Readmissions Policy: Attainment and Improvement

March 2016

Maryland Hospital Association

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Policy Objectives

Develop a robust model for predicting hospital readmissions rates that can be used to measure attainment of a readmissions target as well as improvement toward a target

- Build on known predictors of individual risk, e.g., clinical comorbidities, presence of a significant mental health or substance use condition, age, gender, etc.
- Include sociodemographic proxy variables
- Develop a model that recognizes the incremental impact of multiple risk factors and the interaction of risks, to account for different levels of opportunity to reduce readmissions, especially among hospitals with low base year readmissions rates. More fair policy
- Assess how service-line differences could be layered into the analysis
- Impact of including cancer cases. It's not clear whether all planned readmissions are excluded

Measurement Concepts

- All-payer, unplanned, 30-day readmissions
- Scoring based on Observed/Expected performance
- Multivariate regression model to determine "expected" readmissions rate → risk-adjusted rate
- Thresholds and benchmarks are performance standards similar to QBR, MHAC, national models
- Better of **attainment** and **improvement** scores

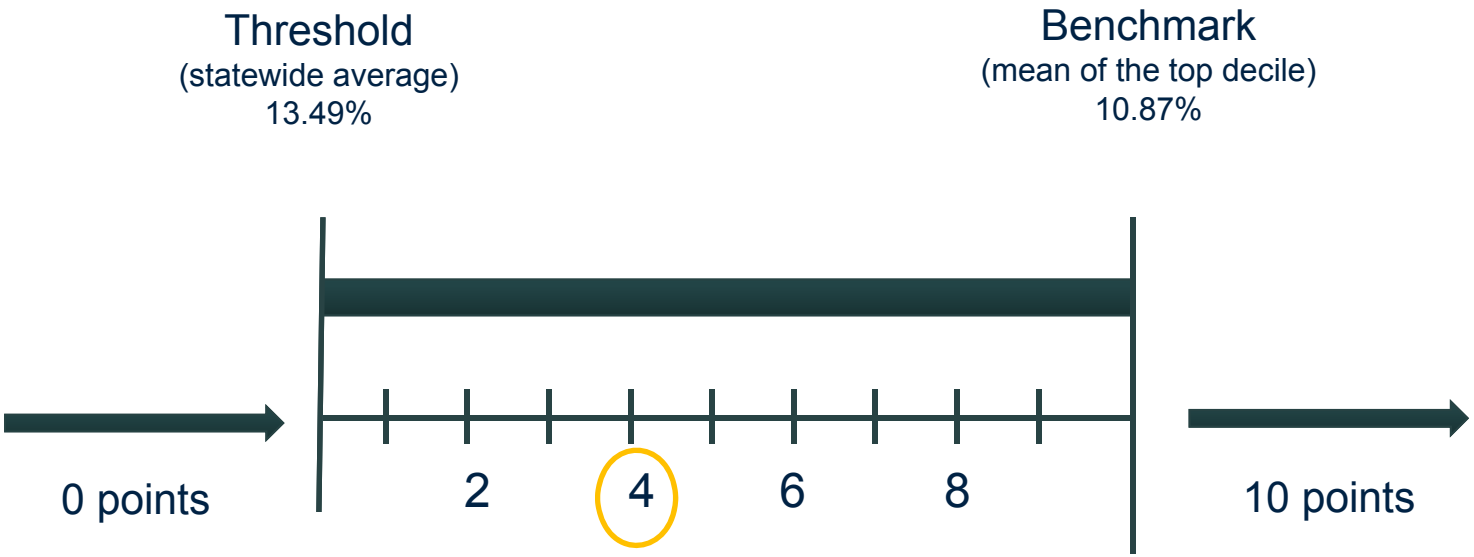
Measurement Concepts

- Attainment
  - Score based on hospital performance relative to a target readmissions rate
  - Score ranges 0-10
- Improvement
  - Score based on a hospital's year over year performance
  - Score ranges 0-10
- Final score is the higher of attainment or improvement score

Measurement Concepts

- Threshold
  - Minimum performance required to score points
  - Typically set at average or median performance
- Benchmark
  - Performance required to score maximum points
  - High performer benchmark (e.g., top quartile)

Attainment Example



Hospital rate of 12.44%
Calculates to an attainment score of 4

Measurement Concepts

- Payment adjustments
  - Final score translates into a payment adjustment
  - Potential for positive and negative payment adjustments
  - Similar to QBR and MHAC

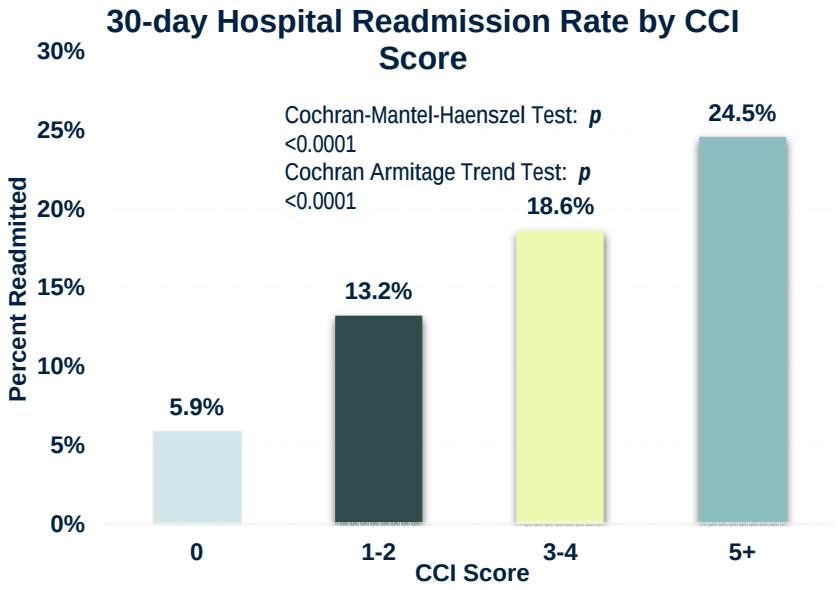
Developing a Predictive Model

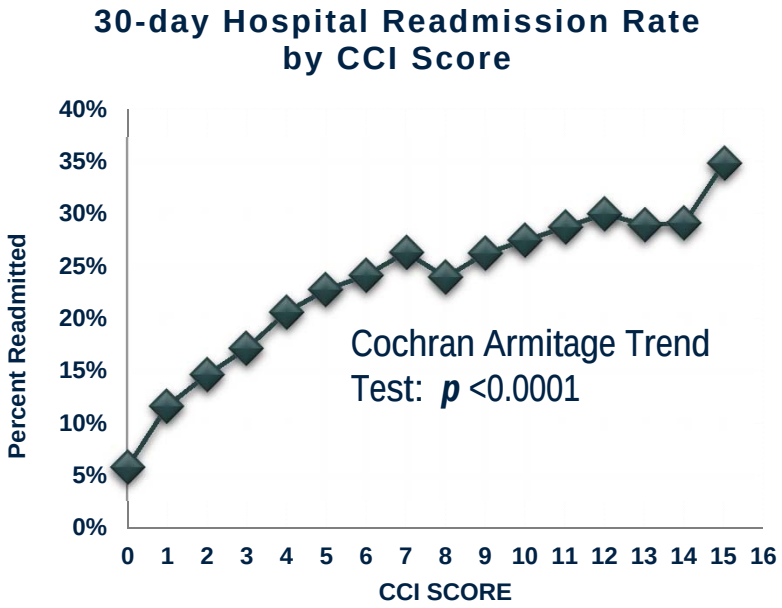
- MHA developed a risk adjustment model using proven predictors
- Observed/Expected ratio requires a method to develop an “expected” value
- Current readmissions policy uses only the statewide actual readmissions rate by DRG and severity level to determine expected rates
- Data source
  - HSCRC inpatient public use file (“revisit” data)
  - Model development: July 2012-Sept. 2014 discharges
  - Model validation: calendar year 2013 discharges

Developing a Predictive Model

- Risk adjustment variables
  - Charlson Comorbidity Index (CCI) score
    - Weighted index of 17 conditions designed to quantify the number and seriousness of comorbid diseases (details in appendix)
    - Commonly used risk-adjustment tool
  - Age
  - Gender
  - Race/ethnicity
  - Primary payer
  - Level of poverty, using Census data
  - APR-DRG/SOI weight (case-mix)
  - Mental health-substance use disorders indicator

Results: CCI as a Predictor of 30-Day Readmissions





Additional statistical performance results can be found in the appendix

CCI Score, Mean ±SD	
Readmitted	Not readmitted
3.1 ± 2.8	**1.6 ± 2.3**

Next Steps

- Potential Refinements
  - Out-of-state adjustment
  - Data limitations in public use file:
    - Age as a category
    - Geography at zip code level—block level is better
    - Reliability of race/ethnicity reporting
  - Area Deprivation Index as alternative socio-demographic variable
  - HSCRC norms in place of Charlson Co-morbidity Index
  - Layer in service line analysis
  - Other potential refinements