Prescription Opioid Exposures and Outcomes among Older Adults

Benjamin W. Hatten\textsuperscript{1,2}, Nancy A. West\textsuperscript{1}, Stevan G. Severtson\textsuperscript{1}, Jody L. Green\textsuperscript{1}, Richard C. Dart\textsuperscript{1}.  
\textsuperscript{1}Rocky Mountain Poison and Drug Center, Denver Health and Hospital Authority, Denver, CO; 2 Department of Emergency Medicine, University of Colorado School of Medicine, Aurora, CO
Disclosure of Commercial Relationships

• Salary support provided by RMPDC
• RMPDC funding provided by RADARS program
  – Contracts with multiple pharmaceutical companies
  – RADARS owns the data
Background

- Toxic exposures leading cause of death
- Increased rx opioids -> increased misuse
- Little research on elderly
Methods

• Researched Abuse, Diversion and Addiction-Related Surveillance (RADARS®) System Poison Centers
  • Covers 70-93% of population
  • De-identified and transmitted for analysis
Methods

• Unintentional exposures
  – oxycodone, fentanyl, hydrocodone, morphine, oxymorphone, hydromorphone, tramadol, and tapentadol
• January 1, 2006-June 30, 2014
• Adults >19 years
  – Older (60 or greater)
  – Younger (20-59)
Methods

• Population
  – All calls
  – Serious outcomes
    • Death; major effect; moderate effect

• Analysis
  – Regressing rates on
    • age group
    • linear variable for time
    • age group by time interaction term

• Outcome: Trend in rate by age group
Results

- Both age groups showed initial increases then decrease
- Higher for older adults than for younger adults.
- Older adults began to decline later (early 2014) than younger adults (late 2010)
Results

• Per prescriptions dispensed higher among older adults than among younger adults.
• Prescriptions dispensed
  – to younger adults declined
  – to older adults continued to increase.
Results

• Rates of calls with serious outcomes increased for both groups
  – quarterly increases greater for older adults than for younger adults.
## Results

<table>
<thead>
<tr>
<th>Rate</th>
<th>Age Group</th>
<th>Estimated rate at 2014Q2</th>
<th>Estimated slope at 2014Q2 (95% CI, p-value for slope)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population rate per 1,000,000</td>
<td>20-59</td>
<td>6.72</td>
<td>-0.1952(-0.2659 to -0.1244, p&lt;0.001)</td>
</tr>
<tr>
<td></td>
<td>60 or more</td>
<td>14.08</td>
<td>-0.0094(-0.0802 to 0.0613, p=0.791)</td>
</tr>
<tr>
<td>Prescriptions rate per 100,000</td>
<td>20-59</td>
<td>2.87</td>
<td>-0.0589(-0.0892 to -0.0286, p&lt;0.001)</td>
</tr>
<tr>
<td></td>
<td>60 or more</td>
<td>4.68</td>
<td>-0.0454(-0.0757 to -0.0151, p=0.004)</td>
</tr>
<tr>
<td>Prescriptions per population rate per 100</td>
<td>20-59</td>
<td>23.36</td>
<td>-0.2038(-0.3034 to -0.1041, p&lt;0.001)</td>
</tr>
<tr>
<td></td>
<td>60 or more</td>
<td>29.90</td>
<td>0.1812(0.0815 to 0.2808, p&lt;0.001)</td>
</tr>
</tbody>
</table>
All outcomes
Serious outcomes
Conclusions

• Unintentional exposures higher for older adults than younger adults.
  – rates have declined for both age groups
  – decline began earlier for younger adults

• rates of serious outcomes
  – increased for both age groups
  – greater among the 60+ group