# Montefiore: An integrated academic health system

**Notable Centers of Excellence**

- Children's Hospital at Montefiore
- Montefiore Einstein Center for Cancer Care
- Montefiore Einstein Center for Heart and Vascular Care
- Montefiore Einstein Center for Transplantation
- Neuroscience
- Orthopedic
- Ophthalmology
- OB/GYN

**Academic** · **Medical** · **Community**

**Teaching**

EINSTEIN
Albert Einstein College of Medicine

- ~1,395 Residents & Fellows
- ~470 Allied Health Students
- ~2,100 Graduate & Undergraduate Nursing
- ~200 Home Health Aides
- ~100 Social Workers

**Research**

- Clinical
- Translational
- Health Services

**Hospitals**

- 10 Hospitals
- 3,092 Acute Beds
- 150 Skilled Nursing Beds
- 1 Freestanding ED

**Primary & Specialty Care**

- Advanced Primary Care
- Mental Health
- Substance Abuse
- Sub-specialty Care
- Dental
- School Based Health Centers
- Mobile Health

**Home Care**

- Home Health Programs
- Primary Care
- House Call Program

**Workforce**

- ~31,000 Employees
- ~2,000 Physicians
- ~ 4,800 Medical & Allied Health Staff
- ~3,860 Integrated Provider Association Providers
  - ~3,150 Employed
- ~5,650 RN/LPN
  - ~3,600 NYSNA RNs
- ~10,900 SEIU/1199

**Community Health**

- Health Education
- Community Advocacy
- Wellness
- Disease Mgmt.
- Nutrition
- Obesity Prevention
- Physical Activity
- Reduce Teen Pregnancy
- Lead Poisoning Prevention

**Corporate Functions**

- Finance
- Legal
- Strategic Planning
- Purchasing
- Compliance
- Marketing
- Public Affairs
- Human Resources

**Information Technology**

- Clinical support
- Network applications

**CMO**

- Care Management (~ 400K Covered Lives)
- Disease Management
- Care Coordination
- Telemedicine
- Pharmacy Education

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# Montefiore Health System is growing



| | 1998 | 2002 | 2008 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|---|
| Patients in Value Based Arrangements | 55,000 | 150,000 | 150,000 | 195,000 | 300,000 | 405,000 |
| Inpatient Discharges | 49,000 | 57,000 | 76,000 | 88,000 | 97,000 | 140,000 |
| IPA Members | 1,000 | 1,300 | 1,500 | 3,400 | 3,417 | 3,417 |
| Hospitals | 2 | 3 | 3 | 6 | 6 | 8 |
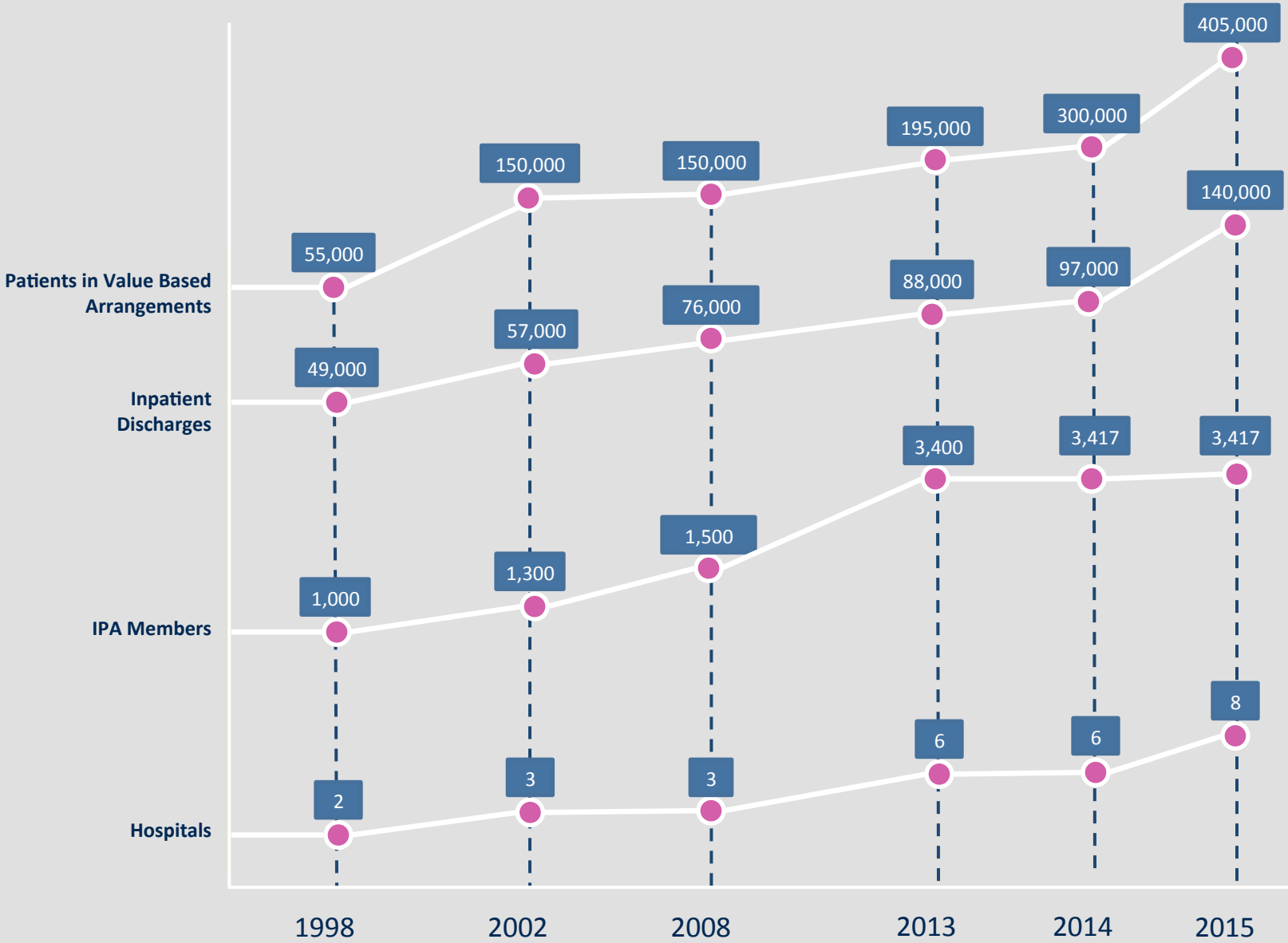
# The provider space is becoming more competitive

## Health systems are consolidating

From 2009-2013, hospital M&A **deal volume increased 14%** annually nationwide

The average **deal size increased 500%**, from $42M to $224M

Deloitte projects there will be **50% fewer health systems** by 2024 due to consolidation

## New entrants are shaking up care delivery

**Major medical groups and physician-led ACOs**
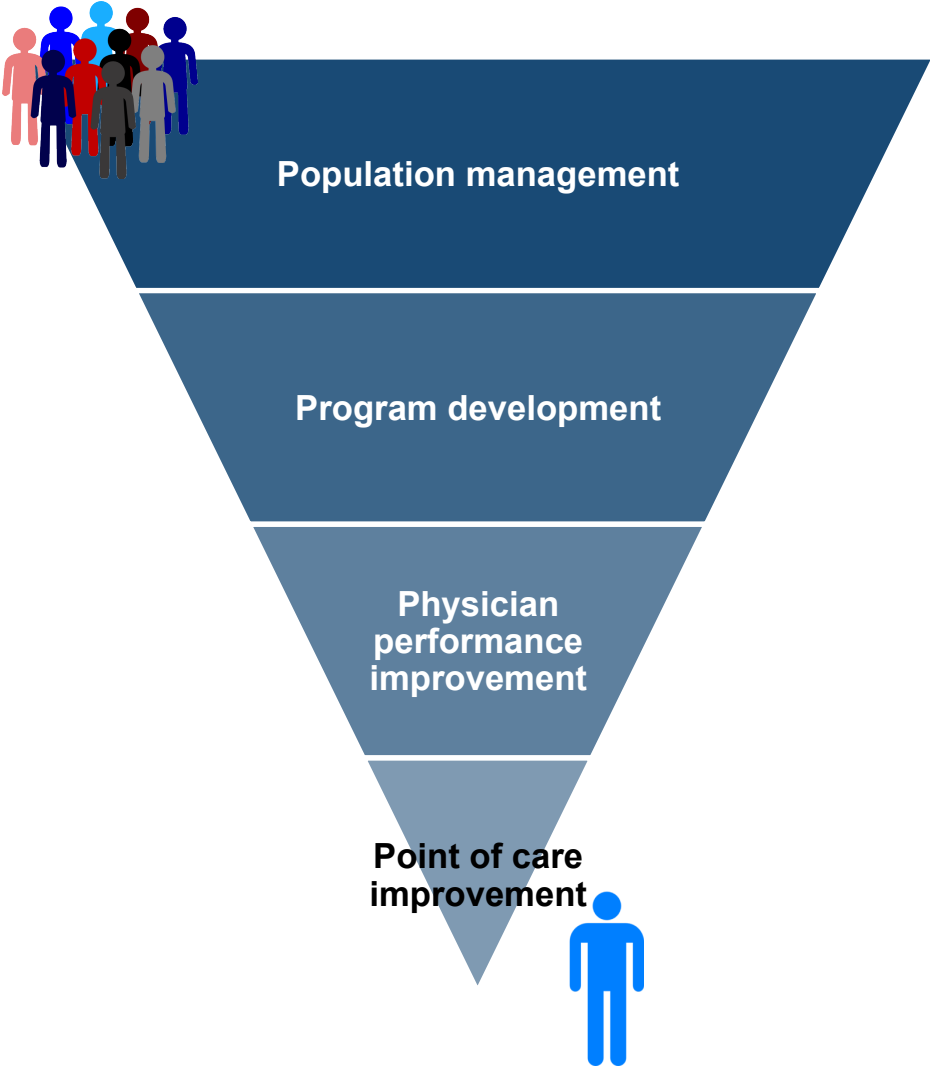


**Standalone urgent care providers**
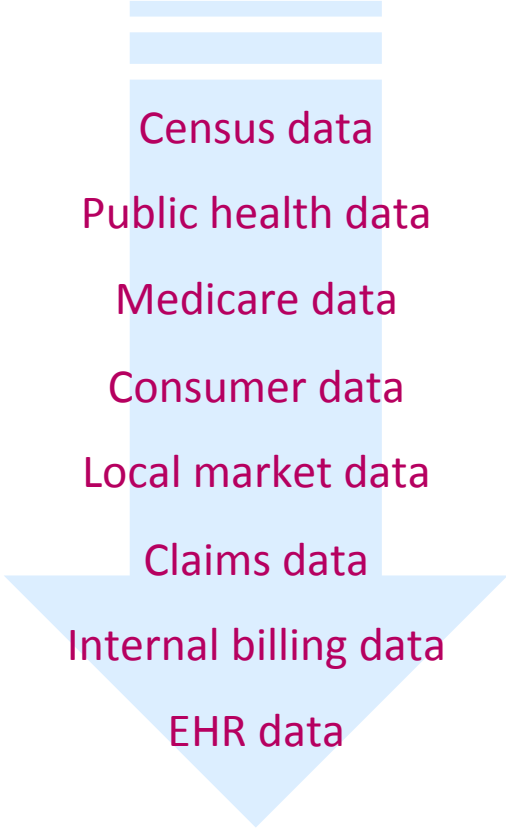


**Retailers**



**Risk aggregators**

# Smart use of data key to delivering on value proposition

**Strategies**

Clear goals, well communicated

**Governance**

Clear division of authority and balance of powers within the system

**Executing on Value Proposition**

**Leadership and Incentives**

Clear roles and responsibilities, aligned and encouraged talent

**Data and Insight**

Clearly presented, well analyzed, and free flowing across the organization
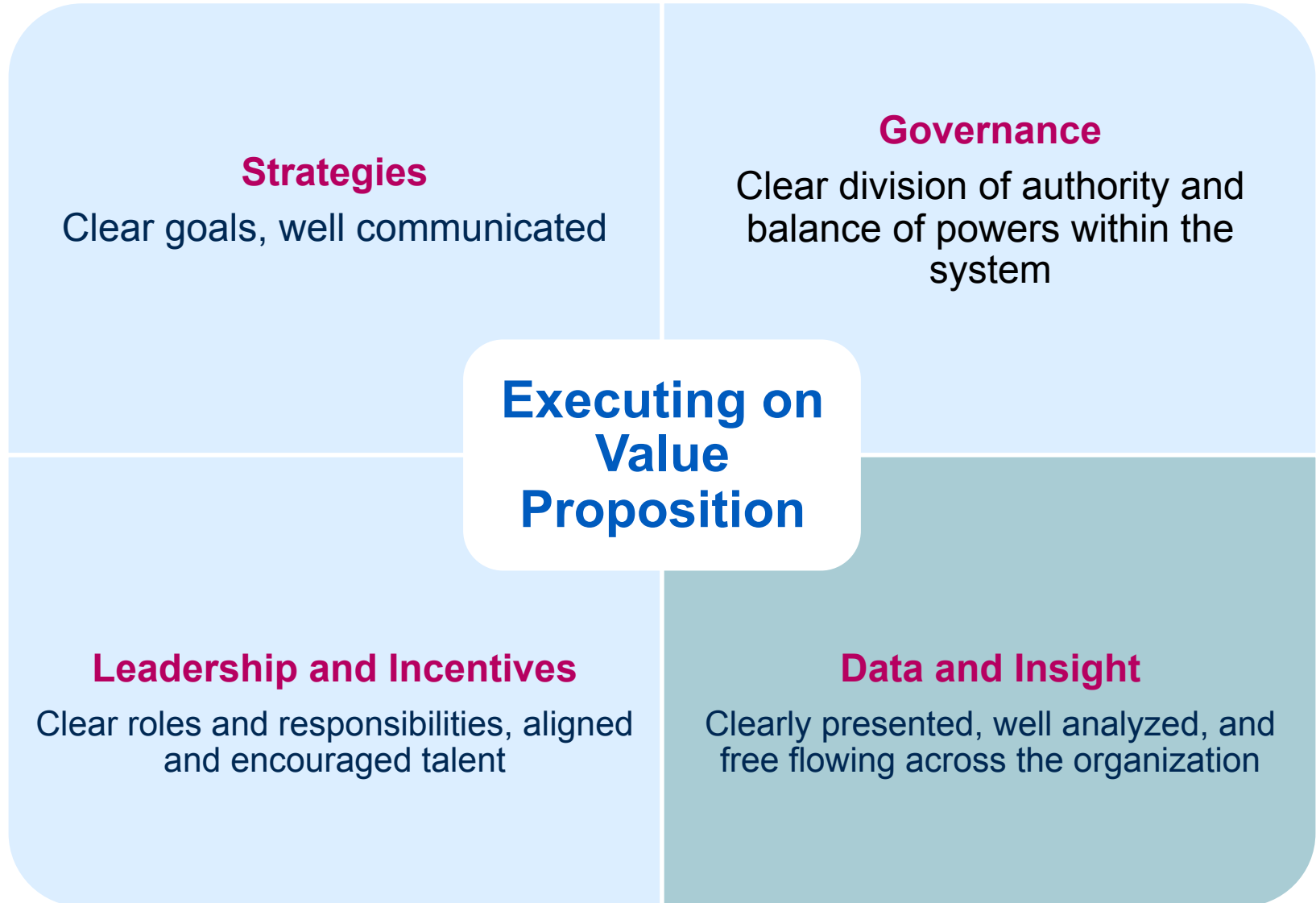
# Tremendous amount of data available to improve outcomes for patients and communities



Population management

Program development

Physician performance improvement

Point of care improvement

**Public data**

Census data

Public health data

Medicare data

Consumer data

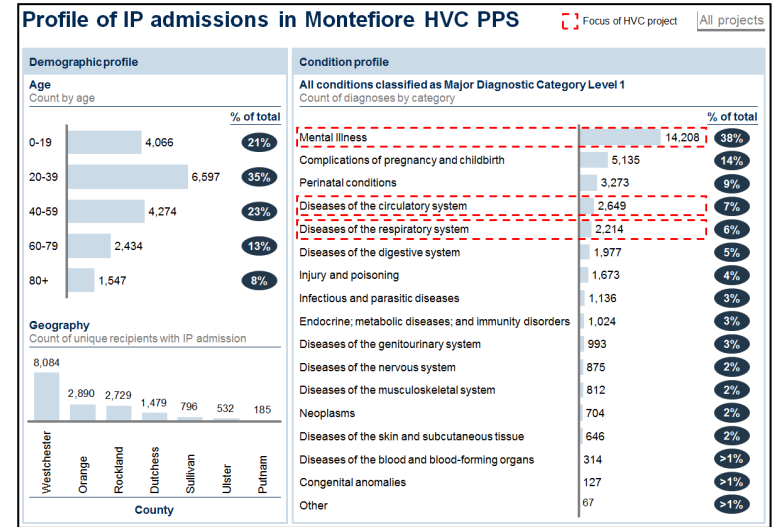Local market data
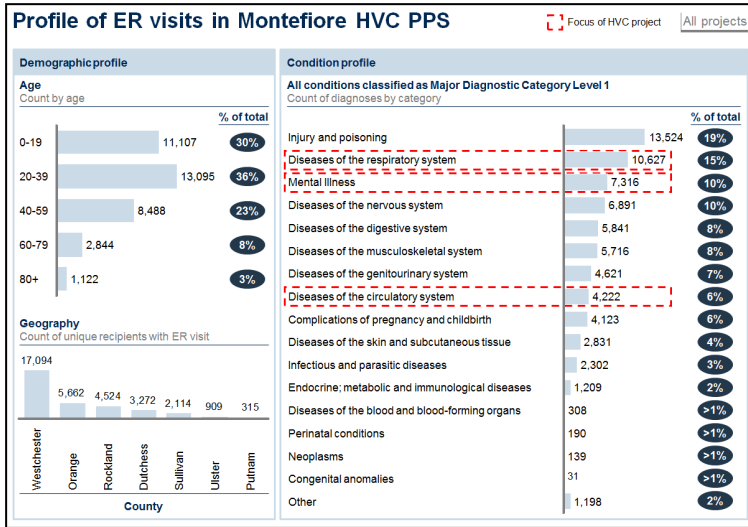
Claims data

Internal billing data
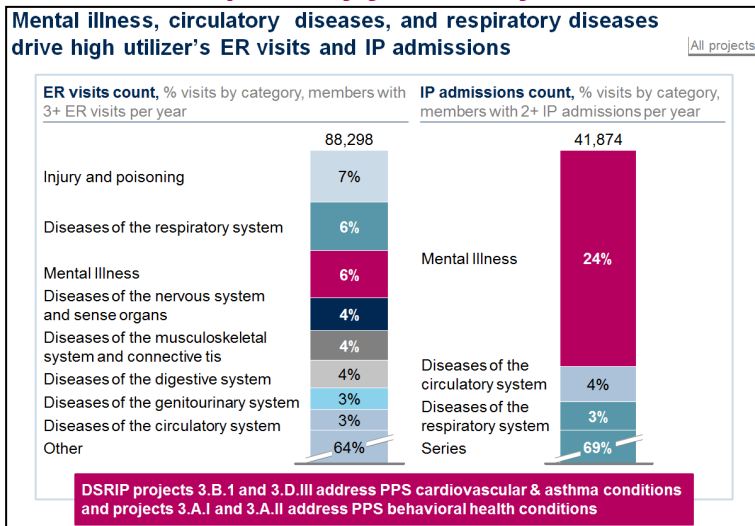
EHR data

**Proprietary data**

# Case Study #1: Priority setting for population health
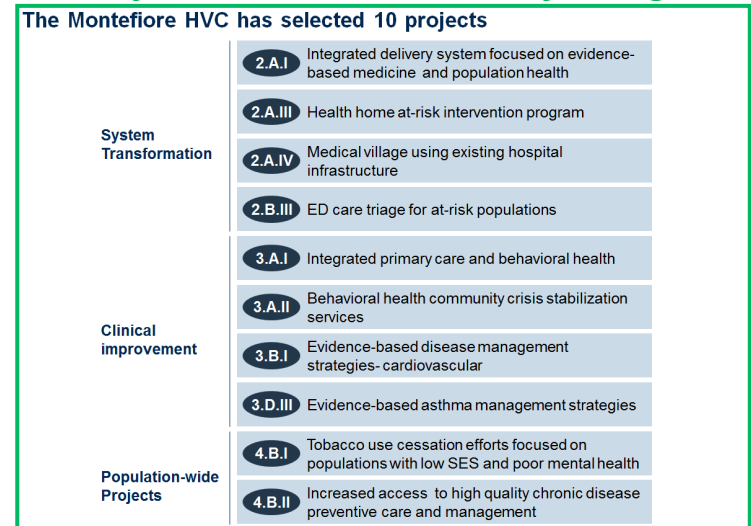## What diseases lead to overutilization for Medicaid members?

*Respiratory, circulatory, and behavioral health disorders driving utilization overall…*

### Profile of ER visits in Montefiore HVC PPS

Focus of HVC project | All projects

**Demographic profile**

**Age** — Count by age

| | | % of total |
|---|---|---|
| 0-19 | 11,107 | 30% |
| 20-39 | 13,095 | 36% |
| 40-59 | 8,488 | 23% |
| 60-79 | 2,844 | 8% |
| 80+ | 1,122 | 3% |

**Geography** — Count of unique recipients with ER visit

Westchester 17,094; Orange 5,662; Rockland 4,524; Dutchess 3,272; Sullivan 2,114; Ulster 909; Putnam 315

**County**

**Condition profile**

All conditions classified as Major Diagnostic Category Level 1
Count of diagnoses by category

| | | % of total |
|---|---|---|
| Injury and poisoning | 13,524 | 19% |
| Diseases of the respiratory system | 10,627 | 15% |
| Mental Illness | 7,316 | 10% |
| Diseases of the nervous system | 6,891 | 10% |
| Diseases of the digestive system | 5,841 | 8% |
| Diseases of the musculoskeletal system | 5,716 | 8% |
| Diseases of the genitourinary system | 4,621 | 7% |
| Diseases of the circulatory system | 4,222 | 6% |
| Complications of pregnancy and childbirth | 4,123 | 6% |
| Diseases of the skin and subcutaneous tissue | 2,831 | 4% |
| Infectious and parasitic diseases | 2,302 | 3% |
| Endocrine; metabolic and immunological diseases | 1,209 | 2% |
| Diseases of the blood and blood-forming organs | 308 | >1% |
| Perinatal conditions | 190 | >1% |
| Neoplasms | 139 | >1% |
| Congenital anomalies | 31 | >1% |
| Other | 1,198 | 2% |

### Profile of IP admissions in Montefiore HVC PPS

Focus of HVC project | All projects

**Demographic profile**

**Age** — Count by age

| | | % of total |
|---|---|---|
| 0-19 | 4,066 | 21% |
| 20-39 | 6,597 | 35% |
| 40-59 | 4,274 | 23% |
| 60-79 | 2,434 | 13% |
| 80+ | 1,547 | 8% |

**Geography** — Count of unique recipients with IP admission

Westchester 8,084; Orange 2,890; Rockland 2,729; Dutchess 1,479; Sullivan 796; Ulster 532; Putnam 185

**County**

**Condition profile**

All conditions classified as Major Diagnostic Category Level 1
Count of diagnoses by category

| | | % of total |
|---|---|---|
| Mental Illness | 14,208 | 38% |
| Complications of pregnancy and childbirth | 5,135 | 14% |
| Perinatal conditions | 3,273 | 9% |
| Diseases of the circulatory system | 2,649 | 7% |
| Diseases of the respiratory system | 2,214 | 6% |
| Diseases of the digestive system | 1,977 | 5% |
| Injury and poisoning | 1,673 | 4% |
| Infectious and parasitic diseases | 1,136 | 3% |
| Endocrine; metabolic diseases; and immunity disorders | 1,024 | 3% |
| Diseases of the genitourinary system | 993 | 3% |
| Diseases of the nervous system | 875 | 2% |
| Diseases of the musculoskeletal system | 812 | 2% |
| Neoplasms | 704 | 2% |
| Diseases of the skin and subcutaneous tissue | 646 | 2% |
| Diseases of the blood and blood-forming organs | 314 | >1% |
| Congenital anomalies | 127 | >1% |
| Other | 67 | >1% |

*… and especially for heavy utilizers.*

### Mental illness, circulatory diseases, and respiratory diseases drive high utilizer's ER visits and IP admissions

All projects

**ER visits count,** % visits by category, members with 3+ ER visits per year — 88,298

| | |
|---|---|
| Injury and poisoning | 7% |
| Diseases of the respiratory system | 6% |
| Mental Illness | 6% |
| Diseases of the nervous system and sense organs | 4% |
| Diseases of the musculoskeletal system and connective tis | 4% |
| Diseases of the digestive system | 4% |
| Diseases of the genitourinary system | 3% |
| Diseases of the circulatory system | 3% |
| Other | 64% |

**IP admissions count,** % visits by category, members with 2+ IP admissions per year — 41,874

| | |
|---|---|
| Mental Illness | 24% |
| Diseases of the circulatory system | 4% |
| Diseases of the respiratory system | 3% |
| Series | 69% |

**DSRIP projects 3.B.1 and 3.D.III address PPS cardiovascular & asthma conditions and projects 3.A.I and 3.A.II address PPS behavioral health conditions**

*Project selection based on findings.*

### The Montefiore HVC has selected 10 projects

**System Transformation**
- **2.A.I** Integrated delivery system focused on evidence-based medicine and population health
- **2.A.III** Health home at-risk intervention program
- **2.A.IV** Medical village using existing hospital infrastructure
- **2.B.III** ED care triage for at-risk populations

**Clinical improvement**
- **3.A.I** Integrated primary care and behavioral health
- **3.A.II** Behavioral health community crisis stabilization services
- **3.B.I** Evidence-based disease management strategies - cardiovascular
- **3.D.III** Evidence-based asthma management strategies

**Population-wide Projects**
- **4.B.I** Tobacco use cessation efforts focused on populations with low SES and poor mental health
- **4.B.II** Increased access to high quality chronic disease preventive care and management

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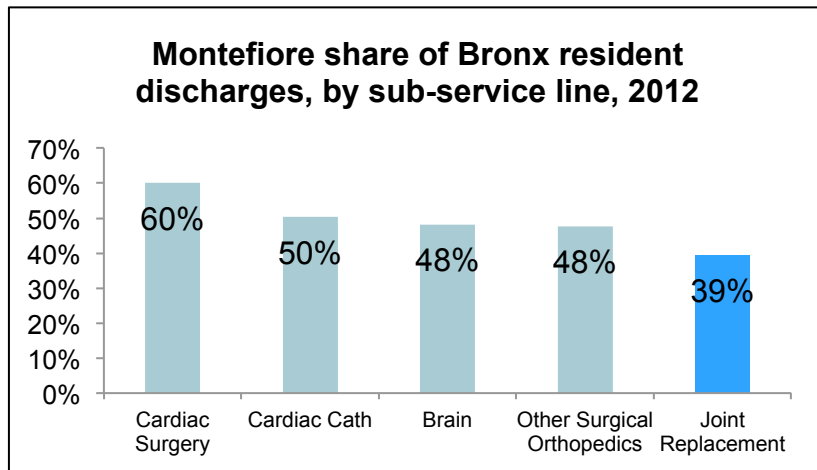
# Case Study #2: Investing in a Joint Replacement Center
## Will we see a return on our investment?

| Market assessment | Financial assessment |
|---|---|

### *An opportunity to grow share…*

**Montefiore share of Bronx resident discharges, by sub-service line, 2012**



| | Cardiac Surgery | Cardiac Cath | Brain | Other Surgical Orthopedics | Joint Replacement |
|---|---|---|---|---|---|
| Share | 60% | 50% | 48% | 48% | 39% |

### *… of market we can expect to grow…*

**45%**

The Bronx resident joint replacement utilization rate, vs. the national average (vs. 150% for other services)

**5%**

Projected near-term growth rate for joint replacements for Bronx residents

### *… resulting in positive returns for the system*

**Inpatient sub-service lines, ranked by *average contribution margin per day***

| Rank | Sub-service line |
|---|---|
| 1 | Burns |
| 2 | Trauma (Neurosurgery) |
| 3 | Cardiac Cath |
| 4 | Bariatric/Obesity |
| 5 | Cardiac EP |
| 6 | Cardiac Surgery |
| 7 | Transplant |
| 8 | Brain |
| 9 | Head and Neck Surgery |
| **10** | **Joint Replacement** |
| … | |
| 82 | Psychiatry |

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# Case Study #3: Reducing ED utilization
## How and where should we implement an ED triage initiative?

**Targeting hospitals for focus**

**ED visits**
By Montefiore hospital

| | | | | |
|---|---|---|---|---|
| Moses | Weiler | Wakefield | CHAM | Westchester Square |

- 34,857 (Unavoidable) / 4,966 (Avoidable) — Moses
- 25,105 / 2,552 — Weiler
- 23,295 / 2,138 — Wakefield
- 16,985 — CHAM
- 11,076 — Westchester Square

■ Avoidable ED visits   Unavoidable ED visits
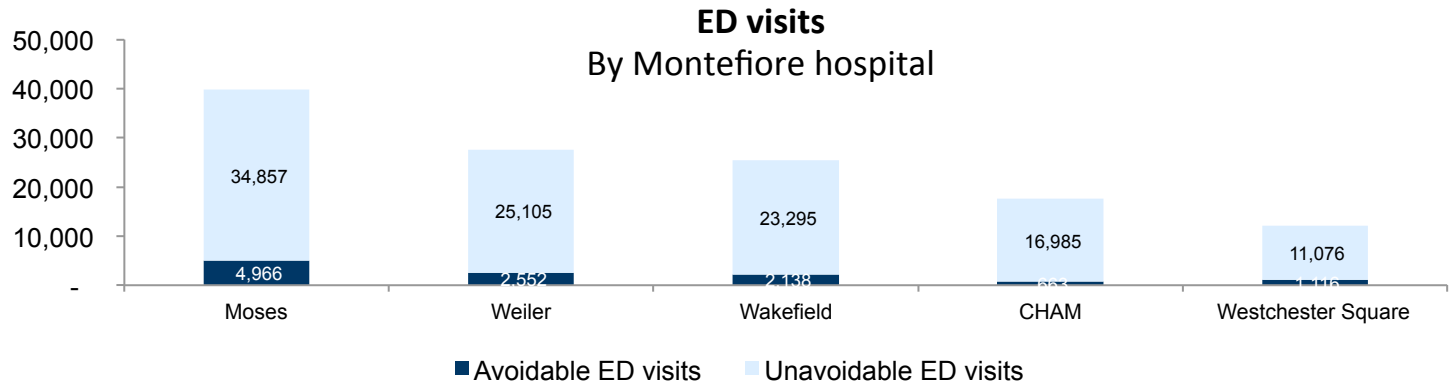
**Shaping intervention**

**AVOIDABLE DIAGNOSES**

| 2 to 5 Visits | | 6 or more Visits | |
|---|---|---|---|
| Diagnosis | # of Cases | Diagnosis | # of Cases |
| HEADACHE | 1,516 | HEADACHE | 164 |
| LUMBAGO | 1,288 | LUMBAGO | 136 |
| BACKACHE NOS | 418 | BACKACHE NOS | 90 |
| ISSUE REPEAT PRESCRIPT | 266 | ISSUE REPEAT PRESCRIPT | 59 |
| PRURITIC DISORDER NOS | 178 | PREGNANCY EXAM OR TEST, PREGNANCY UNCON | 30 |
| PREGNANCY EXAM OR TEST, PREGNANCY UNCONFIRME | 137 | MED EXAM NEC-ADMIN PURP | 24 |
| **All other avoidable** | **294** | **All other avoidable** | **61** |
| **Total Visits** | **4,097** | **Total Visits** | **564** |

**EXTREMLEY HEAVY USERS, MORE THAN 20 VISITS IN 6 MONTHS**

| Ref # | # of Visits | Avg. Visits/Month | Diagnosis |
|---|---|---|---|
| 1 | 79 | 13.2 | PRIAPISM |
| 2 | 61 | 10.2 | WHEEZING/SHORTNESS OF BREATH |
| 3 | 51 | 8.5 | ALCOHOL ABUSE |
| 4 | 47 | 7.8 | JOINT/BACK PAIN |
| 5 | 44 | 7.3 | JOINT PAIN/ALCOHOL |

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# Case Study #4: Community-based flu vaccine program
## Which communities should we target for intervention?

**Montefiore ED visits with influenza, 2014**



Legend: Flu visits, admitted / Flu visits, not-admitted
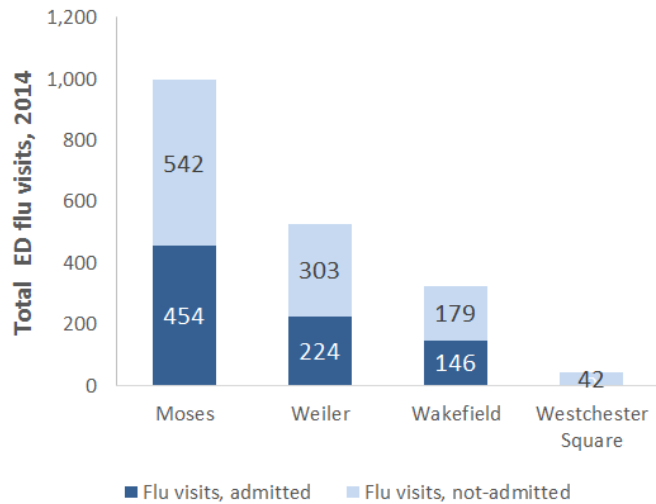
**Influenza by neighborhood (census tract)**
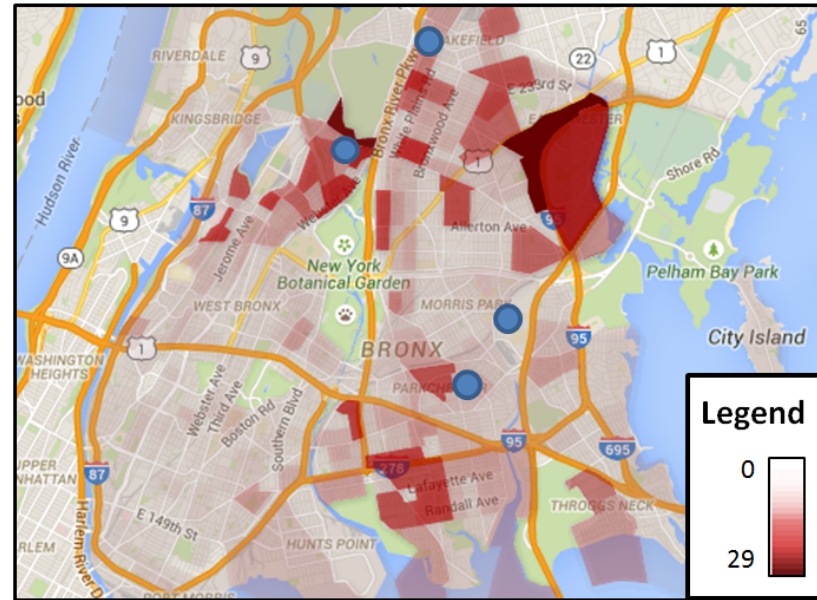


**Montefiore ED 2014 influenza volume summary**
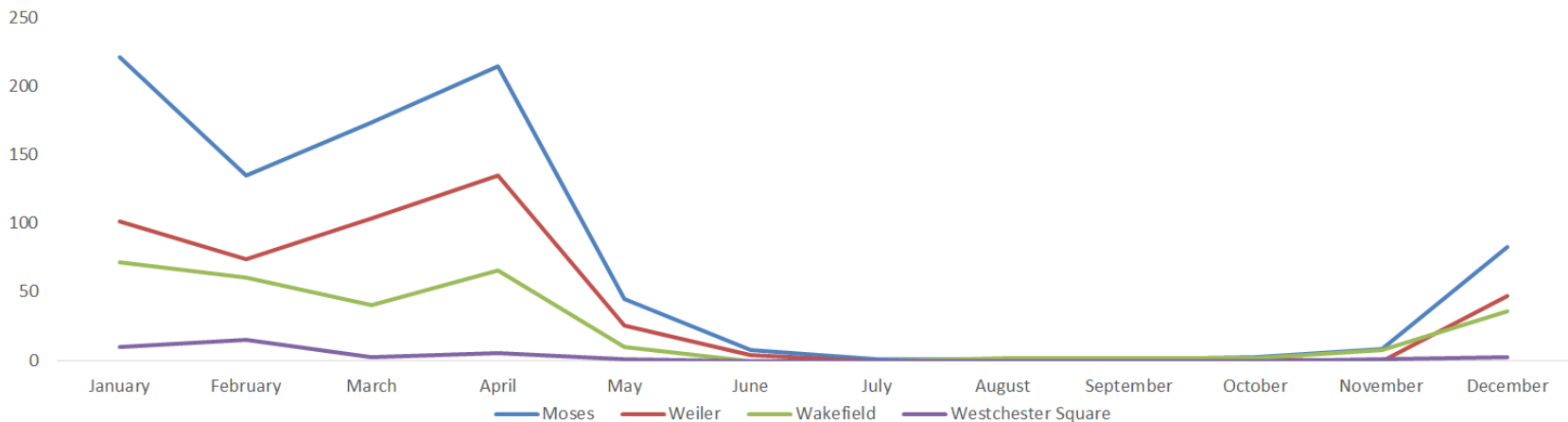

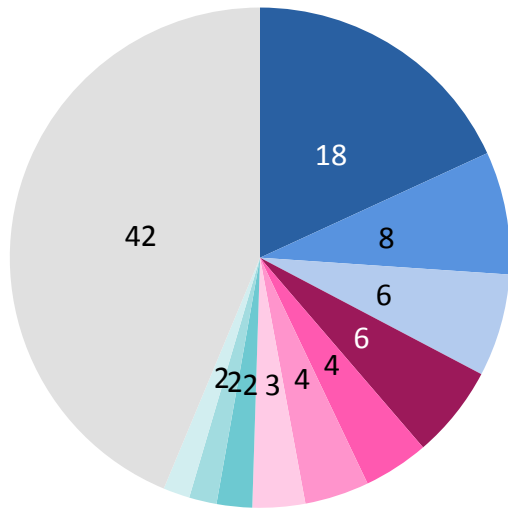
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# Case Study #5: Physician Gainsharing Program
## How should we engage clinical departments in program?

### Targeting departments for focus

**Difference between Montefiore and best practice cost performance for incentive eligible cases**

By responsible physician department

n=$91M



- Department A
- Department B
- Department C
- Department D
- Department E
- Department F
- Department G
- Department H
- Department I
- Department J
- All other

### Providing insights for physicians

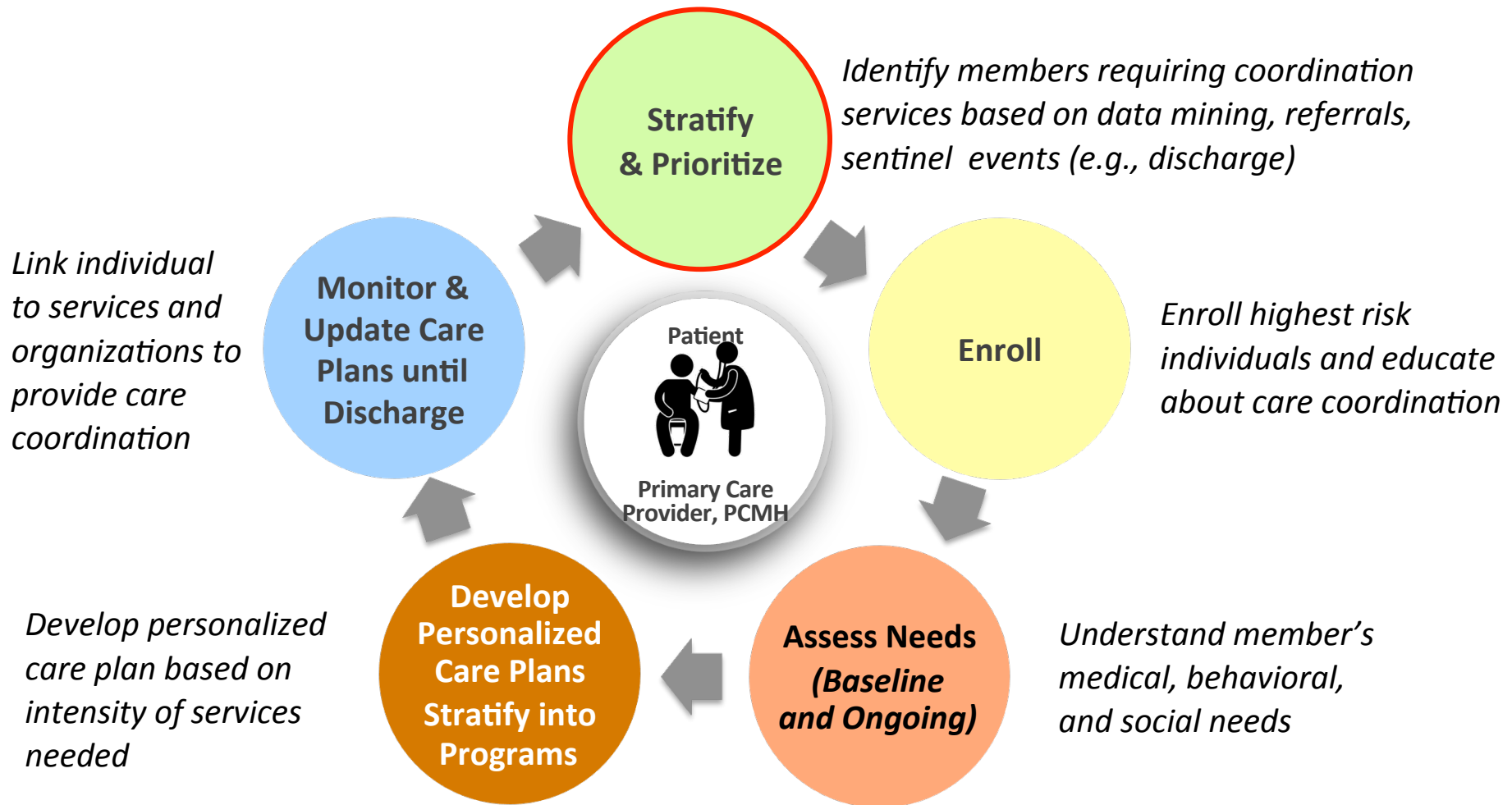**Percent of total cost improvement opportunity for each department, by cost center**

By responsible physician department
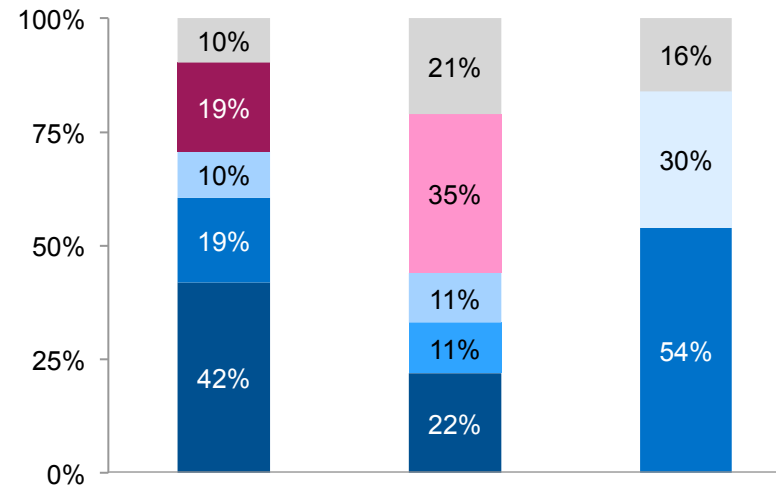


- CCU
- Implantable Device
- ICU
- Lab
- Supplies
- Organ Acquisition
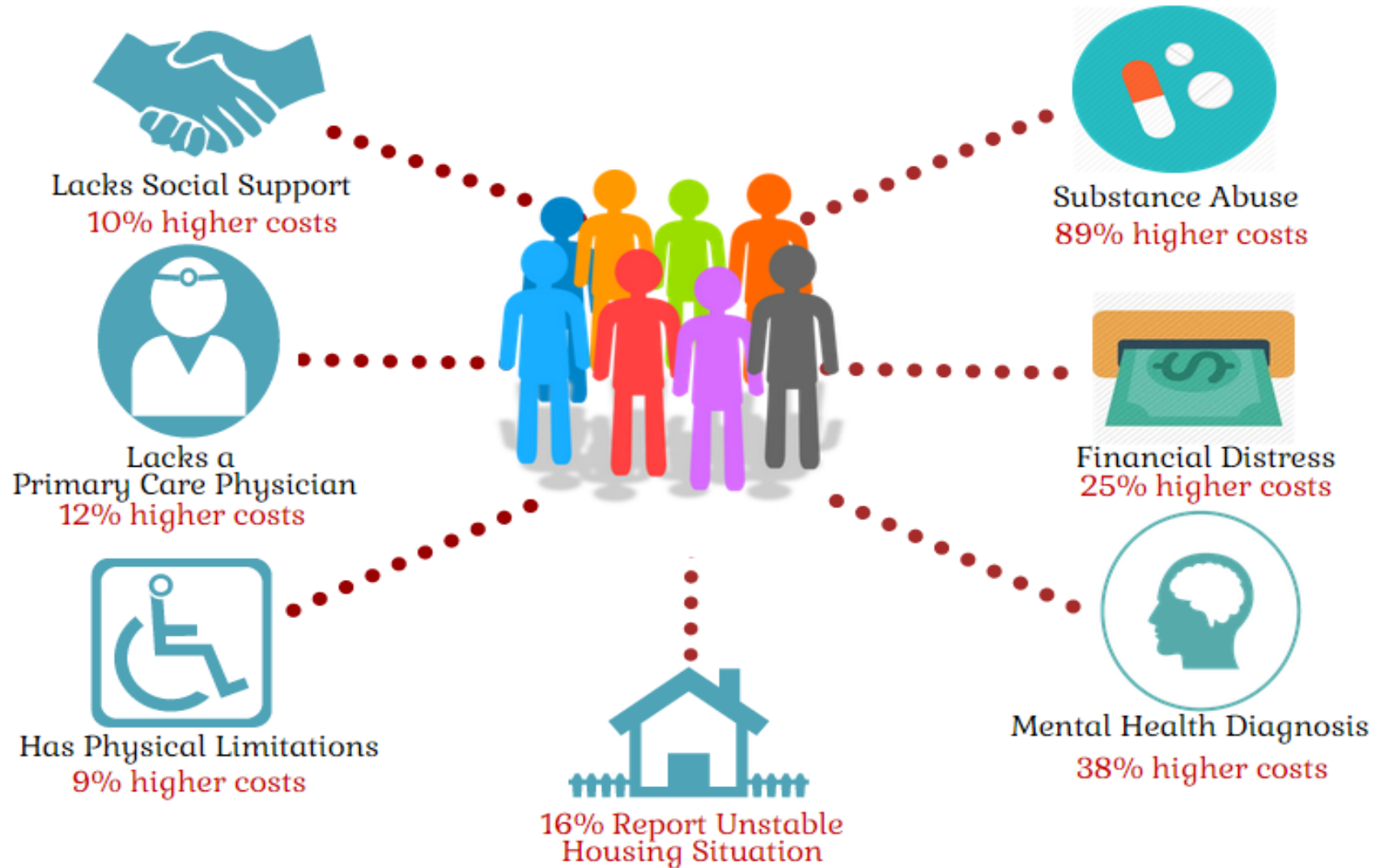- Room & Board
- All Others

# Case Study #6: Managing risk for patients (I)
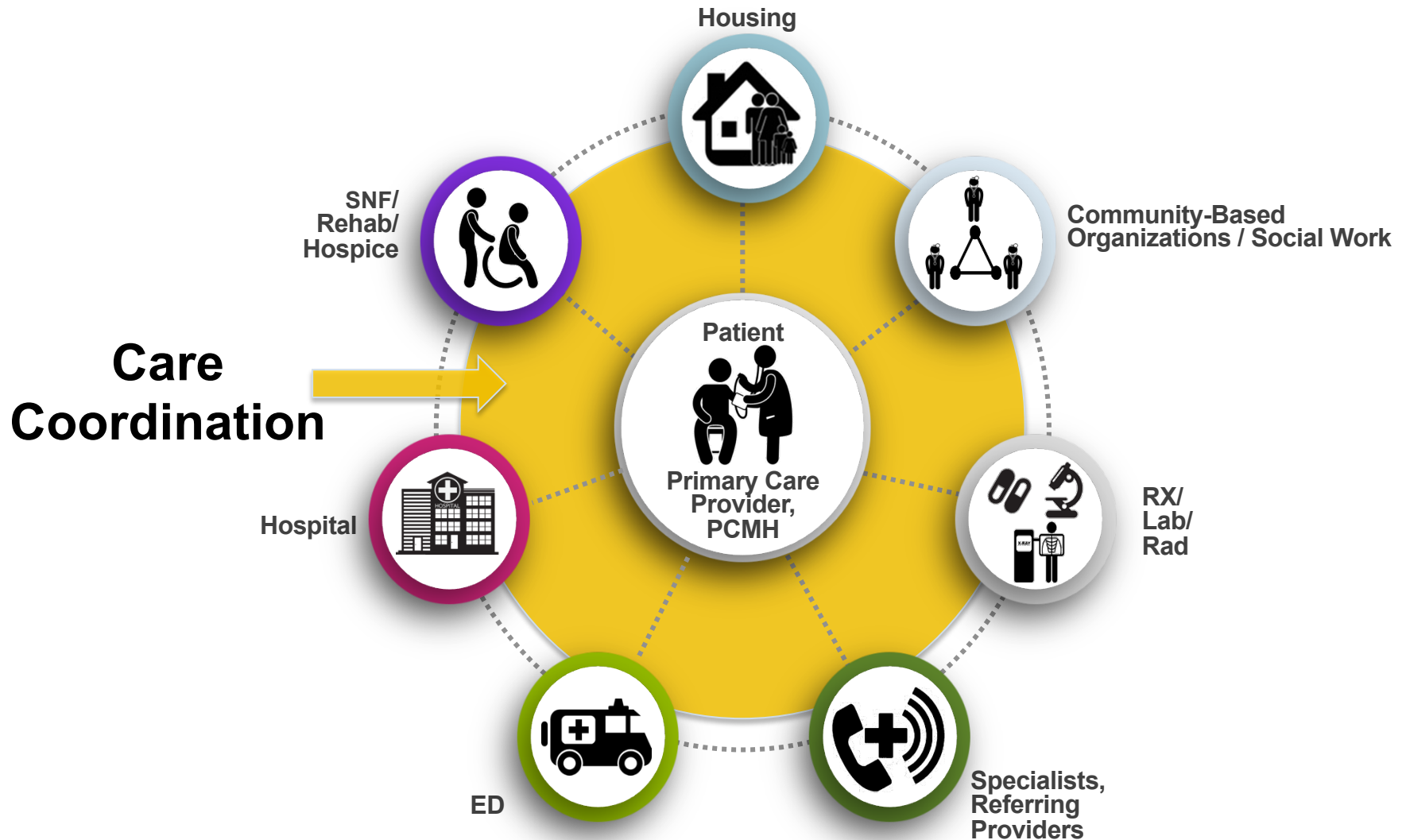## Which patients should we intensively care manage?



**Stratify & Prioritize**

*Identify members requiring coordination services based on data mining, referrals, sentinel events (e.g., discharge)*

**Enroll**

*Enroll highest risk individuals and educate about care coordination*

**Assess Needs (Baseline and Ongoing)**

*Understand member's medical, behavioral, and social needs*

**Develop Personalized Care Plans Stratify into Programs**

*Develop personalized care plan based on intensity of services needed*

**Monitor & Update Care Plans until Discharge**

*Link individual to services and organizations to provide care coordination*

**Patient**

**Primary Care Provider, PCMH**

# Case Study #6: Managing risk for patients (II)
## What drives high costs of care?



Lacks Social Support
10% higher costs

Lacks a
Primary Care Physician
12% higher costs

Has Physical Limitations
9% higher costs

16% Report Unstable
Housing Situation

Substance Abuse
89% higher costs

Financial Distress
25% higher costs

Mental Health Diagnosis
38% higher costs

# Case Study #6: Managing risk for patients (II)
## How should we manage care to reflect this finding?



**Care Coordination**

Housing
Community-Based Organizations / Social Work
SNF/ Rehab/ Hospice
RX/ Lab/ Rad
Patient
Primary Care Provider, PCMH
Hospital
ED
Specialists, Referring Providers

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# Just beginning to scratch the surface

**Opportunity to leverage data, especially clinical, to transform care delivery and business models writ large**



Value from data analytics

Data for business model innovation

Data for clinical transformation

Data for efficiency improvement

Data used for reporting

People and process changes
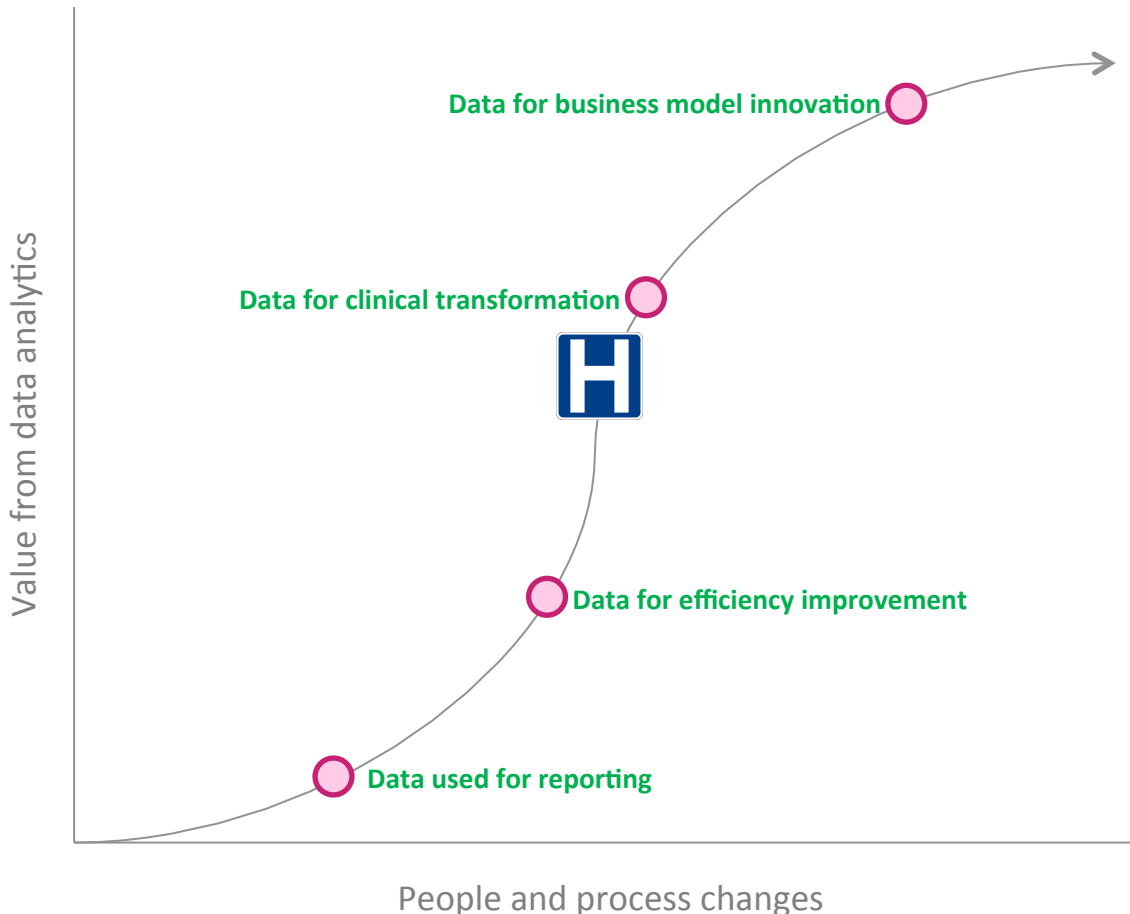
"The potential benefits of health IT have not yet come to pass. This is... because of shortcomings... in the design, implementation, and use of health IT in the United States."

*– Health Affairs*

# Tremendous benefits for health system, and patients, ahead

**Value driver**

**Patient benefit**

| Value driver | Patient benefit |
|---|---|
| Cost efficiency | Affordability |
| Care standardization | Quality |
| Service experience | Satisfaction |
| Network integration | Coordination |
| Trend control | Predictability |

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