A Tale of Two Projects: RED & BOOST

Jeff Greenwald, MD
Associate Professor of Medicine
Boston University School of Medicine
Director, Hospital Medicine Unit
Boston Medical Center
Care Transitions Seminar
April 29, 2009
Westborough, MA
Rehospitalizations among Patients in the Medicare Fee-for-Service Program

Stephen F. Jencks, M.D., M.P.H., Mark V. Williams, M.D., and Eric A. Coleman, M.D., M.P.H.

30 Day Rehospitalization Rates

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>All discharges</td>
<td>19.6%</td>
</tr>
<tr>
<td>Medical discharges</td>
<td>21.1%</td>
</tr>
<tr>
<td>Surgical discharges</td>
<td>15.6%</td>
</tr>
</tbody>
</table>

Figure 1. Rates of Rehospitalization within 30 Days after Hospital Discharge.
Is readmission a marker of poor quality care?

Health Care System
- New Medical Problem
- Deteriorization of known medical problem
- Distant from discharge

Patient
- Discharge summary to PCP
- Inpatient team to PCP
- Community services with PCP
- Lapse of communication
- Indefinite Patient Education
- Medication Error
- Lack of timely follow-up
- Lapse in community services
- Health Care System
- Early Post-discharge

Clinician
- Inappropriate discharge
- Inappropriate medication
- Inadequate use of community services

Patient
- Doesn’t keep follow-up appointment
- Lab/Test error
- Not ordered
- Not performed
- Not seen
- Not acted upon

Clinician
- Discharge
Introducing Project RED

• AHRQ Funded
• Brian Jack, MD = Principle Investigator
• Boston University School of Medicine/Boston Medical Center

Slides courtesy of Brian Jack, MD
Methods-
Randomized Controlled Trial

Enrollment Criteria:
- English speaking
- Have telephone
- Able to independently consent
- Not admitted from institutionalized setting
- Adult medical patients admitted to Boston Medical Center (urban academic safety-net hospital)

Enrollment N=750
Randomization

RED Intervention N=375
Usual Care N=375

30-day Outcome Data
- Telephone Call
- EMR Review
3 Components of RED Intervention

• In Hospital – Nurse Discharge Advocate (DA)
  – Interacts with care team: medication reconciliation and national guidelines
  – Patient preparation for discharge

• Prepare After Hospital Care Plan (AHCP)

• After Discharge – Clinical Pharmacist Call
  – Follow-up call @ 2-4 days
  – Reinforce dc plan and review medications
Pulmonary Embolism

A pulmonary embolism is a blood clot in your lungs.

My Medical Problem:

Please remember it is best to:

- Take walks, get exercise.
- Eat healthy food.
- Watch for signs of swelling in your legs.
- Take your medications as prescribed and carry them with you.
- See your doctor and ask questions.
Analysis

Primary outcome:
• Total hospital utilization (readmissions plus ED visits)
  – Intention-to-treat
  – Poisson tests for significance
  – Cumulative hazard curves generated for time to multiple events

Secondary outcomes:
• PCP follow-up rate, identified dc diagnosis, identified PCP name, self-reported preparedness for discharge
  – Proportions tests for significance
Primary Outcome:
Hospital Utilization within 30d after discharge

<table>
<thead>
<tr>
<th></th>
<th>Usual Care (n=368)</th>
<th>Intervention (n=370)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hospital Utilizations</strong> *</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total # of visits</td>
<td>166</td>
<td>116</td>
<td>0.009</td>
</tr>
<tr>
<td>Rate (visits/patient/month)</td>
<td>0.451</td>
<td>0.314</td>
<td></td>
</tr>
<tr>
<td><strong>ED Visits</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total # of visits</td>
<td>90</td>
<td>61</td>
<td>0.014</td>
</tr>
<tr>
<td>Rate (visits/patient/month)</td>
<td>0.245</td>
<td>0.165</td>
<td></td>
</tr>
<tr>
<td><strong>Readmissions</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total # of visits</td>
<td>76</td>
<td>55</td>
<td>0.090</td>
</tr>
<tr>
<td>Rate (visits/patient/month)</td>
<td>0.207</td>
<td>0.149</td>
<td></td>
</tr>
</tbody>
</table>

* Hospital utilization refers to ED + Readmissions
Cumulative Hazard Rate of Patients Experiencing Hospital Utilization 30 Days After Index Discharge

$p = 0.004$
Self-Perceived Readiness for Discharge
(30 days post-discharge)
Risk of hospital re-utilization by health literacy category

Risk of re-utilization

Grade 3 and below | Grade 4-6 | Grade 7-8 | Grade 9+

REALM category
Risk of hospital re-utilization by health literacy category

<table>
<thead>
<tr>
<th>REALM category</th>
<th>Grade 3 and below</th>
<th>Grade 4-6</th>
<th>Grade 7-8</th>
<th>Grade 9+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usual Care</td>
<td>p=0.06</td>
<td>p=0.59</td>
<td>p=0.38</td>
<td>p=0.04</td>
</tr>
<tr>
<td>Intervention</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Conclusions or the RCT

The Re-Engineered Discharge:

- Was successfully delivered using:
  - RED protocols
  - AHCP
- Improved ‘Readiness for Discharge’
- Improved PCP follow-up rate
- Decreased hospital use
  - 30% overall reduction
  - NNT = 7.3
Implications

The components of the RED should be provided to all patients as recommended by the National Quality Forum, Safe Practice #11.
Introducing Project BOOST

- Funded by the John A Hartford Foundation
- Grant to the Society of Hospital Medicine
- Principle Investigator = Mark Williams, MD
- Implementation project
Project BOOST

• Developed a project team and national advisory board
• Developed a toolkit and implementation guide with web resources
• Rolled out via mentored implementation to 6 pilot sites across USA
• Now in phase 2: full roll out to 24 total sites
Quality Improvement Resource Rooms

Leading Hospital Quality: Resources to Improve Inpatient Outcomes

The Quality Improvement (QI) Resource Rooms present the information and tools needed to lead quality improvement projects. This stepwise guide begins with setting goals and continues through post-implementation tasks including analyzing outcomes and sustaining improvements. Content is arranged so you can freely navigate to and within sections, review what others have done, exchange ideas with teams doing similar QI work, and pose questions to subject matter experts.

Each room includes information on:
- How to use the resources
- Getting started
- Project planning and implementation
- Monitoring & learning
- Continuing to improve
- Sample protocols, order sets, and other tools

Intervention Areas
- Acute Coronary Syndrome
- Boosting Care Transitions
- Glycemic Control
- Heart Failure
- Venous Thromboembolism
- Antimicrobial Resistance
- Stroke

QI Basics
- QI Primer
- QI Web Resources
- Core Competencies
- Professional Development
- Quality Pre-Course
- VTE Prevention Collaborative
Overview

The BOOSTing (Better Outcomes for Older adults through Safe Transitions) Care Transitions resource room provides a wealth of materials to help you optimize the discharge process at your institution. We developed this through support from the John A. Hartford Foundation (Read more about Project BOOST). We based the approach and tools on principles of quality improvement, evidence-based medicine as well as personal and institutional experiences. Of note, we are piloting the contents at multiple hospitals and will be constantly revising the resource room based on this invaluable experience.

This resource room will help you to:

- Analyze current workflow processes
- Select effective interventions
- Redesign workflow and implement interventions
- Educate your team on best practices
- Promote a team approach to safe and effective discharges
- Evaluate your progress and modify your interventions accordingly

Each section of this resource is described below.
Principal BOOST Intervention Tool: The TARGET

- TARGET: Tool for Adjusting Risk: A Geriatric Evaluation for Transitions
  - 7P Risk Scale
    - Prior hospitalization
    - Problem medications
    - Punk (depression)
    - Principal diagnosis
    - Polypharmacy
    - Poor health literacy
    - Patient support

Each associated with risk specific interventions
Universal Patient Discharge Checklist

- GAP assessment
- Medications reconciliation
- Medication use and side effects reviewed*
- Confirm understanding of prognosis, self-care, and symptoms requiring immediate medical attention*
- Best Practice guidelines assessment
- Discharge plan completed, taught, and provided to patient/caregiver
- Discharge communication provided to post-hospitalization care provider
- Documented receipt of discharge information from principal care providers

*Using Teach Back with patient/caregiver
The General Assessment of Preparedness: The GAP

On Admission

- Caregivers and social support circle for patient
- Functional status evaluation completed
- Cognitive status assessed
- Abuse/neglect
- Substance abuse
- Advanced care planning addressed and documented

At Discharge

- Understanding of dx, treatment, prognosis, follow-up and post-discharge warning S/S (using Teach Back)
- Transportation to initial follow-up

Nearing Discharge

- Functional status
- Cognitive status
- Access to meds
- Responsible party for ensuring med adherence prepared
- Home preparation for patient’s arrival
- Financial resources for care needs
- Transportation home
- Access (e.g. keys) to home

At Discharge

- Understanding of dx, treatment, prognosis, follow-up and post-discharge warning S/S (using Teach Back)
- Transportation to initial follow-up

At Discharge

- Understanding of dx, treatment, prognosis, follow-up and post-discharge warning S/S (using Teach Back)
- Transportation to initial follow-up

At Discharge

- Understanding of dx, treatment, prognosis, follow-up and post-discharge warning S/S (using Teach Back)
- Transportation to initial follow-up

At Discharge

- Understanding of dx, treatment, prognosis, follow-up and post-discharge warning S/S (using Teach Back)
- Transportation to initial follow-up

At Discharge

- Understanding of dx, treatment, prognosis, follow-up and post-discharge warning S/S (using Teach Back)
- Transportation to initial follow-up

At Discharge

- Understanding of dx, treatment, prognosis, follow-up and post-discharge warning S/S (using Teach Back)
- Transportation to initial follow-up

At Discharge

- Understanding of dx, treatment, prognosis, follow-up and post-discharge warning S/S (using Teach Back)
- Transportation to initial follow-up

At Discharge

- Understanding of dx, treatment, prognosis, follow-up and post-discharge warning S/S (using Teach Back)
- Transportation to initial follow-up

At Discharge

- Understanding of dx, treatment, prognosis, follow-up and post-discharge warning S/S (using Teach Back)
- Transportation to initial follow-up

At Discharge

- Understanding of dx, treatment, prognosis, follow-up and post-discharge warning S/S (using Teach Back)
- Transportation to initial follow-up

At Discharge

- Understanding of dx, treatment, prognosis, follow-up and post-discharge warning S/S (using Teach Back)
- Transportation to initial follow-up

At Discharge

- Understanding of dx, treatment, prognosis, follow-up and post-discharge warning S/S (using Teach Back)
- Transportation to initial follow-up
# Patient PASS

**Patient Preparation to Address Situations (after discharge) Successfully**

<table>
<thead>
<tr>
<th align="center">I was in the hospital because:</th>
</tr>
</thead>
<tbody>
<tr>
<td align="center"><strong>If I have the following problems ...</strong></td>
</tr>
<tr>
<td align="center">1.</td>
</tr>
<tr>
<td align="center">2.</td>
</tr>
<tr>
<td align="center">3.</td>
</tr>
<tr>
<td align="center">4.</td>
</tr>
<tr>
<td align="center">5.</td>
</tr>
<tr>
<td align="center"></td>
</tr>
<tr>
<td align="center"></td>
</tr>
<tr>
<td align="center"></td>
</tr>
<tr>
<td align="center"></td>
</tr>
<tr>
<td align="center"></td>
</tr>
</tbody>
</table>

**My appointments:**

<table>
<thead>
<tr>
<th align="center">1.</th>
<th align="center">Tests and issues I need to talk with my doctor(s) about at my clinic visit:</th>
</tr>
</thead>
<tbody>
<tr>
<td align="center">On: <strong>/</strong>/___ at <em><strong>:</strong></em> am/pm</td>
<td align="center">1.</td>
</tr>
<tr>
<td align="center">For: __________________</td>
<td align="center">2.</td>
</tr>
<tr>
<td align="center">2.</td>
<td align="center">3.</td>
</tr>
<tr>
<td align="center">On: <strong>/</strong>/___ at <em><strong>:</strong></em> am/pm</td>
<td align="center">4.</td>
</tr>
<tr>
<td align="center">For: __________________</td>
<td align="center">5.</td>
</tr>
<tr>
<td align="center">3.</td>
<td align="center"></td>
</tr>
<tr>
<td align="center">On: <strong>/</strong>/___ at <em><strong>:</strong></em> am/pm</td>
<td align="center"></td>
</tr>
<tr>
<td align="center">For: __________________</td>
<td align="center"></td>
</tr>
<tr>
<td align="center">4.</td>
<td align="center"></td>
</tr>
<tr>
<td align="center">On: <strong>/</strong>/___ at <em><strong>:</strong></em> am/pm</td>
<td align="center"></td>
</tr>
<tr>
<td align="center">For: __________________</td>
<td align="center"></td>
</tr>
</tbody>
</table>

**I understand my treatment plan.**

I feel able and willing to participate actively in my care:

---

**Patient/Caregiver Signature**

---

**Provider Signature**

---

**Date**

---

**Other instructions:**

1. __________________
2. __________________
3. __________________
Teach Back

Thanks to my RED and BOOST colleagues!