Hotspotting and Care Management for Vulnerable Populations
Long-Term Federal Debt
$2.63 Trillion
National Health Expenditures
(CMS Estimates)

- Hospitals: 34% ($882 billion)
- Professional Services: 29%
- Other (e.g. Home health, Nursing, D.M.E.): 20%
- Rx: 10%
- Insurance: 7%

Other (e.g. Home health, Nursing, D.M.E.)
Goes into the community
Analyzes data
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

50% of population use the ER/hospital in one year
Camden Health Data

Leading ED/hospital utilizers citywide

- 324 visits in 5 years
- 113 visits in 1 year
Cost breakdown in Camden

Total revenue to hospitals for Camden residents $108 million per year

- Most expensive patient $3.5 million
- 30% hospital receipts = 1% patients
- 80% hospital receipts = 13% patients
- 90% hospital receipts = 20% patients
The Camden “Cost” Curve

10% of patients accounted for 74% of receipts

1% of patients = 30% of charges

10% of patients = 74% of charges
## Camden Hospital Utilization 2011 Snapshot

<table>
<thead>
<tr>
<th>Primary ED Diagnosis, 2011</th>
<th>Patients</th>
<th>Visits</th>
<th>% of Visits</th>
<th>Receipts</th>
</tr>
</thead>
<tbody>
<tr>
<td>upper respiratory infections (head colds)</td>
<td>4,092</td>
<td>4,858</td>
<td>16.3%</td>
<td>$1,456,464</td>
</tr>
<tr>
<td>sprains and strains</td>
<td>2,980</td>
<td>3,295</td>
<td>11.1%</td>
<td>$1,159,452</td>
</tr>
<tr>
<td>contusions</td>
<td>2,561</td>
<td>2,786</td>
<td>9.4%</td>
<td>$837,132</td>
</tr>
<tr>
<td>abdominal pain</td>
<td>1,986</td>
<td>2,318</td>
<td>7.8%</td>
<td>$926,239</td>
</tr>
<tr>
<td>skin and subcutaneous tissue infections</td>
<td>1,717</td>
<td>2,213</td>
<td>7.4%</td>
<td>$673,115</td>
</tr>
<tr>
<td>urinary tract infection</td>
<td>1,892</td>
<td>2,182</td>
<td>7.3%</td>
<td>$720,050</td>
</tr>
<tr>
<td>back pain</td>
<td>1,484</td>
<td>1,735</td>
<td>5.8%</td>
<td>$517,997</td>
</tr>
<tr>
<td>asthma</td>
<td>1,058</td>
<td>1,580</td>
<td>5.3%</td>
<td>$675,230</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>65,992</strong></td>
<td><strong>65,992</strong></td>
<td></td>
<td>~$29 million</td>
</tr>
</tbody>
</table>

**Potentially avoidable hospitalizations**
Utilization “Typology”, 2011

Inpatient Visits

<table>
<thead>
<tr>
<th>Emergency Visits</th>
<th>0</th>
<th>1</th>
<th>2-3</th>
<th>4 or more</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>2,900 patients (6.6%)</td>
<td>2,332 patients (5.3%)</td>
<td>9,010 patients (20.6%)</td>
<td>355 patients (.8%)</td>
</tr>
<tr>
<td></td>
<td>$132m charges (14.8%)</td>
<td>$115m charges (13%)</td>
<td>$298m charges (33.6%)</td>
<td>$165m charges (18.6%)</td>
</tr>
<tr>
<td></td>
<td>$16m receipts (14.7%)</td>
<td>$14m receipts (12.9%)</td>
<td>$37m receipts (33.8%)</td>
<td>$20m receipts (18.6%)</td>
</tr>
<tr>
<td>1-2</td>
<td>26,819 patients (61%)</td>
<td>23,321 patients (42.6%)</td>
<td>3,010 patients (6.5%)</td>
<td>2,293 patients (5.2%)</td>
</tr>
<tr>
<td></td>
<td>$87m charges (9.9%)</td>
<td>$115m charges (13%)</td>
<td>$298m charges (33.6%)</td>
<td>$90m charges (10.2%)</td>
</tr>
<tr>
<td></td>
<td>$11m receipts (10.6%)</td>
<td>$14m receipts (12.9%)</td>
<td>$37m receipts (33.8%)</td>
<td>$10m receipts (9.4%)</td>
</tr>
</tbody>
</table>
Healthcare Cost Hotspots in Camden, NJ (Jan 2002-June 2008)

High Cost Buildings...

Northgate II
- 3,901 visits, 615 patients
- $83 million in charges ($21,000 per visit)
- $12 million in receipts
- 15% collection rate

Abigail House
- 1,414 visits, 332 patients
- $92 million in charges ($65,000 per visit)
- $15 million in receipts
- 16% collection rate

Overview of High Cost Hotspots...

Map includes only blocks with at least 1 visit

- Receipts: 37%
- Visits: 27%
- Patients: 18%
- Area: 10%
- Blocks: 6%

Source: Cooper, Lourdes, and Virtua Hospital and ER billing data Jan 2002-June 2008

Change what you know. Know what to change.

CamConnect.org
What is a hot spot?
A hot spot is any geography where a large number of high utilizers reside. High Utilizers are defined as any individual with 3 or more hospital admissions or 6 or more ER visits within 2 years. Hot spots range from blue (no hot spot) to red (intense hot spot).
In Portland's downtown area, on the peninsula south and west of Interstate 295, 6 buildings account for 515 members (6% of total Portland members), 79 high utilizers (8% of Portland’s High Utilizers) representing $1,769,053 in total hospital spending. In one single building, 43 patients accounted for over $500k in ED and Inpatient costs over the two year period.
# Hospital Utilization since 1996

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></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>

![CT Scan Image]
Outlier patients are in the long tail of data
Distribution of Police Encounters

Number of People

<table>
<thead>
<tr>
<th>Number of Arrests</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>61%</td>
</tr>
<tr>
<td>2-3</td>
<td>25%</td>
</tr>
<tr>
<td>4-5</td>
<td>8%</td>
</tr>
<tr>
<td>6-9</td>
<td>4%</td>
</tr>
<tr>
<td>10-14</td>
<td>1.3%</td>
</tr>
<tr>
<td>15-19</td>
<td>0.4%</td>
</tr>
<tr>
<td>20+</td>
<td>0.2%</td>
</tr>
</tbody>
</table>
6% of individuals = 28% of police encounters
Single- and Dual-System High Utilizers
(1,432 ED High Utilizers Only; 1,259 Police High Utilizers Only; 226 Dual-System High Utilizers)
Key Findings Pt. 1

- Dual-System High Utilizer (HU)
  - Police HU

<table>
<thead>
<tr>
<th>Category</th>
<th>ED HU</th>
<th>Dual-System HU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substance abuse</td>
<td>0.85</td>
<td>0.508</td>
</tr>
<tr>
<td>Mental health</td>
<td>0.752</td>
<td>0.55</td>
</tr>
<tr>
<td>Violence/assault hospitalization</td>
<td>0.695</td>
<td>0.44</td>
</tr>
<tr>
<td>Homeless</td>
<td>0.42</td>
<td>0.214</td>
</tr>
</tbody>
</table>
Key Findings Pt. 2

- **Dual-System High Utilizers**: 31% with 4+ admissions, 16% with 2-3 admissions, 15% with 1 admission, 5% with no admission.
- **High ED Utilizer Only**: 18% with 4+ admissions, 15% with 2-3 admissions, 7% with 1 admission, 4% with no admission.
- **High Police Utilizer Only**: 4% with 4+ admissions, 7% with 2-3 admissions, 0% with 1 admission, 4% with no admission.
- **All Persons in Police Data w/ Hospital Overlap**: 3% with 4+ admissions, 5% with 2-3 admissions, 3% with 1 admission, 6% with no admission.
Key Findings Pt. 3
Overview of the Camden Coalition

- 60 full-time staff, $6.1 million annual budget
- Mix of foundation & federal grants, technical-assistance & care-coordination contracts, & hospital support
- Membership organization with twenty-member board; incorporated non-profit
Clinical Interventions

**PUSH** upstream workflows for hospital-based enrollment and initial care planning

**CARRY** centralized community-based, patient-centric activities

**CATCH** refocused efforts to redesign primary care around PCP-based ACO activation
Questions for My Care Team...

Birth Certificate
Social Security Card
Non-drivers N.J. I.D.
* Housing *
* Schooling *
* Employment *
Addictions Support
Medication Support
Primary Care Physician
Protective Services
Transportation
Phone Communication
Clothing
Food - Welfare?

Initial Care Planning
Clinical Interventions

**PUSH** upstream workflows for hospital-based enrollment and initial care planning

**CARRY** centralized community-based, patient-centric activities

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Domains of Care Planning

Goals are mutually agreed upon, strengths-based

- Addiction
- ID Support
- Legal Assistance
- Advocacy & Activism
- Mental Health Support
- Transportation Support
- Housing & Environment
- Benefits & Entitlements
- Medication & Medical Supplies
- Provider Relationship Building
- Education
- Employment Connection
- Family, Personal, Peer Support
- Food & Nutrition Support
- Health Maintenance & Promotion
- Patient-Specific Wildcard

Domains of Care Planning
Goals are mutually agreed
Clinical Interventions

**PUSH** upstream workflows for hospital-based enrollment and initial care planning

**CARRY** centralized community-based, patient-centric activities

**CATCH** refocused efforts to redesign primary care around PCP-based ACO activation
93% of our enrolled clients are taking 5+ medications

90% have 4 or more chronic conditions

30% have self-reported depression and/or anxiety

26% are homeless during enrollment
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
Patient Case Presentation #2

52-yo Female, Spanish-speaking, admitted for SOB
Lives with family
6 months- 6 inpatient visits
Ventilator dependent and has tracheotomy
Severe COPD
Key Outcomes: reduced re-hospitalizations and ED visits in 12 month period following discharge

current n = 428 / 800 (54%)
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
Theory of Change
Telephonic Case Management
NEW JERSEY’S 3 MEDICAID ACO DEMONSTRATION PROJECTS

- Newark
- Trenton
- Camden

Launched: July 2015

- Community model
- Participation by all hospitals & 75% of PCP
- 4+ behavioral health & addiction agencies
- Public participation
- MCO opt-in
- Gainsharing agreement
SENATE, No. 3220

STATE OF NEW JERSEY
216th LEGISLATURE

INTRODUCED OCTOBER 19, 2015

Sponsored by:
Senator STEPHEN M. SWEENEY
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Senator KEVIN J. O’TOOLE
District 40 (Bergen, Essex, Morris and Passaic)
Senator JOSEPH F. VITALE
District 19 (Middlesex)
Housing First Initiative
Thank you