Agenda for this morning

1. Social Factors and Readmission – a few stories
2. Hospital Discharge is marked by poor quality
3. Social Determinants of Care and readmission
4. Improving discharge can reduce readmission
5. Project ACHIEVE
6. What do patients and caregivers think?
7. Can information technology help
RED Post-Discharge Medication Process Map, Failure Modes, and Stories

Optimal Post-discharge Medication Process!

A1. Patient brings script to pharmacy
A2. Patient receives meds
A3. Patient understands instructions
A4. Patient takes meds correctly
A5. Patient not taking contraindicated meds
A6. Patient aware of potentially serious SE’s
A7. Patient doesn’t experience intolerable side effects
A8. Patient receives follow up call 2-3 days post-discharge
A9. Patient goes to PCP appt

B1. Inpatient team sends discharge summary to PCP within 24 hrs
B2. PCP updates outpatient med list
RED Post-Discharge Medication Process Map, Failure Modes, and Stories

**Patient is Discharged on the Correct Meds**

- B1. Inpatient team sends discharge summary to PCP within 24 hrs
- B2. PCP updates outpatient med list

**Failure Stories**

- Mr. D. did not get diuretic scripts on discharge.
- Mrs. H. discharged on lisinopril and Zestril and took both

**A4. Patient takes meds correctly**

- A5. Patient not taking contraindicated meds
- A6. Patient aware of potentially serious SE’s
- A7. Patient doesn’t experience intolerable side effects
- A8. Patient receives follow up call 2-3 days post-discharge
- A9. Patient goes to PCP appt
RED Post-Discharge Medication Process Map, Failure Modes, and Stories

Patient is Discharged on the Correct Meds

A1. Patient brings script to pharmacy

A2. Patient receives meds

A3. Patient understands instructions

A4. Patient takes meds correctly

A5. Patient not taking contraindicated meds

B1. Inpatient team sends discharge summary to PCP within 24 hrs

B2. PCP updates outpatient med list

A6. Patient aware of potentially serious SE’s

A7. Patient doesn’t experience intolerable side effects

A8. Patient receives follow up call 2-3 days post-discharge

A9. Patient goes to PCP

Patient “bridged” with enoxaparin

Patient “bridged” with enoxaparin
RED Post-Discharge Medication Process Map, Failure Modes, and Stories

Patient is Discharged on the Correct Meds

A1. Patient brings script to pharmacy

A2. Patient receives meds

A3. Patient understands instructions

A4. Patient takes meds correctly

A5. Patient not taking contraindicated meds

A6. Patient aware of potentially serious SE’s

A7. Patient doesn’t experience intolerable side effects

A8. Patient receives follow up call 2-3 days post-discharge

A9. Patient goes to PCP

B1. Inpatient team sends discharge summary to PCP within 24 hrs

B2. PCP updates outpatient med list

Patient “bridged” with enoxaparin
RED Post-Discharge Medication Process Map, Failure Modes, and Stories

A1. Patient brings script to pharmacy
A2. Patient receives meds
A3. Patient understands instructions
A4. Patient takes meds correctly
A5. Patient not taking contraindicated meds
A6. Patient aware of potentially serious SE's
A7. Patient doesn't experience intolerable side effects
A8. Patient receives follow up call 2-3 days post-discharge
A9. Patient goes to PCP appt
B1. Inpatient team sends discharge summary to PCP within 24 hrs
B2. PCP updates outpatient med list
Optimal Post-discharge Medication Process!

1. Elderly women with arthritis
2. Elderly man with atonic bladder

A1. Patient brings script to pharmacy
A2. Patient receives meds
A3. Patient understands instructions
A4. Patient takes meds correctly
A5. Patient not taking contraindicated meds
A6. Patient aware of potentially serious SE’s
A7. Patient doesn’t experience intolerable side effects
A8. Patient receives follow up call 2-3 days post-discharge
A9. Patient goes to PCP appt

B1. Inpatient team sends discharge summary to PCP within 24 hrs
B2. PCP updates outpatient med list

RED Post-Discharge Medication Process Map, Failure Modes, and Stories
Agenda for this morning

1. Social Factors and Readmission – a few stories
2. Hospital Discharge is marked by poor quality
3. Social Determinants of Care and readmission
4. Improving discharge can reduce readmission
5. Project ACHIEVE
6. What do patients and caregivers think?
7. Can information technology help
Patients Not Prepared at Discharge

• Little time spent on discharge\(^1\)
  • Average 8 minutes
  • No “teach back” 84% of the time
  • Patient is a passive participant
  • <4 or elements covered <50% of time

• At discharge\(^2\)
  • 63% unable to state the purpose of their meds
  • 58% unable to state their diagnosis

Pending Tests Not Followed

**Improving Patient Care**

**Patient Safety Concerns Arising from Test Results That Return after Hospital Discharge**

Christopher L. Roy, MD; Eric G. Poon, MD, MPH; Andrew S. Karson, MD, MPH; Zahra Ladak-Merchant, BDS, MPH; Robin E. Johnson, BA; Saverio M. Maviglia, MD, MSc; and Tejal K. Gandhi, MD, MPH

- 41% of inpatients discharged with a pending test result
- 37% actionable and 13% urgent
- 2/3 of physicians unaware of results
- Discharge summaries mention only 16% of pending tests

Work-ups Not Completed

• 25% of discharged patients require additional outpatient work-ups
• >1/3 not completed

Tying Up Loose Ends
Discharging Patients With Unresolved Medical Issues
Carlton Moore, MD; Thomas McGinn, MD, MPH; Ethan Halm, MD, MPH

Communication Deficits at Hospital Discharge Are Common

Discharge summary not readily available:
- 12-34% at first post-discharge appt
- 51-77% at 4 weeks

Discharge summary lacking key components:
- Hospital course (7-22%)
- Discharge medications (2-40%)
- Completed test results (33-63%)
- Pending test results (65%)
- Follow-up plans (2-43%)

Direct communication, 3-20%

Hospital Admission with Unintentional Discontinuation of Medications 90 days After Discharge

If Hospitalized, More Likely to Have Chronic Meds Discontinued at 90

<table>
<thead>
<tr>
<th></th>
<th>% Discontinued Control</th>
<th>days% Discontinued Hospitalized</th>
<th>AOR (95% CI)</th>
<th>AOR ICU stay (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statin</td>
<td>10.7</td>
<td>13.6</td>
<td>1.33</td>
<td>1.48</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1.29-1.37</td>
<td>1.39-1.57</td>
</tr>
<tr>
<td>Antiplatelet or Anticoagulant</td>
<td>11.8</td>
<td>19.4</td>
<td>1.86</td>
<td>2.31</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1.77-1.97</td>
<td>2.07-2.57</td>
</tr>
</tbody>
</table>

If med Discontinued, Pt More Likely to Die or be Readmitted in 1 Year

<table>
<thead>
<tr>
<th></th>
<th>Med Continued</th>
<th>Med Discontinued</th>
<th>AOR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statin</td>
<td>36.5</td>
<td>38.1</td>
<td>1.07</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1.03-1.11</td>
</tr>
<tr>
<td>Antiplatelet or Anticoagulant</td>
<td>46.7</td>
<td>48.4</td>
<td>1.10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1.03-1.16</td>
</tr>
</tbody>
</table>

Agenda for this morning

1. Social Factors and Readmission – a few stories
2. Hospital Discharge is marked by poor quality
3. **Social Determinants of Care and readmission**
4. Improving discharge can reduce readmission
5. Project ACHIEVE
6. What do patients and caregivers think?
7. Can information technology help
Relationship Between Hospital Readmission and Social Determinants of Care

Our SPECIFIC AIM is to develop a tool to identify medical errors and omissions from the perspective of patients, families, family caregivers and health care providers.

- Burdensomeness
- Patient activation
- Housing
- Previous discharge
- Hospital communication
- Understanding medications
- Primary care physician

- Social network
- Isolation/loneliness
- Substance abuse
- Financial constraints
- Mood
- Pain management
- Transportation
- Access

http://www.pcori.org/
Who is at Risk of Rehospitalization?  
Factors for Readmission from RED Data

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>IRR</th>
<th>95% CI</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Literacy</td>
<td>1.46</td>
<td>1.04, 2.05</td>
<td>703</td>
</tr>
<tr>
<td>Patient Activation</td>
<td>1.75</td>
<td>1.18, 2.60</td>
<td>695</td>
</tr>
<tr>
<td>Depression</td>
<td>1.73</td>
<td>1.27, 2.36</td>
<td>738</td>
</tr>
<tr>
<td>Frequent Utilizer</td>
<td>2.45</td>
<td>1.92, 3.15</td>
<td>738</td>
</tr>
<tr>
<td>Gender</td>
<td>1.62</td>
<td>1.28, 2.06</td>
<td>737</td>
</tr>
<tr>
<td>Substance Abuse</td>
<td>1.49</td>
<td>1.12, 1.98</td>
<td>738</td>
</tr>
</tbody>
</table>

## Post-Discharge RED Survey Questions by Depression Screen Status
Elicited 30-days After Index Discharge

<table>
<thead>
<tr>
<th>Question</th>
<th>No depression</th>
<th>Mild depression</th>
<th>Mod - Severe depression</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>How well did you understand what appointments you had?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extremely well (%)</td>
<td>37.1</td>
<td>33.5</td>
<td>29.5</td>
<td>0.027</td>
</tr>
<tr>
<td>How well did you feel you understood your primary diagnosis?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extremely well</td>
<td>26.7</td>
<td>20.0</td>
<td>18.9</td>
<td>0.005</td>
</tr>
<tr>
<td>How well were your questions answered before discharge?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not at all</td>
<td>4.1</td>
<td>6.5</td>
<td>8.0</td>
<td>0.047</td>
</tr>
</tbody>
</table>
Hazard of Hospital Readmission in the 30 days Following Hospital Discharge Among Subjects with Mild, Moderate to Severe, and No Depressive Symptoms

Readmission Rates Higher If Discharged on a Weekend

Unpublished BMC Project RED data.
• Adding 1 FP per 1000 population (adjusted for mortality, SES, and hospital characteristics) reduces the odds of readmission by 7%, 5%, and 8%

• An increase to:
  • 46 FP per 100,000 people (B) could reduce readmission costs by $81 million each year.
  • 100 FPs per 100,000 people (C) will reduce cost by $579 million per year, or 83% of the ACA target.

Communication Barriers

Impact of patient communication problems on the risk of preventable adverse events in acute care settings

Gillian Bartlett, PhD, Régis Blais, PhD, Robyn Tamblyn, PhD, Richard J. Clermont, MD and Brenda MacGibbon, PhD *CMAJ*. June 2008;178(12)

Patients with communication problems:

- 3 times more likely to have adverse event
- 46% had multiple adverse events

“Perfect Storm" of Patient Safety

The hospital discharge is non-standardized and frequently marked with poor quality.

- Poor quality information
- Communication lapses
- Poor preparation
- Lots of loose ends
- Fragmentation
- Great variability
- ½ with problems with meds at 2 days
- What do patients worry most about?
- Post-hospital syndrome?
AEs Lead to Readmissions and High Costs

• 19% of patients had a post-discharge AE
• 1/3 preventable and 1/3 ameliorable

19.6% Medicare beneficiaries are readmitted in 30 days

Patient Safety Collides with Public Policy!

Affordable Care Act

- Reduction from 20% to 15% will save $35 Billion over 4 years
- Penalties for High Readmission Rates

Agenda for this morning

1. Social Factors and Readmission – a few stories
2. Hospital Discharge is marked by poor quality
3. Social Determinants of Care and readmission
4. Improving discharge can reduce readmission
5. Project ACHIEVE
6. What do patients and caregivers think?
7. Can information technology help
Eleven mutually reinforcing components:

1. Medication reconciliation
2. Reconcile discharge plan with national guidelines
3. Follow-up appointments
4. Outstanding tests
5. Post-discharge services
6. Written discharge plan
7. What to do if problem arises
8. Patient education
9. Assess patient understanding
10. DC summary to PCP
11. Telephone reinforcement

Adopted by National Quality Forum as one of 30 "Safe Practices" (SP-11)

Can Improved Discharge Process Reduce Unplanned Hospital Utilization?

Enrollment N=749 → Randomization → Usual Care N=376 → RED Intervention N=373 → 30-day Outcome Data
- Telephone Call
- EMR Review

How Is RED Delivered
- Discharge Educator
  - Collect information
  - Package information
  - Teach patient
- After hospital care plan
- Communicate with PCP
- Follow-up phone call

**Bring this Plan to ALL Appointments**

After Hospital Care Plan for:

John Doe

Discharge Date: October 20, 2006

Question or Problem about this Packet? Call your Discharge Advocate: (617) 414-6822

Serious health problem? Call Dr. Brian Jack: (617) 414-2080
**Updated List of All Medicines**

**EACH DAY** follow this schedule:

**MEDICINES**

<table>
<thead>
<tr>
<th>What time of day do I take this medicine?</th>
<th>Why am I taking this medicine?</th>
<th>Medication name Amount</th>
<th>How much do I take?</th>
<th>How do I take this medicine?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morning</td>
<td>blood pressure</td>
<td>PROCARDIA XL</td>
<td>1 pill</td>
<td>By mouth</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NIFEDIPINE 90 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>HYDROCHLOROTHIAZIDE</td>
<td>1 pill</td>
<td>By mouth</td>
</tr>
<tr>
<td></td>
<td></td>
<td>25 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>blood pressure</td>
<td>CLONIDINE HCl 0.1 mg</td>
<td>3 pills</td>
<td>By mouth</td>
</tr>
<tr>
<td></td>
<td>cholesterol</td>
<td>LIPITOR ATORVASTATIN</td>
<td>1 pill</td>
<td>By mouth</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CALCIUM 20 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>stomach</td>
<td>PROTONIX PANTOPRAZOLE</td>
<td>1 pill</td>
<td>By mouth</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SODIUM 40 mg</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**MAIN PROBLEM:**

**APPOINTMENTS:**

<table>
<thead>
<tr>
<th>Monday, October 31&lt;sup&gt;st&lt;/sup&gt; at 1:30pm</th>
<th>Friday, November 4&lt;sup&gt;th&lt;/sup&gt; at 10:00am</th>
<th>Wednesday, November 9&lt;sup&gt;th&lt;/sup&gt; at 9:30am</th>
<th>Tuesday, November 15&lt;sup&gt;th&lt;/sup&gt; at 11:00am</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Chris Manasseh Primary Care Physician (Doctor)</td>
<td>Dr. Sheilah Bernard Consultant (Cardiologist)</td>
<td>Nutritionist</td>
<td>Cardiac Stress Test</td>
</tr>
<tr>
<td>at Harvard St. Community Health Center → Jane will drive</td>
<td>at Boston Medical Center; Doctor’s Office Building - 642 → Take cab, use cab voucher</td>
<td>at Boston Medical Center → Take #1 bus</td>
<td>at Boston Medical Center 850 Harrison Ave 4&lt;sup&gt;th&lt;/sup&gt; floor – Cardiac Station → Jane will drive; take parking sticker</td>
</tr>
<tr>
<td>For a Follow-up appointment</td>
<td>For a heart appointment</td>
<td>To help with food plan</td>
<td>To check your heart</td>
</tr>
<tr>
<td>Office Phone #: 617-825-3400</td>
<td>Office Phone #: 617-638-7490</td>
<td>Office Phone #: 617-555-1234</td>
<td>Office Phone #: 617-555-2345</td>
</tr>
</tbody>
</table>

**Lab test/ study name** | **Date done** | **Name of clinician to review/location** | **Day/Date subject will see clinician to discuss results?** |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Stomach biopsy from endoscopy (stomach test)</td>
<td>October 24, 2005</td>
<td>Dr. Manasseh at Harvard Street CHC</td>
<td>Dr. Manasseh will talk to you about results at your appointment with him on October 31, 2005.</td>
</tr>
<tr>
<td>Monday</td>
<td>Tuesday</td>
<td>Wednesday</td>
<td>Thursday</td>
</tr>
<tr>
<td>--------</td>
<td>----------</td>
<td>-----------</td>
<td>----------</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cardiac Stress Test at 11:00 am at BMC Jane will drive</td>
<td>Nutritionist at 9:30am at BMC Take #1 bus</td>
</tr>
<tr>
<td>13</td>
<td>14</td>
<td>15</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>21</td>
<td>22</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>28</td>
<td>29</td>
<td>30</td>
</tr>
</tbody>
</table>
Will RED Lower Hospital Reutilization, Improve Readiness for Discharge, Increase PCP Follow-up?

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=749 → Randomization → Usual Care N=376 → RED Intervention N=373 → 30-day Outcome Data
- Telephone Call
- EMR Review

Cumulative Hazard Rate of Patients Experiencing Hospital Utilization 30 days After Index Discharge

![Graph showing cumulative hazard rate over time after index discharge, with Usual Care and Intervention lines, and a statistically significant difference marked with P = .004.]

Percent of Patients Responding “Very Good” on Discharge Question
(Press Ganey Inpatient Survey)

Question: J-3: Instructions Given How to Care for Yourself at Home

- Received RED (unit) N=70: 60.8%
- Did Not Receive RED (unit) N=146: 34.9%
- Did Not Receive RED (hospital) N=3,411: 41%

P < .0001

BMC Project Red Data; submitted for publication.
AHRQ Contract to Study Dissemination

**Toolkit**

- Overview of the toolkit. Why is this important?
- How to begin implementation at your hospital.
- How to deliver RED.
- How to conduct a post-discharge follow-up phone call.
- How to benchmark your improvement process.
- How to deliver RED to diverse populations.

**10 Hospital Beta Sites Across the Country**

- Does RED work in the real world?
- What works? What doesn’t? What are the barriers?
- How to adapt RED for diverse populations.
Lessons Learned From National Dissemination

• “Heads on Beds”
• Med reconciliation
• Discharge summary
• Hospital-PCP communication
• Discharge plan delegated to interns
• Can appointments be made?
• Will RED delay discharge time?
• How to Deliver
  • Discharge Educator?
  • 2 day phone call?
  • Produce the AHCP?

*Culture Eats Strategy for Lunch. It is now all about implementation and efficiency!*
Reducing Readmissions
Not Only the Hospital’s Responsibility

7 Legged Stool

- Hospital Discharge Preparation
- Who is at Risk: Social Determinants of Care
- Community-based care
- Post-hospital primary care availability
- Family caregivers
- End of life care
- An emphasis on mental health
- Health IT
Agenda for this morning

1. Social Factors and Readmission – a few stories
2. Hospital Discharge is marked by poor quality
3. Social Determinants of Care and readmission
4. Improving discharge can reduce readmission
5. Project ACHIEVE
6. What do patients and caregivers think?
7. Can information technology help
Project ACHIEVE

Achieving Patient-Centered Care and Optimized Health In Care Transitions by Evaluating the Value of Evidence
<table>
<thead>
<tr>
<th>Site</th>
<th>Project Team</th>
</tr>
</thead>
</table>
| University of Kentucky             | Mark V. Williams, MD  
                                    Jing Li, MD, MS |
| Patients                           | Ralph Brown, Terry Davis                         |
| Caregivers                         | Carol Levine, John Schall                        |
| Westat                             | Joann Sorra, PhD  
                                    Deborah Carpenter, RN, MSN |
| Boston Medical Center              | Brian Jack, MD, MPH  
                                    Suzanne Mitchell, MD, MS |
| University of Pennsylvania         | Mary Naylor, PhD, RN  
                                    Karen Hirschman, PhD, MSW |
| Telligen                           | Jane Brock, MD, MPH  
                                    Brianna Gass, MPH |
| Kaiser Permanente                  | Brian Mittman, PhD  
                                    Huong Nguyen, PhD, RN |
Background

- Patients in the U.S. suffer harm too often transitioning between sites of care, and caregivers are burdened.
- Harm from poorly managed care transitions afflicts patient groups disproportionately.
- Traditional health care delivery models typically do not have mechanisms in place for promoting continuity and assuring coordination across settings.
- We do not know what outcomes matter most to patients and their caregivers, and what approaches work best.
- Widespread experimentation to improve care transitions is now underway.
- Transitional care dissemination and implementation research is undeveloped.
Specific Aims

1. Identify the transitional care outcomes and components that matter most to patients and caregivers.

2. Determine which evidence-based transitional care components (TCCs) or clusters most effectively yield patient and caregiver desired outcomes overall and among diverse patient and caregiver populations in different types of care settings and communities.

3. Identify barriers and facilitators to the implementation of specific TCCs or clusters of TCCs for different types of care settings and communities.

4. Develop recommendations for dissemination and implementation of the research findings on the best evidence regarding how to achieve optimal TC services and outcomes to patients, caregivers and providers.
Project ACHIEVE Model

Coordinated Care

Avoid Adverse Outcomes

Interventions

Achieve Patient/Caregiver Centered Goals

Mental Health Integration

Behavioral Health

Community Engagement

Care Management

Navigation

Housing

Support Network

Healthcare Access

Patient/Family Engagement

Community Context

Geographic Location, Resources, Available Public Programs

Clinical Care

Knowledge of Disease, Informed Care Plan, Medication Management

Complex Chronic Illness(es)

Cognition

Social Support

Health Literacy/Language

Hospital Context

Organizational Culture, Change Climate, Resources, Structure
ACHIEVE Study Design

• 3 Year Study:
  
  • **Phase 1:**
    • Participant Recruitment
    • Focus Groups (Patient, Caregiver, Provider)
    • Survey Development
  
  • **Phase 2:**
    • Retrospective Longitudinal Comparative Analyses
      • Data Collection
      • Patients Experiencing TCC
    
    • Prospective Cohort Analysis
      • Hospital, Patient, Caregiver and Provider Recruitment
      • Patient and Caregivers Surveys - TCC Cluster “Exposure”
      • Provider Surveys
### Phase 1: Focus Groups

- **60 Total Focus Groups**
  - 32+ In-Person Focus Groups at 5 sites with option for additional at other sites
    - Boston Medical College (BMC), Colorado Foundation for Medical Care (CFMC), Kaiser Permanente Southern California (KPSC), University of Pennsylvania (Penn) and the University of Kentucky (UK)
  - 400 patient/caregiver participants

- **20 Web-Based Focus Groups (Telligen/CFMC)**
  - 100 providers

### Patient Population (Medicare beneficiaries)

<table>
<thead>
<tr>
<th></th>
<th>BMC (Boston)</th>
<th>CFMC (Colorado)</th>
<th>KPSC (Southern California)</th>
<th>Penn (Pennsylvania)</th>
<th>UK (Kentucky)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple Chronic Conditions</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Mental Health</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Living in Rural Area</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Limited English proficiency or low health literacy</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low socioeconomic status</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medicare and Medicaid dual eligible</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disabled and younger than 65</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Cognitive Impairment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Phase 1: Survey Development

• Project ACHIEVE’s preliminary results

• Emergent Themes from Focus Groups
  • Patient and Caregiver Experiences
  • Providers use of Transitional Care Components (TCCs)

• Updated Review of Literature

• Input from Advisory Teams
  • Scientific Advisory Committee (SAC)
  • Stakeholder Advisory Group (SAG)
Phase 2: Prospective Cohort Analysis

- Participant Recruitment
  - Hospitals – 40
    - Geographic/Population diversity, Variety of TCC implementation
  - Patient, Caregiver, Providers - 22,200 total participants
    - Inclusion criteria similar to phase 1 focus groups

- Surveys - TCC Cluster “Exposure”
  - Patient - 12,000
  - Caregiver – 7,200
  - Provider– 3,000 (web-based)

- Additional Data:
  - Claims Data- Medicare FFS
  - Clinical Data –
    - KPSC - EHR
    - Submitted monthly via secured web-based platform
Agenda for this morning

1. Social Factors and Readmission – a few stories
2. Hospital Discharge is marked by poor quality
3. Social Determinants of Care and readmission
4. Improving discharge can reduce readmission
5. Project ACHIEVE
6. What do patients and caregivers think?
7. Can information technology help
Project Achieve: Patient and Caregiver Perspectives on Care Transitions

Report on Focus Groups

100 recordings received (n=243 people)
35 focus groups (n=96 for patients, n=75 for caregivers)
72 key informant interviews (n=33 for patients, n=39 for caregivers)
## Patient Categories Recruited by Site

<table>
<thead>
<tr>
<th>Patient Population</th>
<th>BMC</th>
<th>KPS</th>
<th>LSU</th>
<th>Penn</th>
<th>Tellige</th>
<th>UK</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Medicare beneficiaries who have</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multiple Chronic Conditions</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mental Health</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Living in Rural Area</td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Limited English proficiency</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low health literacy</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low socioeconomic status</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medicare and Medicaid dual eligible</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Disabled and younger than 65</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Cognitive Impairment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
Qualitative analytical process

The Analysis Process

Mental Health

BMC
- Patient
- Caregiver

KPSC
- Patient
- Caregiver

PENN
- Patient
- Caregiver

Stages of Comparison

Identify common and contrasting themes:
- Between sites for Patients and for Caregivers
- Between Patients and Caregivers within a population
- Between populations for Patients and for Caregivers
Pt/CG Needs

Communication

Anticipate Needs

Continuity of Care

Supportive
Collaborative
Purposeful

Transportation, medication, DME, caregiver responsibility

Relational
Informational
Teach-back method: Caregiver: “The nurse would ...[go over your medicines.] ... always...the whole list. Even what I had at home. [The nurse asks]...‘Ah, do you take this still? How do you take it? Do you know the dosage? ...do you need refills?...how many times a day do you take this one or that one?’...the whole schmeal...they were kind of assessing whether I knew.”
Purposeful Communication: Ineffective/Lacking

Layman speak vs. medical speak: Patient: “the doctors will say something and then ... the person, or the caretaker, or the patient or whoever will just sit there and go ‘okay, okay’. Well then, they get home, and they’re like ... what’d they say? What were they talking about? I didn’t understand that... they’re afraid to ask... I didn’t know what to ask... speak to me in laymen’s terms... bring you down to my level. I’m not a doctor...
Supportive Communication: Effective

‘In their shoes’: Caregiver: “I mean the nurse was unbelievable... She would say you could talk to her. She would brush her hair... She even helped us like, she explained. We said to her, “what would you do if it was your parent?” And she said, “if it was my parent, I would do what yous are doing. Yous are doing the right thing.”
Supportive Communication: Ineffective/Lacking

**Feeling humiliated:** “Now when she [caregiver’s mother] came out of the ... rehab center... the doctor clearly was in a hurry. And when my mom tried to ask him a question he just said, “Well that’s ridiculous. You don’t have to worry about that.” It was very very rude to her...that one experience was awful for her, she felt very humiliated...I went and then talked to him about it, and he did come back and try to you know, make up with Mom, but... they’re rushed. They’re hurried. But it still doesn’t excuse rudeness which I think that I’ve seen with people in hospitals and rehab centers.”
Collaborative Communication: Effective

**Patient empowerment:** “—the doctor who was leading the internal medicine team **encouraged me to talk**...to talk to the students and to her...she wanted my input ...on what they were discussing and what was going on.—and **it made me feel empowered in terms of my healthcare**.....most doctors don’t encourage that ... They just wanna come in there an’ tell you what they need to tell you, and they wanna leave, and they’re done with you. But, you know, she wanted to talk, she wanted to listen...she **fostered a good environment** to be able to speak.”
Anticipating needs at home: Caregiver: They [the hospital] worked out everything...the day they were gonna send him [her dad] home...they came in with the bed...all the stuff that he needed. The oxygen and all that stuff. And that was to help, because I wouldn’t...know...I was thankful for that...that was really— really a positive thing
Anticipation of Needs: Unsuccessful

**Not prepared medically:** Caregiver: I was just... practically told what I was gonna do... with no knowledge of what I was getting into... No medical experience level, didn’t know what the medical care was gonna be... And did not know how I was gonna administer then take care of it... I’m not prepared to deal with... recovery
Incorrect medication information: “I’ve had situations where they send him home on a blood thinner... and give me a prescription, had a nurse sit down and teach me how to inject... then I come to find out, for six months... I was injecting him with this blood thinner. And the discharge papers... said to discontinue the blood thinner... they still showed me how to do it, gave me a prescription, and filled it... So I mean, I don’t even know.”
Continuity of Care: Relational

Lack of coordination between doctors: “the urologist... [took] her off her heart medicine, which I was surprised by. And he says you can call the heart doctor to confirm this. Now I thought, well... Didn’t you contact the doctor’s office? They are Penn doctors, but he didn’t. And then when I called the heart doctor... he had a fit and said, ‘...it’s very important to take.’ But he had to put her back on medicine and cycle it back up.”
**Medication dispute:** with this last discharge... I wanted to see what the directions were, especially about his [father’s] medication...he said, “Well I don’t need,”...whichever one it is, “anymore, because I feel better”. And the nurse said, “Well if you feel better, just don’t take it.” And I’m looking at the nurse like if the doctor wants him to take his antibiotics, then he should take it. He just had surgery. The doctor wants him on an antibiotic. And then what happens it we get home and dad’s like, “Well I don’t have to take it. The nurse says I didn’t need to.”
Father cannot go into nursing home, caregiver suffering in silence:

“I have a unique situation because my father... speaks multiple languages. And so he has Alzheimer’s, so he has difficulty communicating... The hospital always suggests... to send him to a rehab facility before sending him home... we just bring him home because he doesn’t do well in a rehab facility... one time we brought him to a rehab facility but he just declined after that... But like putting him in a nursing home isn’t like putting him in a nursing home for everyone else, where you speak English. Um, so it’d be like signing over like a death sentence for him because he can’t even, at times, tell you he doesn’t feel good... [but] It’s just been me [caring for my father] for ten years. For five years I was bitter and angry and trying to find somewhere and somebody, and ask everyone and looked everywhere. I wrote the state of Michigan -- to whoever I could try and ask for help. But then after that I realized... everyone’s closed the door on it, so I have to decide... what’s best for my father. So I just have been suffering through it for five years because I know that he has a better life and I know that... when he says I have to go pee, or... I’m thirsty or I’m hungry, that somebody’s understanding what he’s saying and can feed him or give him something to drink. You know? So that’s where I’m at.”

.... Lost in the Wilderness
Agenda for this morning

1. Social Factors and Readmission – a few stories
2. Hospital Discharge is marked by poor quality
3. Social Determinants of Care and readmission
4. Improving discharge can reduce readmission
5. Project ACHIEVE
6. What do patients and caregivers think?
7. Can information technology help
Using Health IT to Overcome Challenge of Clinician Time

Virtual Patient Advocates

- Emulate face-to-face communication
- Develop therapeutic alliance - empathy, gaze, posture, gesture
- Teach AHCP
- Tailored
- Do “Teach Back”
- Can drill down
- Print reports
- High risk meds
  - Enoxaparin
  - Insulin

Characters: Louise (L) and Elizabeth (R)
Automated Discharge Workflow

Patient information entered into workstation → Paper booklet generated and reviewed → Booklet images, indexes, and patient health information downloaded to the kiosk → Patient - VN interaction → Issues displayed for nurse follow-up

Embodied Conversational Agent (Video)

http://relationalagents.com/red_demo_4545.wmv
Overall Usability

Overall Satisfaction

Mean = 6.5
Std. Dev. = 1.119
N = 157

Ease of Use

Mean = 1.84
Std. Dev. = 1.73
N = 158

Overall Attitudes

**Mean** = 4.78  
**Std. Dev.** = 1.71  
**N** = 158  
1 = stranger, 4 = neutral, 7 = close friend

**Mean** = 5.98  
**Std. Dev.** = 1.478  
**N** = 158  
1 = untrustworthy, 7 = very trustworthy

I'm sick
I hurt myself.
I'm tired.
I'm feeling down.
I'm feeling upset.
I'm a little STRESSED OUT.
I'm OK.
Overall Attitudes

How much do you feel that Louise cares about you?

Mean=5.68
Std. Dev.=1.765
N=157
1=not at all, 7=very much

How much do you feel that Louise understands each other?

Mean=6.09
Std. Dev.=1.413
N=158

Twice as Many Pts Prefer Louise than RN/MD

“It was just like a nurse, actually better, because sometimes a nurse just gives you the paper and says ‘Here you go.’ Louise explains everything.”

“I prefer Louise, she’s better than a doctor, she explains more, and doctors are always in a hurry.”

The Transition from Hospital to Home

1. Hospital Discharge is low hanging fruit for quality improvement
2. Social Determinants of Health can help identify patients at risk for readmission
3. National readmission efforts are working
4. Emphasis is now on implementation and efficiency
   -- High utilizing patients – especially mental health
   -- PCP and family caregiver engagement critical
5. Outcomes important to caregivers and patients:
   -- Communication (purposeful, supportive, collaborative)
   -- Anticipation of needs before transition home
   -- Continuity of care (consistent information/relational support)
6. Health IT has potential