Session 6

Predictive Analytic Models: A Must in the Journey to Reducing Readmissions

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Learning Objectives

• Recognize the key elements of a care management redesign that help lower potentially preventable readmissions.

• Determine how predictive analytics can help risk-stratify patients to determine an optimal care transition plan.

• Recognize the role of education to engage members of the care team, patients, and families to lower readmissions.
We believe that patients deserve to receive the optimum level of follow-up care and support after discharge from the hospital—which in turn reduces hospital readmissions and costs.
Poll Question # 1

Is your organization facing penalties related to high readmission rates?

a) Yes
b) No
c) Unsure or not applicable
Approximately

- 20% in 30 days
- 33% in 90 days
- $41.3 billion in additional hospital costs

Much of this is avoidable
Allina Health is dedicated to the prevention and treatment of illness and enhancing the greater health of individuals, families, and communities throughout Minnesota and western Wisconsin.

- 13 Hospitals
- 82 Clinic sites
- 3 Ambulatory care centers
- Pharmacy, hospice, home care, medical equipment
- 26,000 employees
- 5,000 physicians
- 2.8 million+ clinic visits
- 110,000+ inpatient hospital admissions
- 1,658 staffed beds
- 3.4B in revenue
- 32% Twin Cities market share
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Potentially preventable readmissions (PPRs) are common and costly. PPRs are readmissions analytically determined to be related by 3M software outputs. Hospitals need to manage PPRs to improve quality and avoid penalties. Many factors along the care continuum influence PPRs. Managing care transitions at the time of discharge is key to reducing PPRs.
The Problem and Opportunity

Increasing focus on readmissions (state and national)

- 40% of readmissions occur within 7 days of discharge.

Complex discharge needs

- 60% of Allina Health’s patients meet this criteria.

Significant variation in case finding

- Resulting in poor care transition management at discharge for those who need it most.

Lack of readily accessible and relevant data

- Distributed across various locations and across multiple tools.
Patients Are Most Vulnerable in the First Week After Discharge
The Turning Point

1. Allina Health recognized that in order to reduce readmissions it needed to implement systemwide change.

2. Effective change would require a multi-pronged approach:
   • Care management process—how and at what points in the care process.
   • Analytics—predictive models and measurement.
   • Education and awareness.
Results

10.3%

overall reduction in PPRs

- Reduction in all risk categories
- 4.3% reduction for high-risk patients
- 21.3% reduction percent for moderate/high-risk patients

27%

reduction for patients with clinic follow-up within 5 days

$3.7 million

reduction in variable direct costs

Results period: January – December 2015
Allina Health Achieved a Sustained Risk-Adjusted Reduction in PPRs
Allina Health Has Also Seen an Increase in the Care Transition Patient Experience Measure

Percentile

Jan 2015 Feb Mar Apr May Jun Jul Aug Sep Oct Nov Year

Goal

#HASUMMIT16
At Allina Health:

- 5% of patients are at a high risk for a readmission.
- 17% of patients are at a moderate-high risk for a readmission.
- 60% of patients have complex discharge needs based on a combination of clinical, social, and post-acute needs.
How We Achieved Our Results

Care Process Management Process Redesign
Analytics and Predictive Models
Education and Awareness
Care Management Process Redesign

Created complex discharge planning (CDP) teams:

- Partner with care management team to determine patient needs during hospital stay and at discharge.
- Develop and execute coordinated care management discharge plans.
- Conduct care management transition conferences.
Care Management Process Redesign

Care Management Transition Conferences (TC)

- Facilitated meeting to outline care management plan post discharge:
  - Patient, patient’s family, RN care coordinator, and physician.
    - Post-acute partner attends when indicated.
  - After TC, care management coordinates care plan and provides ongoing updates.
  - From April 2012 to March 2016, Allina Health has completed 11,969 TCs.

- Continuous improvement of TC process:
  - Feedback from involved clinicians to identify issues and barriers.
Analytics and Predictive Models

Developed a predictive model

- Model utilizes EHR data to identify and stratify patient populations into risk categories.
- Predicts a patient’s risk of readmission within 30 days.
  - Risk level (high, moderate-high, moderate, low) based on:
    - Prior utilization of Emergency Department and inpatient services
    - Medical history
    - Demographic information
    - Current clinical data
The Predictive Model Stratifies Patients Accurately When Analyzing Historical Data

Allina Health, Potentially Preventable Readmission Rate by Risk Level, Apr. 2015-Mar. 2016 Discharges
Analytics and Predictive Models

Implemented an analytics platform

• Enables point-of-care identification of patients who might benefit from a TC.
  ▪ Risk levels from predictive model appear in application 24-48 hours after admission.

• Enables Allina Health to track effectiveness of programs and interventions on readmissions.
  ▪ Based on key clinical variables, they are able to compare outcomes of patients who received TC against those who did not.
  ▪ Incorporated readmission metrics into organization-wide scorecard.

• Plan to incorporate risk model into EHR.
Measures of Caring Scorecard

Readmissions metric added to increase systemwide visibility
Example of Evaluating Effectiveness Based on Risk Stratification

Number needed to treat with a follow-up appointment to avoid readmissions decreases when evaluated at the low readmission risk level (2015 discharges)

Means, for example, that 12 high-risk medical patients or 14 surgical patients need to typically be seen five days from discharge to prevent 1 readmission.
Poll Question # 2

Does your organization currently use predictive analytics to drive outcomes improvement initiatives?

a) Yes
b) No
c) Unsure or not applicable
Success required active engagement of patients and care management teams.

- Used TC to educate and support patients, family, and outpatient caregivers.
  - Supported with standardized and easy-to-understand materials.
- Internal education and marketing plan to engage care teams.
  - Newsletter, intranet site provide program material and updates.
Summary of How We Achieved Our Results

Using care management process redesign, predictive analytics, and education, we were able to significantly reduce PPRs and save costs.
Lessons Learned

• Predictive analytics and a readmission risk model are effective in identifying and managing patients at all readmission risk levels.

• Interventions need to be multi-pronged to impact all risk levels.
  • Example: follow-up appointments for all patients

• A standardized, interdisciplinary care management transition conference is very effective in engaging patients and families at high risk of a readmission.

• Changing the culture requires a lot of heavy lifting.
Future Plans

1. Expand readmissions program and hardwire the process into the care management model to increase reliability and effectiveness.

2. Continuously refine predictive analytics to improve capabilities. Add readmission risk scores to electronic medical record so caregivers have the information front and center.

3. Integrate other sources of data into patient census analytics application.
   • Claims data
   • Patient and family data (bi-directional)
Analytic Insights

Questions & Answers
What You Learned…

Write down the key things you’ve learned related to each of the learning objectives after attending this session
Thank You