Welcome to the New England Journey - Enhancing Medication Safety…

Lunch & Learn: A special webinar series – addressing high-risk/high opportunity medications

Thank you for joining. Our presentation will begin shortly.

If you haven’t already, please dial in to the audio line:

888-895-6448 Passcode: 519-6001
Speaker Disclosures

Today’s speakers have no conflicts of interest to disclose

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An Insurer’s Care Transition Program Emphasizes Medication Reconciliation, Reduces Readmissions And Costs

The New England Journey Lunch & Learn: A special webinar series addressing high-risk/high opportunity medications

Jennifer M. Polinski, ScD, MPH, MSc
Senior Director, Enterprise Evaluation and Public Health Analytics, CVS Health

Session moderated by:

December 8, 2016 | 12:00pm – 1:00pm
Learning Objectives

☑ Recognize the association between adverse medication events and hospital readmissions;

☑ Identify the role pharmacists can play in providing medication reconciliation-based programs to recently discharged patients;

☑ Assess the implications of the current study for readmission prevention programs nationwide.
Chat in...

Introduce yourself...

please type in your name, organization and state....
Medication Reconciliation Programs Can Help Reduce 30-Day Readmissions and are Cost-Effective for High-Risk Patients

Jennifer M. Polinski, ScD, MPH
Background

Hospital readmissions

- Common: 1 in 7 patients are readmitted within 30 days\(^1\)
- Costly: $41 billion in additional health costs per year\(^2\)
- Adverse drug events, non-adherence associated with \(\sim 66\%\) of readmissions \(^3,4\)

Medication reconciliation programs

- Significant reductions in adverse drug events post discharge\(^5,6\)
- Unclear whether associated with reduced readmission rates\(^7\)
- Unclear whether associated with reduced health care costs
- Evidence is from academic teaching hospitals, integrated health systems

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Objectives

Explore the impact of a commercial insurer-supported medication reconciliation program on:

1. 30-day readmission rates
2. Net-cost savings (return on investment)

An Insurer’s Care Transition Program Emphasizes Medication Reconciliation, Reduces Readmissions And Costs
Methods
Member Eligibility and the Intervention

Member eligibility

• Discharged in June–November 2013
• Primary discharge diagnosis is not malignant neoplasm

The pharmacist-led intervention

• Comparison of pre- and post-inpatient drug regimens
• Education and support (coaching) on proper use and adherence
  – Highest-risk members → in-home consultation
  – Moderate high-risk members → telephone consultation
  – All members → ongoing telephone support for 30 days (mean 3 calls)

Sources: Insurer medical claims, CVS/caremark prescription drug claims, 2013.
Study Design

<table>
<thead>
<tr>
<th></th>
<th>Admission date</th>
<th>Discharge date</th>
</tr>
</thead>
<tbody>
<tr>
<td>90-day baseline period</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hospitalization</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>30-day follow-up period</td>
</tr>
</tbody>
</table>
Exposure and Outcomes

Exposure
- Intervention group: Members received program consultation
- Control group: Study eligible, lived in region where program was unavailable

Outcomes
1. Primary: all-cause readmission at 30 days
2. Secondary: readmission at 30 days
   - With same condition as index hospitalization
   - When index hospitalization was for a cardiovascular condition
   - When index hospitalization was for a respiratory condition
3. Return on investment (cost savings for each $1 spent on the program)
Confounding Adjustment

• Intervention matched to control patients by 1:1 propensity score matching
• 3 intervention patients who could not be matched were excluded

Covariates in the propensity score, assessed in the baseline period

- **Individual level:** Age, gender, index hospitalization LOS, number of ED visits prior to index hospitalization, primary discharge diagnosis for index hospitalization, Charlson comorbidity score, number of unique chronic medication classes, days supply of medications, hospitalization in the 30 days prior to index hospitalization, hospitalization in the 90 days prior to index hospitalization

- **ZIP code level measures of SES:** Median household income, % residents below the poverty line; with a college education; of black race

Statistical Analyses

Baseline descriptive characteristics compare

- Intervention *versus* matched control members
- Members receiving in-home *versus* telephone consultations

30-day readmissions

- Absolute risks (%)
- Risk differences (binomial distribution, identity link)*
- Risk ratios (log-binomial regression)*

Cost savings

- Costs of readmission event = 2012 HCUP published estimates
- Program costs = weighted average of in-home and telephone costs

Results
## Baseline Characteristics of 131 Intervention and 131 Control Group Members

<table>
<thead>
<tr>
<th></th>
<th>Intervention Group</th>
<th>Control Group</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td>61.8 ± 12.2</td>
<td>60.6 ± 14.1</td>
</tr>
<tr>
<td><strong>Female gender</strong></td>
<td>58 (44.3%)</td>
<td>53 (40.5%)</td>
</tr>
<tr>
<td><strong>Index hospitalization is for:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cardiovascular condition</td>
<td>61 (46.6%)</td>
<td>46 (35.1%)</td>
</tr>
<tr>
<td>Respiratory condition</td>
<td>25 (19.1%)</td>
<td>33 (25.2%)</td>
</tr>
<tr>
<td><strong>At least 1 hospitalization in:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 days prior to index hospitalization</td>
<td>20 (15.3%)</td>
<td>9 (6.9%)</td>
</tr>
<tr>
<td>90 days prior to index hospitalization</td>
<td>37 (28.2%)</td>
<td>22 (16.8%)</td>
</tr>
<tr>
<td><strong>N unique chronic medications</strong></td>
<td>4.5 ± 3.4</td>
<td>4.0 ± 3.4</td>
</tr>
</tbody>
</table>

Sources: Insurer medical claims, CVS/caremark prescription drug claims, 2013.
Members Receiving In-Home Consultations are Older, Less Healthy Than Members Receiving Telephone Consultations

<table>
<thead>
<tr>
<th>Comparison</th>
<th>In-Home Consultation N=54</th>
<th>Telephone Consultation N=77</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>68.6 ± 11.9</td>
<td>57.0 ± 10.1</td>
</tr>
<tr>
<td>Female gender</td>
<td>32 (59.3%)</td>
<td>26 (33.8%)</td>
</tr>
<tr>
<td>Index hospitalization is for:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cardiovascular condition</td>
<td>31 (57.4%)</td>
<td>30 (39.0%)</td>
</tr>
<tr>
<td>Respiratory condition</td>
<td>9 (16.7%)</td>
<td>16 (20.8%)</td>
</tr>
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<td>At least 1 hospitalization in:</td>
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<tr>
<td>90 days prior to index hospitalization</td>
<td>9 (16.7%)</td>
<td>16 (20.8%)</td>
</tr>
<tr>
<td>N unique chronic medications</td>
<td>5.1 ± 3.2</td>
<td>4.0 ± 3.4</td>
</tr>
</tbody>
</table>

Sources: Insurer medical claims, CVS/caremark prescription drug claims, 2013.
## Readmission Risk at 30 Days

<table>
<thead>
<tr>
<th>Intervention GROUP RISK (%)&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Control GROUP RISK (%)&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Risk Difference (95% CI)&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Risk Ratio (95% CI)&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>All-cause</td>
<td></td>
<td>-11.1 (-19.9, -2.3)</td>
<td>0.50 (0.29, 0.88)</td>
</tr>
<tr>
<td>Same condition as index hospitalization</td>
<td></td>
<td>-1.8 (-8.3, 4.6)</td>
<td>0.79 (0.33, 1.85)</td>
</tr>
<tr>
<td>Index hospitalization is for cardiovascular condition</td>
<td>5.3%</td>
<td>9.2%</td>
<td>-3.7 (-10.0, 2.5)</td>
</tr>
<tr>
<td>Index hospitalization is for respiratory condition</td>
<td>1.5%</td>
<td>2.3%</td>
<td>-1.3 (-4.5, 1.9)</td>
</tr>
</tbody>
</table>

Sources: Insurer medical claims, CVS/caremark prescription drug claims, 2013.  
<sup>a</sup>=unadjusted risk.  <sup>b</sup>=adjusted for admission in the baseline period prior to the index admission date.
Return on Investment

<table>
<thead>
<tr>
<th>Program cost, per person</th>
<th>Number of interventions</th>
<th>Change in readmission rate</th>
<th>Average cost per readmission</th>
<th>Benefit to cost ratio</th>
<th>Cost savings, per person</th>
</tr>
</thead>
<tbody>
<tr>
<td>$677</td>
<td>131</td>
<td>-11%</td>
<td>$13,655</td>
<td>1.99</td>
<td>$1,347</td>
</tr>
</tbody>
</table>

Sources: Medication reconciliation program documents, 2013 and HCUP-net national estimates. Projections based on CVS/caremark data. Individual results will vary based on plan design, formulary status, demographic characteristics and other factors. Client-specific modeling available upon request.
Discussion
Discussion

Insurer-supported medication reconciliation program

• Reduced relative risk of 30-day readmission by 50%
• Savings of $2 for every $1 spent on the program

Success likely depended on several key factors

• [Proprietary] algorithm to identify members at moderate-high or highest risk
• Outreach to and enrollment of members
• Initial consultation within 3 days of discharge plus 30 days of follow-up support
• Matched intensity of program to members’ level of need: maximize impact and manage costs

Projections based on CVS/caremark data. Individual results will vary based on plan design, formulary status, demographic characteristics and other factors. Client-specific modeling available upon request.
Relevance to Policy and Practice
Relevance to Policy and Practice

Readmission prevention is in the spotlight

- Public and private payers are using quality performance measures, financial incentives and/or penalties to encourage providers to reduce readmission rates

Insurer-supported program offers real-world applicability

- Majority of Americans receive their care outside of academic teaching hospitals or integrated health systems
- Successful programs need flexible implementation across numerous, unaffiliated providers
- Our study describes the potential of pharmacist-led medication reconciliation in a highly generalizable setting
Work was recently published in *Health Affairs*

**PRESCRIPTION DRUGS**

By Jennifer M. Polinski, Janice M. Moore, Pavlo Kyrychenko, Michael Gagnon, Olga S. Matlin, Joshua W. Fredell, Troyen A. Brennan, and William H. Shrank

**An Insurer’s Care Transition Program Emphasizes Medication Reconciliation, Reduces Readmissions And Costs**
Thank you
Comments, Questions & Insights
The New England Journey - Enhancing Medication Safety...

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**January**
- 1/10: Breaking the Back of the Beast: Improving Outcomes in Chronic Pain Management through Commonsensical Opioid Use
- 1/24: Treatment Tracking - New England Prescription Drug Monitoring Programs

**March**
- 3/14: Getting SMART - Antibiotic Stewardship
- 3/28: Implementing CDC’s Core Elements

**May**
- 5/23: Best Practices in Care Transitions for Patients with Anticoagulants

**July**
- 7/11: Maintaining Glycemic Control
- 7/25: Tools and Tips to Enhance Safe Care Transitions for Type II Diabetics
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