Impact of the Geriatric Mini-Fellowship on Prescribing Patterns of the Primary Care Providers

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Background

- Geriatric patients are likely to experience adverse drug events related to high-risk medication use. Polypharmacy is also common and has a significant impact on the health of older adults.
- The American Geriatric Society Beers Criteria lists potentially inappropriate medications for older adults.¹
- Current literature suggests that implementing interventions and deprescribing practices have a role in reducing costly hospitalizations.
- STOPP (Screening Tool of Older People’s Prescriptions) was designed to address polypharmacy.²
- Medication review and follow-up services for older, polypharmacy patients lowered medication-related costs.³

Projections suggest there is an insufficient supply of geriatrician services.⁴

- Per person personal health care spending for people 65 years and older is three times higher than spending per working-age adult.⁴
- Individuals aged 65 and older are expected to increase from 14.5 percent of the U.S. population in 2014 to 21.7 percent by 2040.⁵

In 2018, a Geriatric Mini-Fellowship Program was implemented. The program was designed to:
- Increase primary care provider competencies in managing geriatric syndromes.
- Train PEPs to be geriatric medicine doctors to share awareness of geriatric care in their respective clinics.
- The program curriculum focused on the “Four Ms” of geriatric care.
- Medication, Mobility, Mentation, What Matters
- Two cohorts of fellows have graduated from the program.

Purpose

- Quantify the prescribing pattern changes of high-risk medications of the geriatric fellows before and after completing the program.
- Identify the geriatric fellows’ perceptions on deprescribing after completing the program.

Study Design

- Four high-risk medication drug classes were identified for an increased fall risk and were selected for this study.¹
- Urinary Agents, Tricyclic Antidepressants, Muscle Relaxants, and Z-drugs

Study Period

- May 2017 to May 2020
- Fellowship Cohort 1: Start Date April 16, 2018
- Pre-intervention: As of May 2018
- Post-intervention: As of May 2019
- Fellowship Cohort 2: Start Date April 20, 2019
- Pre-intervention: As of May 2019
- Post-intervention: As of May 2020

Inclusion Criteria

- Adults aged 65 years and older
- Enrolled in the outpatient care of a geriatric fellow
- Participated in at least one PEP office visit in the pre-intervention period and one visit in the post-intervention period.

Primary Endpoints

- Number of patients on a high-risk medication in the identified classes
- Number of high-risk medications in the Pre period
- Number of high-risk medications in the Post period

Methods

- Identify patients meeting inclusion criteria and on a high-risk medication (HRM) in the Pre and Post periods.
- Perform a retrospective chart review on random selection of patients who continued one HRM in the pre-period and one HRM in the post-period.
- Collect qualitative information about the geriatric fellows’ perceptions on prescribing patterns via 6-question Google Forms survey.

Results

<table>
<thead>
<tr>
<th>Total Dose Changes of Continued Medications</th>
<th>Class</th>
<th>Drug</th>
<th>Total Dose in Pre (mg)</th>
<th>Total Dose in Post (mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urinary Agents</td>
<td>Mirabegron</td>
<td>100</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Urinary Agents</td>
<td>Oxybutynin</td>
<td>10</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Urinary Agents</td>
<td>Solifenacin</td>
<td>5</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Tricyclic Antidepressants</td>
<td>Amitriptyline</td>
<td>185</td>
<td>235</td>
<td></td>
</tr>
<tr>
<td>Tricyclic Antidepressants</td>
<td>Nortriptyline</td>
<td>236</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Muscle Relaxants</td>
<td>Baclofen</td>
<td>85</td>
<td>85</td>
<td></td>
</tr>
<tr>
<td>Muscle Relaxants</td>
<td>Cyclobenzaprine</td>
<td>36</td>
<td>86</td>
<td></td>
</tr>
<tr>
<td>Muscle Relaxants</td>
<td>Methocarbamol</td>
<td>2750</td>
<td>4250</td>
<td></td>
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<tr>
<td>Muscle Relaxants</td>
<td>Tizanidine</td>
<td>48</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td>Muscle Relaxants</td>
<td>Zolpidem</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Z-drugs</td>
<td>Ziprasidone</td>
<td>60</td>
<td>55</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Deprescribing of Randomly Selected HRM Continued in Pre and Post Period</th>
<th>Class</th>
<th>Drug</th>
<th>Dose Increased</th>
<th>No Change in Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urinary Agent</td>
<td>Nortriptyline</td>
<td>236</td>
<td>10</td>
<td>18</td>
</tr>
<tr>
<td>Urinary Agent</td>
<td>Baclofen</td>
<td>85</td>
<td>85</td>
<td>0</td>
</tr>
<tr>
<td>Urinary Agent</td>
<td>Tyaprin</td>
<td>10</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Tricyclic Antidepressants</td>
<td>Amitriptyline</td>
<td>185</td>
<td>0</td>
<td>18</td>
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<td>0</td>
</tr>
</tbody>
</table>

Qualitative Survey Results

Eight of the twelve fellows (66.7%) responded to the survey.

After completing the Geriatric Mini-Fellowship, how often do you attempt to deprescribe high-risk meds in older adults?

(1=Never, 3=Sometimes, 5=Always)

Discussion

Conclusions

High-Risk Medication Data:
- For most drug classes studied, deprescribing occurred more often than new starts.
- Continuing high-risk medication use was very common across all drug classes.

Chart Review Data:
- The retrospective chart review identified cases of deprescribing that were not captured in the initial analysis.
- Dose decrease occurred more often than dose increases.

Qualitative Survey Data:
- Geriatric fellowship respondents felt that they frequently attempted to deprescribe high-risk medications in older adults.

Limitations

- Randomized selection of continued high-risk medication cases only estimates the distribution of the population.
- Limited number of primary care providers participating in the program.
- Data can easily be skewed by the practice of individual providers.
- The degree of life-limiting illness or patient life expectancy was not identified and would influence the potential for a medication to be inappropriate.⁶
- The cost impact of the Geriatric Mini-Fellowship program cannot be calculated from the results of this study.

- Literature suggests that deprescribing interventions in patients with limited life expectancy have potential for mortality reduction and cost savings.⁶

Future Steps

- Identify a method for obtaining a control group.
- Compare prescribing pattern of primary care providers before and after participation in the Geriatric Mini-Fellowship.
- Describe the impact of the program on patient outcomes and cost.
- Investigate prescribing of other high-risk medication classes.
- Develop a plan to target high-risk medications that are considered most difficult to deprescribe.

References

4. Geriatric fellowship respondents felt that they frequently attempted to deprescribe high-risk medications in older adults.