
Target Subgroup for First Health Home SPA: Severe Mental Illness

Plus...Avoidable Emergency Department Utilization (SMI vs. Non-SMI)

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**In consultation with the KanCare Target Population
Subgroup**

Health Home SMI Definition

- **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): ICD9-CM codes		295.xx	296.xx	297.xx	301.0, 301.2, 301.22, 301.83	298.xx	300.3, 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
Totals	36,503	6,895	26,256	233	409	3,266	675	3,788

Based on DAI data runs, FY 2012

Also included child disintegrative disorder, but < 10 cases

Objective of ED visit analyses

- **Counts of Medicaid ED visits**
 - **ED visits/1,000 benes**
 - **Proportion with any ED visit**
- **Characterize Medicaid ED visits as potentially avoidable**
- **Distinguish between persons with SMI (serious mental illness) & those w/o SMI**

Examination of ED visits

- **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 kids)**
 - **Included PAHP & PIHP claims**
- **Allowed for comparison between avoidable/preventable ED utilization and required ED care**

Algorithm Development

- 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
- Available at:
<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

Algorithm Development

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Assigned a probability

Each of these is mutually exclusive from above and each other

Category 1: Non-Emergent

- 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

- 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

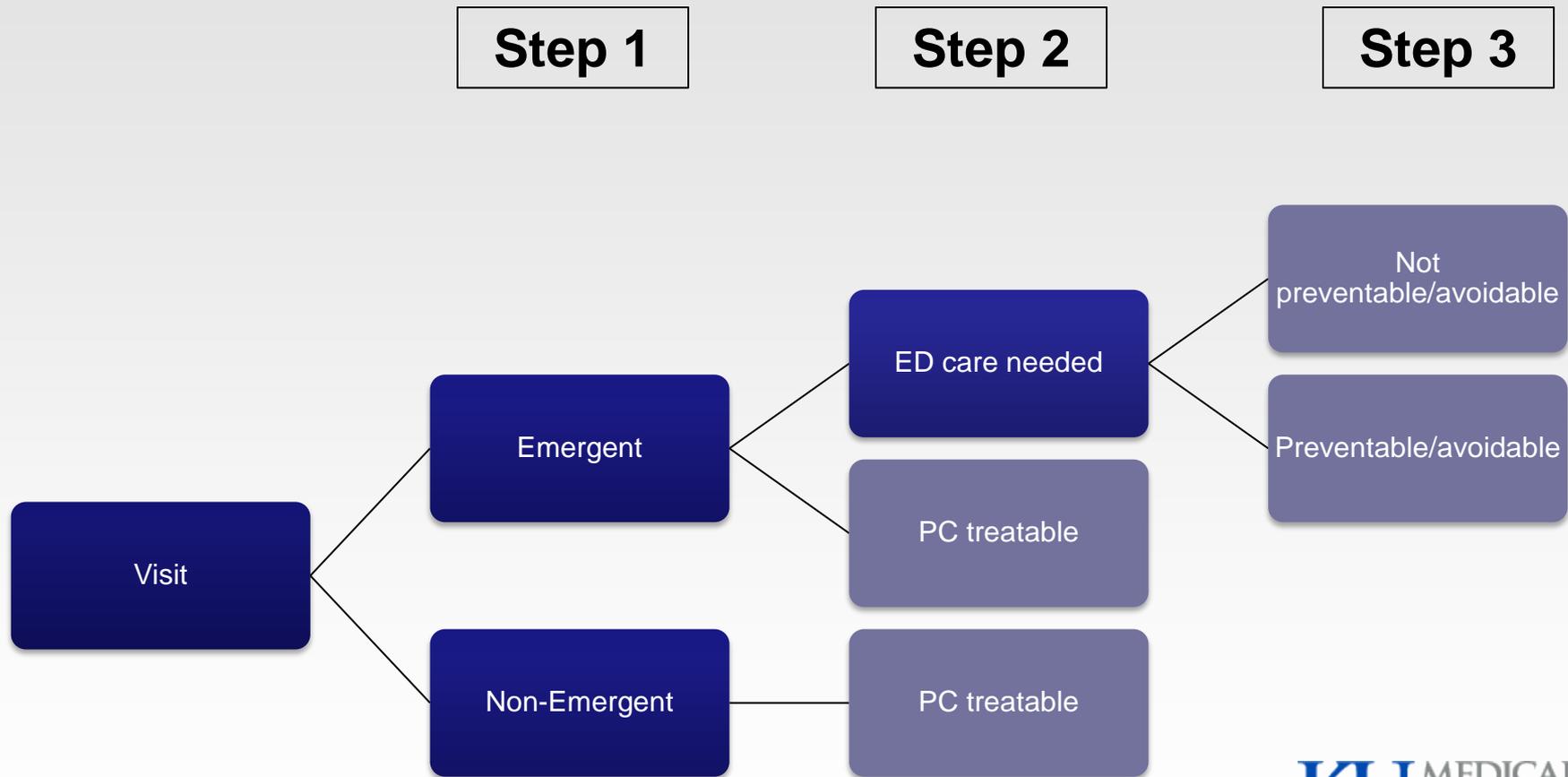
- ED use required but emergent nature of condition potentially preventable if proper ambulatory care was provided during course of illness
- Examples with high probabilities:
 - Diabetes with ketoacidosis (250.1)
 - Other kidney infection not specified as acute or chronic (590.8)
 - Asthma (493.0)

Category 4:

Emergent-Not Preventable/Avoidable

- 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

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

Category 6: Psychiatric

- **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

- 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

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

Previous Studies: NYU

- **From algorithm development (6,000 ED records)**
- **Kids & adults, all payers**
- **75% of visits indicate improper use of ED (non-emergent or emergent but PC treatable)**
- **Medicaid FFS relative rate of ED use for non-emergent conditions 3.2 (2.2 for private, 2.8 for self-pay/uninsured)**
 - Ratio of Non-emergent to Emergent

Previous Studies: North Carolina

- **Carolinas Healthcare System, adults and kids, all payers**
- **Ambulatory Care Sensitive (ACS) = non-emergent, emergent pc treatable, & emergent preventable avoidable**
- **ED visit classification results**
 - **60% of visits were for ACS conditions**
 - **12% emergent not avoidable**
- **Factors associated with above average ACS visits: Medicaid, African American or Hispanic, < 2 years old**

Previous Studies: New Jersey

- **Adults and kids, all payer**
- **ED visit classification results**
 - **47% of visits ACS (non emergent, emergent pc treatable, emergent avoidable)**
 - **10% emergent not avoidable**
- **Factors associated with higher avoidable use: underserved (self-pay & Medicaid), African American, Hispanic)**
 - **56% total Medicaid ED use avoidable**

Previous Studies: Houston

- **Five safety-net hospitals, all payer, adults and kids**
- **ED visit classification results**
 - **54% ACS (non-emergent, emergent PC treatable, emergent preventable/avoidable)**
 - **11% emergent not avoidable**
- **ACS ED-use by payer:**
 - **52% uninsured**
 - **22% Medicaid**
 - **14% commercial**
 - **9% Medicare**

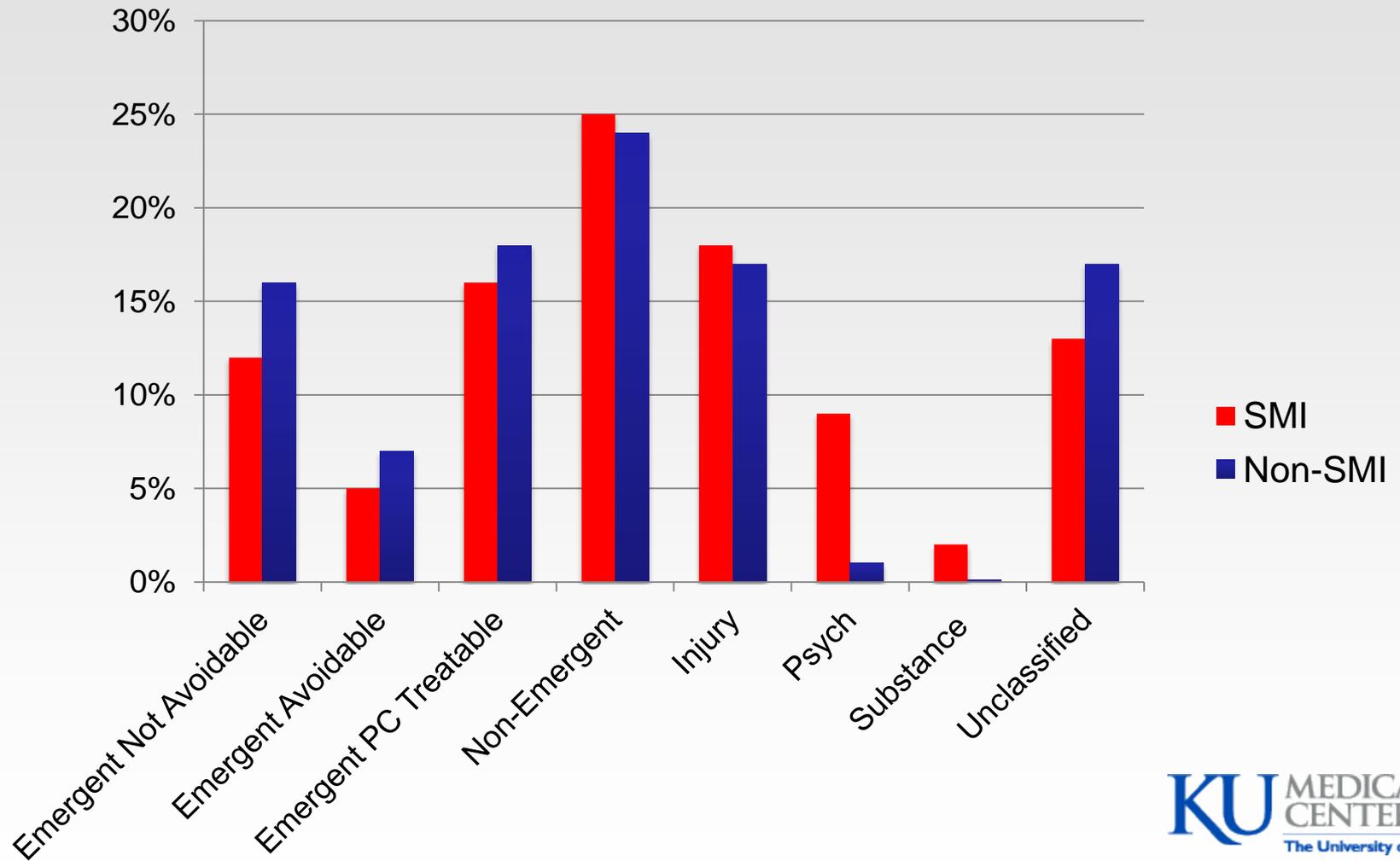
Our application of the NYU algorithm

RESULTS FOR KS MEDICAID

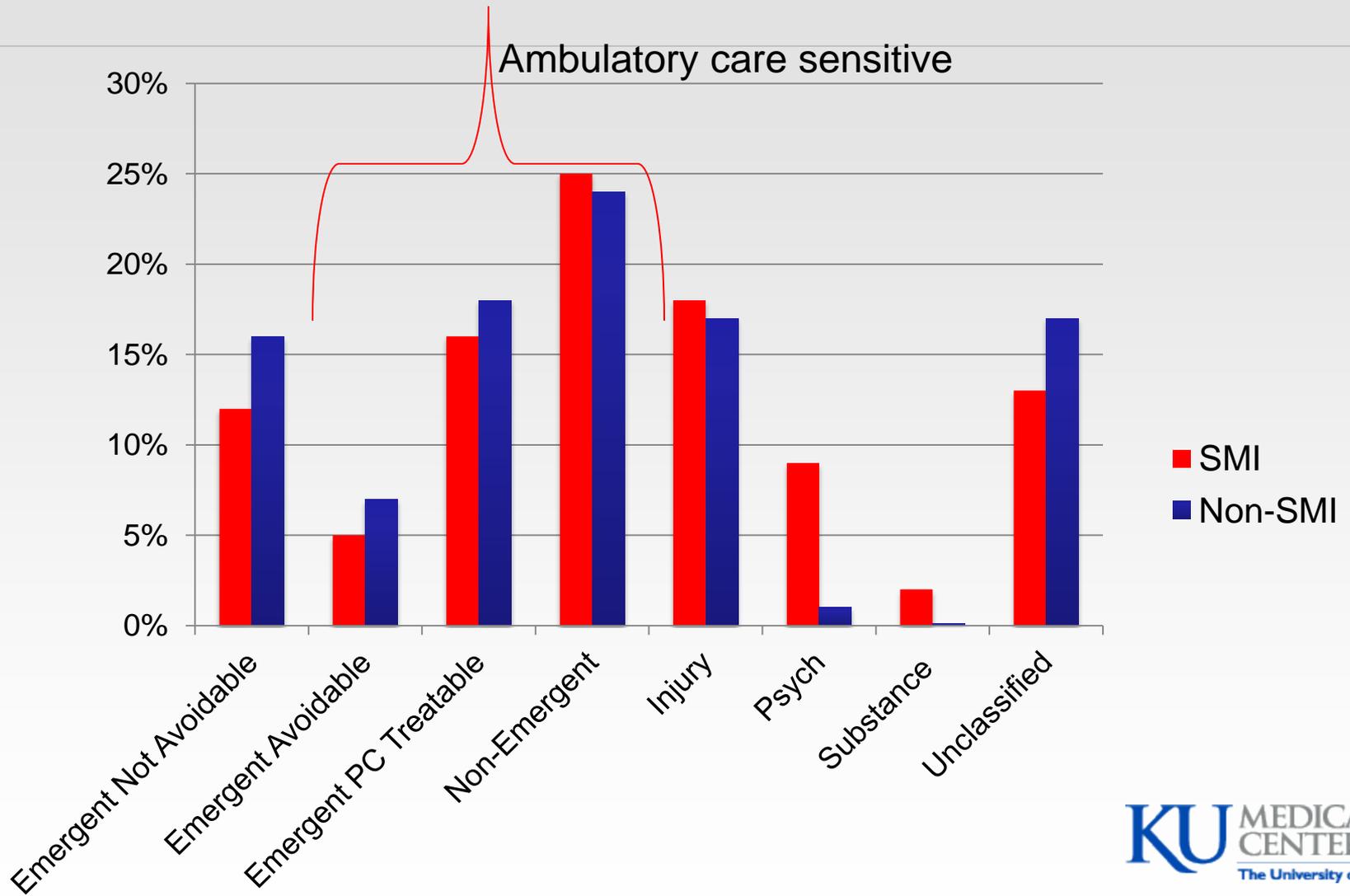
Medicaid ED Visit Classification (FY12)

- **ABD enrollees in FFS program**
 - **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**

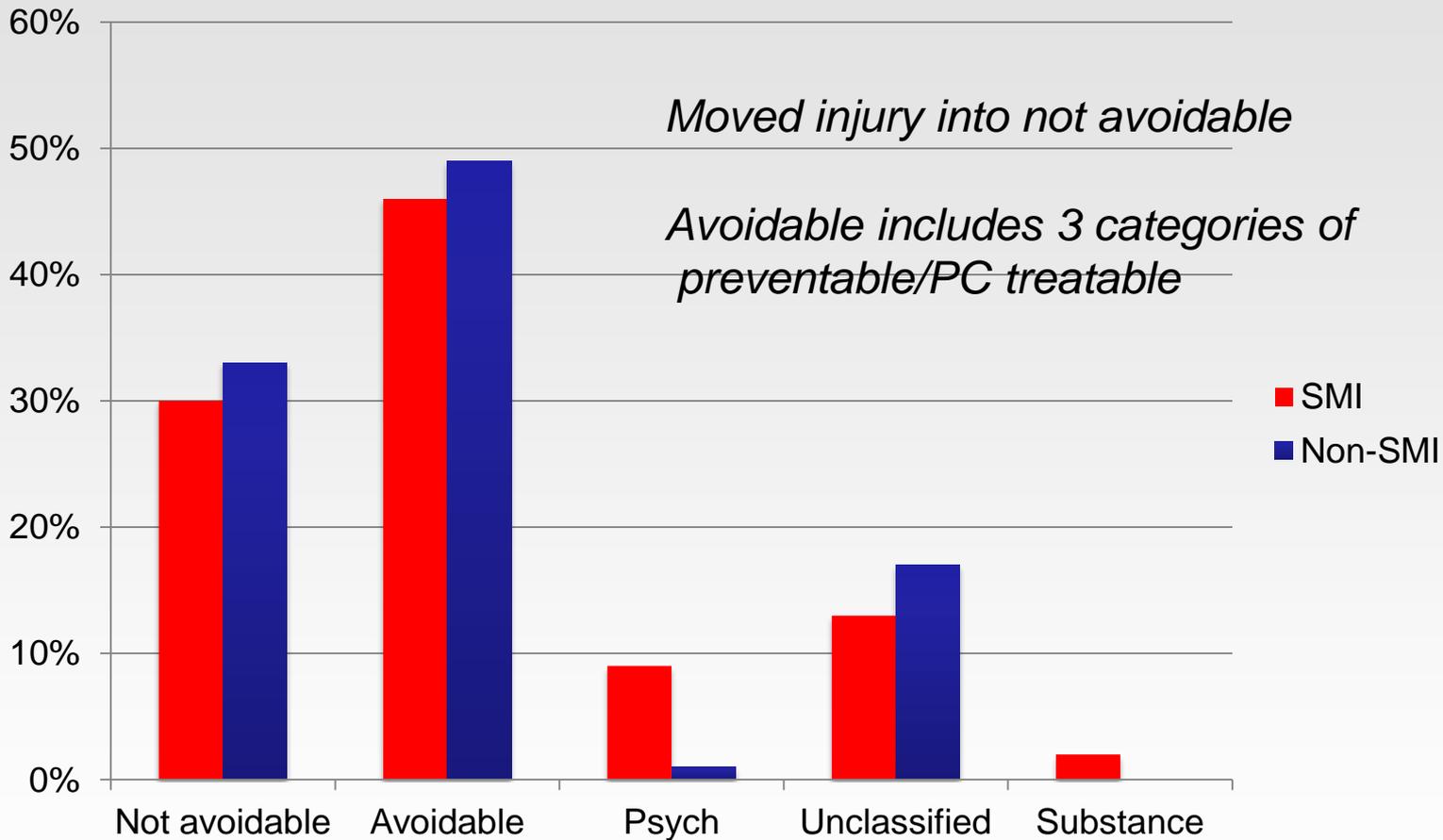
ED visit classifications: Non-SMI vs SMI



ED visit classifications: Non-SMI vs SMI



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



Summary: Kansas Medicaid ED visits

- **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**

Discussion: Kansas Medicaid ED visits

- Remaining differences between SMI & non-SMI are driven by psychiatric & substance use visits
 - 3-fold higher rate of substance use visits in persons with SMI
 - 9-fold higher rate of psych visits in persons with SMI (part of definition of SMI = diagnosis code for...)
- Limitations
 - Validity of algorithm
 - Not adjusted for comorbid conditions, age, etc.
 - Only ABD FFS (does not incl. moms & kids)

Comparison to other studies

- **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)**

Second SPA: Target Subpopulation

- **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?

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

- **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**

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- **Questions? Comments? Suggestions?**
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