

# **I. Target Subgroup for First Health Home SPA: Severe Mental Illness**

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## **II. Avoidable Emergency Department Utilization (SMI vs. Non-SMI)**

## **III. Second SPA Target Subgroup: Preliminary considerations**

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**Health Homes Target Population Subgroup**

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# **I. TARGET SUBGROUP FOR FIRST HEALTH HOME SPA: SEVERE MENTAL ILLNESS**

# Health Home SMI Definition

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- **Schizophrenia (295.xx)**
- **Bipolar and Major Depressive Disorders (296.xx)**
- **Delusional Disorders (297.xx)**
- **Psychosis NOS (298.xx)**
- **Child Disintegrative Disorder (299.10, 299.11)**
- **OCD (300.3, 301.4)**
- **Personality Disorders (301.0, 301.2, 301.22, 301.83)**
- **PTSD (309.81)**

# Numbers of persons with SMI

|                                     | SMI - Any     | Schizo       | Bipolar & major depress | Delusion dx | Personality dx                     | Psych NOS    | OCD             | PTSD         |
|-------------------------------------|---------------|--------------|-------------------------|-------------|------------------------------------|--------------|-----------------|--------------|
| Diagnosis code(s):<br>ICD9-CM codes |               | 295.xx       | 296.xx                  | 297.xx      | 301.0, 301.2,<br>301.22,<br>301.83 | 298.xx       | 300.3,<br>301.4 | 309.81       |
| Age Group                           |               |              |                         |             |                                    |              |                 |              |
| < = 18 years                        | 9,928         | 165          | 8,088                   | 11          | 28                                 | 383          | 232             | 2,019        |
| 19-64 years                         | 23,864        | 5,913        | 16,871                  | 168         | 366                                | 2,107        | 408             | 1,740        |
| 65 years & older                    | 2,711         | 817          | 1,297                   | 54          | 15                                 | 776          | 35              | 29           |
| <b>Totals</b>                       | <b>36,503</b> | <b>6,895</b> | <b>26,256</b>           | <b>233</b>  | <b>409</b>                         | <b>3,266</b> | <b>675</b>      | <b>3,788</b> |

Based on DAI data runs, FY 2012

Also included child disintegrative disorder, but < 10 cases

# SMI Counts by County: 500+

|             |       |
|-------------|-------|
| Sedgwick    | 6,510 |
| Shawnee     | 4,546 |
| Wyandotte   | 3,067 |
| Johnson     | 2,931 |
| Reno        | 1,270 |
| Douglas     | 1,231 |
| Montgomery  | 970   |
| Saline      | 931   |
| Leavenworth | 742   |
| Butler      | 737   |
| Crawford    | 653   |
| Cowley      | 547   |
| Franklin    | 520   |
| Labette     | 512   |
| Harvey      | 507   |
| Lyon        | 502   |

Sum = 26,176

71.2% SMI target subgroup

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# **II. AVOIDABLE EMERGENCY DEPARTMENT UTILIZATION (SMI VS. NON-SMI)**

# Examination of ED visits

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- **Used NYU ED Classification Algorithm to categorize Kansas Medicaid ED visits during FY 2012**
  - **FFS claims for ABD population**
    - **Does NOT include all Medicaid (e.g., no moms & kids)**
    - **Included PAHP & PIHP claims (behavioral health)**
- **Compare avoidable/preventable ED utilization and required ED care**

# Algorithm Development

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- Developed with panel of ED and primary care physicians
- Based on examination of 6,000 ED records:
  - Initial complaint, demographics, diagnosis and procedures, vital signs, symptoms, medical history, ED resources used
- *<http://wagner.nyu.edu/faculty/billings/nyued-background>*

# Algorithm Development

- Possible categories of ED visits:

1. Non-emergent
2. Emergent/Primary Care (PC) treatable
3. Emergent-Preventable/Avoidable
4. Emergent-Not Preventable/Avoidable
5. Injury
6. Psychiatric
7. Alcohol/Drug
8. Unclassified

Assigned a probability

*Each of these is mutually exclusive from above and each other*

# Category 1: Non-Emergent

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- Immediate care was not required within 12 hours
- High probability examples:
  - diabetes with unspecified complication (250.9)
  - hypercholesterolemia (272.0)
  - cystic fibrosis (277.0)
  - redness or discharge of eye (379.9)
  - chronic pharyngitis and nasopharyngitis (472.0)
  - dermatitis (293.0)

# Category 2: Emergent/PC Treatable

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- Treatment required within 12 hours, but could have been provided effectively and safely in PC setting (did not require continuous observation or resources not available in PC)
- Examples with high probabilities:
  - Poisoning by agents primarily affecting skin, mucous membrane (976.0)
  - Multiple sclerosis (340.0)
  - Cellulitis and abscess of oral soft tissue (528.3)
  - Ischemic heart disease, chronic unspecified (414.9)

# Category 3: Emergent-Preventable/Avoidable

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- ED use required but emergent nature of condition potentially preventable if proper ambulatory care was provided during course of illness
- Examples with high probabilities:
  - Diabetes with ketoacidosis (250.1)
  - Other kidney infection not specified as acute or chronic (590.8)
  - Asthma (493.0)

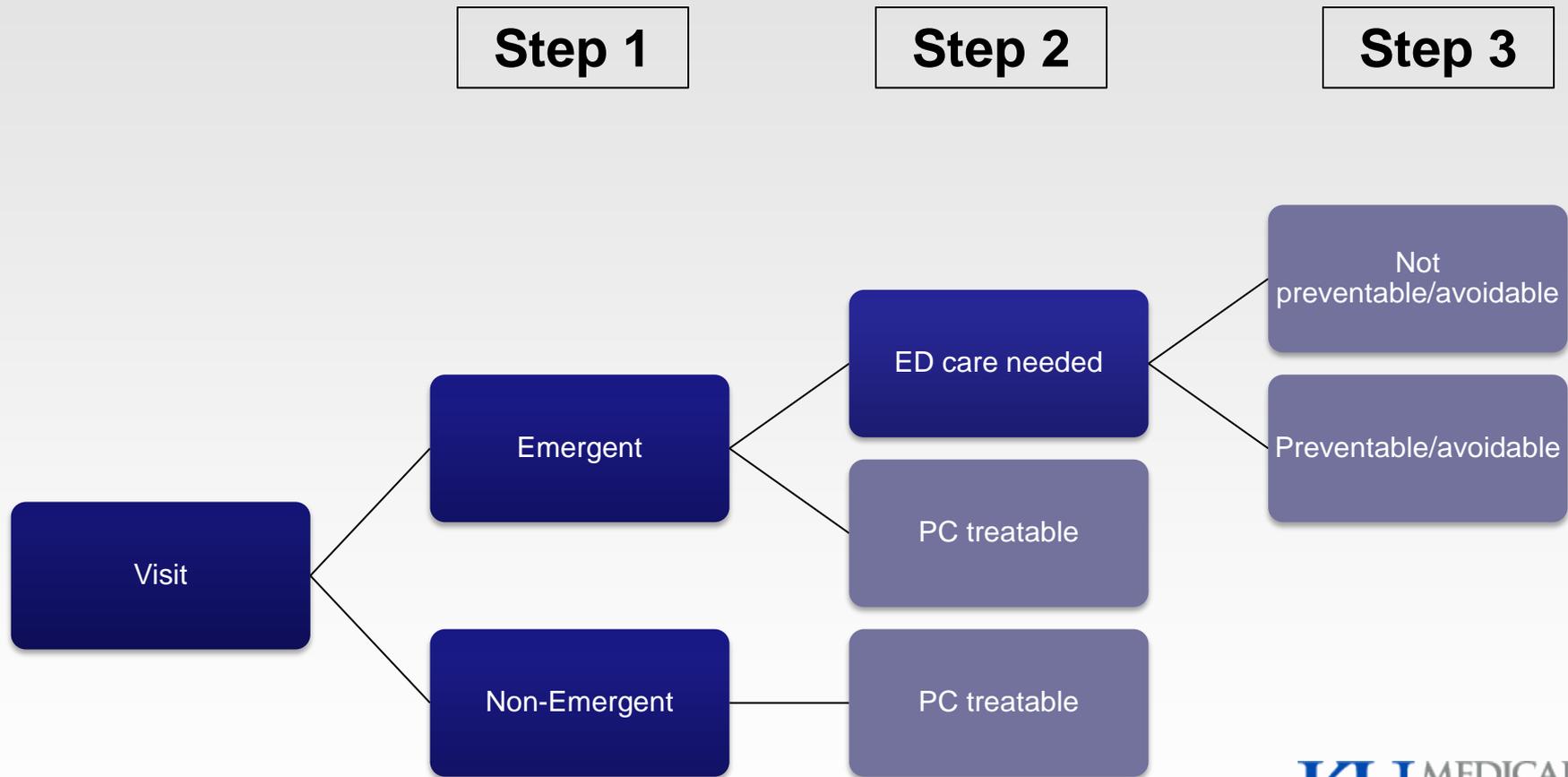
# Category 4:

## Emergent-Not Preventable/Avoidable

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- ED care required and could not have been prevented with ambulatory care treatment
- Example: appendicitis
  - Sprains and strains of sacroiliac region (846.0)
  - Neoplasms (239.0)
  - Disorders of fluid/electrolyte/acid-balance balance (276.0)
  - Orbital cellulitis (376.01)
  - Subarachnoid hemorrhage (430.0)

# NYU ED Classification Process (categories 1-4)



# Our Application of the Algorithm

- Highest probability indicates final category
- In the case of ties: conservative approach, bias towards emergent/non-preventable

1. Non-emergent
2. Emergent PC treatable
3. Emergent preventable
4. Emergent non-preventable

$1=2=3=4 \rightarrow 4$

$3=4 \rightarrow 4$

$2=4 \rightarrow 4$

$2=3=4 \rightarrow 4$

$1=2=3 \rightarrow 3$

$1=3 \rightarrow 3$

$2=3 \rightarrow 3$

$1=2 \rightarrow 2$

# Category 5: Injury

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- **Includes external causes of injury**
- **Examples: gunshot wounds, suicide, drowning, poisoning**
- **ICD-9: E90-E94, E96-E98**

# Category 6: Psychiatric

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- **Includes mental disorders**
- **Examples: dementia, psychotic conditions, schizophrenia, mood disorders, neurotic disorders, OCD, phobias, mental retardation, suicide by solid or liquid substance (does not include alcohol or drug dependence, drug psychoses)**
- **ICD-9: 290, 293-302, 306-319, E95**

# Category 7: Substance Abuse

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- Includes drug and alcohol abuse
- Examples: opioid & cocaine abuse, alcoholic cardiomyopathy, chronic liver disease
- ICD 9: 305.2-305.9, 357.6, 648.3, 655.5, 779.5, 760.72-760.75, 305.0, 257.5, 425.5, 535.3, 571.0, 571.2, 571.3, 760.71, 790.3, V704, V112, V791

# Category 8: Unclassified

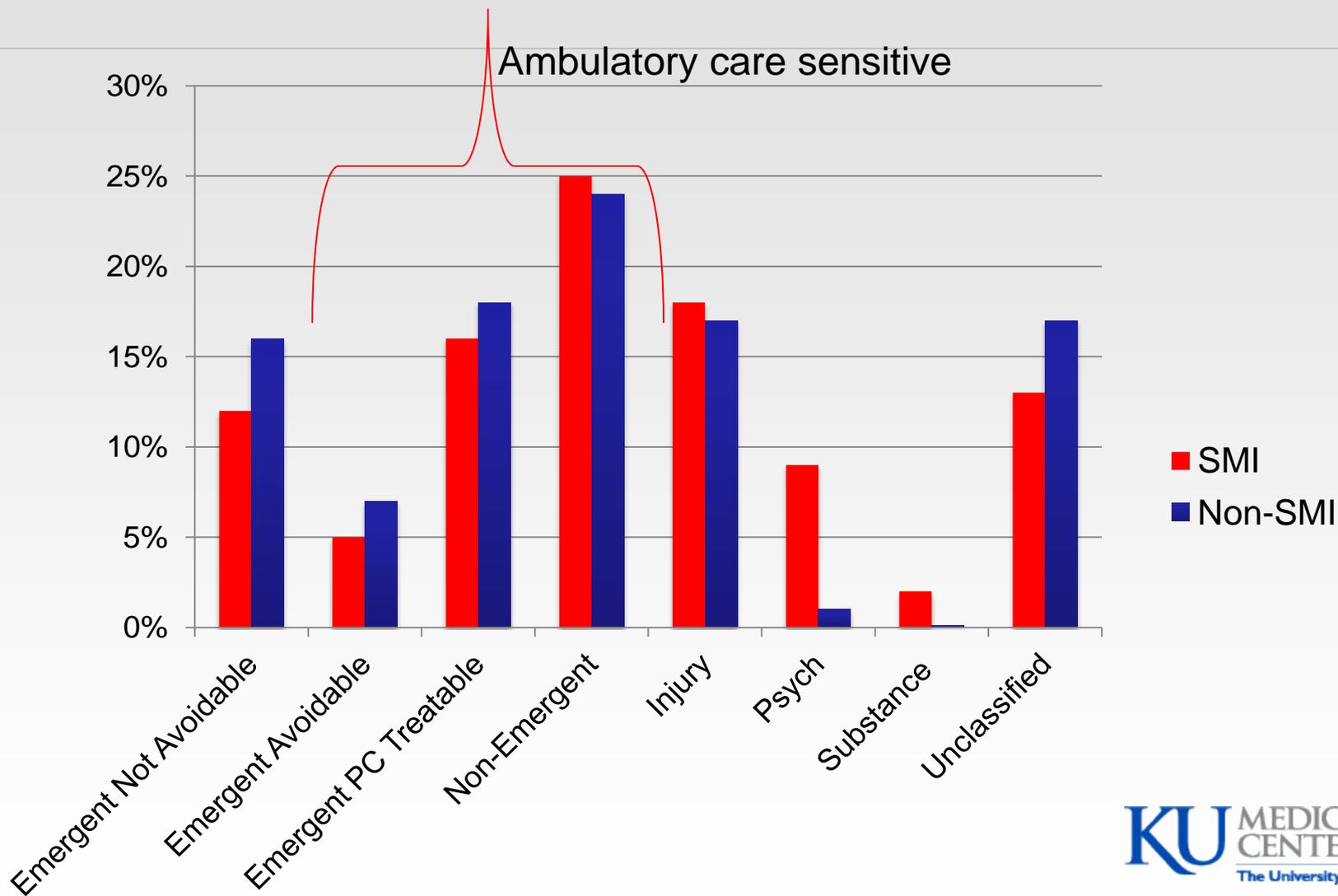
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- **Contains all remaining ICD-9 codes not included in other categories due to insufficient sample size**

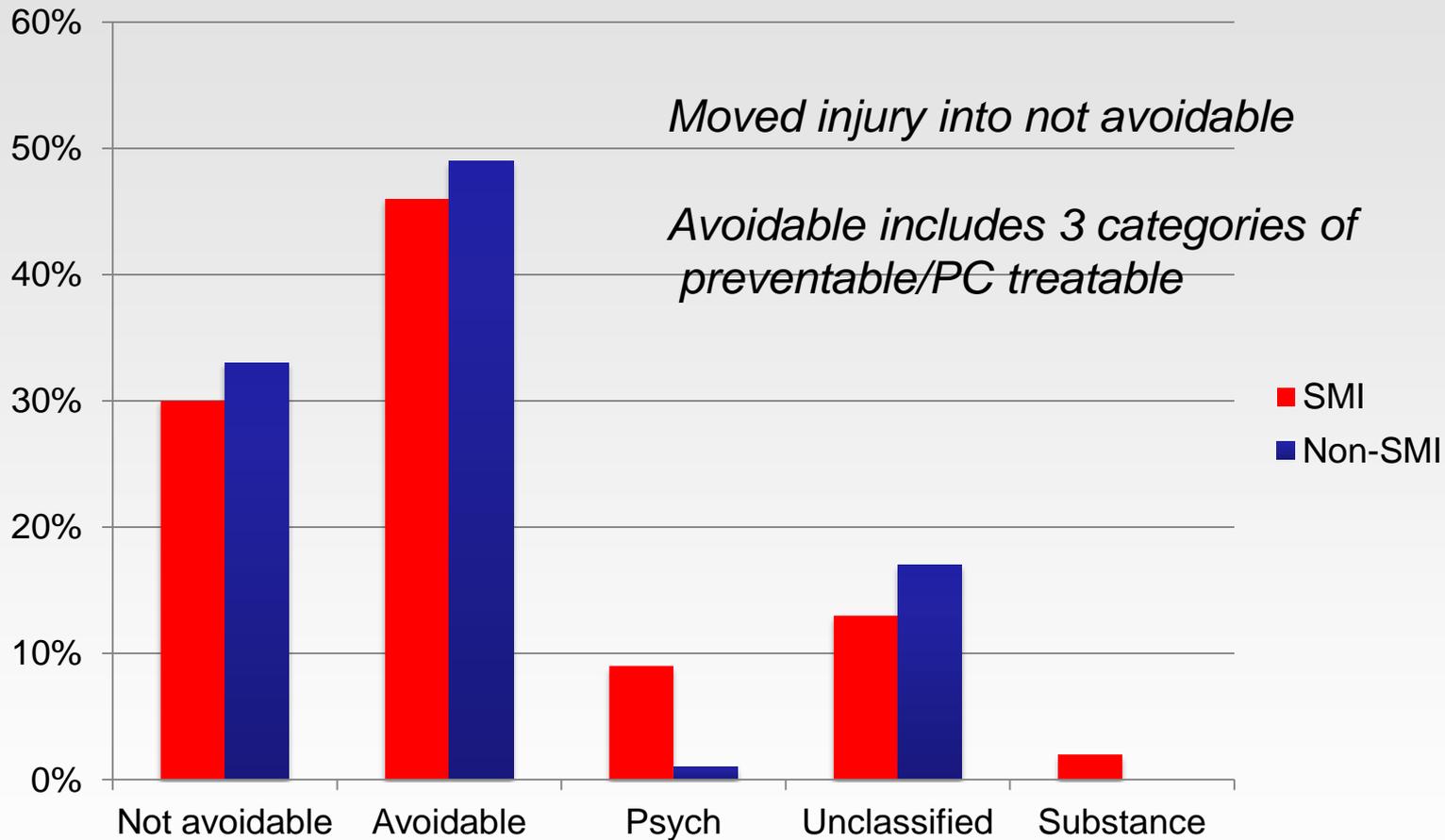
# Medicaid ED Visit Classification (FY12)

- **ABD enrollees in FFS program only (no managed care)**
  - **N = 120,865 (min 1 month eligibility)**
    - **Non-SMI: n = 104,541**
    - **SMI: n = 16,324**
  - **Proportion with an ED visit**
    - **Non-SMI: 29.6%**
    - **SMI: 53.8%**
  - **ED visit count: 208,696**
    - **Non-SMI: 1,400 ED visits/1,000 benes**
    - **SMI: 3,817 ED visits/1,000 benes**
  - **Included FFS, PAHP & PIHP data**

# ED visit classifications: Non-SMI vs SMI



# Collapsed distribution (avoidable): Non-SMI vs SMI ED visits



# Summary: Kansas Medicaid ED visits

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- **Persons with SMI more likely to have an ED visit & higher number vs. non-SMI**
  - **% with an ED visit: 53.8 % vs. 29.6%**
  - **ED visits/1000 benes: 3,817 vs. 1,400**
- **30-33% of ED visits appear to be “true” emergencies (includes injuries)**
  - **Non-SMI have slight higher % true emergency visits**
- **40-49% are avoidable (PC treatable, non-emergent)**
  - **Non-SMI have higher % avoidable**

# Comparison to other studies

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- **KS Medicaid**
  - **Avoidable ED: 40-49%**
  - **Emergent: 12-16% (excl injuries)**
- **Respective numbers (avoidable ED & emergent) from other studies**
  - **Houston: 54% & 11% (safety net hosp, all-payer)**
  - **NJ: 47% & 10% (all payer)**
  - **NC: 60% & 12% (all payer)**
  - **NY: 75% (all payer)**

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# **III. SECOND SPA TARGET SUBGROUP: PRELIMINARY CONSIDERATIONS**

# Second SPA: Target Subpopulation

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- **Per CMS**
  1. **Two or more chronic conditions**
  2. **One chronic condition & at risk for another**
- **Subgroup working goals**
  - **Smaller group size overall**
  - **Recognizes need for non-claims data**
    - **E.g., risk assessments**

# Second SPA: whom to target?

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## Chronic diseases

- SMI → done
- Diabetes
- Heart failure
- Coronary artery disease
- Heart failure
- Hypertension
- Asthma
- COPD
- Chronic pain (non-cancer)

## Risk factors

- Smoking
- Substance use
- Overweight/obesity
- High user
  - ED
  - Inpatient
  - Costs
- Other risk modeling
  - CDPS, CRGs, ACGs

# Second SPA Target Population: Work in Progress

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- **Preliminary numbers for chronic conditions**
  - **Overlap with SMI**
  - **Dual eligibility**
  - **Age categories**
- **MCO partners to give estimates of risk factors (smoking, BMI, substance use)**
- **High use: DAI analyses**
- **Risk modeling: KUMC**

# Preliminary Results for 2<sup>nd</sup> SPA

| Clinical Condition           | Beneficiaries Count | Medicaid Expenditures | Cost per bene | % Children | % Non-duals |
|------------------------------|---------------------|-----------------------|---------------|------------|-------------|
| Hypertension                 | 27,156              | 36,214,065            | 1,334         | 1.9%       | 36.2%       |
| Congestive Heart Failure     | 6,229               | 23,338,602            | 3,747         | 0.8%       | 22.3%       |
| Coronary Artery Disease      | 7,929               | 16,169,237            | 2,039         | 0.4%       | 29.2%       |
| Vascular Disorders, Arterial | 3,030               | 4,393,118             | 1,450         | 4.5%       | 33.6%       |
| Vascular Disorders, Venous   | 4,015               | 2,640,532             | 658           | 6.6%       | 43.6%       |
| Asthma                       | 20,461              | 3,025,310             | 148           | 73.1%      | 87.9%       |
| COPD                         | 11,400              | 17,716,997            | 1,554         | 3.3%       | 33.0%       |
| Diabetes                     | 25,347              | 29,325,951            | 1,157         | 60.6%      | 94.9%       |
| Anxiety                      | 11,277              | 2,901,777             | 257           | 36.6%      | 77.6%       |
| Obese & Overweight           | 3,050               | 1,261,129             | 413           | 51.2%      | 77.4%       |
| Renal Function Failure       | 6,172               | 14,010,339            | 2,270         | 3.7%       | 29.1%       |
| Low Back Pain                | 25,215              | 9,151,128             | 363           | 15.5%      | 64.5%       |

Results from DAI, FY 2012:

FFS & MC claims, so some beneficiaries may be duplicated

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- **Questions? Comments? Suggestions?**
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