Strategies for Identifying and Reducing Readmissions

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Objectives

• Increase awareness of the current literature around readmissions including readmission metrics in post-acute care

• Discuss the major factors impacting readmissions

• Describe strategies for prevention and reduction of medical and functional risk factors
Readmission Problem

• 17.6% of hospital admissions result in readmissions within 30 days
• 6% result in readmissions within 7 days
• Results in $15 billion in spending

Reference: MedPac Report 2007
Readmissions

Aim: To understand what patterns of health care use are associated with higher post-hospitalization spending

Results: The proportion of differences attributable to readmissions versus post-acute care differed across conditions. For hip and femur procedures, joint replacement, and stroke—difference if received IRF. For pneumonia and heart failure, SNF was the key driver of variation in post-acute spending.
Post-Acute Care Utilization and Readmission Rate

Factors Impacting Readmissions
Readmissions

Readmissions within 180 days

<table>
<thead>
<tr>
<th></th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home</td>
<td>45</td>
<td>14.5%</td>
</tr>
<tr>
<td>Inpatient Rehabilitation</td>
<td>17</td>
<td>7.7%</td>
</tr>
<tr>
<td>Skilled Nursing Facility</td>
<td>35</td>
<td>14.3%</td>
</tr>
</tbody>
</table>

- Retrospective cohort examined 606 orthopedic patients in acute care
- Outcome examined discharge destination and readmission
- Discharge to ARU was associated with lower risk of hospital readmission

Hospital Readmission Among Older Adults Who Return Home With Unmet Need for ADL Disability

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2Department of Biostatistics, Indiana University School of Medicine, Indianapolis.
3Center for Gerontology, University of California at San Francisco, San Francisco Veterans Affairs Medical Center.
4College of Pharmacy, Center for Aging and the Life Course, Regenstrief Center for Healthcare Engineering, Center for Health Outcomes Research and Policy, Purdue University, West Lafayette, Indiana.
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Unmet need for new ADL disabilities after return home from the hospital is particularly vulnerable to readmissions
- Patients’ functional needs after discharge should be evaluated and addressed

Readmissions

Patient Characteristics and Differences in Hospital Readmission Rates

- All-cause readmissions within 30 days of discharge linked survey data on 29 factors including:
  - Education level
  - Income
  - Smoking history
  - Work status
  - Ability to bathe, feed, and dress themselves

- Researchers found that about 50% of the difference between the hospitals with the highest and lowest readmissions rates could be explained by those 29 factors - by the kind of patients they see, not the kind of care they provide including the variables bulleted above.

- Hospitals with the highest readmissions had patients who were "less mobile, had more difficulty with activities of daily living, more chronic conditions, less education, lower income, lower assets, etc.


Readmissions

Functional Impairment and Hospital Readmission in Medicare Seniors

- Functional impairment is associated with increased risk of 30-day all cause hospital readmissions in Medicare Seniors especially those admitted for heart failure, myocardial infarction, or pneumonia
- Functional impairment may be an important but under-addressed factor in preventing readmissions

Functional status on Admission to CIIRP is strongly associated with readmission before planned discharge from CIIRP. Efforts to reduce hospital readmissions should consider patient functional status as an important and potentially modifiable risk factor.
Readmissions

Efforts to reduce readmissions to acute care should include greater scrutiny of older, lower functioning patients with burn injury who are evaluated at admission to inpatient rehabilitation.

CONCLUSION: Efforts to reduce readmissions to acute care should include greater scrutiny of older, lower functioning patients with burn injury who are evaluated for admission to inpatient rehabilitation. This acute transfer scoring system may be useful to clinicians, health care institutions, and policymakers to help predict those patients at highest risk for early transfer to the acute hospital from rehabilitation.

Original Research

Risk Factors for Discharge to an Acute Care Hospital From Inpatient Rehabilitation Among Stroke Patients


- Retrospective study of stroke 783 stroke patients from 2008-2012 admitted to IRF
- Examined 60 who returned to acute care hospital
- Two significant risk factors were low motor FIM® rating and enteral feeding

- Trends but not significant:
  - Younger age
  - Longer onset time from stroke to IRF admit
  - Presence of a tiered comorbidity
Readmissions

Original Research

Transferring Inpatient Rehabilitation Facility Cancer Patients Back to Acute Care (TRIPBAC)

Arash Asher, MD, Pamela S. Roberts, PhD, OTR/L, SCES, FAOTA, CPHQ, Catherine Bresee, MS, Garret Zabel, Richard V. Riggs, MD, Andre Rogatko, PhD

Objective: To determine predictive factors for transferring inpatient rehabilitation facility (IRF) cancer patients back to acute care (TRIPBAC).

Design: A retrospective chart review of patients with cancer admitted to an IRF from 2009 to 2010 because of a functional impairment that developed as a direct consequence of their cancer or its treatment.

Setting: IRF of a community-based, academic, tertiary care facility.

Methods: The characterization of patients with cancer in the IRF was primarily based on analysis of the IRF Patient Assessment Instrument and other internal IRF data logs.

Main Outcome Measurement: Frequency and reasons for TRIPBAC.

Results: The TRIPBAC rate in our IRF was 17.4%. The most common reasons for TRIPBAC were post-neurological complications (31%). Factors associated with TRIPBAC were a motor Functional Independence Measure score of 55 points or lower on admission (odds ratio 4.01, 95% confidence interval 1.79-8.99, P = .001) and the presence of a feeding tube or a modified diet (odds ratio 3.18, 95% confidence interval 1.44-7.04, P = .004).

Conclusions: Motor Functional Independence Measure score on admission is the best predictor for TRIPBAC in patients with cancer admitted to our IRF, followed by the presence of a feeding tube or a modified diet.

PM&R 2014;6(9):808-813.

Readmissions

Among post-acute rehabilitation facilities providing services to Medicare fee-for-service beneficiaries, 30-day readmission rate ranged from 5.8% for patients with lower extremity joint replacement to 18.8% for patients with debility.

Higher motor and cognitive functional status were associated with lower hospital readmission rates across six impairment categories (stroke, lower extremity fracture, lower extremity joint replacement, debility, neurologic disorders and brain dysfunction).

Factors that contributed most often to readmission in this study were heart failure, UTI, pneumonia, sepsis, nutritional and metabolic disorders, esophagitis, gastroenteritis and digestive disorders.

Function Summary

- One of the largest contributors to medical costs incurred by senior citizens is **functional impairment** after hospitalization.

- Severe functional impairment—defined as a person needing in at least two activities of daily living—is among the most expensive conditions.

Readmissions

- Centers for Medicare and Medicaid Services (CMS) focus is to reduce avoidable readmissions.

- As readmission rates affect payment and post acute care services move toward a bundled payment system, understanding the implications of discharge destinations as it influences outcomes and payment is imperative.
Readmission Technical Aspects

Measured within 30-day time frame

All cause

Risk standardized

Readmissions: 30-day time frame

• Index admission: first admission for a patient within a specific time period
• Readmission clock starts counting at day of discharge
• Readmission: an admission to any acute care hospital that occurs within 30 days of discharge
• Considered a meaningful time frame for hospitals to coordinate and collaborate with clinical providers in the community-based setting

Example of Readmission Measurement Timeframes

Acute Hospital and IRF Readmission Measurement Timeframes

Overlap

Rehabilitation Readmissions

- Discharge to acute hospital **during** inpatient rehabilitation program

- Discharge to Acute hospital **after** completion of inpatient rehabilitation program (within 30 days)
Quality Measures for All Cause Readmissions

Refer to National Quality Forum
http://www.qualityforum.org/Home.aspx

Where are we as an Industry in Readmission Rates?
Bounce-Back: Predicting Acute Readmissions from Inpatient Rehabilitation for Patients with Stroke

Aims

• Identify risk factors (demographic, medical and functional) for discharge to an acute hospital before completion of an inpatient rehabilitation program
• Identify risk factors (demographic, medical and functional) for discharge to an acute hospital after completion of an inpatient rehabilitation program for two models: 7 day readmission and 30 day readmission
Bounce-Back: Predicting Acute Readmissions from Inpatient Rehabilitation for Patients with Stroke

Discharge to Acute Model

Bounce-Back: Predicting Acute Readmissions from Inpatient Rehabilitation for Patients with Stroke

7-Day Readmission Model
Bounce-Back: Predicting Acute Readmissions from Inpatient Rehabilitation for Patients with Stroke

30-Day Readmission Model

Summary
Readmissions within 30 Days

Readmission after completion of inpatient rehabilitation program
Sample PEPPER Report

Strategies for Prevention and Reduction of Medical and Functional Risk Factors
Transitions of Care

Functional Status: Physical ability Cognitive Status

Resources: Social, Financial, Community

Discharge Environment (Barriers)

= Discharge Destination
Practical Strategy Considerations

- **Standardized** IRF “SBAR” hand-off
- Lack of standardization of hand-off for:
  - Bladder and bowel function/management
  - Pain management
  - Completion of acute Care Plans
  - Lines/Drains/Airways
  - Tests/procedures completed prior to admission
  - Skin/Pressure Ulcers
  - Out of bed/activity level
  - Transfer level, use of special equipment/technique

Medical: Dangers of Discharge

- 1095 of 2644 (41%) inpatients discharged with test result pending
  - 191 (9.4%) potentially required action
  - Survey of MDs involved: almost 2/3 unaware of results
  - Of these: 37% actionable and 13% urgent

Have you made sure all test results are in and acted upon?
Does your Electronic Health Record provide the discharge summary to all the patient’s physicians and care providers?
Practical Strategy Considerations

• Disease Management
  — Clinical management and interventions to include early identification of signs and symptoms
  — Initiative for patient/family/caregiver to manage disease(s) especially chronic diseases

• Patient/Family/Caregiver Education
  — Ability to identify risks and complications
  — Understand and integrate precautions
  — Ability to identify signs and symptoms and know what to do

Practical Strategy Considerations

• Mediation Management
  — Medication administration schedule and integrate into daily routine
  — Obtain all medications-(transportation to pharmacy, ability to pay for medications, etc.)

• Self-Management
  — Medical condition
  — Home environment/Home safety
  — Social
  — Health literacy
Practical Strategy Considerations

- Information Exchange
  - Discharge Instructions with patient/family/caregiver
  - Post-acute care providers (continuity of care)
  - Pharmacy (medications)
  - Physicians-Primary and Specialty follow-up appointments
- Monitoring
  - Remote monitoring
  - Follow-up plans (telephone calls, appointments, etc.)

Initiatives to Reduce Readmissions

- MiPAD
- Medical Passport
- Follow-up telephone calls within specified times
- Physician Assistant/Nurse Practitioner assisting recent discharges in medical oversight at skilled nursing homes
- Frailty Assessment
- Foundation identifying “Frail” patients to prevent admissions and if admitted to prevent readmissions
- Medication Reconciliation (source verification) throughout the continuum
- Case Manager throughout the continuum (e.g. Inpatient Specialty Program)
Inpatient Rehabilitation

Multidisciplinary Information and Personal Assistance Diary (MiPAD)

- Goal: Improve information and education throughout the continuum of care
- Tool used to have all education in one place including triggers to include certain information

MiPAD Table of Contents

1. Introduction
   A) Handbook
   B) Group Therapy
   C) Team Members
   D) Survey

2. My Condition
   A) Diagnosis Specific Packet
   B) Health and Well-Being
   C) Medications

3. My Safety
   A) Precautions
   B) Safety in the Home
   C) Disaster Preparedness

4. My Discharge
   a) Home Exercise Program
   b) Equipment
   c) Training
   d) Family Conference

5. My Contacts
   a) Medical Passport
   b) Support Services
   c) Business Card Holder
Frailty Rehabilitation Model

• **Purpose**
  - To define the predictors of frailty in the context of inpatient rehabilitation
  - To determine if early identification of frailty improves care and prevents readmissions

• **Methods**
  - **Design**: Retrospective analysis
  - **Participants**: All patients admitted and discharged from the inpatient rehabilitation unit from January 1, 2012-December 31, 2012
  - **N=768**
  - **Outcome Variables**
    - Adverse Events (Complications, Falls, HAPUs while on inpatient rehabilitation unit)
    - 30-day readmissions after completion of an inpatient rehabilitation program
Identification of Frailty Risk Factors

- Identify inpatient rehabilitation patients at risk for frailty
- Prospective Payment System (PPS) coordinator identifies patients who meet Frailty Risk Factors and puts into UDS-PROI® custom fields

<table>
<thead>
<tr>
<th>Adverse Events</th>
<th>Admission Field</th>
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<tbody>
<tr>
<td>Race/Black</td>
<td>85. Admission Custom</td>
</tr>
<tr>
<td>Race/Hispanic</td>
<td>86. Admission Custom</td>
</tr>
<tr>
<td>Comorbidity &gt; 9</td>
<td>87. Admission Custom</td>
</tr>
<tr>
<td>Sphincter &lt;10</td>
<td>88. Admission Custom</td>
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<tr>
<td>Total (2/4)=+</td>
<td>89. Admission Custom</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Readmissions</th>
<th>Admission Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onset &gt; 7 days</td>
<td>90. Admission Custom</td>
</tr>
<tr>
<td>Tube Feeding</td>
<td>91. Admission Custom</td>
</tr>
<tr>
<td>Obesity</td>
<td>92. Admission Custom</td>
</tr>
<tr>
<td>Total (1/3)=+</td>
<td>93. Admission Custom</td>
</tr>
</tbody>
</table>
Identification of Frailty Risk Factors

- Patients identified with Frailty Risk Factors noted on team conference schedule

<table>
<thead>
<tr>
<th>TIME</th>
<th>PATIENT NAME</th>
<th>INSURANCE</th>
<th>DATES</th>
<th>T-LOS</th>
<th>LAST DAY</th>
<th>AGE</th>
<th>GENDER</th>
<th>PHYSICIAN</th>
<th>TF</th>
<th>OBESITY</th>
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</thead>
<tbody>
<tr>
<td>10:00</td>
<td>Patient A</td>
<td>MCARE/PVT</td>
<td>1/27/15</td>
<td>24</td>
<td>2/15/15</td>
<td>2/17/15</td>
<td>E</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>10:10</td>
<td>Patient B</td>
<td>MCARE/PVT</td>
<td>1/25/15</td>
<td>21</td>
<td>2/14/15</td>
<td>2/17/14</td>
<td>E</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>10:30</td>
<td>Patient D</td>
<td>MCARE/PVT</td>
<td>2/3/15</td>
<td>24</td>
<td>2/26/15</td>
<td>2/26/15</td>
<td>E</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Frailty Risk Factors:
- BM = race Black/African American
- Onset = Onset > 7 days
- HIS = race Hispanic
- TF = tube feeding
- NAME in RED indicates Diabetes

Frailty Checklist and Targeted Education

If patient is Frailty Positive, consider the following as appropriate:

- Consider length of stay for entire Case Mix Group (CMG)
- Home visit
  - In-Home Visit
  - Home Visit by Rehabilitation Staff
  - Home Health Follow-up including Home Visit within 48 hours after discharge

- Fall Education Handout
  - Diabetes Education
  - Diabetic Group or 1:1 Education
  - Infection Education Handout

- Bowel & Bladder Program
  - Incision Care
  - Bowel Program
  - Bowel Bladder Program

Cedars Sinai
Home Safety

• Pre-Home Assessment/Home Assessment
• Home Safety Recommendations

Readmissions For Patients Identified Frailty Risk
Remote Monitoring Example

- HealthLoop is a patient engagement platform that guides patients throughout an episode of care to:
  - Automate routine care management
  - Reinforce education
  - Monitor adherence and clinical status
  - Identify at-risk patients early to reduce readmissions
  - Capture patient reported outcomes
Bundling Initiatives to Reduce Readmissions

- Bundled payment models (acute and post-acute care)
  alignment of performance incentives to containment of costs
- Bundling requires accurate information regarding readmission rates for patients receiving post-acute services
- Bundling Initiative Example: Comprehensive Joint Replacement
Key Operational Factors to Prevent Readmissions

<table>
<thead>
<tr>
<th>Inpatient Care Processes</th>
<th>Effective Discharge Planning</th>
<th>Post-Discharge Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Quality of clinical care received across inpatient stay</td>
<td>• Effectiveness of discharge instructions, patient education, and family/caregiver training</td>
<td>• Extent to which patient receives necessary follow-up care after hospital stay</td>
</tr>
<tr>
<td>• Appropriate medication reconciliation</td>
<td>• Comprehensive patient/family/caregiver education on medications, diet/nutrition, exercise/activity, and care plan</td>
<td>• Scheduling of follow-up physician appointments</td>
</tr>
<tr>
<td>• Compliance with evidence-based care</td>
<td>• Proper assessment of patient needs post-discharge</td>
<td>• Scheduling of follow-up therapy appointments</td>
</tr>
<tr>
<td></td>
<td>• Community referrals</td>
<td>• Follow-up telephone calls</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Appropriate referrals and integration with community resources</td>
</tr>
</tbody>
</table>

Communication with Physicians

• Direct e-mails to physicians about readmissions
Deep Dive into Discharges to Acute Hospital

• Understand reason for readmission to acute hospital before completion of rehabilitation program
• Review each case and classify into categories
• Example of categories

| Inadequate Mgt of Infection (Sepsis, pneumonia, UTI, cdiff, etc.) | Inadequate Mgt of Other Implantation Infections (prosthetic heart valve, etc.) | Inadequate Mgt of Chronic Conditions (CHF, diabetic foot ulcer, COPD) | Inadequate prophylaxis (PIU, perioperative, etc.) | Inadequate Injury Prevention (SDH, subdural hemorrhage, etc.) | Planned Procedures/Surgery | Acute Neurological Change | Other |

Medication Management Issues

- Approximately 1.5 million preventable adverse drug events (ADEs) occur annually as a result of medication errors, at a cost of more than $3 billion per year.9
- Approximately half of all hospital-related medication errors and 20% of all ADEs have been attributed to poor communication at the transitions and interfaces of care.6
- The average hospitalized patient is subject to at least one medication error per day.8
- ADEs account for 2.5% of estimated emergency department visits for all unintentional injuries and 6.7% of those leading to hospitalization.8
- The occurrence of unintended medication discrepancies at the time of hospital admission ranges from 30% to 70%, as reported in two literature reviews.10

References

Medication Transition Issues and Strategies

• How to define prior to admission medication lists accuracy (home list versus hospital list)?
• What is the current medication regimen and how can one assure accuracy?
• Who is responsible to determine medications at the time of admission?
• Often disregarded items include:
  • VTE prophylaxis
  • Bowel medications
  • Pain medications

Pharmacist Assisted Medication Reconciliation
Medication Reconciliation

Ensuring Accuracy of the Medication List
Ensuring Accuracy of the Medication List

Errors may be introduced in any of these settings and can become hardwired into the patient record.

- **Home**
  - Patient
  - Family
  - Caregivers
  - Home Health
  - Other Providers

- **Outpatient Settings**
  - Physicians
  - Nurses
  - Certified Medical Assistants
  - Community Pharmacies
  - Patients

- **Hospital/Emergency Department**
  - Nurses
  - Pharmacists
  - Pharmacy Technicians
  - Pharmacy Residents/students

- **Post Acute Care**
  - Nurses
  - Physicians
  - Pharmacists

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CSMC MedAL Algorithm
Medication Adherence and Literacy Score

DC = Discharge from hospital

1. Impact of Pharmacist Post-Discharge Phone Calls on Hospital Readmission and Patient Medication Literacy and Adherence. [Source](http://data-altימate.gov/docs/NCInstitute)
3. Transition-related: identifying the utility of drug-related problems, medication adherence, and literacy in a high-risk population. [Abstract](Presented at AACP The Minneapolis on December 21, 2013)

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Medications-Choose Wisely

Choosing Wisely Recommendation

Don't use benzodiazepines or other sedative-hypnotics in older adults as first choice for insomnia, agitation or delirium.

Rationale
- Increased risk of falls (57% for benzos overall, 97% for Valium)
- Increased risk of motor vehicle accidents
- Increased risk of hip fractures

Emerging Technology

Summary: Interventions to Reduce 30-Day Readmissions

Interventions to Reduce 30-Day Rehospitalization: A Systematic Review
Laleh O. Hatami, MD, MPH; Robert T. Young, MD; Kellie Hinek, MD, MS; Alice Leung, MD; and Marc V. Williams, MD

Pre-Discharge
- Patient Education
- Discharge Planning
- Medication Reconciliation
- F/U Appt scheduling

Post-Discharge
- Timely Follow-up
- Timely PCP Communication
- F/U Phone Call
- Patient Hotline
- Home Visit

Bridging Interventions
- Transition Coach
- Patient-centered Discharge Instructions
- Provider Continuity
Summary: Critical Time Frames

• Before Admission
  Is medical work-up complete?
  Are additional studies/procedures required?

• During Admission
  Early identification in medical or functional changes
  Active management of ongoing comorbidities

• At the time of Discharge/Transition
  Handoffs

Readmission Model

Goals to Prevent Readmissions

• Obtain
  At discharge determine immediate needs for discharge such as medications from pharmacy, DME, follow-up support, home safety
  Address the following at discharge:
    • Medical needs at discharge
    • Social Support
    • Financial (obtain medications, equipment, caregiver, etc.)
    • Functional (Home Safety, equipment)
Readmission Model

• Sustain
  • Ongoing support for medical and functional integration in the home and community environments
    • Is patient able to get to physician appointments?
    • Can they inject insulin, administer medications, etc.?
    • Are they following the correct diet?
    • Are they following their home programs?
    • Did they receive equipment and had it be properly assembled and adjusted?

Readmission Model

• Maintain
  • Social-Support in the home environment
  • Oversight needed
  • Coordination of Care
  • Geographically are services available
Questions