The HF Readmission Problem

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Disclosures

• Research
  – AHRQ
  – BMS
  – Janssen
  – Novartis
  – NHLBI
  – Portola
  – PCORI
  – The Medicines Company

• Honorarium
  – Boston Scientific
  – BMS
  – Janssen
  – Gilead
  – Novartis
The 2013 Long-term Budget Outlook

Total spending and revenues

Components of total spending
The number of hospitals that will lose up 2% of Medicare reimbursements due to excessive readmissions
2 out of 3

Proportion of hospitals that will lose up 2% of Medicare reimbursements due to excessive readmissions
$227,000,000

Amount of financial penalties levied by Medicare for excessive readmissions
Case Study

• 78 year old gentleman with ischemic cardiomyopathy brought into the ED by his neighbor because he has developed worsening dyspnea on exertion, shaking spells and chills
  – Adherent to his medications but lost his med list
  – Doesn’t check his daily weights because “he can’t get up to the scale due to weakness

• Discharged 8 days previously from an admission for heart failure complicated by urinary retention, urinary tract infection, and c-diff colitis

• Over the last year
  – 3 hospitalizations
  – 3 other ED visits
  – Questions raised about his social situation
Recent Discharge Review

• Review of last discharge instructions
  – Activity, diet, symptoms, weight monitoring was done

• Review of prior discharge medications
  – Aspirin/Clopidogrel
  – Atorvastatin
  – Isorbide dinitrate
  – Lisinopril
  – Metoprolol Succinate
  – Torsemide (decreased to 40mg/daily)

• Follow-up from discharge instructions
  – Follow-up appt scheduled w/cardiologist in 8 weeks
  – Recommended scheduling PCP appt within 4 weeks
The Key Question

• Are 30-day readmission rates a good measure of hospital quality?
  
  – Yes, hospital readmission reflects a failure of the health care system.
  
  – No, hospital readmission is not a failure, but is the right care at the right time.
What do we know for certain?

• Nothing is certain but death and taxes....
  – *Ben Franklin*

• Dead patients don’t get readmitted.

• “*Congress is the opposite of Progress*”
  – *The Citizens of the United States*
An Option: Don’t discharge them

Exclude in-hospital deaths (ineligible for readmission)

Figure 3 – Admission Sample for HF in the 2007-2009 Calendar Year Dataset

Initial Index Cohort: 2007-2009 Calendar Year Dataset; N = 1,580,909

- In-hospital deaths (3.88%)*
- Transfers out (0.94%)*
- Discharges against medical advice (AMA) (0.40%)*
- Hospitalizations without at least 30 days post-discharge information (0.56%)*
- Admissions within 30 days of a prior index admission (7.86%)*

Final Index Cohort: 2007-2009 Calendar Year Dataset; N = 1,365,797 (86.39%)
## Option 2: Don’t admit them

<table>
<thead>
<tr>
<th></th>
<th>Hospital A</th>
<th>Hospital B</th>
<th>Hospital C</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of HF Admissions</strong></td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td><strong>Inpatient Deaths</strong></td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td><strong>Outpatient Deaths</strong></td>
<td>5</td>
<td>20</td>
<td>95</td>
</tr>
<tr>
<td>(at home) within 30-days of Discharge</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Eligible for Readmission</strong></td>
<td>90</td>
<td>75</td>
<td>0</td>
</tr>
<tr>
<td><strong>Number Readmitted</strong></td>
<td>24</td>
<td>19</td>
<td>0</td>
</tr>
<tr>
<td><strong>30-Day Readmission rate</strong></td>
<td>25%</td>
<td>25%</td>
<td>Perfection</td>
</tr>
</tbody>
</table>
30-Day Readmission ≠ 30 Day Mortality

Correlation of 30-day readmission with 30-day mortality (Spearman correlation =0.17; P=0.03).

Are we allowing more “lives” be readmitted?
A QUESTION

• Should a readmission be preventable if they occur:

  A. < 6 hours
  B. <1 day
  C. <3 days
  D. <7 days
  E. <15 days
  F. <30 days
Diagnoses and Timing of 30-Day Readmissions After Hospitalization for Heart Failure

PREVENTABLE?
Probably PREVENTABLE?
Possibly PREVENTABLE?
Proportions of Readmissions for Causes Other Than the Condition at Initial Discharge

What should we do upon discharge?

1. Patient education
2. Medication reconciliation
3. Discharge planning
4. Early Follow-up
5. Follow-up telephone calls
6. Patient-activated hotlines
7. Timely communication with ambulatory providers
8. Post discharge home visits
9. Transition coaches
10. Physician continuity across inpatient and outpatient setting

No single intervention implemented alone was regularly associated with reduced risk for 30-day rehospitalization
As length of stay decreased, has readmission increased?

Bueno, H. et al. JAMA 2010;303:2141-2147
How do we compare with the rest of the world?

Eapen ZJ et al. Circ Heart Fail. 2013
GWTG-HF: Best practices for Reducing Readmissions

<table>
<thead>
<tr>
<th>Domain</th>
<th>Quartile 1 (N=25)</th>
<th>Quartile 2 (n=25)</th>
<th>Quartile 3 (n=25)</th>
<th>Quartile 4 (n=25)</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inpatient care/education</td>
<td>5.3</td>
<td>5.7</td>
<td>5.6</td>
<td>5.4</td>
<td>0.62</td>
</tr>
<tr>
<td>Discharge processes/</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>transitional care</td>
<td>8.3</td>
<td>7.3</td>
<td>7.1</td>
<td>7.3</td>
<td>0.03</td>
</tr>
<tr>
<td>Quality improvement</td>
<td>20.9</td>
<td>20.0</td>
<td>20.4</td>
<td>20.4</td>
<td>0.39</td>
</tr>
</tbody>
</table>

Kociol RD et al Circ HF 2012
Strategies implemented & readmission rates
### Strategies associated with lower readmission rates

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Percentage point change in RSRR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partnering with community physicians and physician groups</td>
<td>-0.33</td>
</tr>
<tr>
<td>Partnering with local hospitals</td>
<td>-0.34</td>
</tr>
<tr>
<td>Having nurses responsible for medication reconciliation</td>
<td>-0.18</td>
</tr>
<tr>
<td>Arranging for follow-up visits before discharge</td>
<td>-0.19</td>
</tr>
<tr>
<td>Sending discharge summaries to primary care physician</td>
<td>-0.21</td>
</tr>
<tr>
<td>Assigning staff to follow up on test results after discharge</td>
<td>-0.26</td>
</tr>
</tbody>
</table>

Bradley EH et al. Circ Cardiovasc Qual Outcomes 2013
## Strategies associated with higher readmission rates?

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Percentage point change in RSRR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher frequency of outpatient and inpatient prescription records linked electronically</td>
<td>+0.18</td>
</tr>
<tr>
<td>All patients or their caregivers receive written emergency plan on discharge</td>
<td>+0.38</td>
</tr>
<tr>
<td>Reliable process is in place to ensure outpatient physicians are alerted to patient’s discharge within 48h of discharge</td>
<td>+0.42</td>
</tr>
<tr>
<td>Hospital regularly calls patients after discharge to either follow up on postdischarge needs or provide additional education</td>
<td>+0.34</td>
</tr>
</tbody>
</table>

Bradley EH et al. Circ Cardiovasc Qual Outcomes 2013
Remote monitoring

Remote monitoring in randomized trials has not proven effective in reducing readmissions or death.

Krumholz HM et al. NEJM. 2010
Case Example: More evidence is needed

A Readmission for Any Reason or Death from Any Cause

Probability of Freedom from Readmission or Death

Usual care

Telemonitoring

Hazard ratio for readmission or death with telemonitoring, 1.04 (95% CI, 0.91–1.19)
P=0.58

Days since Enrollment

No. at Risk
Usual care 827 587 468 402
Telemonitoring 826 564 454 395

Effectiveness of disease management

- Focus on patient education and multidisciplinary coordination
- 27% reduction in HF hospitalization rates
- 43% reduction in total number of HF hospitalizations

McCallister FA et al. JACC. 2004.
## Effectiveness of disease management

<table>
<thead>
<tr>
<th>Intervention</th>
<th>HF hospitalizations</th>
<th>All-cause hospitalizations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialized multidisciplinary follow-up</td>
<td>0.74 (0.63-0.87)</td>
<td>0.81 (0.71-0.92)</td>
</tr>
<tr>
<td>Enhancing patient self-care activities</td>
<td>0.66 (0.52-0.83)</td>
<td>0.73 (0.57-0.93)</td>
</tr>
<tr>
<td>Telephone contact</td>
<td>0.75 (0.57-0.99)</td>
<td>0.98 (0.80-1.20)</td>
</tr>
</tbody>
</table>

McCallister FA et al. JACC. 2004
Cost savings from disease management in a bundled payment system

Rich, 1995 1327 347 301
Cline, 1998 1408 303 428
Stewart, 1998 1300 241 430
Riegel, 2002 919 491 283 743
Krumholz, 2002 -15 -593
Improving post-discharge access

- Most patients do not visit a physician within a week of discharge
- Patients who are discharged from hospitals that have higher early follow-up rates have a lower risk of 30-day readmission.
- Patients need a timely evaluation of medication changes and clinical status

Hernandez AF et al. JAMA. 2010
Conclusions:

- Preventing readmission (as a worsening of condition, symptoms) is a patient-centered goal
- Value of health care is in the headlines…readmission is the paradigm case
- Evidence for preventing readmission is still “emerging”
- Develop success…
  - By improving discharge processes
  - By improving transitional communications
  - By improving follow-up
  - By developing the evidence (experimentation)!