Baylor Scott & White HEALTH

Utilization of High Need High Cost Risk Stratification to Support Personalized Care Plans for Individual Member Needs

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Changing Healthcare For The Better™

Comprehensive Care Management (CCM)

CCM Care Team

RN Care Manager

Social Worker

Health Coordinator

Community Health Worker

Pharmacist

Pharmacy *Tech*

CCM Interventions

Transitions of Care

Chronic & Preventative Gap Closure

Proactive Panel Outreach

High Need/High Cost Risk Stratification Model

Utilizes claims and EHR data to integrate comparative spend, clinical complexity, medical, social and behavioral determinants to provide a holistic picture of our members

Medical

Behavioral

Members

Activities of Daily Living (ADLs)

Social

Analytics Risk Stratification Platform

Configurable Member Taxonomies

Care Models/Clinical Programs

Personalized care plan to individual member needs

- Utilizes nationally recognized clinical value sets to identify **health care drivers** for each taxonomy
- Categorization aides in allocating resources and **aligning strategies** of the health care delivery system
- Increased focus on **high need cohorts** provides insight into which members are more likely to engage
- Member **engagement increases** when treatment plans are tailored to specific member needs

Source: National Academy of Medicine, Effective Care for High-Need Patients

Enhancing Our Care Models

Medical Determinants	Behavioral Determinants	Social Determinants
• Children with Complex Needs • Non-Elderly Disabled • Major Complex Chronic Conditions • Multiple Chronic Conditions • Frail Elderly • Advancing Illness • Relatively Healthy	• Substance Abuse • Serious Mental Illness • Cognitive Decline • Chronic Toxic Stress	• Education Level • Financial Resource Strain • Food Insecurity Risk Classification • Health Provider Shortage Area (PCP) • Homeless • Low Income Zip Code • Social Connections Risk Classification • Ever Tobacco User

Hypertension, Obesity, Hyperlipidemia, and Diabetes are the most prevalent diagnosis for members with Multiple Chronic Conditions

Anxiety disorders and Depression are prevalent diagnosis for members with Chronic Toxic Stress

Health Provider Shortage Areas are designated by Health Resources and Services Administration, BSWQA network has adequate PCP availability in these areas

Next Steps:

▪ Work underway to develop enhanced care models tailored to specific needs of the population

Comparison to Previous Model: Spend Stratification

Previous Model: Highly accurate, very detailed input data, trained to focus on experienced spend
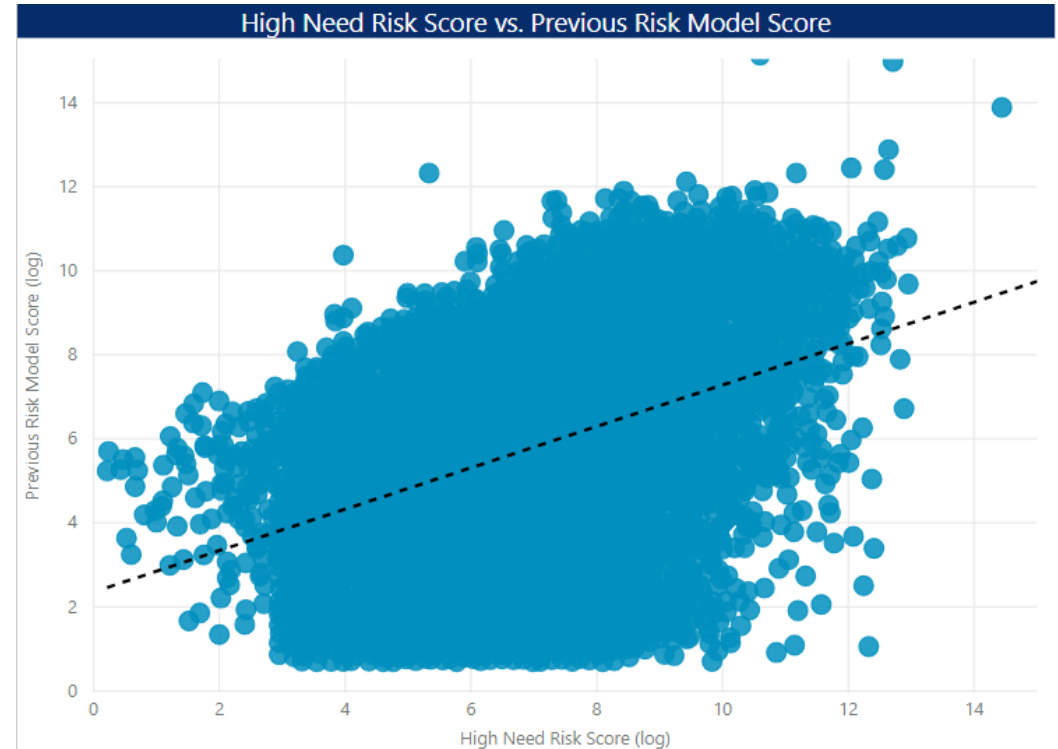
- Spend is factored into the model after the spend occurred, ex. hospitalization expense for the traumatic hip repair of the frail elder until post fall, had surgery and left rehab

- 3.34% of Medicare members considered very high risk

- 1.46% of commercial members high/very high risk

- 55% of members with $150k+ were high risk

High-Need, High-Cost Model: Highly useful, more actionable input data, trained to focus on spend comparison

- Spend is calculated in comparison to other patients in the cohort, ex. we would see a high-risk frail elder is expected to be $84K so that we could identify opportunities to prevent the spend (ACP, avoid the fall)

- 3.10% of Medicare members considered very high risk

- 1.40% of commercial members high/very high risk

- 80% of members with $150k+ are very high/high risk

**Correlation of previous predictions to new predictions: 0.71***

*There is a strong correlation between the previous predictions and the updated predictions

High Need Risk Score vs. Previous Risk Model Score

(y-axis: Previous Risk Model Score (log); x-axis: High Need Risk Score (log))

# High Need, High Cost Model: Gain Analysis – All BSWQA

- **Gain Score:** the difference between scores intended to measure predicted spend, not necessarily high spend, and compare differences for the purpose partitioning patients for further analysis or program development

  - **Methodology**: The gain score for all six medical determinants compared to clinical, utilization or social data was evaluated for all BSWQA members, Medicare members and High/Very high risk members

  - Factors that help accurately predict spend for all BSWQA Members by medical determinate:

    - **Children with Complex Needs**: Rx count, avg albumin, inpatient admission count

    - **Multiple Chronic Conditions**: Rx count, BMI, average red blood cell count

    - **Advancing Illness**: ED visits, avg creatinine, avg BMI

    - **Frail Elderly**: avg BMI, ED visits, RX count

    - **Non-Elderly Disabled**: IP admission count, avg creatinine and RX count

  - **Conclusion:** Determinates from cluster analysis are key drivers of predicting spend in medical determinant taxonomies


All BSWQA Members
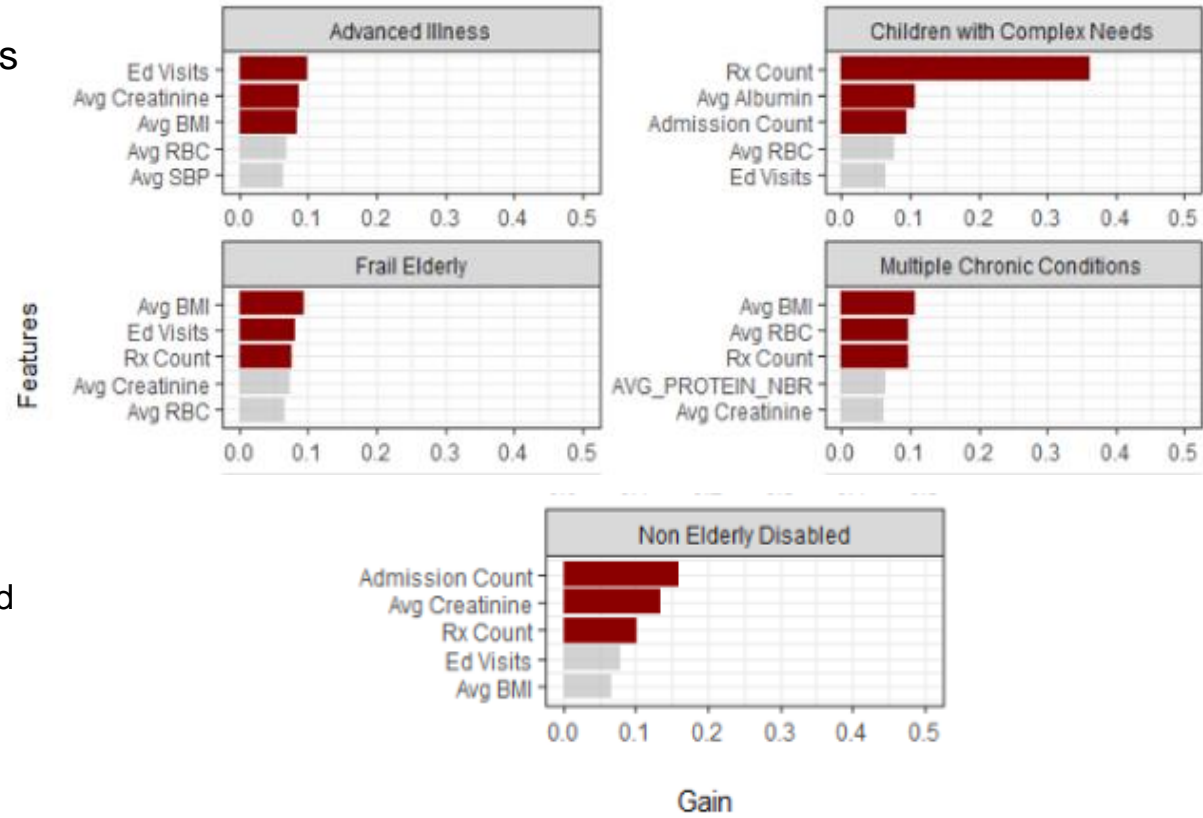
High Need, High Cost Model: Cluster Analysis

- **k-means Clustering**: Classifying objects into multiple groups such that objects within the same cluster are as similar as possible, and objects from different clusters are as dissimilar as possible. This is done by minimizing the distance between points in the same cluster.

- **High and Very High Risk**:
  - **Preliminary Analysis**: Three clusters partitioned based on gender, age pharmacy spend, financial strain and behavioral determinants
    - **Cluster 1:** younger (65yo), non-elderly disabled (12.9%), females (67.9%) with average pharmacy spend > $119, 12+ active rx, and higher prevalence of substance abuse (7.9%), serious mental illness (49.9%) and chronic toxic stress (45.0%), high financial strain (2.5%)
    - **Cluster 2 and 3:** partitioned by pharmacy spend, active number of prescriptions, major complex medical conditions (80.2%) and advancing illness (77.6%)
  - **Secondary Analysis**: Two clusters partitioned based on gender, age, pharmacy spend, behavioral determinants
    - **Cluster A:** younger (69yo) non-elderly disabled (10.0%), females (63.3%) with average pharmacy spend > $83, 9+ active rx, and higher prevalence of substance abuse (5.8%), serious mental illness (44.2%) and chronic toxic stress (40.2%), higher financial strain
    - **Cluster B:** partitioned by pharmacy spend, active number of prescriptions, major complex medical conditions (80.2%) and advancing illness (77.6%)

- **Medium Risk:** most similar to cluster one with higher prevalence of medical conditions and behavioral determinants

- **Low Risk:** youngest partition, 53/47 female split, few prescriptions, low utilization and few behavioral or social determinants
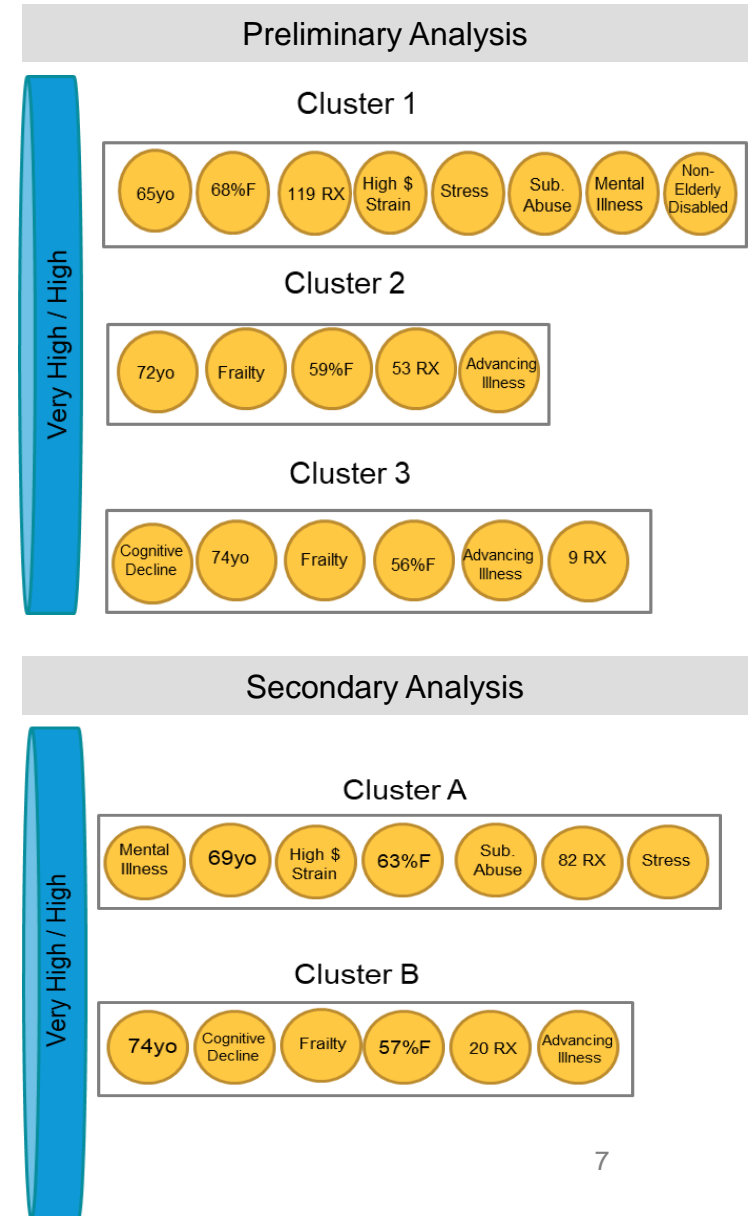
High-Need, High-Cost Risk Model: CCM HR Engagement

- **High Need, High Cost Model**: Proactive outreach variable per contract

  - High risk member engagement increases across all contracts with the high need high cost model

  - Moving focus from utilization to more robustly defined high need cohorts allows care managers to focus on members more willing to engage

- **National Academy of Medicine:** The most successful care models…use targeting to refine further how they allocate resources more efficiently among their high-need patients.

  - Isolation, financial strain and education level can be included in staffing or workflow design to target and align CCM resources with member needs and likelihood to engage

  - Members considered relatively healthy are the least likely to engage in care management

Engagement Rate (High/Very High in New Model AND High in Current Model)
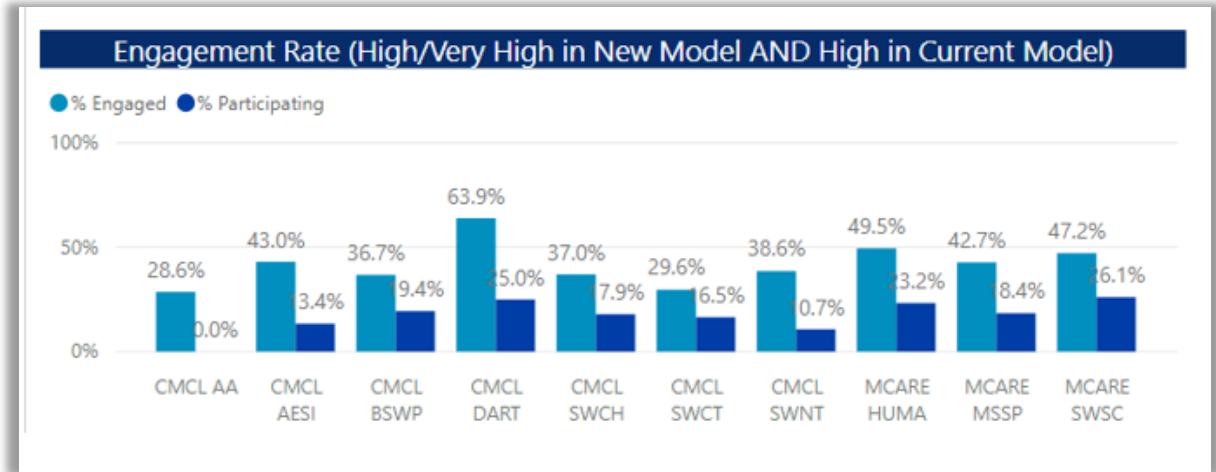
Most Likely to Engage	% Engaged
Somewhat Isolated	82.5%
Severely Isolated	80.0%
Moderately Isolated	78.0%
Some High School	75.0%
Slightly Isolated	72.3%
Medium Financial Strain	65.4%
High Financial Strain	60.2%

Thank You!

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- *Source: National Academy of Medicine, Effective Care for High-Need Patients*