Methods for Identifying a High-Need, High-Cost Population

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Christine Vogeli, PhD

December 12, 2017
1:30 – 2:45 PM

Session objectives

Upon completing this session, participates will be able to:

- Describe the benefits of a care-management approach targeted at populations with complex health and social needs and high health care costs.
- Identify the pros and cons of different methods for identifying high-need, high-cost populations.
Agenda

- Welcome and introductions
- Overview of The Playbook
- Three approaches to identifying a complex population
  - Jose Figueroa, MD, MPH
  - Corey Waller, MD
  - Christine Vogeli
- Q&A

The Better Care Playbook is supported by a funders collaborative that includes The Commonwealth Fund, The John A. Hartford Foundation, the Peterson Center on Healthcare, the Robert Wood Johnson Foundation and The SCAN Foundation
Perspective

Caring for High-Need, High-Cost Patients — An Urgent Priority

David Blumenthal, M.D., M.P.P., Bruce Cherfow, M.D., Tony Frazier, Ph.D., R.N., John Lumpkin, M.D., M.P.H., and Jeffrey Salberg, M.H.A.


Improving the performance of America’s health system will require improving care for the patients who use most of the health care dollars that are spent on individuals who have multiple chronic conditions that are often complicated by patients limited ability to care for themselves independently and by their complex social needs. Focusing on this population makes sense for humanitarian, demographic, and financial reasons.

From a humanitarian standpoint, high-need, high-cost (HNC) patients deserve heightened attention both because they have major health care problems and because they are more likely than other patients to be affected by preventable health care quality and safety problems, given their frequent contact with the system. Demographically, the aging of our population ensures that...
Playbook vision & aim

- **5F Collaborative Vision:** By 2020, 30 percent of Accountable Care Organizations and Medicare Advantage Plans have adopted proven interventions for high-need, high-cost adults that improve person-level outcomes and lower overall costs of care.

- **Playbook Vision:** The Playbook serves as a vital resource and the go-to place for leaders of health systems and health plans to learn about and adopt new practices to ensure the health and care of people with complex needs is better than ever before.

- **Playbook Aim:** The Playbook provides users with the best available knowledge about promising approaches to improve care for people with complex needs, in a format that is engaging, attractive, practical, and useable with the goal of encouraging testing, adoption, implementation, and spread in their care settings.

About the Playbook

- Over 140 highly-curated resources focused on improving care for people with complex needs

- Organized around four key questions facing leaders:
  - Why invest in redesigning care for people with complex needs?
  - Who are people with complex needs?
  - What care models are promising?
  - What practical tools can I use to redesign care?

- Play by Play blog featuring content original to the Playbook
Segmenting High-Need/High-Cost Patients: A potential model for delivering better care

Jose F. Figueroa, MD, MPH

Objective:

+ Define clinically meaningful & actionable population “segments” to help improve care for high-need, high-cost (HN/HC) patients
We know why we need to target HN/HC patients

Top 10% of Medicare patients

57% of costs

Challenge: HN/HC patients are not a monolithic group

Number of Chronic Conditions

<table>
<thead>
<tr>
<th></th>
<th>High Cost</th>
<th>Non-High Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Markers for Frailty (mean)

<table>
<thead>
<tr>
<th></th>
<th>High Cost</th>
<th>Non-High Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.7</td>
<td>0.2</td>
<td></td>
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</table>

Mental Health Disease

<table>
<thead>
<tr>
<th></th>
<th>High Cost</th>
<th>Non-High Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>49%</td>
<td>14%</td>
<td></td>
</tr>
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</table>

Eligible for Medicaid

<table>
<thead>
<tr>
<th></th>
<th>High Cost</th>
<th>Non-High Cost</th>
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</thead>
<tbody>
<tr>
<td>37%</td>
<td>18%</td>
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</table>
How do we define HN/HC populations into meaningful, actionable cohorts?

3-part workshop series with national experts, clinical leaders, and policymakers

Download report: https://nam.edu/effective-care-for-high-need-patients/

Segmenting Medicare Population:

One example: “Starter Set”
Example of Segmentation Model: 6 HN/HC Subpopulations in Medicare

Chronically ill

- Non-Elderly Disabled
- Frail elderly
- Major complex chronic ≥3
- Minor complex chronic 1 or 2
- Simple chronic 0
- Relatively healthy

Complex chronic conditions:
1. Acute MI/Ischemic heart disease
2. Renal failure
3. Heart failure
4. Dementia
5. Lung disease (COPD, ILD)
6. Serious mental illness
7. Arrhythmia
8. Stroke
9. Diabetes

Note: "High-cost" defined as patients in the highest decile of overall spending in the Medicare population.
Distribution of high cost patients across segments

<table>
<thead>
<tr>
<th>Segment</th>
<th>Percentage</th>
<th>Mean Spending (per Medicare beneficiary)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 65 Disabled</td>
<td>25.6%</td>
<td>$71,210</td>
</tr>
<tr>
<td>Frail Elderly</td>
<td>39.5%</td>
<td>$70,196</td>
</tr>
<tr>
<td>Major Complex Chronic</td>
<td>20.1%</td>
<td>$57,389</td>
</tr>
<tr>
<td>Minor Complex Chronic</td>
<td>10.2%</td>
<td>$54,967</td>
</tr>
<tr>
<td>Simple Chronic</td>
<td>3.6%</td>
<td>$55,516</td>
</tr>
<tr>
<td>Relatively Healthy</td>
<td>1.1%</td>
<td>$54,183</td>
</tr>
</tbody>
</table>

Mean Spending by Segments and by HC status (per Medicare beneficiary)
How can segmentation of population help develop interventions targeting HN/HC patients?

How does spending vary between segments?

![Chart showing spending by segments: Frail Elderly and Under 65 Disabled.]

Joynt, Figueroa, Jha et al., *Healthcare, 2016*
Potentially preventable spending by segments

**Figure 2.** Mean potentially preventable spending, by high-cost status, in Medicare subpopulations.

Potentially preventable spending by conditions

**Figure 3.** Relative risk of health care spending. 95% confidence intervals are shown in parentheses.
Conclusions

- High-need, high-cost patients are a heterogeneous population
- Segmentation into clinically meaningful subpopulations with similar needs offers a promising strategy to develop targeted interventions
- Frail elders are an important group to focus on
- More work needs to be done refine segments and customize based on the needs of individual health system populations
- Other segments: “Children with complex needs” & "People with Advancing Illness"
- Behavioral health and social risk factors

Thank you!

Questions?

Email: jfigueroa@hsph.harvard.edu
WHO ARE THE COMPLEX PATIENTS?

- R. Corey Waller MD, MS, FACEP, DFASAM
- Fellow, National Center for Complex Health and Social Needs
- Managing Partner, Complex Care Consulting

The 7 types of patients with complex health & social needs

- Pre-Superutilizer
- ED- Superutilizer
- Ambulatory Complex Medical
- Non-Ambulatory Complex Medical
- Long Term Care
- Rare disease
- Primary Care Sensitive ED user
Sentinel Syndromes

Addiction | Chronic Pain
--- | ---
Mental Health Condition | Cognitive Impairment

Identification of Patients Appropriate for Care Management within Partners Healthcare

Christine Vogeli, PhD
Director of Evaluation and Research
Partners Center for Population Health
Mongan Institute for Health Policy, MGH
Partners High Risk Care Management Program

- Partners integrated delivery system
  - 6,500 physicians, 900 Primary care providers
  - ~900,000 patients in risk contracts (Medicare, Commercial and Medicaid)
- January 2012: High Risk Care Management Program initiated
- June 2015: Transition to EPIC commenced

$101 PMPM Savings for Medicare ACO beneficiaries

- 86.5 FTE Care Managers (includes adult and Pedi)
- 29 FTE Social Workers (includes adult and Pedi)
- 5.5 FTE Pharmacists
- 7.0 Community Health Workers
- 10.5 FTE Community Resource Specialists
- 2.4 FTE Medical Director (includes adult and Pedi)
- 1.4 FTE Psychiatrist (includes adult and Pedi)

High Risk Care Management Team Members

High risk Care Management Patients:
- 56,765 Patients Reviewed for High Risk Program
- 12,843 (adult) patients actively managed in the program
- 366 (pediatric) patients actively managed in the program

High Risk Patient Identification Process

- Patients with risk score ≥ 10 are automatically on list
- Patients with a prospective risk score between 2 and 10 are processed through the algorithm

Chronic Conditions

- 1+ high acuity
- 1+ moderate and 2+ low
- 3+ low acuity

Utilization

- Lower intensity utilization
- Higher intensity utilization

Algorithm generated high risk list

PCP makes final patient selection decisions

*Patients 90 years or older are automatically on high risk list
Patient Selection Process

- Overall the algorithm identifies 7% of Medicare ACO patients
  - An average of 76 patients (range 5-248) per practice are algorithm identified.
- PCPs selected 67% of algorithm identified patients for care management.
  - 13% of algorithm identified patients removed because PCPs did not feel they were high risk (1% to 64%; p<.01)
  - 19% removed because care needs were met elsewhere.


High Risk Patient Identification Lessons Learned

- Different criteria are used when PCPs identify high risk patients and the subset of high risk patients appropriate for care management
  - Risk: age, MCC, rising risk, medical hospitalizations, SNF stays
  - Appropriate for care management: social and economic need

Chronic Conditions and Utilization

Social and Economic Characteristics

Algorithm Enhancements

- Electronic medical record data
  - Structured (common registries, structured ambulatory and inpatient assessments) and unstructured elements (via natural language processing)
  - Health related social needs and annual wellness visit assessments
  - Non-billed services, such as SW consults in the ED

- Machine learning: Complex variable relationships and constant iteration. Goal is to model PCP decision making

- On demand list production

- Segmentation to appropriate care management team lead:
  - Medical Complexity: Nurse
  - Psychosocial Complexity: Social Worker
  - Community Social Complexity: Community Health Worker
  - Specialty: ESRD Nurse, CHF Nurse.

Key Partners Center for Population Health Collaborators

Maryann Vienneau; Program Director, Integrated Care Management Programs and Palliative Care Strategy

Eric Weil, MD; Chief Medical Officer for Primary Care, Partners Center for Population Health