Overview of Segmentation of High-Need, High-Cost Patient Population

National Academy of Medicine
January 19, 2016
Outline

• Why Segmentation is Important
• Framing: the bio-psycho social framework
• Methodology
• What we learned: results
• Limitations
• Where this leads us: potential use case
Rationale for Segmentation Strategy for High-Need, High-Cost Population

• The high-need, high-cost population is heterogeneous
• Identification of key subgroups helps to better understand unique needs and challenges of each segment
• Segmentation can help target and tailor care to high-need patients
Before We Begin . . . Recognize a “Bio-Psycho-Social” Framework to Health

• Many factors influence health status, including behavioral health, social service needs and environmental context (McGinnis et al. 2002, Freedman et al. 2011, Taylor et al. 2015)

• Ideally, need to apply a comprehensive framework to address concerns of high-need patients

• A bio-psycho-social framework recognizes and encourages the integration of medical, behavioral and social needs to better treat a unique patient
Behavioral health issues lead to greater healthcare costs in a Medicaid population

Source: C. Boyd et al. Clarifying Multimorbidity Patterns to Improve Targeting and Delivery of Clinical Services for Medicaid Populations. Center for Healthcare Strategies Data Brief, December 2010
Addressing behavioral and social needs improve outcomes, lowers expenditures

Formerly Homeless People Had Lower Overall Health Care Expenditures After Moving Into Supportive Housing – Wright et al, Health Affairs 2015

Residents’ Self-Reported Survey Outcomes Before And After Moving Into Supportive Housing

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Year before moving in</th>
<th>First year after moving in</th>
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<tbody>
<tr>
<td>Use of health care services</td>
<td></td>
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<tr>
<td>At least one hospitalization</td>
<td>65%</td>
<td>26%**</td>
</tr>
<tr>
<td>Average number of hospitalizations(a)</td>
<td>2.5</td>
<td>0.6**</td>
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<tr>
<td>At least one ED visit</td>
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<tr>
<td>Average number of ED visits(a)</td>
<td>2.8</td>
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<tr>
<td>Had a designated primary care provider</td>
<td>73%</td>
<td>89%**</td>
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<tr>
<td>Access to care and well-being</td>
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<tr>
<td>Had unmet physical health needs</td>
<td>79%</td>
<td>48%**</td>
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<tr>
<td>Had unmet mental health needs</td>
<td>45</td>
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<tr>
<td>Physical health was fair or poor</td>
<td>80</td>
<td>54**</td>
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<tr>
<td>Mental health was fair or poor</td>
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<td>Was “not too happy” in life</td>
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</table>
Behavioral Health

Medical Care

Social Needs
Why Does This Matter?  
Who Might Use it? How?

A typology can assist health system leaders, payers and policymakers to:

• understand population
• select programs or practices to meet the needs of the segments of the population
• identify and develop workforce
• identify and overcome payment and policy barriers
Methodology

1. Reviewed empirical analysis
2. Reviewed segmentation literature
3. Reviewed program-related information
   – Program evaluations, case studies, extensive Internet searches
4. Conducted interviews with health system leaders, program leadership and payers
5. Created matrix to show collected information by identified subgroup
   – If subgroup straddled multiple populations (e.g. homeless patient with complex medical problems) we separated into smallest, discrete unit possible
Methodology, continued

5. We analyzed and clustered similar population subgroup units together
   – Systematically reviewed
   – Consulted clinicians and experts about literature and our process

6. Created segmentation headings to reflect the cluster of subgroup population units

7. Presented with our external advisory group (leaders, stakeholders) to obtain feedback and refine headlines/categories

See Appendix B for an overview of our approach
What We Learned From Empirical Analysis

Anderson MEPS analysis

Jha Medicare claims analysis

Under 65 Disabled
Frail Elderly
Complex Chronic Conditions
Multiple Chronic Conditions
What We Learned from the Segmentation Literature (n=10)

• Variation in quality and rigor
• Several approaches developed to assist with risk-adjustment and payment
• Segments identified affirmed those derived from empirical analysis
• Additional segments identified:
  – Advanced illness
  – End-of-life
  – Children with complex conditions
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<th># of Patients</th>
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<td>$25,157</td>
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What We Learned from Program Literature (n=56) and Interviews (n=15)

- Utilization v. condition-based approach
- Additional segments emerged:
  - Behavioral health
  - Poverty and social determinants to health
- Important variables to consider when designing programs:
  - Amenability to change
  - Patients who are persistently high-cost
Four Segments:
1. No chronic conditions
2. 1+ chronic conditions
3. Advanced Illness
4. Extremely frail, near end-of-life

Combined clinicians’ observations with EHR and utilization (claims) data
Four Segments:
1. High-need patients who make use of the health system
2. Very high-risk who are not actively engaged
3. Patients at low risk who nonetheless have high spending; and
4. Patients who are relatively healthy and have little interaction with the system

Data on Social Determinants:
• zip code
• health insurance status
• bills in collection
What We Heard from Our External Advisory Group

- Start with the bio-psycho-social framework
- Be cautious, but proceed. Only 1\textsuperscript{st} iteration.
- Do not lump behavioral health and social service needs together. They cut across all segments
- Launch systematic analysis to hear from patients to refine and test whatever you come up with
Commonwealth Fund Typology

- Under 65 Disabled
- Behavioral Health
- Children with Complex Needs
- Advanced Illness
- End of Life
- Complex Chronic Conditions
- Simple Chronic Condition
- Multiple Chronic Conditions
- Frail Elderly
- Social Complexity
- Healthy with Acute Event
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Behavioral Health

Social Complexity
Limitations/Challenges

• There are multiple plausible segmentation strategies. Approach depends on audience and purpose

• Results not intended to be immediately relevant to directing clinical decisions at the front lines of care

• Limited data sources – ideally, need information from patients, social service agencies and interoperable systems
<table>
<thead>
<tr>
<th>Direction Takers</th>
<th>Balance Seekers</th>
<th>Willful Endurers</th>
<th>Priority Jugglers</th>
<th>Self Achievers</th>
</tr>
</thead>
<tbody>
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</tr>
<tr>
<td>13%</td>
<td>18%</td>
<td>27%</td>
<td>18%</td>
<td>24%</td>
</tr>
</tbody>
</table>

- **View physicians as the most credible source of information and look to them for direction and guidance**
- **Likely to go to the doctor at the first sign of a health concern**
- **Tend to ignore medical advice only when it’s difficult to work recommendations into their routines.**

**Best approach:** The current one. They’re looking for and are happy to follow doctors’ orders

- **Dedicated to their health and wellness but don’t pay as much attention as do Direction Takers when it comes to what doctors tell them**
- **They prefer to come to their own conclusions about what success looks like after seeking information on treatment via the internet as well as friends and family**

**Best approach:** Presenting them with options and choices, while stressing the consequences of each

- **Live for the here and now and put current pleasures over future health**
- **Resistant to changing habits**
- **Only visit the doctor when they absolutely must**

**Best approach:** As the toughest groups to work with, they need simple steps and immediate gratification

- **So busy with other responsibilities, they invest less in health and wellness, but are proactive about the health of their loved ones**
- **Put off dealing with their own health issues until problems are too big to ignore or interfere with their responsibilities**

**Best approach:** Appealing to their sense of duty and responsibility by pointing out that others depend on their health

- **The most proactive about health and wellness but more likely than Balance Seekers to prioritize doctors’ advice**
- **Very task-oriented and will stay on top of health issues with medical check-ups and screenings**
- **Willing to tackle challenges if given measurable goals**

**Best approach:** Provide health education and tasks along with baseline measures and tracking tools to reinforce their progress

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Source: c2b Solutions
A Potential Use Case

Who Are High-Need, High-Cost Patients?

High-need, high-cost patients are a diverse group, ranging from homeless adults with schizophrenia to frail elderly living alone. An important starting point is the identification of subtypes, or segments, of patients with common needs to facilitate the design and implementation of effective interventions.

Choose a patient population to learn more.
A Potential Use Case

Frail Elderly


DATA PROFILE

CHART 1

CHART 2

PERSONA

PROMISING PROGRAMS

ALL FRAIL ELDERLY
- Program A
- Program B
- Program C

BEHAVIORAL HEALTH NEEDS
- Program A
- Program B
- Program C

SOCIAL COMPLEXITY
- Program A
- Program B
- Program C

HEAR HIS STORY

75%
5,900 TOTAL
Conclusion

• Segmentation is messy
• NAM needs to be clear about audience and purpose of segmentation
• This is just a one iteration – not definitive
• Claims-based approach is limited. Need comprehensive data (recent NAM report)
• Medical care alone is not enough to improve outcomes and lower costs of care for high-need, high-cost patients