The Health Systems PCORnet Demonstration Project: Identifying and Predicting Patients with Preventable High Utilization

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Study & Project Aims
- Five percent of patients, often called "high utilizers," account for a disproportionate 50% of health care utilization

Specific Aims
- Aim 1: Stakeholders prioritize the groups or preventable high utilizers and evaluative criteria for a predictive algorithm for a patient's risk
- Aim 2: Develop analysis-ready, linked data sets and computable phenotypes to identify and characterize patients with prioritized preventable high utilization
- Aim 3: Develop and compare the effectiveness of different methodological approaches and data sources to predict a patient's annual risk profile of falling into a prioritized group of patients with high utilization patterns
- Aim 4: Dissemination of results to health system stakeholders

Methods
- Qualitative Portion
  - Focus groups with patients and physicians
  - Interviews with health system leaders
  - Identifying characteristics of "high utilizers"
  - Thematic analysis used to analyze the results
- Quantitative Portion
  - Develop, refine and test conceptual model using existing resources
  - Collect integrated data sets including clinical data, claims data and social determinant data
  - Create specifications, standardize the data, complete quality assurance
  - Run computable phenotype to identify high utilizers and categories of high utilizers
  - Develop algorithms to predict high utilizers in these categories using logistical regression and machine learning approaches

Relationship with PCORnet
- Benefits from using PCORnet infrastructure and resources
  - Engaging the PCORnet community to solicit feedback (three CDRNs)
  - Dissemination and outreach
  - Strong patient engagement
- Further development of PCORnet
  - Integrating and evaluating utility of new data
  - Demonstrate the ability to answer questions for health system leaders
  - Generate actionable evidence to improve health of patients

Research done differently
- Compare the effectiveness of multiple methodological approaches
- Results will be of value to others and lead to improvements in practice and patient outcomes

CDRNs roles:
- Engage patients and health system stakeholders
- Obtain, integrate, and assure the quality of linked data sets
- Perform predictive health analytics
- Disseminate practical results

Initial Findings and/or Hypothesis
- Actively collaborating with CAPriCORN and OneFlorida on finalizing definitions and preliminary data analysis
- Submission of IRBs across all sites

Expectations
- A description of preventable high use patients with associated computable phenotypes and algorithms
- Implementing these results to predict high utilizers, leading to improvements in practice and patient outcomes
- Ultimately disseminating these algorithms with other CDRNs

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Assemble multi-disciplinary team to ascertain preventable high utilization groups
Prioritize groups based on stakeholder and patient input
Develop and use computable-phenotypes to characterize study population
Compare effectiveness of predictive algorithms
Partner with stakeholders and patients to disseminate results
Test interventions for priority groups (future steps)

Preventable Utilization
BOTH
High Utilization

Focusing on the intersection of high utilization that is also preventable

NYC-CDRN
New York City Clinical Data Research Network
CAPriCORN
Central Arizona and Pacific Islands Community Research Network
OneFlorida
Florida Clinical Data Research Network

The National Patient-Centered Clinical Research Network
pcornet