How Can Health Plans Be Effective Partners on Super-Utilizer Management?

Jeffrey Brenner, MD
Executive Director

Camden Coalition of Healthcare Providers
Why is saving money so hard in healthcare?
Camden Health Data

- 2002 – 2011 with Lourdes, Cooper, Virtua data
  - 500,000+ records with 98,000 patients
  - 50% population use ER/hospital in one year
- Leading ED/hospital utilizers citywide
  - 324 visits in 5 years
  - 113 visits in 1 year
- Total revenue to hospitals for Camden residents $100 million per year
  - Most expensive patient $3.5 million
  - 30% costs = 1% patients
  - 80% costs = 13% patients
  - 90% costs = 20% patients
## Top 10 ER Diagnosis 2002-2007 (317,791 visits)

<table>
<thead>
<tr>
<th>Code</th>
<th>Diagnosis</th>
<th>Visits</th>
</tr>
</thead>
<tbody>
<tr>
<td>465.9</td>
<td>ACUTE UPPER RESPIRATORY INFECTION (head cold)</td>
<td>12,549</td>
</tr>
<tr>
<td>382.9</td>
<td>OTITIS MEDIA NOS (ear infx)</td>
<td>7,638</td>
</tr>
<tr>
<td>079.99</td>
<td>VIRAL INFECTION NOS</td>
<td>7,577</td>
</tr>
<tr>
<td>462</td>
<td>ACUTE PHARYNGITIS (sore throat)</td>
<td>6,195</td>
</tr>
<tr>
<td>493.92</td>
<td>ASTHMA NOS W/ EXACER</td>
<td>5,393</td>
</tr>
<tr>
<td>558.9</td>
<td>NONINF GASTROENTERI (stomach virus)</td>
<td>5,037</td>
</tr>
<tr>
<td>789.09</td>
<td>ABDOMINAL PAIN-SITE NEC</td>
<td>4,773</td>
</tr>
<tr>
<td>780.6</td>
<td>FEVER</td>
<td>4,219</td>
</tr>
<tr>
<td>786.59</td>
<td>CHEST PAIN NEC</td>
<td>3,711</td>
</tr>
<tr>
<td>784.0</td>
<td>HEADACHE</td>
<td>3,248</td>
</tr>
</tbody>
</table>
# High Inpatient Utilizers

215 patients (1%)

<table>
<thead>
<tr>
<th>Mean # ED visits</th>
<th>Mean # IP visits</th>
<th>Mean total LOS</th>
<th>Mean % of all unique primary ICD classified as chronic</th>
<th>Mean % of IP that are 60 day readmissions</th>
<th>Mean total charges</th>
<th>Mean total receipts</th>
<th>Median Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.48</td>
<td>5.33</td>
<td>54.71</td>
<td>34%</td>
<td>55%</td>
<td>$673,592</td>
<td>$73,143</td>
<td>57</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% total</th>
<th>% total ED</th>
<th>% total IP</th>
<th>% total LOS</th>
<th>% total charges</th>
<th>% total receipts</th>
<th>% total 60 readmits</th>
<th>Total charges</th>
<th>Total receipts</th>
</tr>
</thead>
<tbody>
<tr>
<td>.8%</td>
<td>1.5%</td>
<td>13.0%</td>
<td>27.5%</td>
<td>20.0%</td>
<td>18.8%</td>
<td>23.0%</td>
<td>$144,148,652</td>
<td>$15,652,705</td>
</tr>
</tbody>
</table>

## ICD Classification

<table>
<thead>
<tr>
<th>Condition</th>
<th>Patients</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESPIRATORY ABNORM NEC</td>
<td>34</td>
<td>2.2</td>
</tr>
<tr>
<td>CHEST PAIN NOS</td>
<td>29</td>
<td>1.9</td>
</tr>
<tr>
<td>SHORTNESS OF BREATH (Begin 1998)</td>
<td>28</td>
<td>1.8</td>
</tr>
<tr>
<td>REHABILITATION PROC NEC</td>
<td>26</td>
<td>1.7</td>
</tr>
<tr>
<td>ABDOM PAIN NOS (Begin 1994)</td>
<td>25</td>
<td>1.6</td>
</tr>
<tr>
<td>SEPTICEMIA NOS</td>
<td>23</td>
<td>1.5</td>
</tr>
<tr>
<td>ACUTE RENAL FAILURE NOS</td>
<td>21</td>
<td>1.4</td>
</tr>
<tr>
<td>URIN TRACT INFECTION NOS</td>
<td>21</td>
<td>1.4</td>
</tr>
<tr>
<td>PNEUMONIA ORGANISM NOS</td>
<td>19</td>
<td>1.2</td>
</tr>
<tr>
<td>ACUTE ON CHRONIC SYSTOLIC HEART FAIL (beg)</td>
<td>17</td>
<td>1.1</td>
</tr>
</tbody>
</table>
Patient Case Presentation #1

• 55-yo Male, admitted for GI bleed and SOB (November 2011)
• Dual coverage, Lives alone in high-rise apartment
• 6 months- 9 ED visits, 6 Inpt visits
• 12 Medications daily

ESRD
Renal Carcinoma
Hepatitis B
Hypertension
Hyperlipidemia
Peripheral vascular dx

Asthma
Glaucoma (blind in one eye)
Sleep Apnea
Severe Back Pain

www.camdenhealth.org
Patient Centered Care Coordination

Patient

- Meals
- Transport
- Home PT/OT
- Home Nursing
- Sub-Acute Rehab
- Hospital #1
- Dialysis
- Nephrology
- Transplant
- PCP
- Urology
- Oncology
- Surgery
- Durable Goods
- Meals
- Transport
- Home PT/OT
- Home Nursing
- Sub-Acute Rehab
- Hospital #1
- Dialysis
- Nephrology
- Transplant
- PCP
- Urology
- Oncology
- Surgery
- PT/OT
- Home Nursing
- Sub-Acute Rehab
- Hospital #1
- Dialysis
- Nephrology
- Transplant
- PCP
- Urology
- Oncology
- Surgery
- GI
- Cardiology
- Pain Mgt
- GI
- Cardiology
- Pain Mgt
- Hospital #2

Durable Goods

Meals
Patient Case Presentation #2

- 52-yo Female, Spanish-speaking, admitted for SOB
- Lives with family
- 6 months- 6 inpatient visits
- Ventilator dependent and has tracheosotomy
- Severe COPD
<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>ER Visits</td>
<td>102</td>
</tr>
<tr>
<td>Admissions</td>
<td>54</td>
</tr>
<tr>
<td>Total CT Scans</td>
<td>147</td>
</tr>
<tr>
<td>CT Scan-Head</td>
<td>73</td>
</tr>
</tbody>
</table>
Types of Hospital Utilizers

- **Low / No Utilization**
  - Rarely visit hospital

- **Medium ED Utilizer**
  - Average 2-3 ED visits in a year

- **High ED Utilizer**
  - Average 8 ED Visits And 1 Inpatient Visit

- **High Inpatient Utilizer**
  - Average 3 Inpatient 1 ED Visit

www.camdenhealth.org
## Utilization Types

<table>
<thead>
<tr>
<th>Type</th>
<th># of Residents</th>
<th>% of Building</th>
<th>Average Age</th>
<th>Average Yrs in Building</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low / No Utilization</td>
<td>497</td>
<td>76%</td>
<td>37.2</td>
<td>4.7</td>
</tr>
<tr>
<td>Medium ED Utilization</td>
<td>122</td>
<td>19%</td>
<td>59.1</td>
<td>6.0</td>
</tr>
<tr>
<td>High ED Utilization</td>
<td>18</td>
<td>3%</td>
<td>41.5</td>
<td>4.8</td>
</tr>
<tr>
<td>High INP Utilization</td>
<td>21</td>
<td>3%</td>
<td>39.8</td>
<td>3.7</td>
</tr>
</tbody>
</table>

[www.camdenhealth.org](http://www.camdenhealth.org)
## Utilization typology

<table>
<thead>
<tr>
<th>ED visits, 2011</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3 to 4</th>
<th>5+</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>1,293</td>
<td>57</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>26,128</td>
<td>2,075</td>
<td>117</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>2 to 3</td>
<td>13,390</td>
<td>1,842</td>
<td>373</td>
<td>68</td>
<td>3</td>
</tr>
<tr>
<td>4 to 5</td>
<td>3,216</td>
<td>666</td>
<td>223</td>
<td>118</td>
<td>15</td>
</tr>
<tr>
<td>6 to 7</td>
<td>1,020</td>
<td>251</td>
<td>106</td>
<td>84</td>
<td>24</td>
</tr>
<tr>
<td>8 to 9</td>
<td>386</td>
<td>112</td>
<td>39</td>
<td>41</td>
<td>11</td>
</tr>
<tr>
<td>10+</td>
<td>339</td>
<td>96</td>
<td>70</td>
<td>65</td>
<td>62</td>
</tr>
</tbody>
</table>
## Utilization matrix

<table>
<thead>
<tr>
<th>ED visits, 2011</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3 to 4</th>
<th>5+</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>44,728 (85%) patients</td>
<td>5,210 Inpatient visits</td>
<td>63,489 ED visits</td>
<td>$28,000,000 (50%) IP payment</td>
<td>$25,800,000 (59%) ED payment</td>
</tr>
<tr>
<td>1</td>
<td>$28,000,000 (50%) IP payment</td>
<td>4,784 IP visits</td>
<td>6,050 ED visits</td>
<td>985 (2%) patients</td>
<td>$25,800,000 (59%) ED payment</td>
</tr>
<tr>
<td>2 to 3</td>
<td>985 (2%) patients</td>
<td>1,856 IP visits</td>
<td>4,129 ED visits</td>
<td>503 (1%) patients</td>
<td>2,026 Inpatient Visits</td>
</tr>
<tr>
<td>4 to 5</td>
<td>4,961 (9%) patients</td>
<td>28,447 ED visits</td>
<td>$11,500,000 (27%) in ED payment</td>
<td>1,563 (3%) patients</td>
<td>1,239 IP visits</td>
</tr>
<tr>
<td>6 to 7</td>
<td>$11,500,000 (27%) in ED payment</td>
<td>$6,700,000 (18%) in IP payment</td>
<td>$17,000,000 (4%) ED payments</td>
<td>$10,000,000 (17%) IP payment</td>
<td>$17,000,000 (4%) ED payments</td>
</tr>
<tr>
<td>8 to 9</td>
<td>$11,500,000 (27%) in ED payment</td>
<td>$6,700,000 (18%) in IP payment</td>
<td>$17,000,000 (4%) ED payments</td>
<td>$10,000,000 (17%) IP payment</td>
<td>$17,000,000 (4%) ED payments</td>
</tr>
<tr>
<td>10+</td>
<td>4,961 (9%) patients</td>
<td>28,447 ED visits</td>
<td>$11,500,000 (27%) in ED payment</td>
<td>1,563 (3%) patients</td>
<td>1,239 IP visits</td>
</tr>
</tbody>
</table>
Theory of Change

Clinical Redesign

Engagement Data
Effective vs Efficient
Early auto workshop with non-standard product, high cost, poor quality

Early assembly line with standardized work, lower costs, and higher quality

Modern assembly line with team-based work, automation, delegation, standardization, lower cost, high quality
Relationship of Childhood Abuse and Household Dysfunction to Many of the Leading Causes of Death in Adults

The Adverse Childhood Experiences (ACE) Study

Vincent J. Felitti, MD, FACP, Robert F. Anda, MD, MS, Dale Nordenberg, MD, David F. Williamson, MS, PhD, Alison M. Spitz, MS, MPH, Valerie Edwards, BA, Mary P. Koss, PhD, James S. Marks, MD, MPH
Effect of a Community-Based Nursing Intervention on Mortality in Chronically Ill Older Adults: A Randomized Controlled Trial

Kenneth D. Coburn*, Sherry Marcantonio, Robert Lazansky, Maryellen Keller, Nancy Davis

Health Quality Partners, Doylestown, Pennsylvania, United States of America

- 1,700 adults over 65 over 10 years
- Randomized study run by Mathematica begun in 2002
- Part of a Medicare Coordinated Care Demonstration Project
- 25% lower relative risk of death (9.9% vs 12.9%)
- Highest risk patients 48% reduction in death rates
- 33% reduction in hospitalization
- 22% reduction in total cost to Medicare
Team Structure

Team Awesome
- Licensed Practical Nurse
- Licensed Practical Nurse
- Community Health Worker
- Health Coach
- Health Coach

Team Dynomite
- Licensed Practical Nurse
- Licensed Practical Nurse
- Community Health Worker
- Health Coach
- Health Coach

Registered Nurse
Social Worker
Intervention Specialist

Program Director
Associate Clinical Director
Camden Coalition Health Plan Partnerships

• University of Pittsburgh Medical Center: Community Care Behavioral Health
  – Camden Coalition Cross-Site Learning partner
  – Social workers and nurses employed by the health plan

• United Healthcare – Medicaid HMO
  – CCHP contracted to provide services to high-utilizing United Healthcare patients in Camden