

From Data to Value: Applying Casemix, Patient Segmentation and Predictions to Drive Outcomes

Authors: Sarah Kachur (a)

Introduction

Johns Hopkins Health Plans (JHHP), a provider-sponsored health plan in the Mid-Atlantic, focuses on delivering quality and affordable healthcare across diverse populations, including US Medicare, Medicaid, and self-insured employer groups. As part of their ongoing efforts to improve health outcomes and operational efficiency, JHHP combined casemix, patient segmentation and predictive variables to create, implement and evaluate a data-informed, organization-wide clinical strategy. This approach aims to provide targeted interventions based on population needs, improve health outcomes among vulnerable populations, and reduce redundancy.

Methods

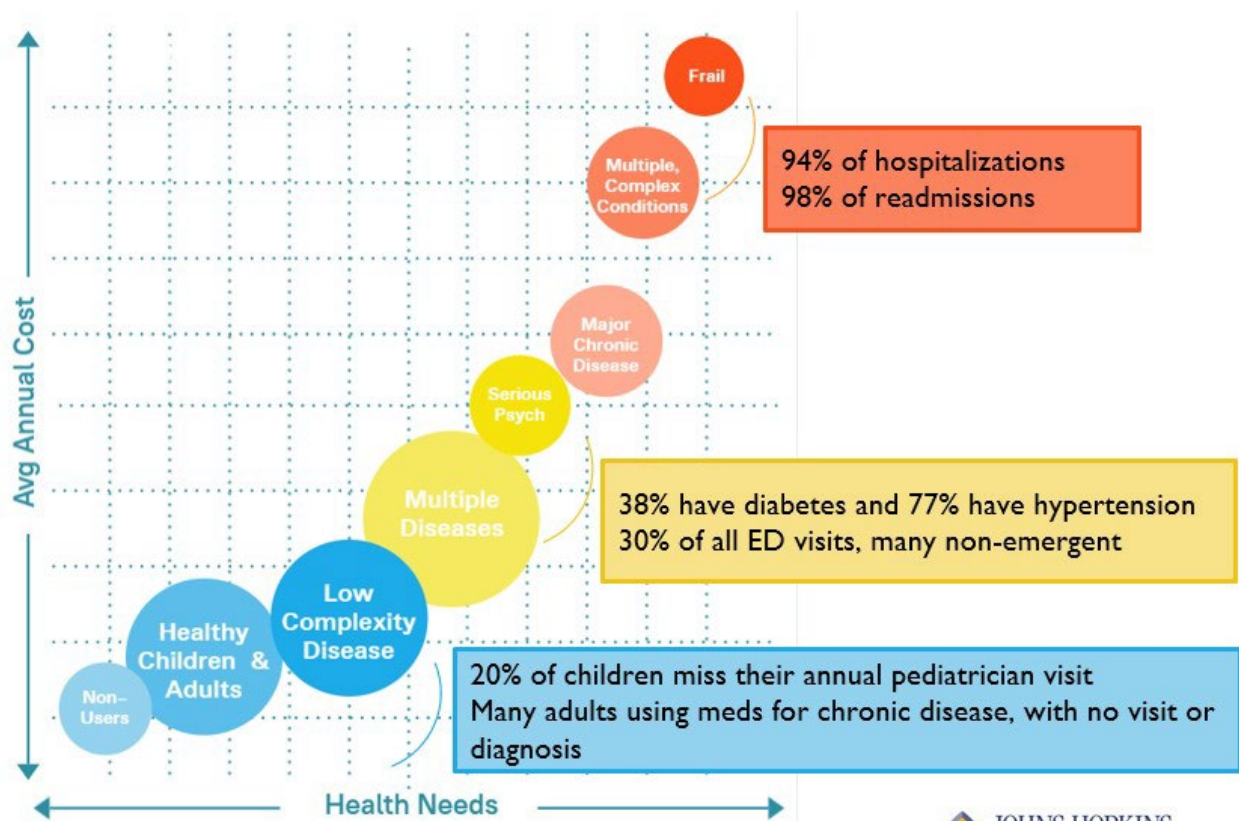
JHHP employed a structured approach from Illustra Health, using underlying models from the Johns Hopkins ACG (Adjusted Clinical Groups) System. The team applied a modification of the Patient Needs Groups segmentation methodology to understand underlying patient needs in the population, and validated these segments with traditional casemix approaches. After segmentation, the team overlaid historical utilization, quality measures, and predictive output variables to select and identify focus areas for each population segment. The segment-driven approach was used as a baseline for strategic re-alignment of key programs like readmission prevention (ToC), medication adherence, and complex case management. The team used structured communication mechanisms to communicate strategy, revised their patient identification methods for relevant population health initiatives, and tracked results using the Illustra Health methodology.

Results

The segmentation-driven approach to strategy, patient identification, resource deployment and results tracking produced substantial improvements in several key quality and utilization metrics. Multi-morbid and frail patients in the revised ToC program were more likely to see a doctor within 30 days of discharge (76% vs. 55%), and less likely to experience a readmission (10% vs 14%). The plan saw an increase in key diabetes quality metrics - A1C control improved by 18%, blood pressure control by 21%, and eye exam adherence by 4% following implementation. Furthermore, the approach minimized resource redundancy across vendors and internal staff, directed clinical (senior RN-level) resources towards the highest-risk patients, and allowed resources to be directed to social need support in key geographies.

Discussion/conclusions

JHHP's revised population health strategy, based on segmentation, casemix and predictive variables, has driven measurable improvements in health outcomes and operational efficiencies across the organization. Further, the segmentation-driven lens of clinical strategy, interventions, vendor services and 'stop-start' communications served to align business, technical, and clinical teams to the new strategy, and efficiently prioritize highest-value activities. The organization experienced some challenges in technical implementation of the revised strategy, as patient identification lists needed to integrate into EMR and Care Management Systems, and continues to work through vendor and physician-partner alignment. Despite this ongoing work, JHHP's experience suggests that a segmentation-driven approach can align traditional casemix- and prediction-driven population health strategies, as a model for outcomes improvement in a US payor or value-based care setting.



	Healthy & Low-Need Members	Medium Need & Chronic Disease	Multiple Complex Disease & Frail
 Start	Non-clinical outreach to ensure adequate pediatrician & PCP care; address quality gaps if needed	Dedicated support for patients w/ chronic disease, living in high poverty areas	Care management focus on predicted <u>high cost</u> w/ identified gap
 Stop	Clinical/nursing outreach calls to relatively healthy patients	Readmission prevention calls – low impact	
 Maintain		Quality metric focused outreach, w/ diabetes priority High risk maternity program, for Medicaid	Readmission prevention calls EOL care support (vendor)

