READMISSION RISK REDUCTION WITH ON-LINE, CHECKLIST DRIVEN CARE: A CASE STUDY

How interactive clinical checklists at the point-of-care can proactively address readmission factors
Transitions of Care Today

Staggering Readmission Rates

- 20% of Medicare patients are readmitted within 30 days… 50% never had any follow-up visit with a primary care MD\(^1\)

- In one recent study, the rate of timely PCP follow-up was only 49%, and those patients lacking timely PCP follow-up were 10 times more likely to be readmitted, 21% in patients lacking timely PCP follow-up vs. 3% in patients with timely PCP follow-up\(^1\).

- For patients who were readmitted within 30 days after a surgery was performed, 70% were admitted for a medical condition such as pneumonia or a urinary tract infection\(^1\).

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Transitions of Care Today

Staggering Readmission Rates

- The problem is not confined to Medicare, recent estimate shows 18% of all patients readmitted with 30 days.\(^1\)
- Based on intervention studies, estimated that 20-50% of readmissions are preventable.
- Patients in one survey reported that 18% percent of physicians unnecessarily repeated tests, and test results and medical records were missing when needed at 23% of follow-up appointments.\(^2\)
- An estimated 60% of medication errors occur during times of transition, and those, medication errors harm 1.5 million people each year in the United States, costing the nation $3.5 billion annually.\(^3\)

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1 Arnold Milstein, data presented at Reducing Readmissions Conference, 11/15/2009
2 The Commonwealth Fund Commission on a High Performance Health System, Why Not the Best? Results from a National Scorecard on United States Health System Performance (Sept. 2006)
The Existing Knowledge-Action Gap: How to ensure the right corrective action is taken?

<table>
<thead>
<tr>
<th>Known Causes</th>
<th>Examples</th>
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<tbody>
<tr>
<td>High-risk medications, Polypharmacy</td>
<td>Coumadin, insulin, digoxin, narcotics (particularly when &gt;5 meds to manage)</td>
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<tr>
<td>Psychological or substance abuse issues</td>
<td>Untreated depression extremely common among discharged patients</td>
</tr>
<tr>
<td>Particularly debilitating diagnoses</td>
<td>CHF, stroke, COPD, cancer</td>
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<tr>
<td>Missed Follow-up on Labs &amp; Studies</td>
<td>Critical cultures, biopsies, radiological studies that require close follow-up</td>
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<tr>
<td>Lack of caregiver support</td>
<td>Lives alone, homeless, debilitated spouse</td>
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<tr>
<td>Previous hospitalization</td>
<td>Non-elective prior hospitalization in past 6 months</td>
</tr>
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Sources:
1. BOOSTing the Hospital Discharge, Williams MV, J Hosp Med 2009, 3:209-210
Where do we need to go?

Three Elements of High Quality Transitions

1. Patient-Centered
   The transition plan is tailored to the specific diseases and recovery challenges of this unique patient.

2. Continuous
   Spans across the traditional chasms between settings, linking together hospital, patient & caregivers and primary physicians in a single community of care.

3. Intelligent
   Offers decision support and analytics that help all stakeholders ensure the highest quality possible care.
How does current care measure up?

A Typical Community Hospital in 2011

Standard Discharge Plan → Adherence/Outcomes?

? Patient Info and Hand-off?

Acute Care Hospital

Discharge Summary (often days later)

Patient and Caregivers in Community

MD in Community
How does current care measure up?
A Typical Community Hospital in 2010

1. **Patient-centered**
   Often using a single generic set of discharge checklists with minimal or no tailoring to the specific needs of the particular patient.

2. **Continuous**
   Transition plan often ends at the hospital door, follow-up burden solely on patient; receiving clinicians starved for information; no common portal to share information and ensure successful handoffs.

3. **Intelligent**
   Typically a “dumb” paper process lacking decision support to encourage adherence to best practices.
Example of extremely limited Discharge Orders at the community hospital level
A New Way to Approach the Problem: Interactive Checklist Driven Care

- Healthcare knowledge exists but rarely available in usable form at the point-of-action
- Interactive Checklist Driven Care
  - Bridges the gap between knowledge and action
  - Delivers relevant guidance at key points in clinical workflow leading to optimized clinical and economic outcomes.
    - Admission, transfer, discharge, transitions of care, PCMH
  - Captures, analyzes and assimilates clinical performance data to drive continuous improvement
Interactive Clinical Checklists

An emerging system category that is more than the sum of the parts

- Provides physician-designed decision support
- Supports care collaboration through shared access
- Integrates with existing workflows
- Creates “rapid” feedback loop for quality improvement
- Parses and blends multiple content sources
- Adds precision to documentation
Issues with Paper Checklists

Inventory & Availability

Version Control

Multiple Problems per Patient

Issues with Paper Checklists
Challenge is how to blend all the different best practices & requirements into one clinical checklist?

Local Best Practices

Internal Requirements

External Best Practices

External Requirements
How it Works

**Inputs**
- Site Specific Data
- Clinician Preferences
- Patient Clinical Data
- Evidence-Based Best Practices

**Provider Risk Management System**

**Outputs**
- Precision Documentation
- Improved Coding
- Optimized Resource Use
- Reimbursement Triggers, Metrics

**Timely Collaboration**

**Feedback Loop:**
- Drives Improvement

- Better Decisions
- Better Reporting
- Continuous Improvement
Post-acute care: supported by interactive clinical checklists

Cloud-based “Smart” Interactive Checklist System

- Analysis for Process Improvement
- Adherence with Care Plan
- Confirmation of successful handoff
- Patient Info & Care Plan
- Smart Checklists
- Customized Care Plan

Community Hospital Checklists for Admission, Transfer, Discharge and Transitions of Care

Patient and Caregivers in Community

Medical Groups/PCPs

Harvard School of Public Health

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Driving easily accessed “complete loop” care to prevent readmissions
PRM Interactive Checklists Support High-Quality Transitions

1. **Patient-Centered**
   - Supports hundreds of disease-specific provider checklists, with the ability to blend into unique, highly-customized plans for patient-specific needs. Electronically update with industry-wide best practices.

2. **Continuous**
   - Provides a Web-enabled portal that becomes the common source for hospital, primary physician, patient’s family and associated caregivers. No HIE or EMR necessary! PMD is alerted via email to access the portal.

3. **Intelligent**
   - Offers point-of-care decision support to ensure best practices, while a rich suite of analytical tools drives the continuous improvement of processes.
Sounds Good: But Does it Work?

- Holston Medical Group, Kingsport Tennessee
- Launched a hospitalist driven, readmit reduction program in December 2010
- Focused on improving care coordination and downstream clinical communication
- In partnership with BCBS Tennessee, and Performance Clinical Systems
About Holston Medical Group

- One of the largest multi-specialty providers within the Southeast
- 24-hour medical/surgical coverage throughout Northeast Tennessee and Southwest Virginia
- Holston Medical Group’s “Family of Care” consists of more than 800 employees, including 150 physicians and mid-level providers
- Regarded as a national leader in clinical research as well as electronic health record integration and utilization
62 y/o Admitted for Complex Care: How to Reduce Re-admission Risk?

Key: Use checklists to communicate key data to downstream physicians:

- Clinical guidelines for care
- Alerts for high risk and hard to manage medications
- New allergies
- Critical events (cardiac arrest in-hospital)
- Pending labs
- Follow up appointment
- Patient education
- Identifies poor health literacy
- Identifies lack of patient support in home environment
Clinical Scenario: Admission

Interactive checklists cue actions to reduce readmissions

- Guidance offered on disease-specific readmission risk.
- Interactive checklist shows only what is relevant to current situation.
Clinical Scenario: Discharge
Interactive checklists alert downstream care of new or pending info

• Discharge checklist
• **ALL risk factors must be considered & addressed**

• Must specify follow up
• Aftercare must be in place
Alerting for critical downstream attention...

Your Patient Discharged from Hospital Today

High risk Rx ordered at discharge, needs PCP Follow-Up

Pending Labs or Diagnostic Studies, needs PCP Follow-up

Your Patient is High Risk for Readmission per BOOST Criteria
Without interactive clinical checklists

7:45pm Saturday night in ED…

Clinical “Best Efforts”

- Patient needs to be admitted at 7:45pm
- Focus in on acute care
- Readmit risks not identified

High-Risk Readmit

- No case manager on duty over the weekend
- Review waits until Monday

- Transferred to Intermediate Care
- Readmission risk not yet quantified during stay
With interactive clinical checklists

7:45pm Saturday night in ED...

Systematic, Pro-active Care Initiated

- Patient needs to be admitted at 7:45pm
- Borderline between ICU or Intermediate Care bed
- Checklist ensures highest-value clinical criteria presented to MD
- Readmission risk factors assessed and documented

Minimized Readmit Risk

- Despite absence of case manager on duty over the weekend, EBG Care continues
- Case manager notified of high readmission risk patient
- Initiates patient education and care coordination to address risk factors
### Patient Information

**Name:** Agnes Sexton, 61 yo, (07/04/1949) / MR# 123123 / PA# 12345123456

### Interventions

**Orders**
- Admit/Discharge/Transfer:
  - Make these HMG orders an official part of the permanent medical record.
  - Discharge
  - Discharge to: Home
  - Transfer
  - Transport
  - Discharge patient by private vehicle

**Diagnosis**
- Discharge Diagnosis: Chest Pain

**Hospital Course**
- Invasive/Operative/Other Events:
  - Intubation
  - Consult Requested:
  - Cardiology
  - Pulmonology
  - Additional Comments:

**Condition**
- No new allergies/adverse reactions identified during this hospitalization

**Vitals**

**Allergies**
- PCP Notifications - Medications:
  - Coumadin - new prescription, needs Coumadin Clinic followup

**Nursing**
- Nursing communication: Provide written instructions specific to diagnosis

**Diet**
- Discharge diet: Cardiac

**IV Fluids**

**Medications**

**Labs/Diagnostics**
- PCP Notifications - Pending Labs & Diagnostic Studies:
  - Blood culture results still pending, need f/u after discharge

**Follow-Up Appointments**
- (Unit Secretary)
  - Please schedule followup appointment with Dr Murphy in 1-2 weeks

**Follow-up Appointments (Documentation)**

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Performance Physician 🌐 © 2011 Performance Clinical Systems, LLC. Patents pending.
Agnes Sexton, 61 yo, (07/04/1949) / MR# 123123 / PA# 12345123456
Discharge Final Progress Note (Hospital Copy)

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  - Consults Requested:
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    - Pulmonology
- Additional Comments:

**Allergies**
- No new allergies/adverse reactions identified during this hospitalization
Interactive clinical checklists are easily implemented
Performance Measurement

- Workflow tools embedded at the point of care
- Influences behaviors real-time through gentle, but firm traffic light guidance based on content and administrative rules
  - No “critiquing” of work AFTER time was invested which requires revisiting steps already taken
- Documents, tracks, and reports on performance and adherence to all protocols and best practices driven by evidence-based content (easily imported into system)
Potential savings from this technology

<table>
<thead>
<tr>
<th>Typical Community Hospital</th>
<th>Factors</th>
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<tbody>
<tr>
<td>Base Cost to Payor</td>
<td>$5,833&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td>Admissions/year</td>
<td>10,000</td>
</tr>
<tr>
<td>Readmit rate (averaged)</td>
<td>0.1755&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
<tr>
<td># of Readmissions/year</td>
<td>1755</td>
</tr>
<tr>
<td>Cost of all readmissions</td>
<td>$10,236,915</td>
</tr>
<tr>
<td>Estimate preventable</td>
<td>50%&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
<tr>
<td>Total potentially preventable cost</td>
<td>$5,118,147</td>
</tr>
<tr>
<td>% reduction by Interactive Checklist within workflow of the 50%</td>
<td>25%</td>
</tr>
<tr>
<td>Interactive Checklist Savings</td>
<td>$2,755,970 per year</td>
</tr>
</tbody>
</table>

<sup>1</sup> CMS base compensation for MS-DRG in state of CA
<sup>2</sup> Averaged rate between Medicare & Commercial Payors, 2009 RCCA data
<sup>3</sup> Jencks, Goldfield data
HMG: How is it Going?

- Hospitalists enthusiastic and engaged, as are PCPs
- Primary care network now has access to more timely and relevant care related information
  - New medications started in the hospital
  - Alerts on anti-coagulation and status
  - Identification of re-admit risk factors
- Can now be accessed through EHR
- Provides real time performance analytics in terms of checklist deployment and specific order initiation
- Plans are to expand interactivity to post-acute care ecosystem, including home care, SNFs.
It Takes a “Clinical Village” to Prevent Readmissions: And Now it’s Connected!

Cloud-based “Smart” Interactive Checklist System

- Customized Care Plan
- Analysis for Process Improvement
- Smart Checklists
- Adherence with Care Plan
- Confirmation of successful handoff
- Patient Info & Care Plan

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