The Effect of Electronic Medical Record Alerts on Processes of Care Related to Preventing Falls in Community-Dwelling Elderly Patients

David R. Goldmann1,2, Craig A. Umscheid1,2, Peter Gabriel1, Mark Weiner1, Susan Day1, Asaf Hanish1, Jesse Chittams1, Bruce Kinosian1,3


Background

- Falls are a significant cause of morbidity in the elderly, including fractures, decreased function and fear of falling, resulting in restrained activity.
- Falls are multi-factorial and require an assessment that covers medical, physical, and social domains.
- Multi-factorial interventions performed by an interdisciplinary team have been shown to reduce subsequent falls but are difficult to find in primary care where time and resource pressures limit availability.
- Computerized decision support systems have been shown to improve discrete ambulatory care processes.

Methods

- Consecutive cohort design to compare a passive alert (PT referral and education resources) and an active alert (identifying high fall-risk medications) in an EPIC EMR.
- Population: patients aged >70 with ≥2 office visits in the prior year, who answered affirmatively to one of 2 fall-related questions (relating to history of past falls and fear of falling) on a health assessment questionnaire.
- Conducted in 3 primary care ambulatory practices, at a large academic medical center, each a training site for residents, with a concurrent 8-month baseline evaluation, followed by exposure to the passive alert in all 3 practices for 6 months, and finally by exposure to the active alert in two of the three practices while the passive alert continued to be available in all 3 practices for the final 6 months.
- During the 6 months after baseline, the passive alert appeared on the “Best Practices” page of the EPIC EMR at the visit when a patient had answered affirmatively to either fall question. While the “Best Practices” tab was highlighted on the visit navigator sidebar to indicate one or more clinical reminders were relevant to the visit, there was no other indication sent to the provider of need for a falls evaluation.
- Between Period 1 (baseline) and Period 2 (passive alert), a standardized, educational intervention was held for providers in each of the practices.
- During the 6 months of Period 3 (the active alert phase), the passive alert continued, but the medication alert was added if the patient was on a high-risk medication. The alert had to be addressed before the clinician could proceed with the visit.

Results

- Only 37% of eligible patients answered the HAQ, with 28% answering affirmatively to the falls question, which was similar among the 3 practices.
- There were some differences among the study practices: B had more men (35%) than the others (16%); C had more African American (85%) compared to A and B (approx. 49:48%).
- During period 3 (after introduction of the active medication alert), there was a significant increase in PT referrals in practice B, but not in A or C. There were 41/184 (22%) responses to the passive alert in Period 3, of which 19 resulted in PT referrals.
- Of the 21 activations of the high-risk medication alert in practices B and C in Period 3, there were 12 medication reviews with 4 discontinuation orders for identified culprit medications.

Conclusions

- Use of an active medication alert in the EMR was associated with increased response to a passive PT referral alert.
- Active alerts were more likely to prompt action than passive alerts.
- High-risk medications were implicated in relatively few falls in our patients.
- One-time display of an alert, regardless of whether it was addressed, limited the effectiveness of the intervention.

<table>
<thead>
<tr>
<th>Practice</th>
<th>Period 1</th>
<th>Period 2</th>
<th>Period 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4/37 (10.8%)</td>
<td>10/158 (6.3%)</td>
<td>12/197 (6.1%)</td>
</tr>
<tr>
<td>B</td>
<td>10/158 (6.3%)</td>
<td>6/63 (9.5%)</td>
<td>6/111 (5.4%)</td>
</tr>
<tr>
<td>C</td>
<td>8/126 (6.3%)</td>
<td>17/234 (7.3%)</td>
<td>19/188 (10.1%)</td>
</tr>
</tbody>
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