The Who, What, When, and How of Predicting Risk of Re-admission

Eric A. Coleman, MD, MPH, AGSF, FACP
Professor of Medicine
Director, Care Transitions Program
University of Colorado at Denver
www.caretransitions.org

Introductory Remarks

Not Wanting to Be the Contrarian

- Is heart failure a special case or won’t there always be one top readmission diagnosis?
- If we are spending too much in the last year of life, what year should replace the last year?
- Won't there always be a smaller % of the population accounting for disproportionate amount of costs, even after you intervene?

Introducing the Pareto Principle

- 80% of peas were from 20% of peapods
- 80% of wealth is controlled by 20% of pop’n
- 80% of sales come from 20% of clients
- 80% of complaints from 20% of customers
- 80% of health care used by 20% of pop’n
- ...and so on
Don’t Be Seduced by Data Analytics

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“We did not know a lot about them”

- Intermountain Healthcare launched its analytics program to determine how to reduce spending among the 1% of its patients who accounted for 24% of care expenditures between 2008 and 2012
- “We did not know a lot about them,” said Scott Pingree, Intermountain's director of strategic planning & chair of high-cost patients

Preventable Re-Admissions

- Estimates range from 15-85% of hospital readmissions may be preventable
- Wide range attributable to different categorization, limits of administrative data, coding approaches, numerator/denominator
- Greatest confidence of characterizing readmissions as preventable when closest to the discharge date for the index admission

Question 1: You are asked by hospital leadership to develop a risk targeting strategy. Which of the following approaches are valid?

A. Use a predictive tool derived from administrative & utilization data and target patients with the top 2 deciles
B. Offer risk reduction interventions to these with certain conditions that are tied to readmission penalties
C. Go to the bedside and ask the patient open ended questions to understand the factors they perceive to have contributed to their return and tailor risk reduction interventions to their responses
D. Ask the discharge planners to identify those patients who should receive risk reduction interventions based on their “gut” sense
E. Any of these strategies is defensible

Not Your Typical Bell-Shaped Curve

Larger Population

Hospitalized Population
Question 2 Which of the following patient characteristics would be the most helpful predictor for identifying a patient at risk for poor care transitions:

A. Number of medications to be taken at discharge
B. A diagnosis of heart failure
C. Inability to successfully teach back discharge instructions
D. The distance they traveled to the hospital
E. The age of the patient

Limitations of Relying on Diagnosis Data to Predict Risk

- Rationale—rank top discharge diagnoses—inevitably there will be always be a top 10
- Incentivize clinicians to code more diagnoses (potentially lowering threshold for making dx)
- In predictive models, # of diagnoses are not as powerful as prior utilization & social factors
Hospital Admissions Risk Multiplier Screen (HARMS-8)

1. How would you rate your current health?
2. How many prescription medications are you taking?
   a) How often do you decide not to take your medications?
   b) How sure are you that you know the reason for taking meds?
3. Are you having any difficulty doing activities of daily living?
4. How often do you have trouble remembering or thinking clearly?
5. How many friends/relatives could you call on for help?
6. How confident are you that you can manage your conditions?
7. During the past 6 months, did you go to the emergency room?
   a) Do you think you will go to the emergency room again?
8. During the past 6 months, did you stay in the hospital?
   a) Do you think you will need to be hospitalized again?

Improving Medicare Post-Acute Care Transformation (IMPACT) of 2014

- Implement a standardize assessment and care planning tool, known as CARE (Continuity Assessment Record & Evaluation)
- PAC settings include skilled nursing facilities (SNF), home health agencies (HHA), inpatient rehabilitation facilities (IRF), and long-term care hospitals (LTCH)

Question 3: What types of challenges are patients likely to share when asked an open ended question about why they think they were admitted or readmitted to a hospital?

A. Inadequate transportation to outpatient appointments
B. Family caregiver experienced a health decline
C. Financial barriers to filling a prescription
D. Felt overwhelmed by what is required to manage their conditions
E. All of the above

Avoiding “All Assessed Up and No Where to Go”

- Does discharge begin on admission? Really?
- How might the intake assessment help promote risk targeting?

Audience Poll—The Vital Five

- What 5 things would you want to include in an admission assessment that would directly impact quality and safety of discharge?
What 5 Things Would You Include in Admission Assessment?

? 

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What Predicts Execution of Discharge Instructions?

Maybe it's not Mabel's heart that is responsible for her HF admits…
1) Health literacy
2) Executive cognitive function
3) Activation/locus of control

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Teach Back Is Both a Screening Tool and an Intervention!

1. Patient goals and preferences
2. Baseline physical & cognitive function
3. Family caregiver status
4. Health literacy status
5. Activation score

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What 5 Things Would You Include in Admission Assessment—Eric’s List

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Time to Open Pandora’s Box

Minnesota RARE Campaign
Mental Health Collaborative

Recommended Actions for Improved Care Transitions: Mental Illnesses and/or Substance Use Disorders

www.rarereadmissions.org/resources/mental_health.html
Reconceptualizing Risk at the Bedside

- Asking the patient what contributed to admission
- Low literacy/inability to teach-back
- Cognitive impairment
- Low activation
- Lack of family caregiver support
- Limited access to transportation
- Inadequate financial means

How

General Approaches

- Prediction algorithm
- Diagnosis (particularly those public reported)
- Prior utilization
- Discharge planner’s gut feeling
- Unable to perform teach-back
- Low Patient Activation Measure score
- Cognitive impairment
- No family caregiver

Principles of Risk Identification

- Operationally define risk—in most cases we are after modifiable risk
- Taking a step further, we are after identifying modifiable risk for which we have confidence that our interventions work
- Take note of variables that are static vs. dynamic
- Tools need to work “real time” and fit workflows

Identifying High Risk Patients Using Predictive Models

1. Administrative variables found in claims data
2. Administrative \textit{and} self-reported variables

Figure 2: Receiver Operating Curves (ROC) for Predicting Poor Care Transitions
Consider a Two-Step Strategy:

**Step 1:** Narrow the population to a manageable 
- Predictive algorithm (e.g., choose one)
- Diagnosis (e.g., the 3 publicly reported)
- Prior utilization (e.g., hospital and ED)

**Step 2:** Go to the bedside
- Ask the patient to reflect on contributing factors
- Evaluate health literacy, cognition, activation

Come Full Circle: Validate Your Approach

- Are those that screen in experiencing high rates of readmission?
- Are they receptive/responsive to your proposed interventions?
- Do the interventions mitigate risk?

Think Green
Share Risk Score with the Next Care Team

**move Beyond Traditional Risk Evaluation**

*Use Simulation to “Road Test” the Care Plan!*

Time to Retire the Term….

“Non-compliant”

Tell me and I’ll forget; show me and I may remember; involve me and I’ll understand.

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Chinese Proverb
Extending Simulation Learning Experiences to Patients With Chronic Health Conditions

Getting Started: A Simulation Lab….For Patients

- North Mississippi Health System—Lee Greer, MD
- Opportunity to “road test” the discharge care plan for heart failure patients and modify based on performance
- Simulation lab in dedicated unit with multiple stations
- Reduction in 30-day readmission rate from 17% to 13%

Conclusion and Pearls

1. When in doubt go to the bedside and ask open ended questions
2. Consider using Teach-Back as both a risk screening tool and an intervention
3. Try to focus interventions on those patients with modifiable risk
4. Consider use of simulation to road test the care plan

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