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

Rainu Kaushal, MD, MPH, Professor and Chair, Healthcare Policy & Research, Weill Cornell Medicine, New York, NY

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

Focusing on the intersection of high utilization that is also preventable

Initial Findings and/or Hypothesis

Progress thus far

- Actively collaborating with CAPriCORN and OneFlorida on finalizing definitions and preliminary data analysis
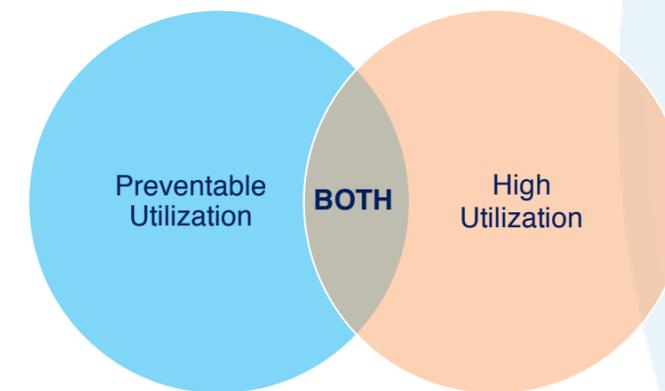- Submission of IRBs across all sites

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

CONTACT INFORMATION

Rainu Kaushal, M.D., M.P.H.
Professor and Chair, Healthcare Policy & Research
Nanette Laitman Distinguished Professor of Healthcare Policy & Research
Principal Investigator, NYC-Clinical Data Research Network (NYC-CDRN)
rak2007@med.cornell.edu

Process flow:
1. Assemble multi-disciplinary team to determine preventable high utilizer groups (completed)
2. Prioritize groups based on stakeholder and patient input
3. Develop analysis-ready, linked data sets
4. Develop and use computable phenotypes to characterize study population
5. Compare effectiveness of predictive algorithms
6. Partner with stakeholders and patients to disseminate results
7. Test interventions for priority groups (future steps)

The National Patient-Centered Clinical Research Network