz
Improving Medication Safety Among Elderly Patients in an Ambulatory Setting

- Background & Objectives
- Methods
- Timeline
- Results
- Summary
Background & Statistics

- Older patients have a higher prevalence of comorbidities & other physiological changes that increase risk of harm
- Medications don’t have the same risk-benefit profile for the elderly
- In 2012, there were 43.1 million Americans aged 65 & older (U.S. Census Bureau, 2012)
  - By 2030, estimated 20% of the American population will be 65 & older
  - Thought to increase to 83.7 million by 2050
- An estimated 99,000 elderly patients are admitted to the hospital annually due to medication-related events
Background: What is the Beers List?

- Ages 65 and older
- Medications that can cause adverse reactions in the elderly
- Used by healthcare providers to help choose the right medications for patients’ health conditions
- Updated periodically by the American Geriatric Society
  - Last updated in 2015
Background: Why is the Beers List important?

- Helps eliminate:
  - Polypharmacy
  - Complex regimens
  - Preventable adverse events or side effects
Inappropriate Medications in the Elderly

- Cardiovascular meds
- Benzodiazepines
- Antidepressants
- Anticholinergics
- Others
- Possible adverse events:
  - Delirium/confusion
  - Cardiovascular issues
  - Increased risk of falls
Literature Review: Prior Attempts

- **Patient education** (Tannenbaum et al, 2014)
  - EMPOWER study educated patients so they could make an informed decision
  - Outcome: Discontinuation rate of 27% compared with 5% in control group (6 months later)
  - 11% of patients achieved dose reduction

- **Prescription flags** (Raebel et al, 2007)
  - Alerts for pharmacists at the point of script verification
  - Risky medications for the patient’s age
Objective

- To improve medication safety among elderly ambulatory patients via student pharmacist medication review.

- Options:
  - Discontinue medication
  - Decrease dose to lessen the chance or effect of an adverse event
  - Switch medication to safer alternative
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- Received report (Nov 2016 by PPRNet) of patients age 65 and older who had a Beers List medication on their med list
  - Site: Northeast Iowa Family Practice Center (Waterloo, Iowa)
Methods

- Inclusion criteria:
  - Age 65 and older
  - Beers List medication on med list
  - Active patient at site

- Exclusion criteria:
  - No-contact list
  - Hospice
  - Deceased
Methods

Student Pharmacist

Patient

Physician
Methods

1) Lit review and project design
   - Developed scripts for phone interactions with patients
   - Developed scripts for email interactions with physicians
   - Created shared database for patient data collection

2) Access to and training on EMR system

3) Chart review via EMR
   - To determine which medication was flagged by the report
Methods

4) Called patient (if needed)
   • To see if still taking the medication & how often

5) Determined final drug therapy change
   ▪ Discontinuation, taper off, or switch to a safer alternative

6) Contacted doctor via EMR
   ▪ To ask permission for drug therapy change
Methods

7) If approved, contacted patient
   ▪ To educate, inform of drug therapy change, and assess willingness to participate in regimen change

8) Contacted physician or Dr. Hoehns (if needed)
   ▪ To have Rx sent to pharmacy

9) Contacted patient for follow-up at least 2 weeks later
   ▪ To see if new Rx was picked up, and assess how drug regimen change is working
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Timeline

- Fall 2016
  - Lit review & project design
  - Developed script for physician email
  - Developed script for patient phone calls
  - Assigned patients to each student pharmacist & created shared Excel document for data collection
  - Training on EMR system (Dec. 2016)
Timeline

- **Spring & Summer 2017**
  - Approval of QI project by Northeast Iowa Family Practice Center Ethics Board (Jan. 2017)
  - Data collection & patient contact (Mar-July 2017)
  - Review of data collection & formulation of results (Aug. 2017)
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## Results

<table>
<thead>
<tr>
<th>Patients / Exclusion Criteria</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original Patients</td>
<td>125</td>
</tr>
<tr>
<td>Not Reviewed by Student</td>
<td>18</td>
</tr>
<tr>
<td>Beers List medication no longer on med list</td>
<td>5</td>
</tr>
<tr>
<td>No Contact List</td>
<td>1</td>
</tr>
<tr>
<td>Not an Active Patient at Site</td>
<td>1</td>
</tr>
<tr>
<td>Deceased</td>
<td>3</td>
</tr>
<tr>
<td><strong>TOTAL PATIENTS</strong></td>
<td><strong>96</strong></td>
</tr>
</tbody>
</table>


## Results

<table>
<thead>
<tr>
<th>Medication Class</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anticholinergic/autonomic</td>
<td>20 (20.8)</td>
</tr>
<tr>
<td>Antihistamine</td>
<td>16 (16.7)</td>
</tr>
<tr>
<td>Anxiolytic/Sedative/Hypnotic</td>
<td>16 (16.7)</td>
</tr>
<tr>
<td>Analgesic</td>
<td>14 (14.6)</td>
</tr>
<tr>
<td>Gastrointestinal</td>
<td>7 (7.3)</td>
</tr>
<tr>
<td>Hormones/Substitutes</td>
<td>6 (6.3)</td>
</tr>
<tr>
<td>Psychotherapeutic Agents</td>
<td>13 (13.5)</td>
</tr>
<tr>
<td>Cardiovascular</td>
<td>2 (2.1)</td>
</tr>
<tr>
<td>CNS</td>
<td>2 (2.1)</td>
</tr>
</tbody>
</table>

### Frequency of Use

<table>
<thead>
<tr>
<th>Frequency</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PRN</td>
<td>43 (44.8)</td>
</tr>
<tr>
<td>Scheduled Regularly</td>
<td>53 (55.2)</td>
</tr>
</tbody>
</table>

### Months of Medication Use, mean (SD)

<table>
<thead>
<tr>
<th>Months of Medication Use, mean (SD)</th>
<th></th>
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<tbody>
<tr>
<td></td>
<td>39.6 (49.9)</td>
</tr>
</tbody>
</table>
Example Interventions

- Patient on Tylenol PM
  - Discontinue & switch to APAP + Trazodone

- Patient on Zolpidem 10mg + Trazodone 200mg
  - Dose changes to Zolpidem 5mg + Trazodone 100mg

- Patient on Glyburide
  - Discontinue & switch to Glipizide

- Patient on Lorazepam 0.5mg QHS PRN
  - Discontinue
## Results

<table>
<thead>
<tr>
<th>Responses from Student Intervention</th>
<th>Number (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient no longer taking med of concern</td>
<td>28 (29.2)</td>
</tr>
<tr>
<td>Unable to reach patient via telephone</td>
<td>19 (19.8)</td>
</tr>
<tr>
<td>Patient refused student med recommendation</td>
<td>12 (12.5)</td>
</tr>
<tr>
<td>Physician did not approve med recommendation</td>
<td>11 (11.5)</td>
</tr>
<tr>
<td>Physician did not reply to EMR message from student</td>
<td>9 (9.4)</td>
</tr>
<tr>
<td>Medication change made (Physician approved, patient approved, and changes made)</td>
<td>6 (6.3)</td>
</tr>
<tr>
<td>Best option to stay on current medication</td>
<td>5 (5.2)</td>
</tr>
<tr>
<td>Other</td>
<td>6 (6.3)</td>
</tr>
</tbody>
</table>
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Summary

Strengths

- There is value in discontinuing medications from a medication list
- Improved patient & provider understanding of current medications and their risks
- Increased provider awareness of inappropriate medications among the elderly population
Summary

- Limitations
  - Inability to contact patients
  - Change of EMR mid-study
  - Patients inactive/unwilling to participate in intervention
Summary

- **35.4% of patients had a positive outcome**
  - 28/96 patients had a medication taken of their record that they were not taking
  - 6/96 patients had an inappropriate medication discontinued/changed

- Minimizing the use of potentially inappropriate medications in the elderly will likely require multifaceted approaches.
References


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Review Link