Mental Health Disorders and Substance Use and Abuse in the Emergency Department

County of San Diego
April 13, 2006

Background

- Includes all patients treated and discharged from the ED.
  - Does not represent all patients *presenting* to the Emergency Department
  - Admitted patients are transferred to the hospital discharge (inpatient) database
    - Inpatient and ED databases are mutually exclusive
    - 12% – 20% of patients presenting to the ED are admitted
    - ED Data represents the less serious injuries

- Unique identifiers not included in ED database
  - Multiple visits by the same person cannot be identified

Data Elements

- Facility ID Number
- Patient ZIP code
- Date of Birth
- Sex
- Race
- Ethnicity
- Service Date
- Patient Disposition

- Expected Source of Payment
- Principal Diagnosis
- Other Diagnoses
- Principal E-Code
- Other E-Codes
- Principal Procedure (CPT-4)
- Other Procedures

Methods

- 18 Civilian EDs in San Diego County

- 3rd Quarter ED Records were examined
    - July - September 2005
    - 16 hospitals reporting
    - 147,001 total ED discharges
    - >97% of total ED discharges for San Diego County.

Methods

- All records with a "Mental Disorder" diagnosis code were extracted (ICD-9-CM 290 – 319)
  - 18,559 total patients identified
    - Any mental illness: ICD-9-CM 290, 293-302, 306-319
      - 10,192 patients with any MI diagnoses
      - 3,746 patients with a primary diagnosis
    - Any substance use/abuse: ICD-9-CM 291-292, 303-305
      - 10,304 patients with any substance use/abuse diagnosis
      - 334 patients with a primary diagnosis

Rate Calculations

- ## Rate Formula

$$\frac{\text{Number of events in the population per year}}{\text{Number of people in the population per year}} \times 100{,}000$$
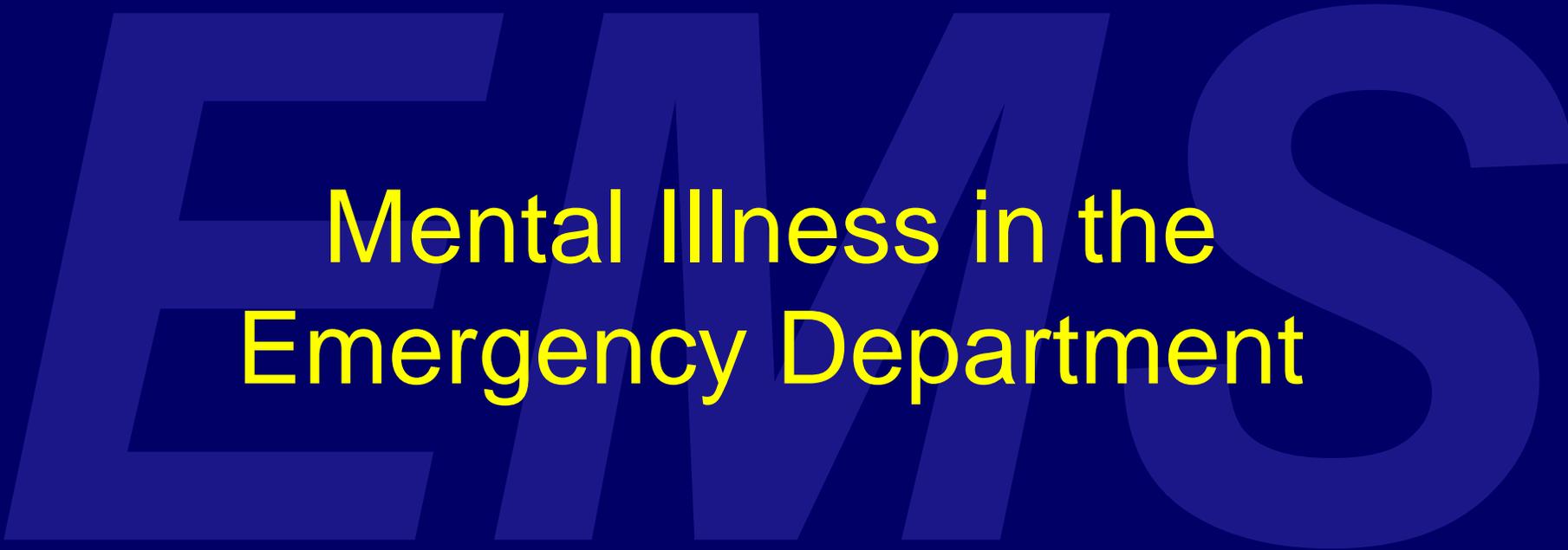
- ## Calculating annual rates for quarterly data
  – Should be comparable to annual rates

$$\frac{\text{Number of events in the population per quarter}}{(\text{Number of people in the population per year}) / 4} \times 100{,}000$$

- ## Example

$$\frac{\text{Number of ED Discharges, 2005 Qtr3}}{(\text{Total Population, 2005}) / 4} \times 100{,}000$$

$$= \frac{147{,}001}{(3{,}015{,}280) / 4} \times 100{,}000 = \frac{147{,}001}{753{,}820} \times 100{,}000 = 19{,}501 \text{ per } 100{,}000$$
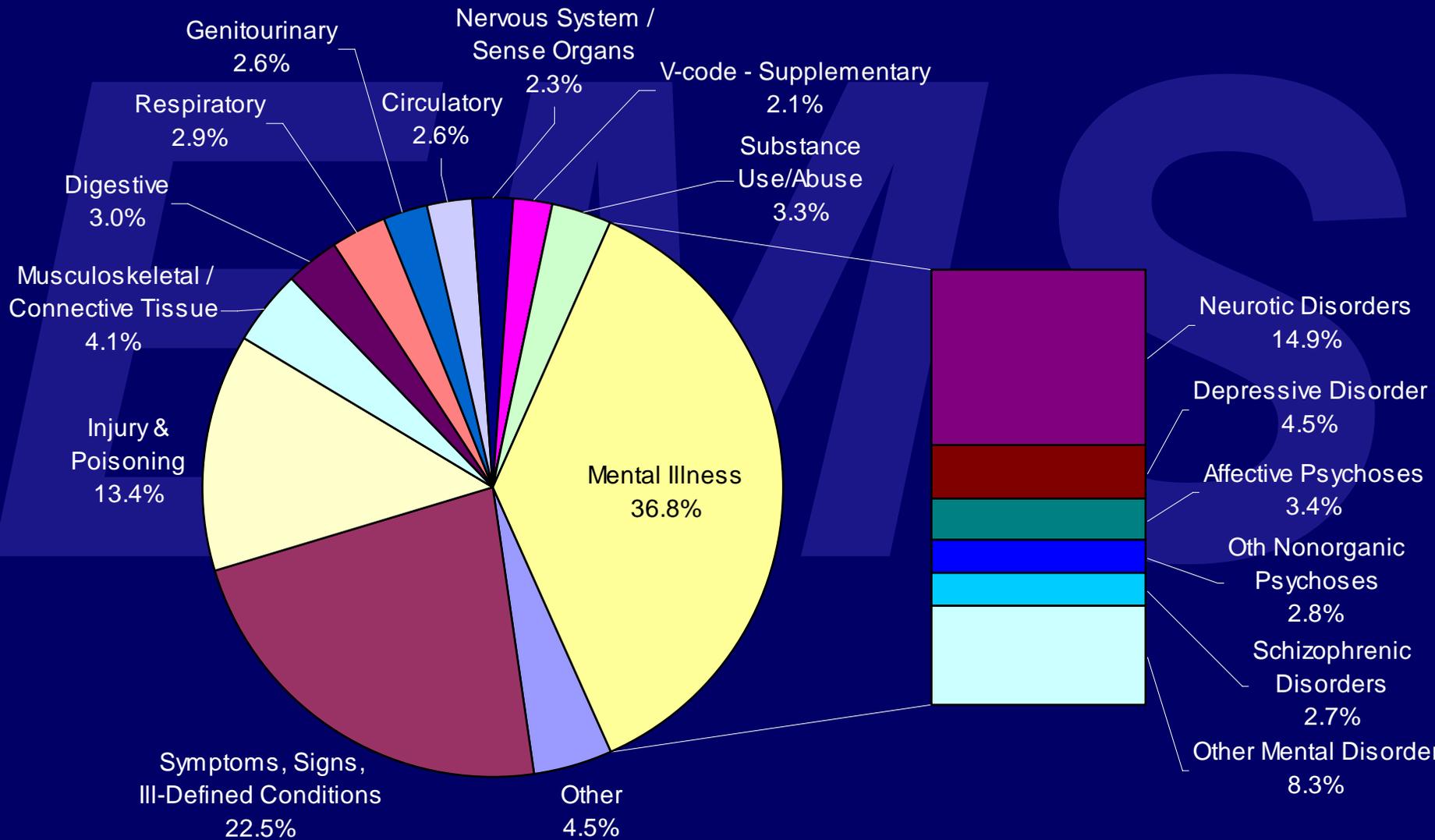
Mental Illness in the Emergency Department

Mental Illness (MI)

- 10,192 patients with any MI diagnosis (6.9%)

  - 3,746 patients with a primary diagnosis of MI (37%)

    - 1,036 patients with additional MI diagnoses (28%)
    - 728 with at least one additional substance use/abuse diagnosis (19%)

Primary Diagnosis of ED Patients With Any Mental Illness (N = 10,192)

Genitourinary 2.6%

Nervous System / Sense Organs 2.3%

V-code - Supplementary 2.1%

Respiratory 2.9%

Circulatory 2.6%

Substance Use/Abuse 3.3%

Digestive 3.0%

Musculoskeletal / Connective Tissue 4.1%

Injury & Poisoning 13.4%

Mental Illness 36.8%

Neurotic Disorders 14.9%

Depressive Disorder 4.5%

Affective Psychoses 3.4%

Oth Nonorganic Psychoses 2.8%

Schizophrenic Disorders 2.7%

Other Mental Disorder 8.3%

Symptoms, Signs, Ill-Defined Conditions 22.5%

Other 4.5%

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Primary Diagnosis of Mental Illness

	Frequency	Percent
Neurotic Disorders	1,522	40.6
Depressive Disorder Otr	462	12.3
Affective Psychoses	348	9.3
Oth Nonorganic Psychoses	283	7.6
Schizophrenic Disorders	280	7.5
Special Symptoms Syndromes	172	4.6
Psychogenic Malfunction	123	3.3
Acute Reaction to Stress	117	3.1
Organic Nonpsych Mental Dis	114	3.0
Other Mental Illness	325	8.7
Total	**3,746**	**100**

County of San Diego   Division of Emergency Medical Services

Source: HASD&IC, CHIP, CoSD EMS, Emergency Department Database, July – September 2005.

Primary Diagnosis of Neurotic Disorder

	Frequency	Percent
Unspecified Anxiety State	916	60.2
Panic Disorder w/o Agoraphobia	172	11.3
Dysthymic Disorder	83	5.5
Unspecified Nonpsychotic Mental Disorder	338	22.2
Other Neurotic Disorder	13	0.9
Total	**1,522**	**100.0**

County of San Diego   Division of Emergency Medical Services

Source: HASD&IC, CHIP, CoSD EMS, Emergency Department Database, July – September 2005.

Region of Residence

ED Patients With a Primary Diagnosis of Mental Illness

- Unknown 2.5% n=95
- North Coastal 13.6% n=509
- Out of County 6.9% n=257
- North Central 11.3% n=423
- North Inland 16.0% n=599
- East 18.8% n=705
- Central 18.4% n=688
- South 12.5% n=470

San Diego County Population

- North Inland 18.0%
- North Coastal 16.3%
- East 14.9%
- North Central 19.5%
- South 14.9%
- Central 16.3%

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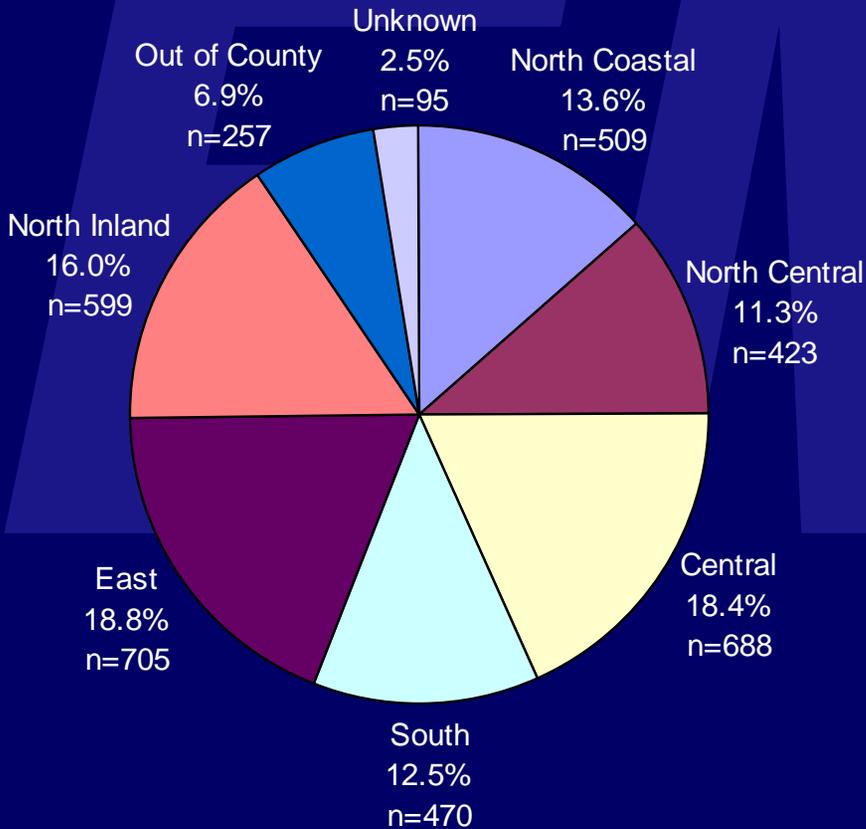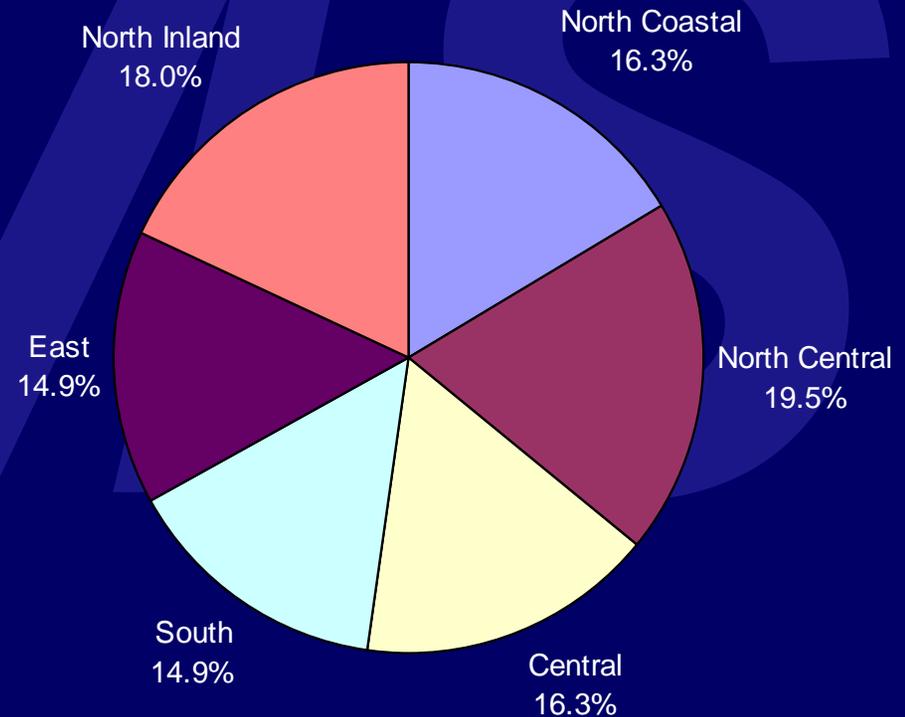
ED Discharge Patients With a Primary Diagnosis of Mental Illness by Region of Residence (N = 3,746)
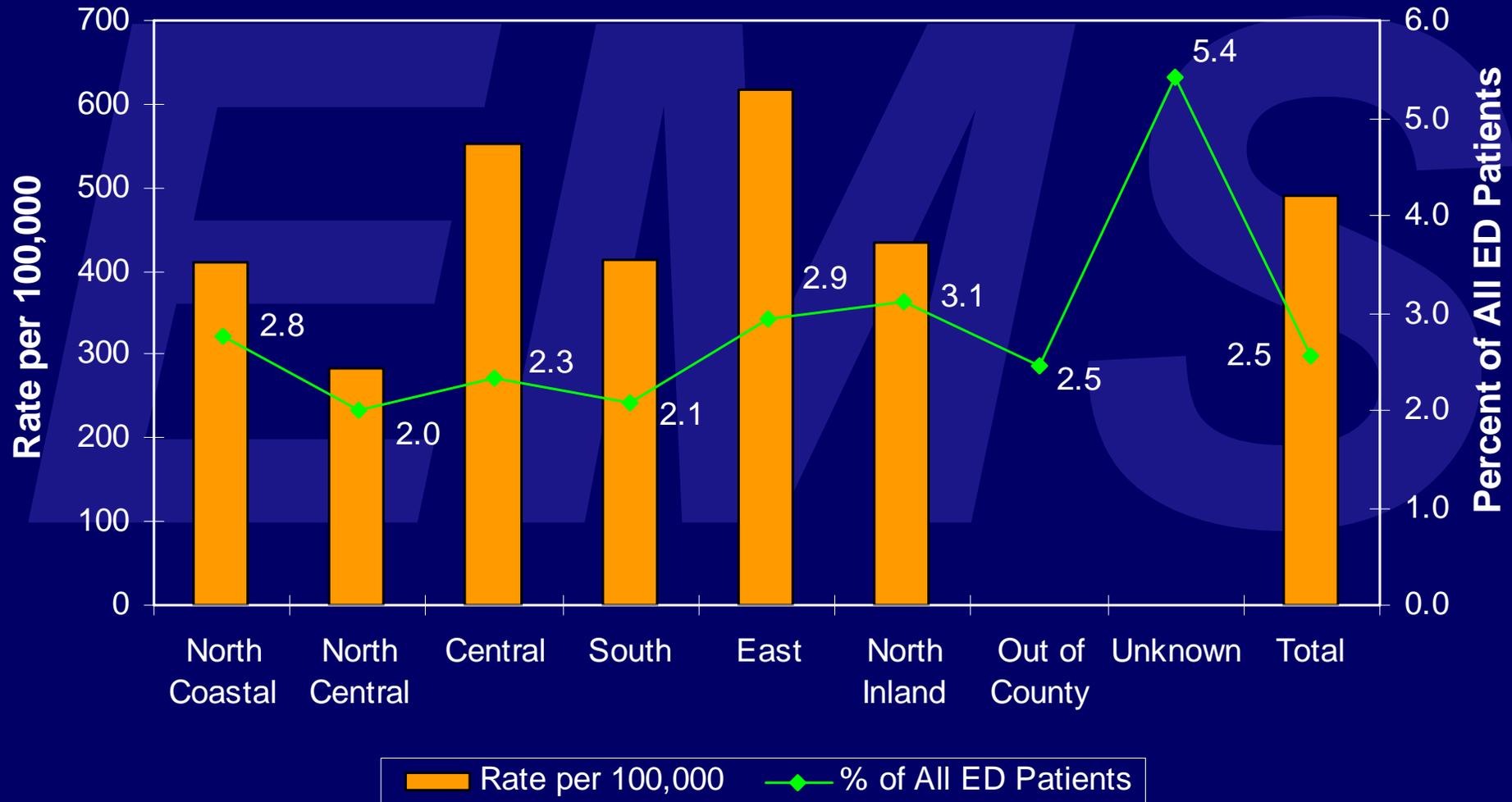
Legend: Rate per 100,000 ─◆─ % of All ED Patients

Data labels (% of All ED Patients): North Coastal 2.8, North Central 2.0, Central 2.3, South 2.1, East 2.9, North Inland 3.1, Out of County 2.5, Unknown 5.4, Total 2.5

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County of San Diego   Division of Emergency Medical Services

ED Discharge Patients With a Primary Diagnosis of Mental Illness by Age Group (N = 3,746)

Source: HASD&IC, CHIP, CoSD EMS, Emergency Department Database, July – September 2005.
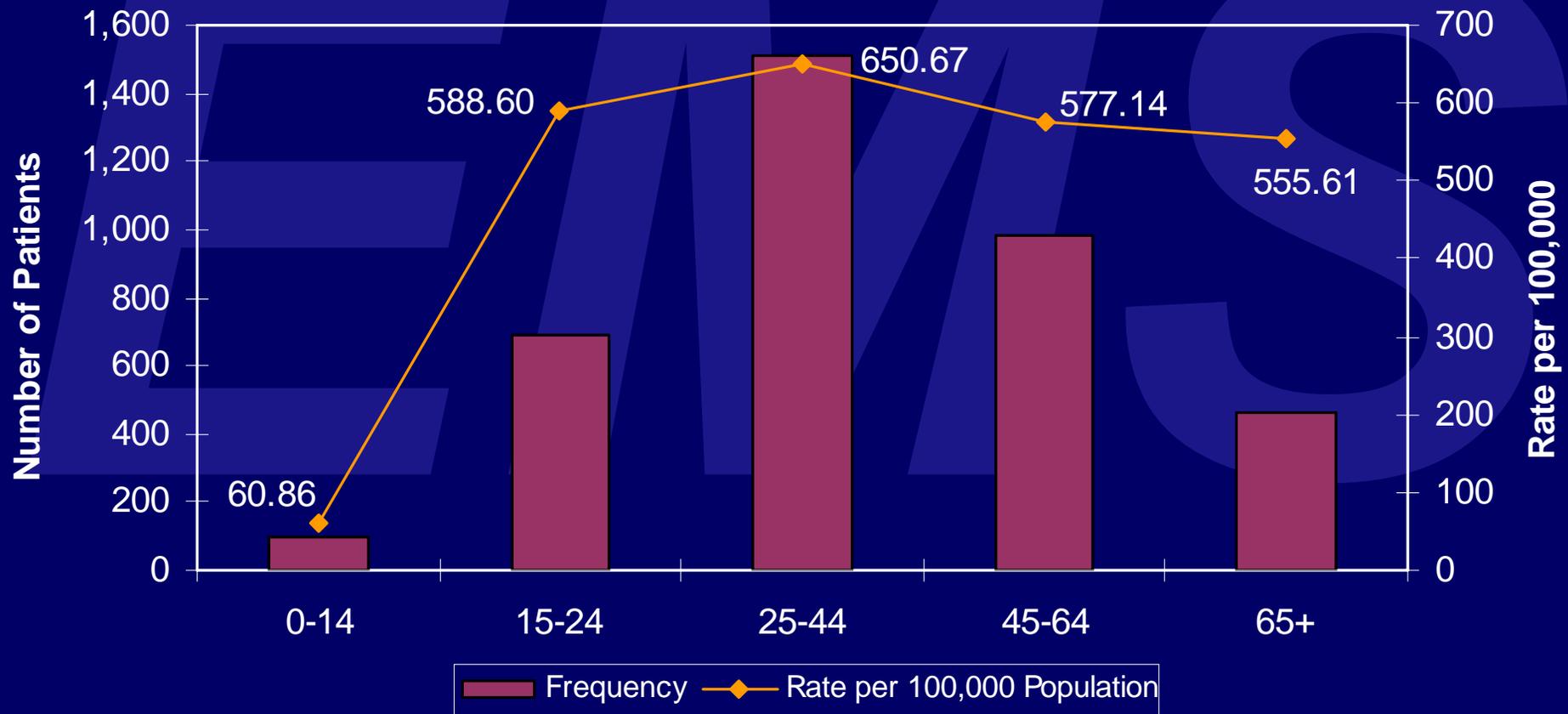
ED Discharge Patients With Any Mental Illness Diagnoses by Age Group (N = 10,192)

Source: HASD&IC, CHIP, CoSD EMS, Emergency Department Database, July – September 2005.
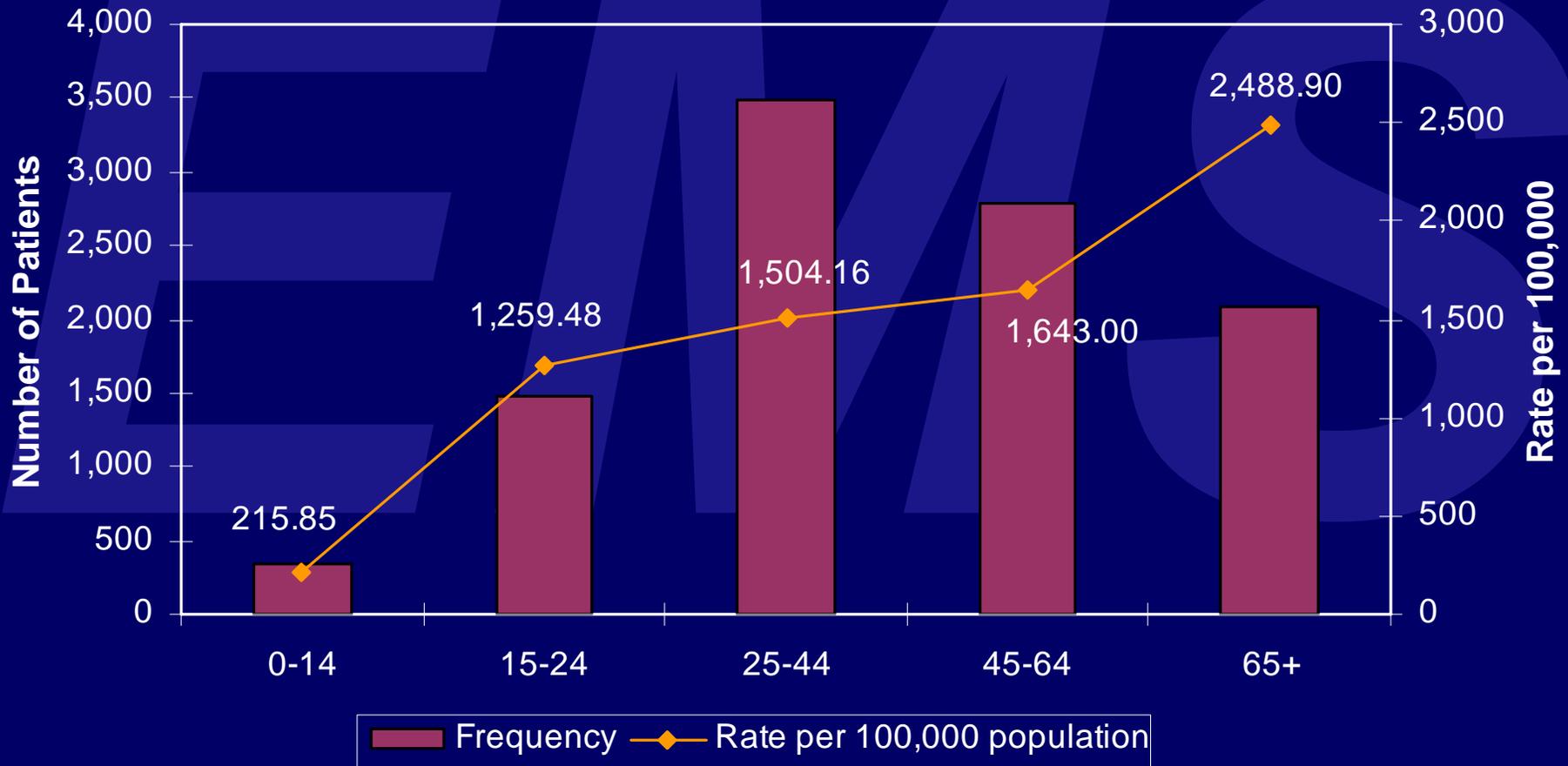
ED Discharge Patients With a Primary Diagnosis of Mental Illness by Age Group and Gender   (N = 3,746)
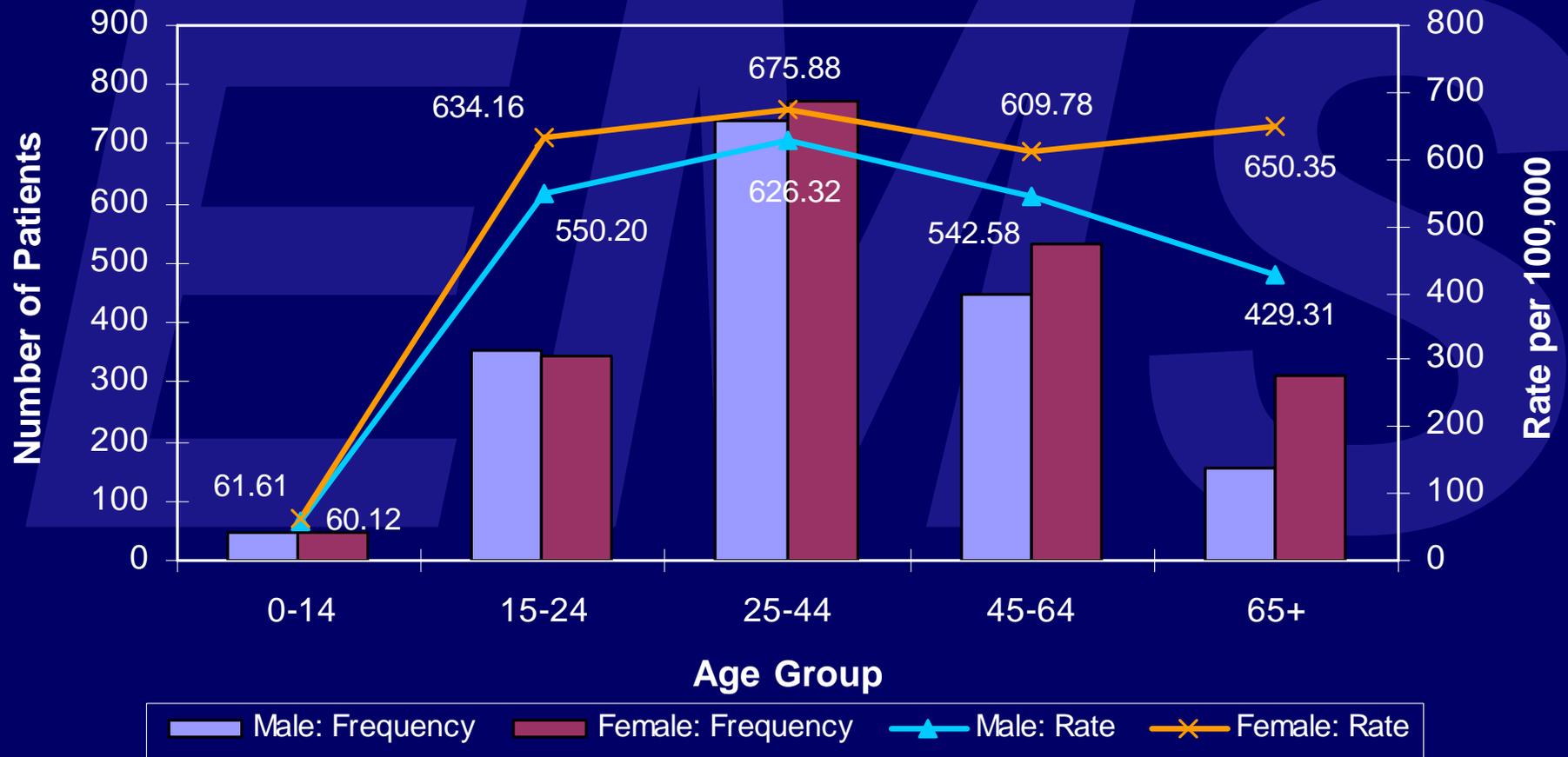
Source: HASD&IC, CHIP, CoSD EMS, Emergency Department Database, July – September 2005.

ED Discharge Patients With a Primary Diagnosis of Mental Illness by Race/Ethnicity (N = 3,746)

Source: HASD&IC, CHIP, CoSD EMS, Emergency Department Database, July – September 2005.

All ED Discharge Patients by Race/Ethnicity (N = 147,001)

- Unknown n = 5,853 4.0%
- Other n = 5,047 3.4%
- Asian n = 6,797 4.6%
- Hispanic n = 40,924 27.8%
- White n = 75,252 51.2%
- Black n = 13,128 8.9%

Source: HASD&IC, CHIP, CoSD EMS, Emergency Department Database, July – September 2005.

ED Discharge Patients With a Primary Diagnosis of Mental Illness by Race/Ethnicity (N = 3,746)

Source: HASD&IC, CHIP, CoSD EMS, Emergency Department Database, July – September 2005.

ED Discharge Patients With a Primary Diagnosis of Mental Illness by Race/Ethnicity and Age Group, Rates per 100,000 (N = 3,746)

Source: HASD&IC, CHIP, CoSD EMS, Emergency Department Database, July – September 2005.
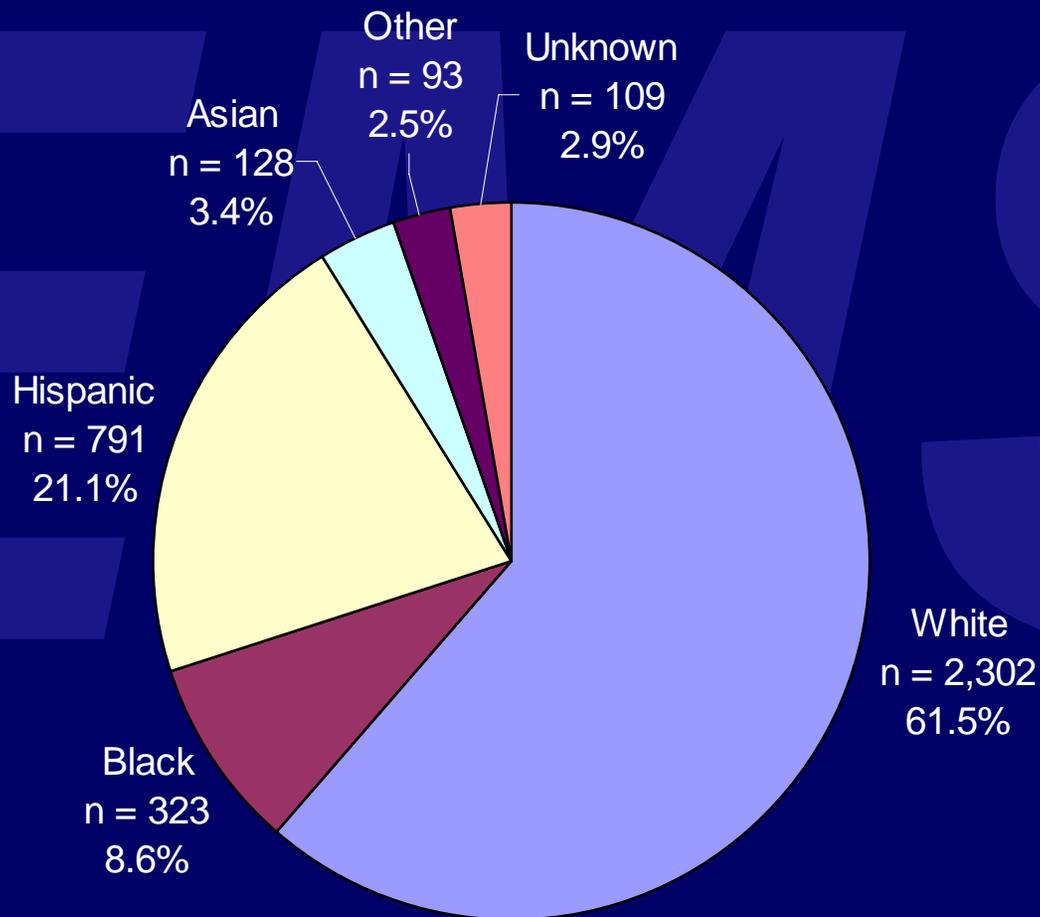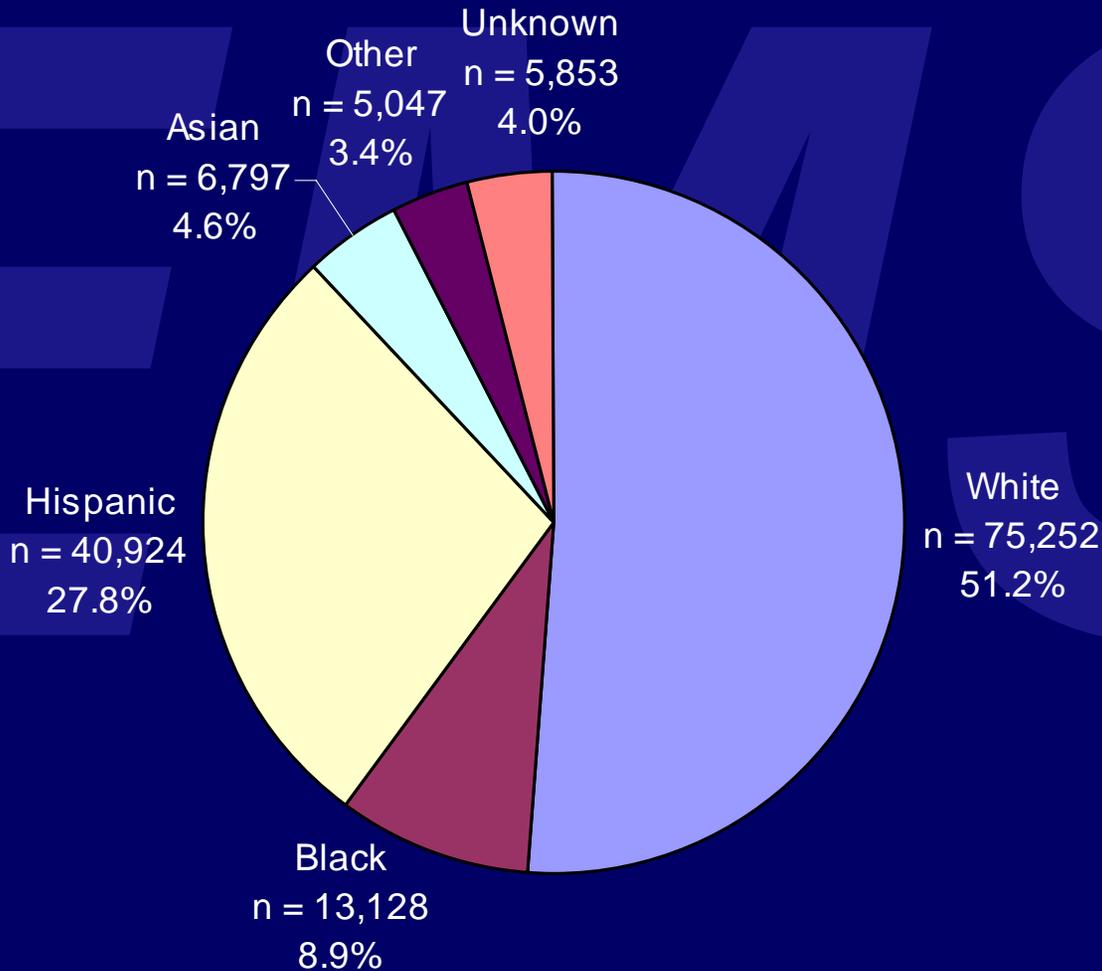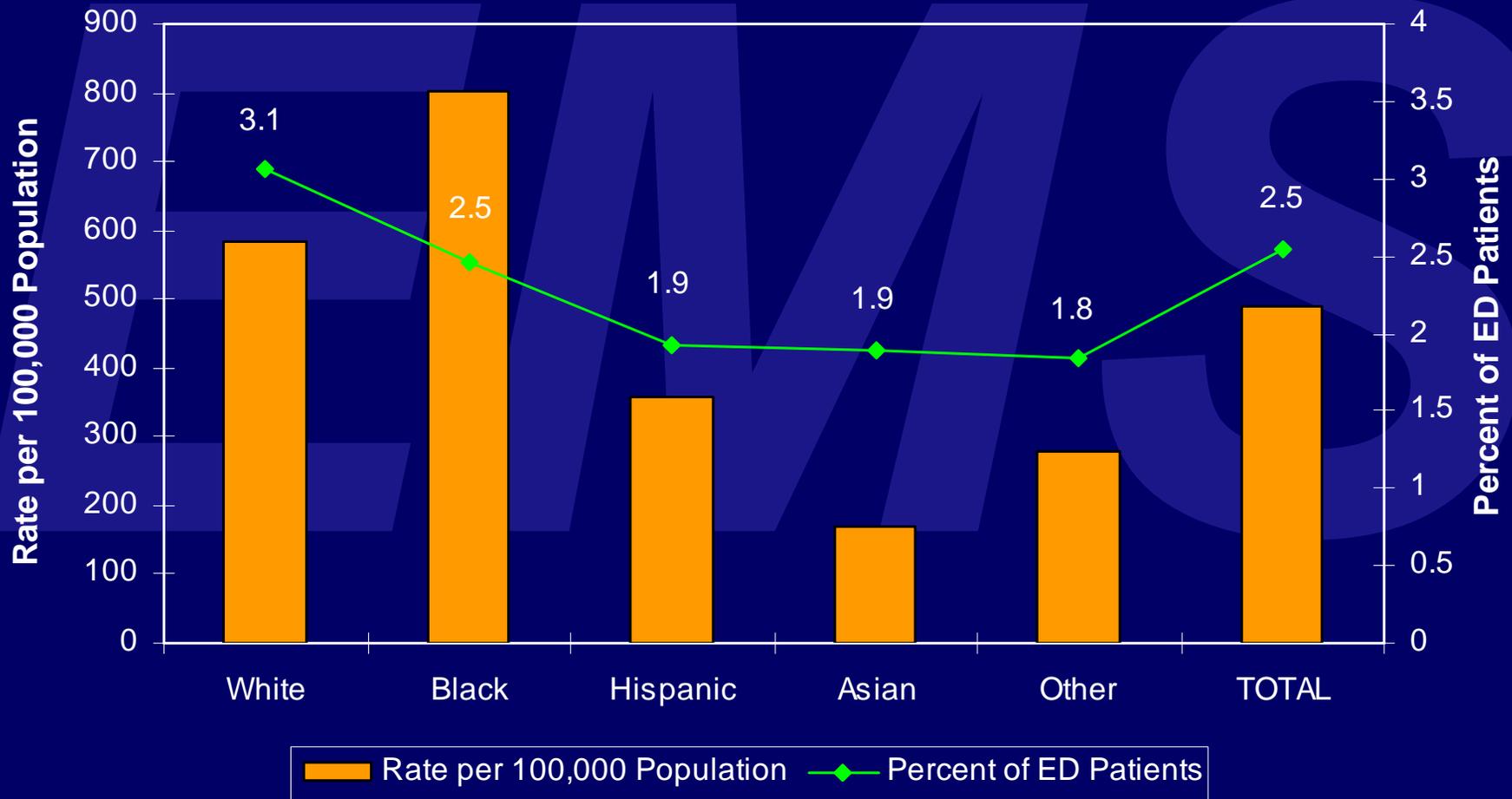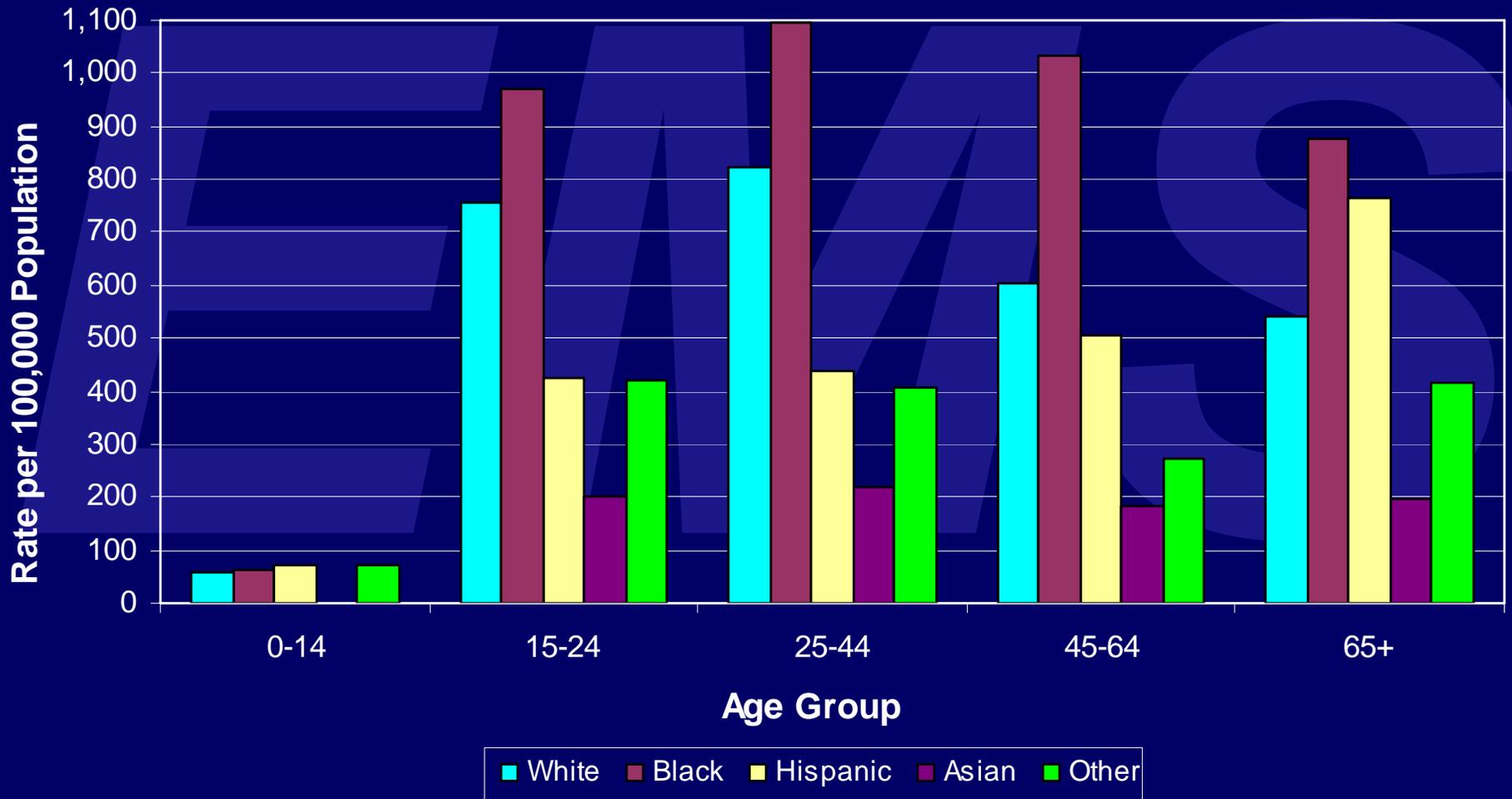
ED Discharge Patients With a Primary Diagnosis of Mental Illness by Disposition

Left AMA
1.3%

Transfer to
Other Inpatient
Facility
2.6%

Skilled Nursing
Facility
0.6%

Other
1.2%

Psych Hospital
or Unit
13.5%

Transfer to
Another
Hospital
7.1%

Home for Self
Care
73.6%

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Source: HASD&IC, CHIP, CoSD EMS, Emergency Department Database, July – September 2005.
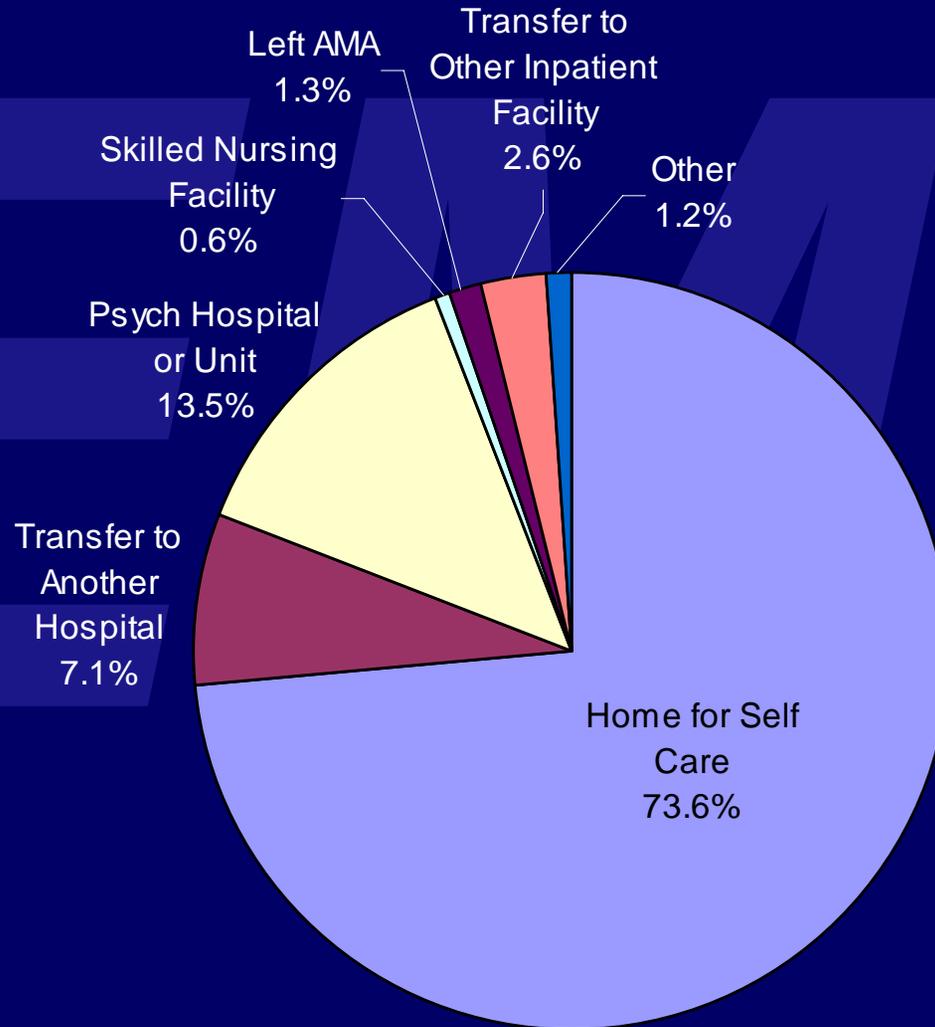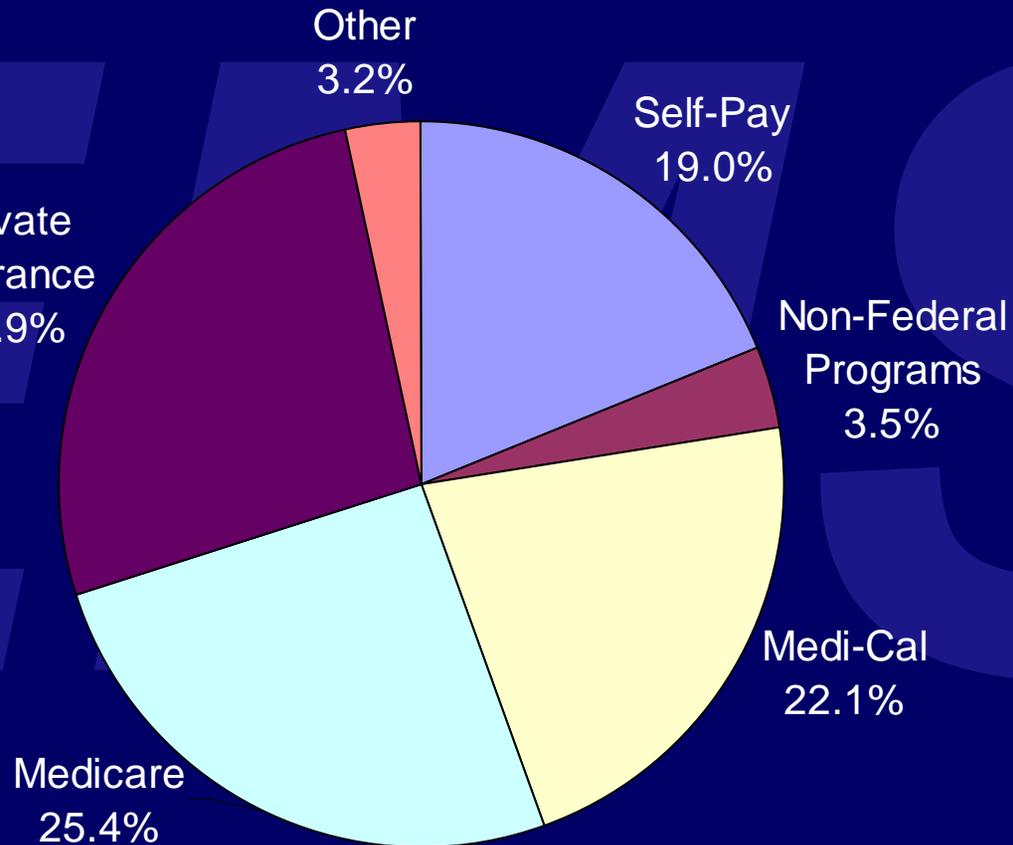
ED Discharge Patients With Any Mental Illness Diagnosis by Primary Diagnosis and Disposition

	Mental Illness		Substance Use/Abuse		Symptoms, Signs, Ill-Defined		Injury & Poisoning		Other Diagnoses		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Home for Self Care	2,758	73.6	266	79.6	2,080	90.7	1,076	78.7	2,180	89.2	8,360	82.1
Transfer to Another Hospital	267	7.1	21	6.3	42	1.8	93	6.8	57	2.3	480	4.7
Psych Hospital or Unit	504	13.5	32	9.6	26	1.1	93	6.8	30	1.2	685	6.7
Skilled Nursing Facility	23	0.6	0	0.0	64	2.8	57	4.2	97	4.0	241	2.4
Left AMA	50	1.3	4	1.2	48	2.1	7	0.5	29	1.2	138	1.4
Transfer to Otr Inpatient Facility	99	2.6	6	1.8	8	0.3	21	1.5	7	0.3	141	1.4
Other	45	1.2	5	1.5	26	1.1	20	1.5	43	1.8	139	1.4
Total	3,746	100.0	334	100.0	2,294	100.0	1,367	100.0	2,443	100.0	10,184	100.0

- 360 ED discharge patients (3.5%) with any mental health diagnoses were also reported to have a self-inflicted injury.

  - 254 (71%) had a primary diagnosis of injury and poisoning, 94 (26%) had a primary diagnosis of mental illness.

  - 111 (31%) were also diagnosed with substance use/abuse.

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ED Discharge Patients With a Primary Diagnosis of Mental Illness by Expected Source of Payment

Other 3.2%

Self-Pay 19.0%

Private Insurance 26.9%

Non-Federal Programs 3.5%

Medi-Cal 22.1%

Medicare 25.4%

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County of San Diego   Division of Emergency Medical Services

All ED Discharge Patients by Expected Source of Payment (N = 147,001)

Other 5.5%

Self-Pay 16.0%

Non-Federal Programs 4.9%

Private Insurance 37.4%

Medi-Cal 17.9%

Medicare 18.3%

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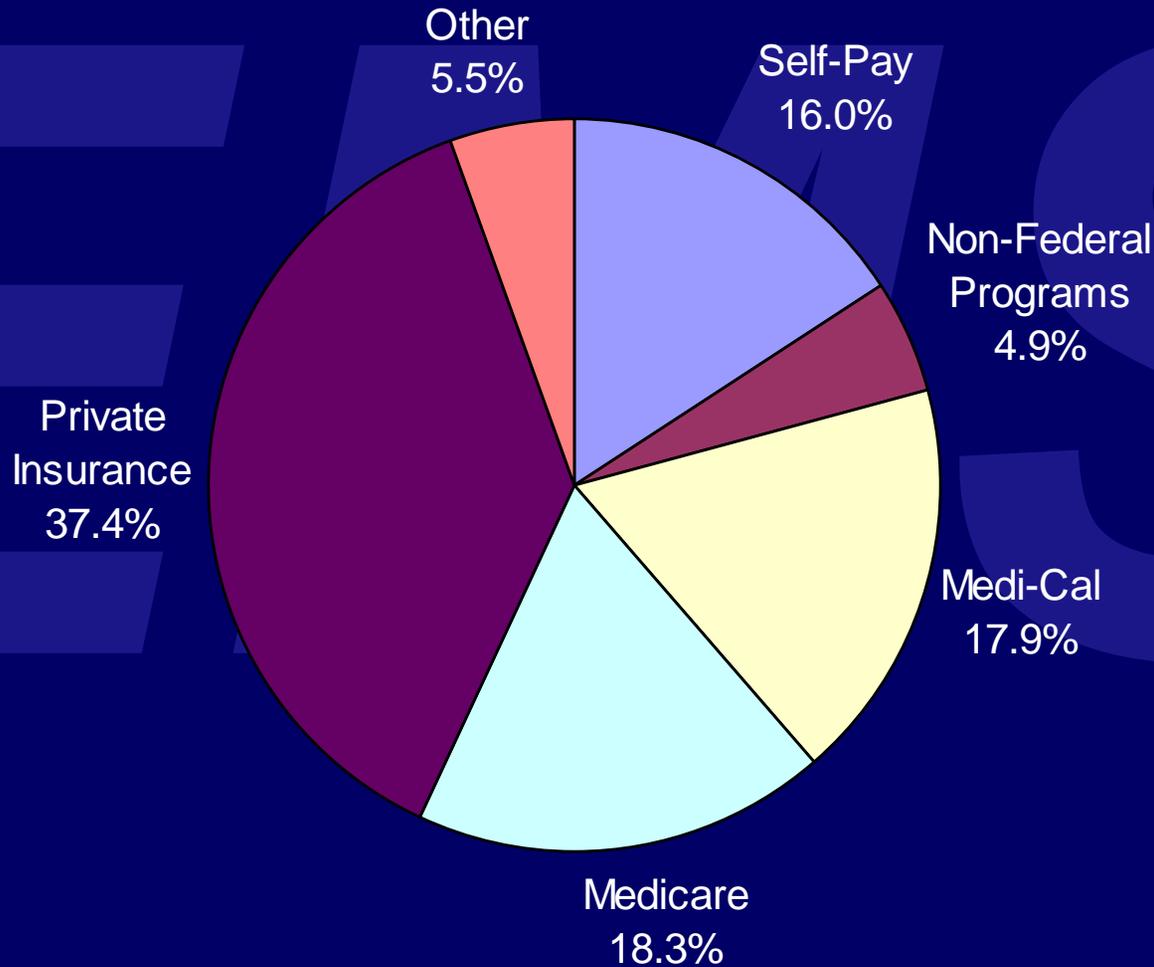
ED Discharge Patients With Any Mental Illness Diagnoses by Primary Diagnosis and Expected Source of Payment (N=10,192)

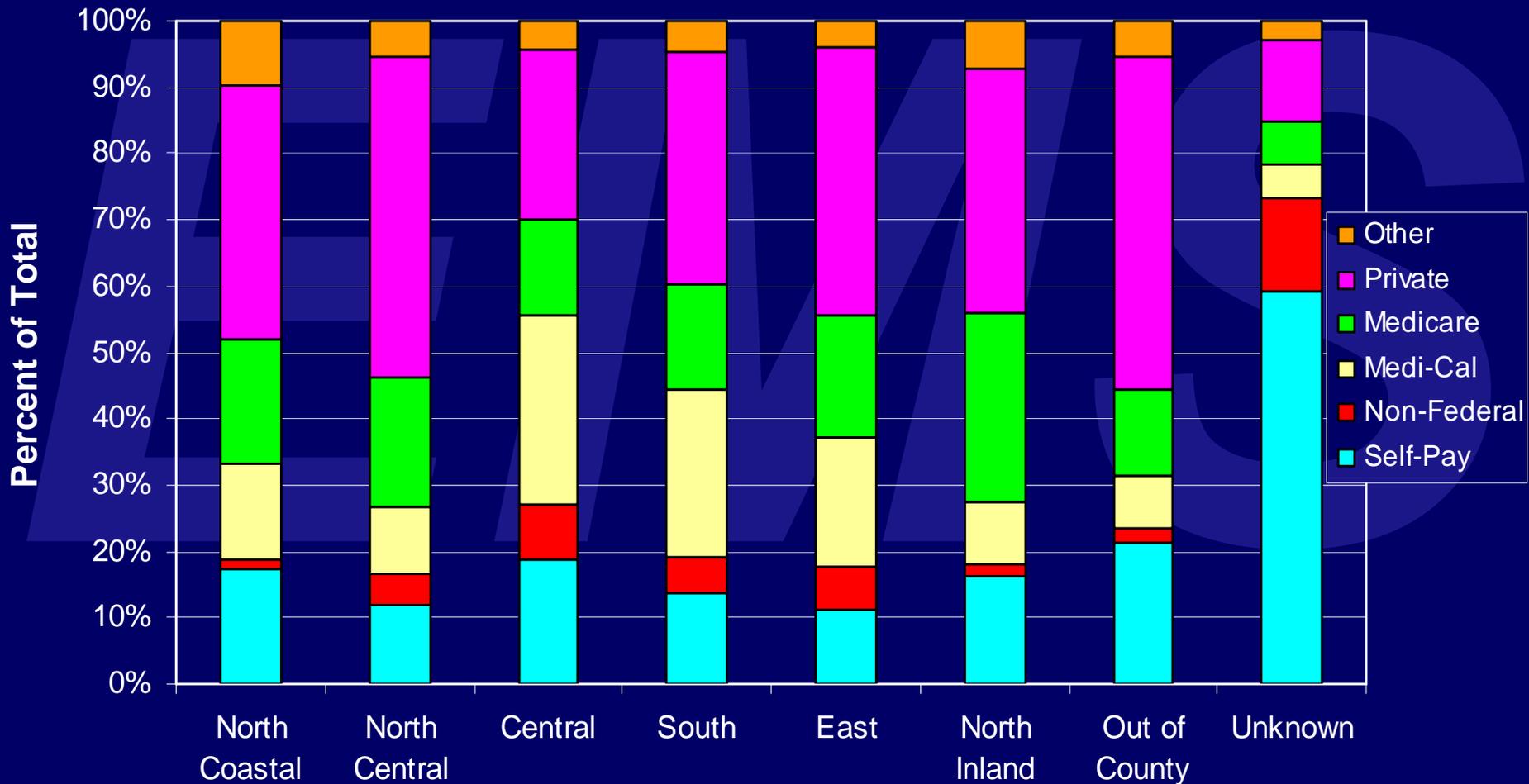|	Mental Illness		Substance Use/Abuse		Symptoms, Signs, Ill-Defined Conditions		Injury & Poisoning		Other Diagnosis	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Self-Pay	711	19.0	96	28.7	220	9.6	177	12.9	208	8.5
Non-Federal	130	3.5	20	6.0	78	3.4	45	3.3	107	4.4
Medi-Cal	826	22.1	40	12.0	420	18.3	258	18.9	493	20.2
Medicare	950	25.4	51	15.3	802	35.0	444	32.5	961	39.3
Private	1,009	26.9	117	35.0	731	31.9	397	29.0	625	25.6
Other	120	3.2	10	3.0	43	1.9	46	3.4	49	2.0
Total	3,746	100.0	334	100.0	2,294	100.0	1,367	100.0	2,443	100.0

Underinsured: 44.5%   46.7%   31.3%   35.1%   33.1%

County of San Diego   Division of Emergency Medical Services

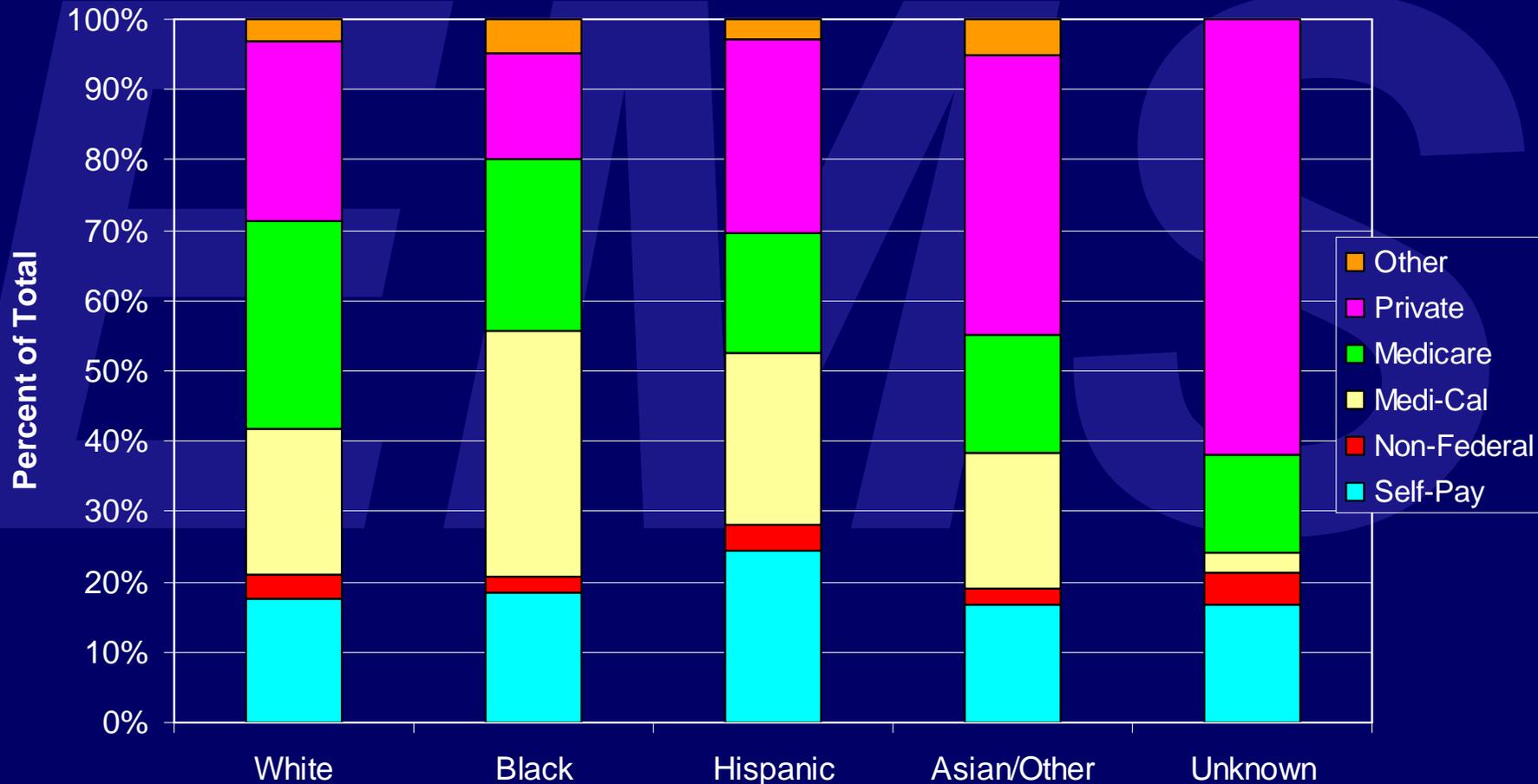Source: HASD&IC, CHIP, CoSD EMS, Emergency Department Database, July – September 2005.

ED Discharge Patients With a Primary Diagnosis of Mental Illness by Payor Source and Region of Residence (N = 3,746)

Source: HASD&IC, CHIP, CoSD EMS, Emergency Department Database, July – September 2005.
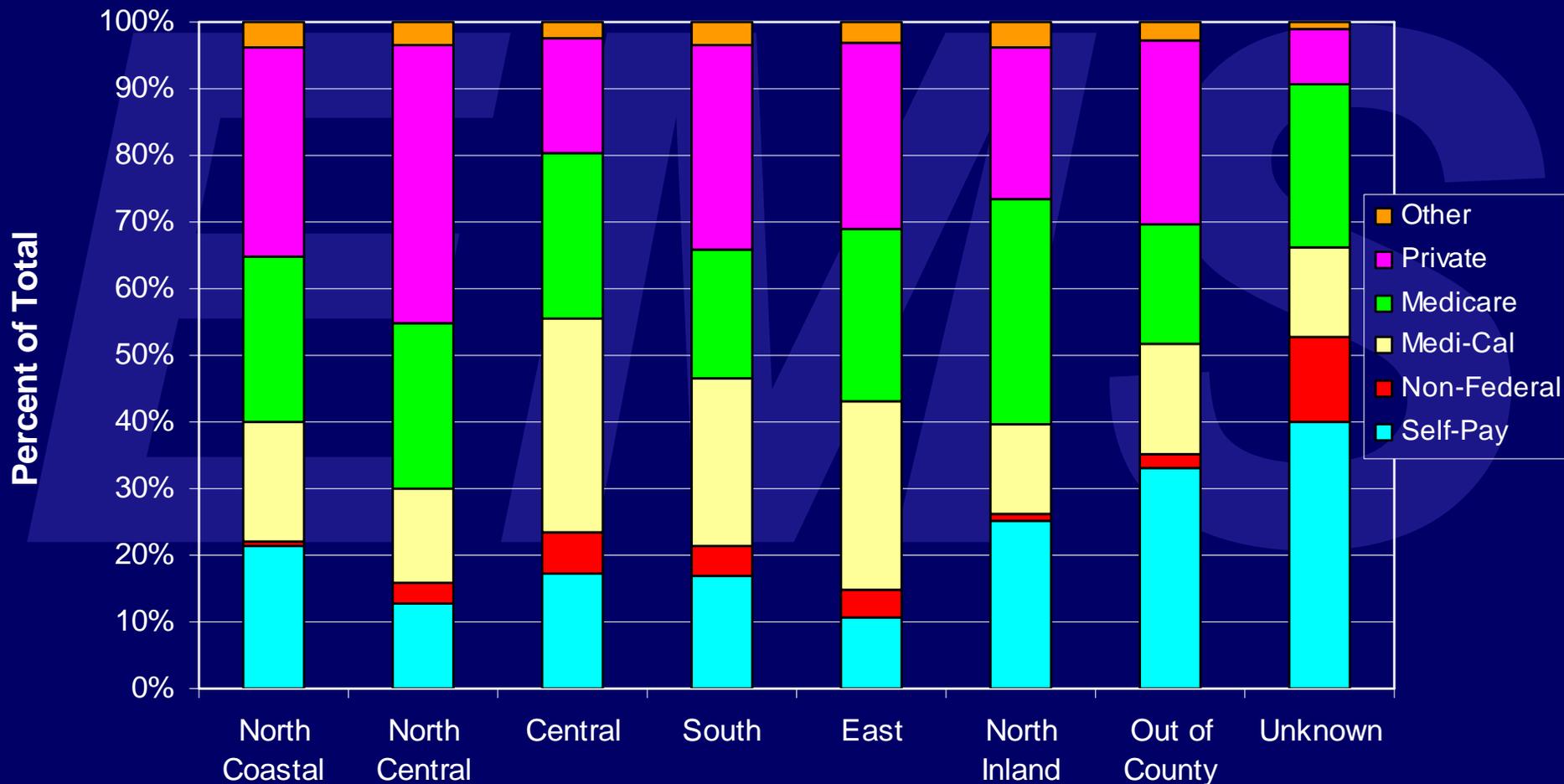
All ED Discharge Patients by Payor Source and Region of Residence (N = 147,001)

ED Discharge Patients With a Primary Diagnosis of Mental Illness by Payor Source and Race/Ethnicity (N = 3,746)

Source: HASD&IC, CHIP, CoSD EMS, Emergency Department Database, July – September 2005.

All ED Discharge Patients by Payor Source and Race/Ethnicity (N = 147,001)

Source: HASD&IC, CHIP, CoSD EMS, Emergency Department Database, July – September 2005.
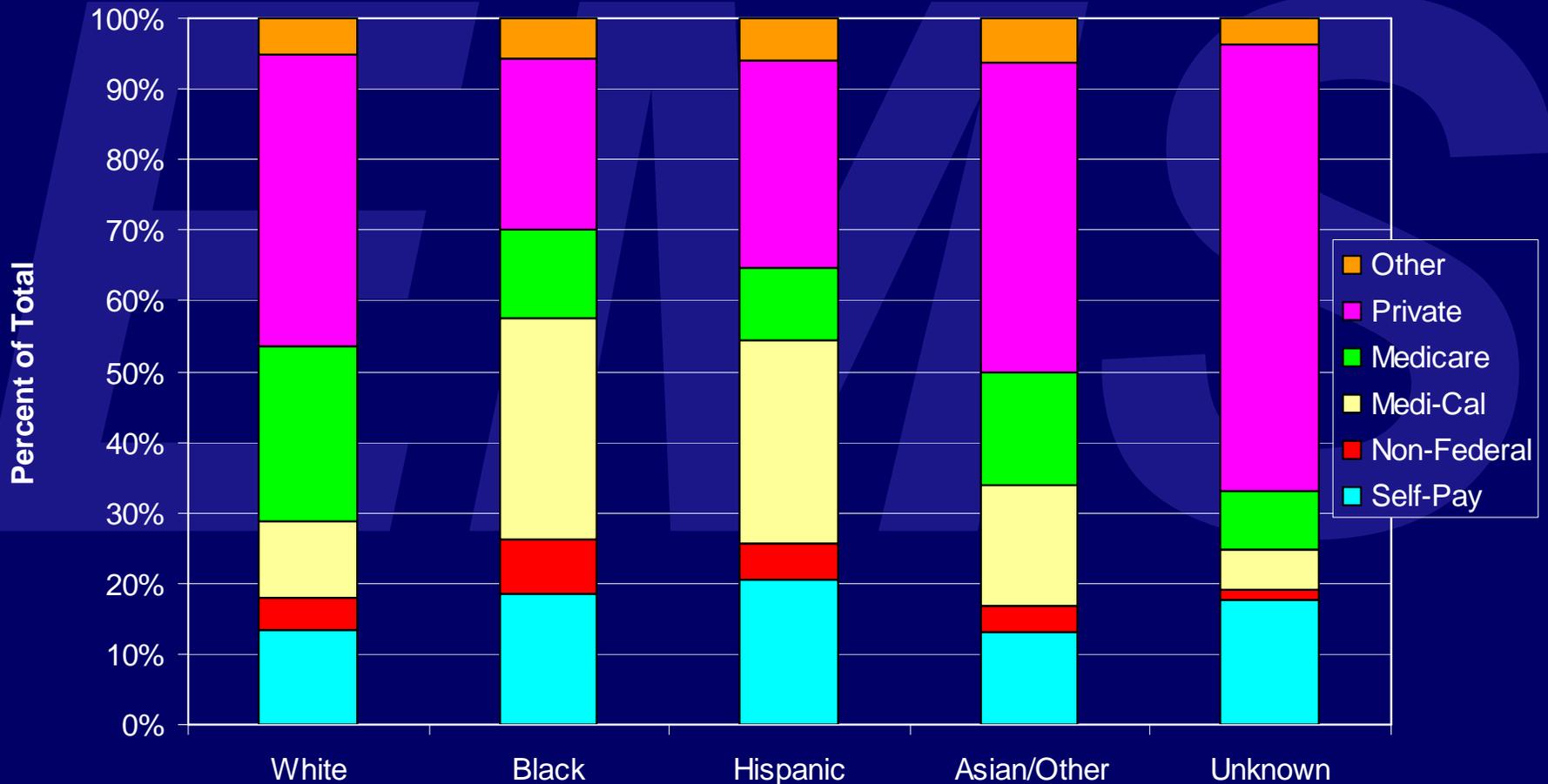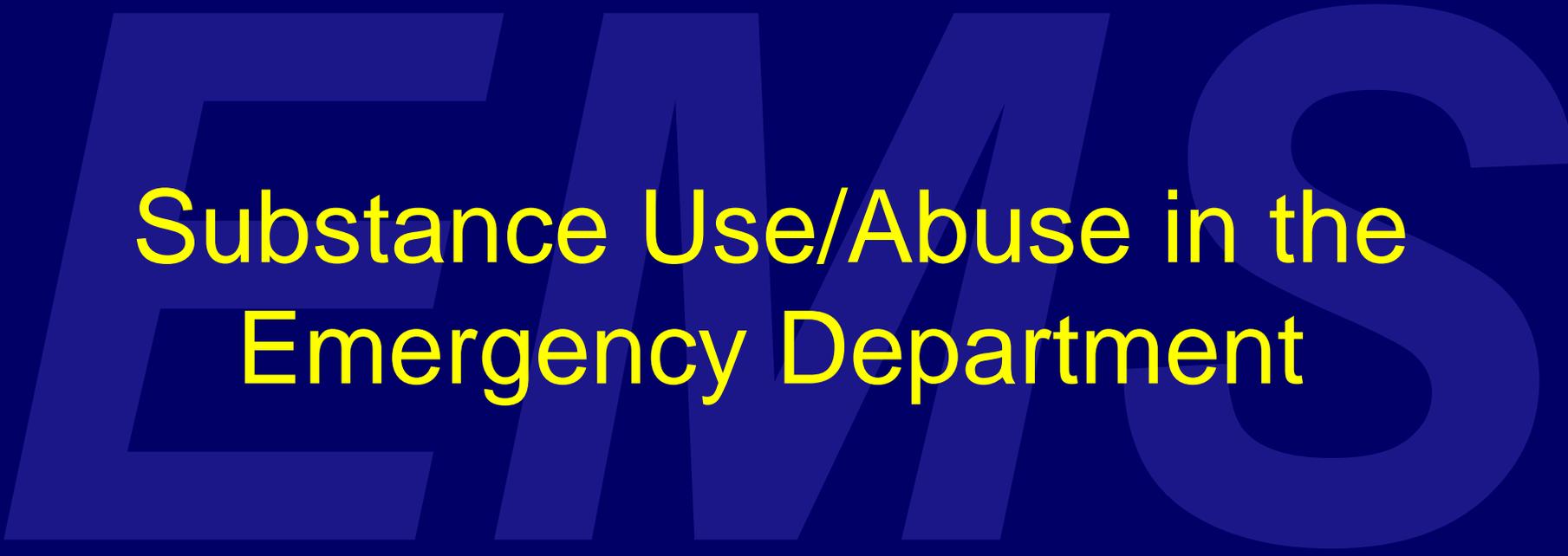
Substance Use/Abuse in the Emergency Department

Substance Use/Abuse

- 10,304 ED discharge patients identified with substance use/abuse (7.0%)

    - 1,916 ED discharge patients with a primary diagnosis of substance use/abuse (18.6%)

        - 334 (17.4%) were also diagnosed with a mental illness

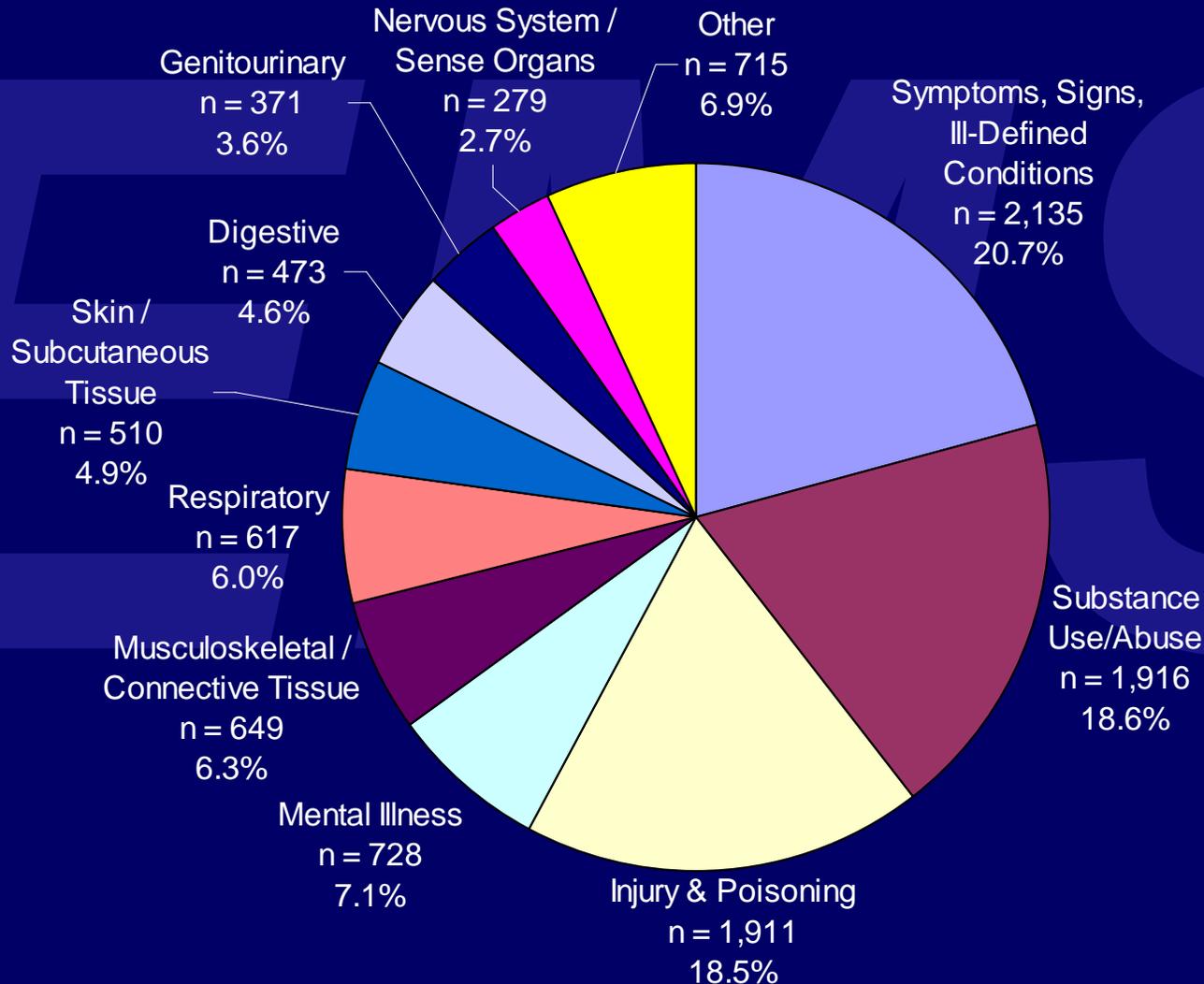# Primary Diagnosis of ED Discharge Patients With Any Substance Use/Abuse Diagnoses (N=10,304)

Genitourinary
n = 371
3.6%

Nervous System /
Sense Organs
n = 279
2.7%

Other
n = 715
6.9%

Symptoms, Signs,
Ill-Defined
Conditions
n = 2,135
20.7%

Digestive
n = 473
4.6%

Skin /
Subcutaneous
Tissue
n = 510
4.9%

Respiratory
n = 617
6.0%

Musculoskeletal /
Connective Tissue
n = 649
6.3%

Mental Illness
n = 728
7.1%

Injury & Poisoning
n = 1,911
18.5%

Substance
Use/Abuse
n = 1,916
18.6%

County of San Diego   Division of Emergency Medical Services

Source: HASD&IC, CHIP, CoSD EMS, Emergency Department Database, July – September 2005.

Primary Diagnosis of Substance Use/Abuse

	Frequency	Percent
Alcohol Abuse	794	41.4
Alcohol Withdrawal	250	13.0
Acute Alcoholic Intoxication	232	12.1
Amphetamine or Related Abuse	165	8.6
Drug Withdrawal	96	5.0
Other and Unspecified Alcohol Dependence	81	4.2
Other and Unspecified Drug Abuse	57	3.0
Alcohol Induced Mental Disorders	34	1.8
Cocaine Abuse	27	1.4
Opoid Abuse	20	1.0
Other Substance Use/Abuse	160	8.4
Total	1,916	100.0

County of San Diego   Division of Emergency Medical Services

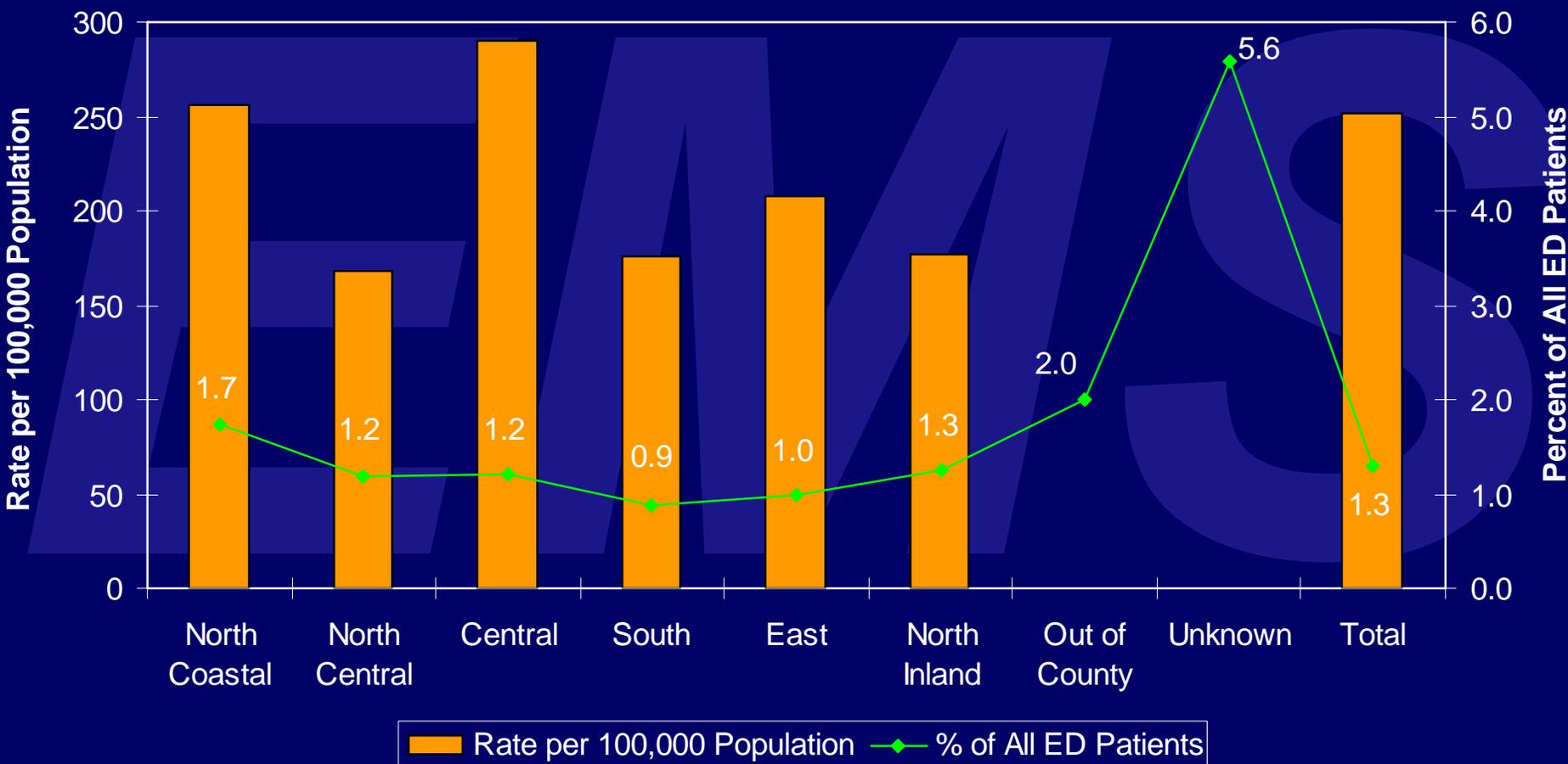Source: HASD&IC, CHIP, CoSD EMS, Emergency Department Database, July – September 2005.

Region of Residence

ED Patients With a Primary Diagnosis of Substance Use/Abuse

San Diego County Population

ED Patients With a Primary Diagnosis of Substance Use/Abuse:
- Unknown n=98 5.1%
- Out of County n=208 10.9%
- North Coastal n=319 16.6%
- North Central n=251 13.1%
- Central n=360 18.8%
- South n=200 10.4%
- East n=237 12.4%
- North Inland n=243 12.7%

San Diego County Population:
- North Inland 18.0%
- North Coastal 16.3%
- North Central 19.5%
- Central 16.3%
- South 14.9%
- East 14.9%

Source: HASD&IC, CHIP, CoSD EMS, Emergency Department Database, July – September 2005.
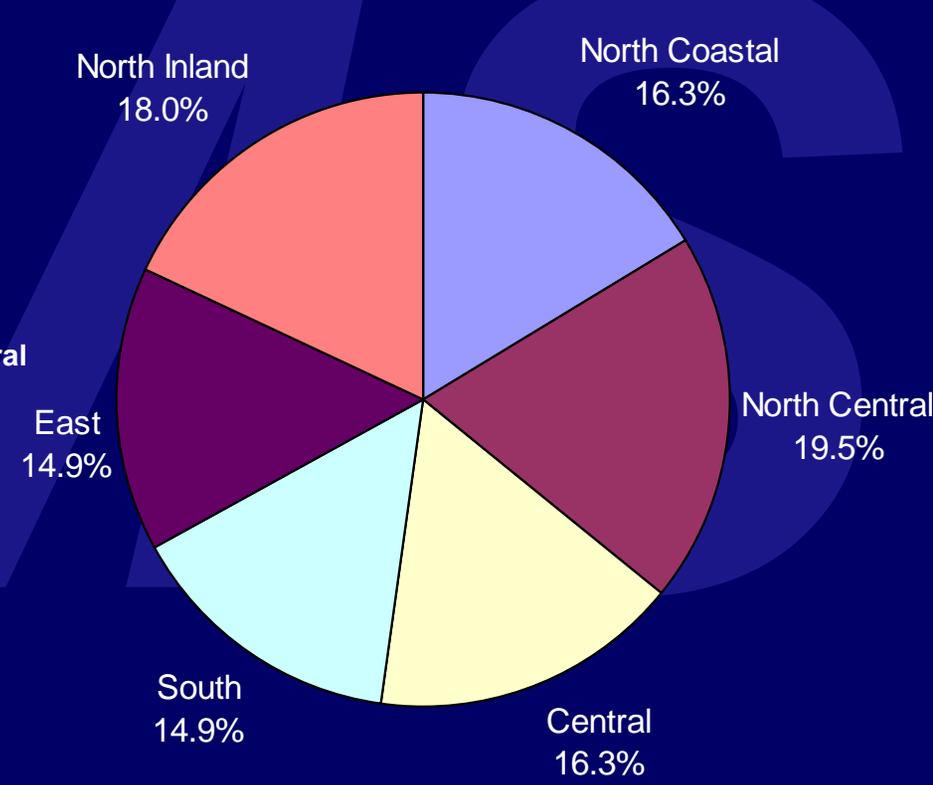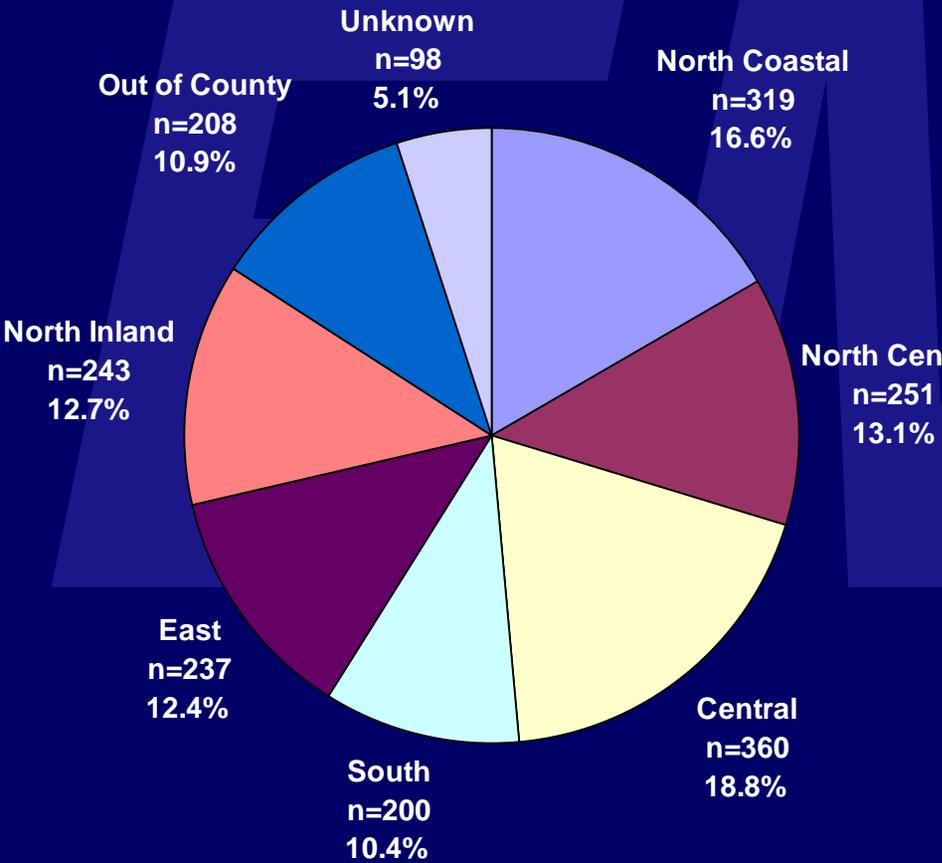
ED Discharge Patients With a Primary Diagnosis of Substance Use/Abuse by Region of Residence (N = 1,916)

Legend: Rate per 100,000 Population — % of All ED Patients

Source: HASD&IC, CHIP, CoSD EMS, Emergency Department Database, July – September 2005.

ED Discharge Patients With A Substance Use/Abuse Primary Diagnosis by Region of Residence (N=1,916)

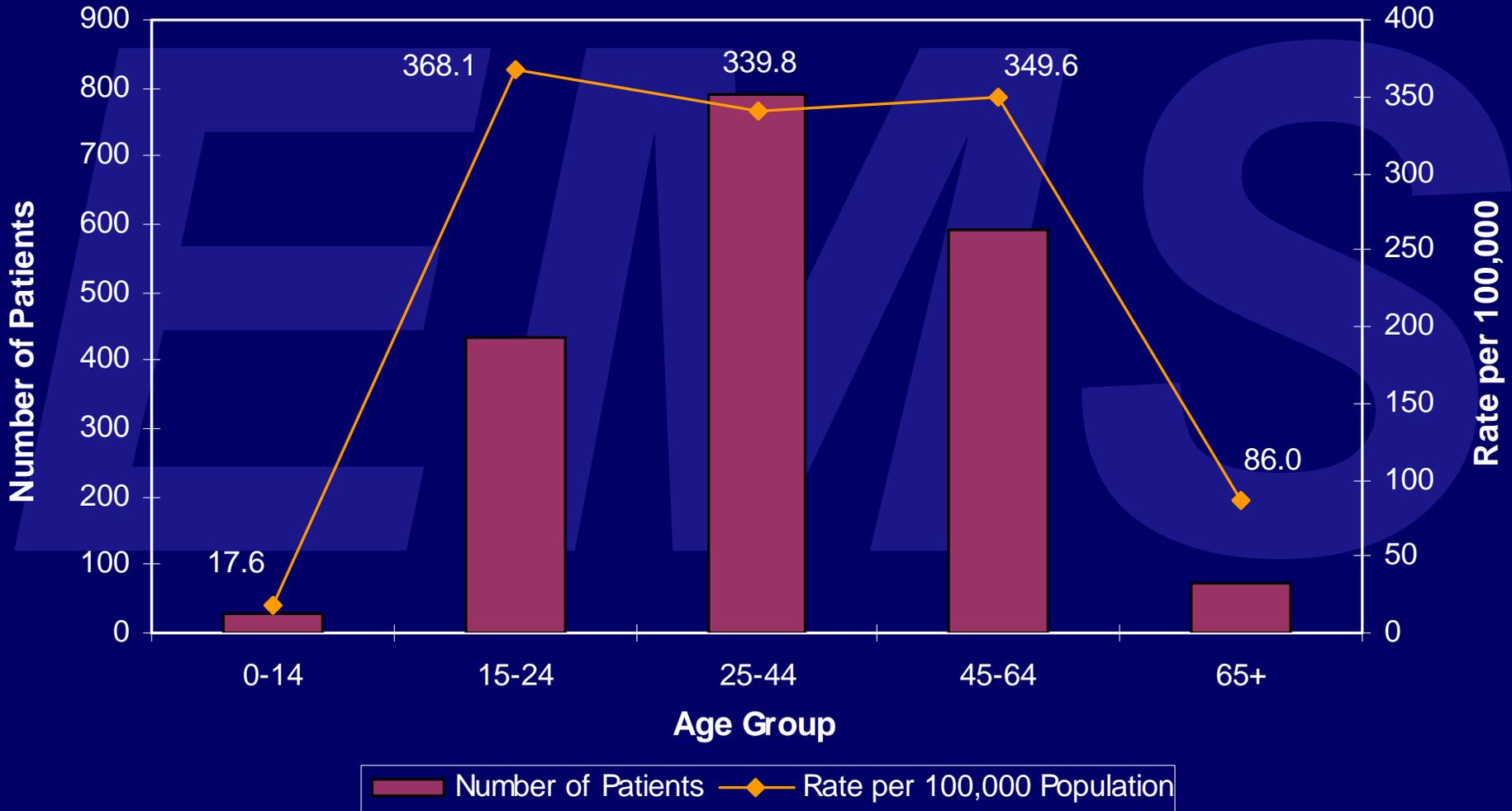|	North Coastal		North Central		Central		South	
	No.	%	No.	%	No.	%	No.	%
Alcoholic Psychoses	57	17.9	36	14.3	48	13.3	20	10.0
Drug Psychoses	26	8.2	18	7.2	40	11.1	14	7.0
Alcohol Dependence Syndrome	61	19.1	48	19.1	63	17.5	15	7.5
Drug Dependence	7	2.2	7	2.8	7	1.9	5	2.5
Nondependent Alcohol Abuse	118	37.0	112	44.6	142	39.4	108	54.0
Nondependent Drug Abuse	50	15.7	30	12.0	60	16.7	38	19.0
Total	319	100.0	251	100.0	360	100.0	200	100.0

Alcohol Related: 74.0%   78.0%   70.2%   71.5%

Drug Related: 26.0%   22.0%   29.8%   28.5%

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ED Discharge Patients With A Substance Use/Abuse Primary Diagnosis by Region of Residence (N=1,916)
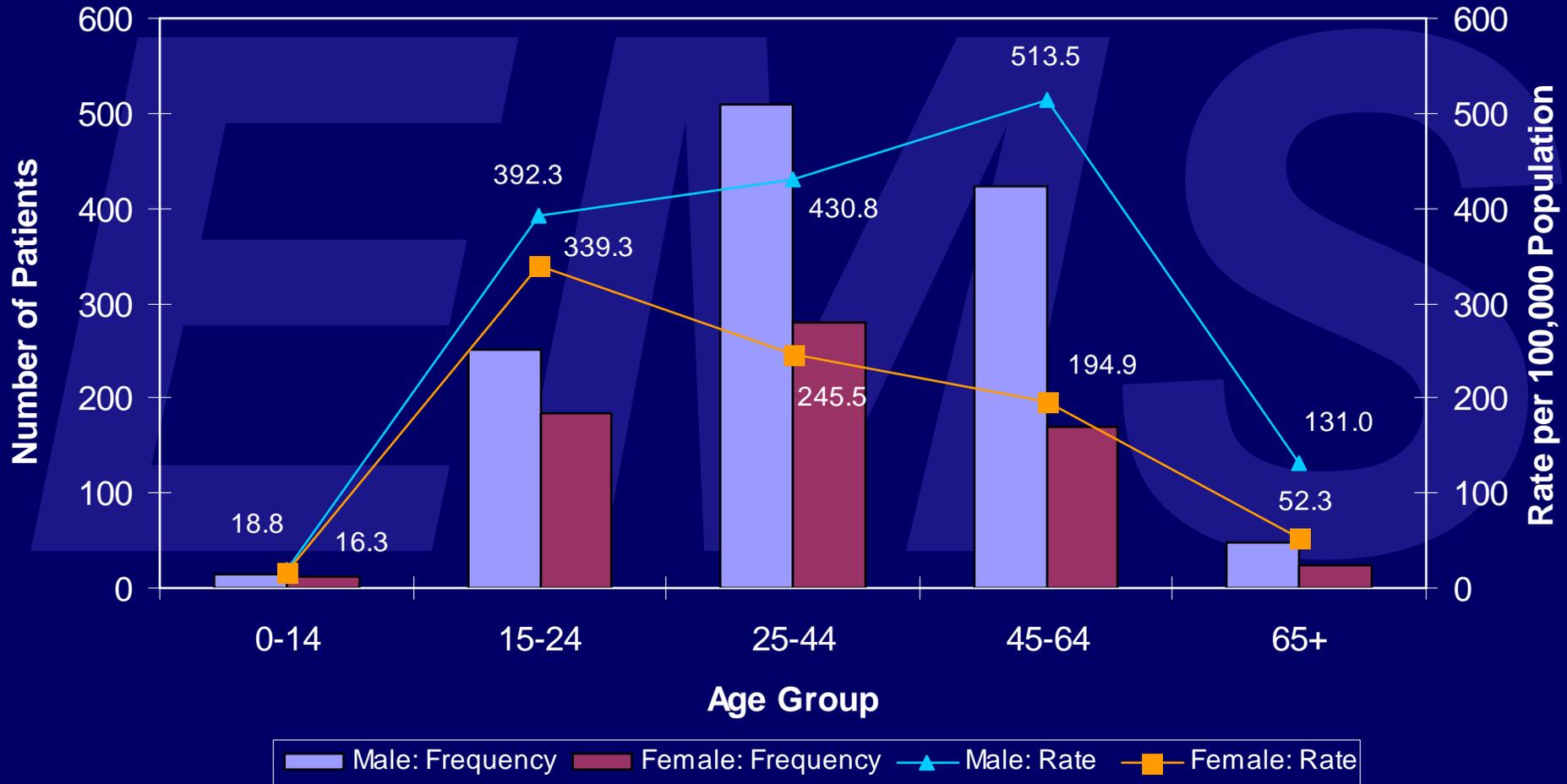
	East		North Inland		Out of County		Unknown	
	No.	%	No.	%	No.	%	No.	%
Alcoholic Psychoses	29	12.2	64	26.3	19	9.1	11	11.2
Drug Psychoses	17	7.2	28	11.5	14	6.7	4	4.1
Alcohol Dependence Syndrome	41	17.3	32	13.2	33	15.9	20	20.4
Drug Dependence	11	4.6	9	3.7	4	1.9	3	3.1
Nondependent Alcohol Abuse	90	38.0	75	30.9	105	50.5	44	44.9
Nondependent Drug Abuse	49	20.7	35	14.4	33	15.9	16	16.3
Total	237	100.0	243	100.0	208	100.0	98	100.0

Alcohol Related: 67.5%   70.2%   75.5%   76.5%

Drug Related: 32.5%   29.8%   24.5%   23.5%

County of San Diego   Division of Emergency Medical Services

Source: HASD&IC, CHIP, CoSD EMS, Emergency Department Database, July – September 2005.

ED Discharge Patients With a Primary Diagnosis of Substance Use/Abuse by Age Group (N = 1,916)

County of San Diego   Division of Emergency Medical Services

Source: HASD&IC, CHIP, CoSD EMS, Emergency Department Database, July – September 2005.

ED Discharge Patients With a Primary Diagnosis of Substance Use/Abuse by Age Group and Gender (N = 1,916)

Source: HASD&IC, CHIP, CoSD EMS, Emergency Department Database, July – September 2005.

ED Discharge Patients With a Primary Diagnosis of Substance Use/Abuse by Race/Ethnicity (N = 1,916)

Asian
n=25
1.3%

Other
n=43
2.2%

Unknown
n=62
3.2%

Hispanic
n=401
20.9%

Black
n=115
6.0%

White
n=1,270
66.3%

Source: HASD&IC, CHIP, CoSD EMS, Emergency Department Database, July – September 2005.

All ED Discharge Patients by Race/Ethnicity (N = 147,001)

Source: HASD&IC, CHIP, CoSD EMS, Emergency Department Database, July – September 2005.

ED Discharge Patients With a
Primary Diagnosis of Substance Use/Abuse
by Race/Ethnicity (N = 1,916)

County of San Diego   Division of Emergency Medical Services

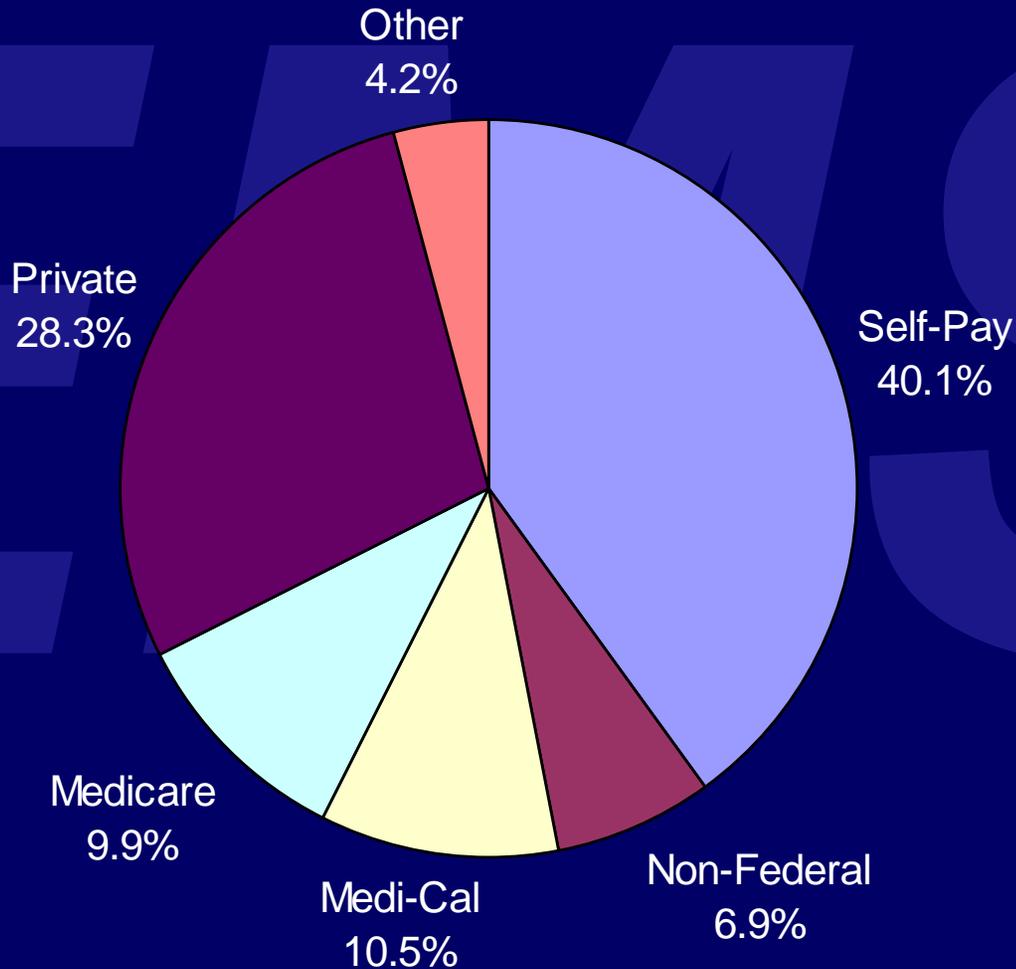Source: HASD&IC, CHIP, CoSD EMS, Emergency Department Database, July – September 2005.

ED Discharge Patients With a Primary Diagnosis of Substance Use/Abuse by Race/Ethnicity and Age Group, Rates per 100,000   (N = 1,916)

Source: HASD&IC, CHIP, CoSD EMS, Emergency Department Database, July – September 2005.
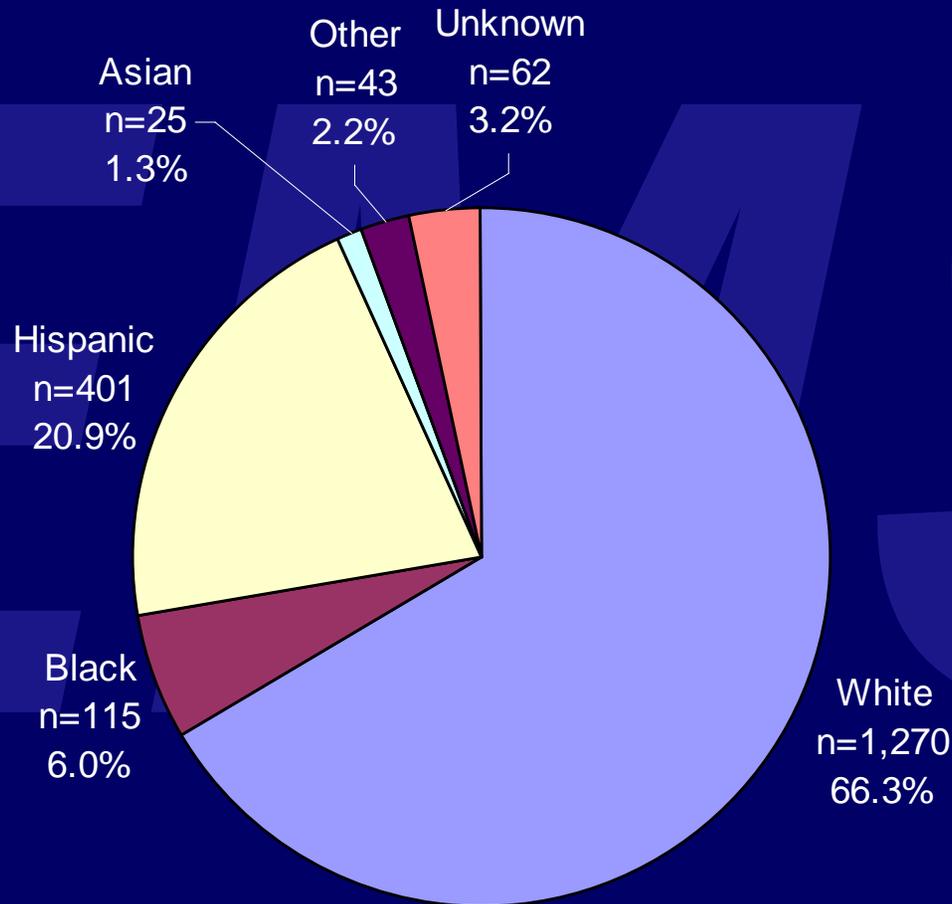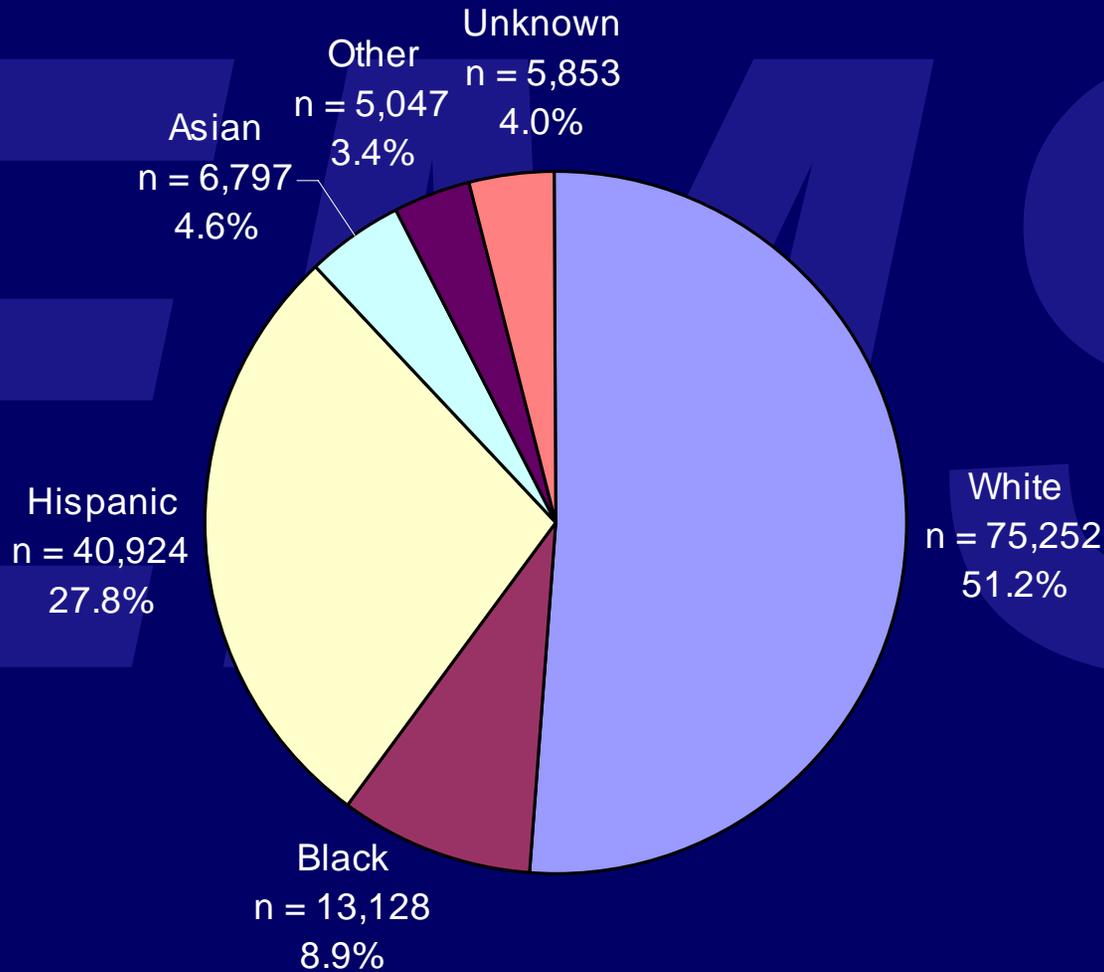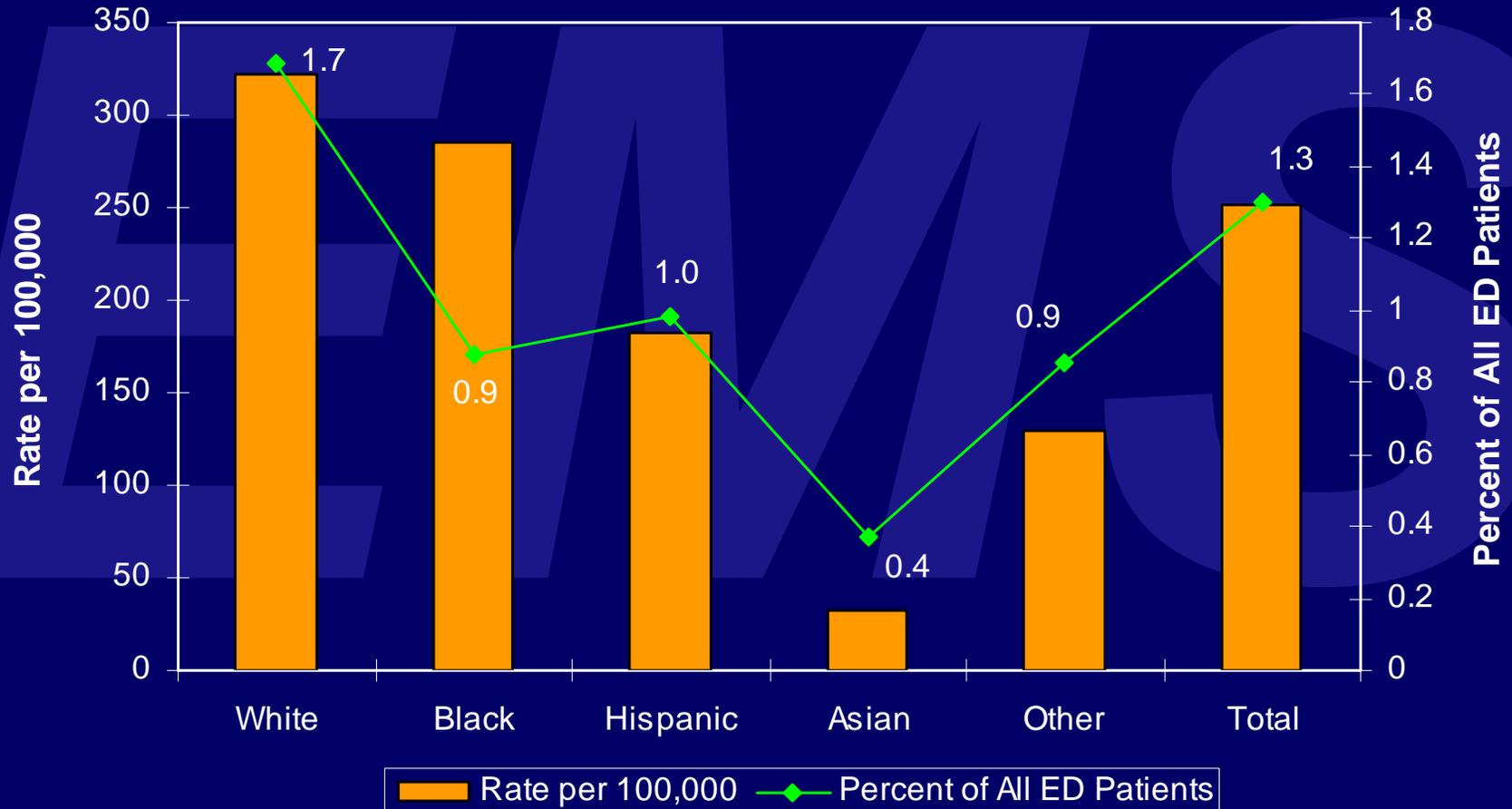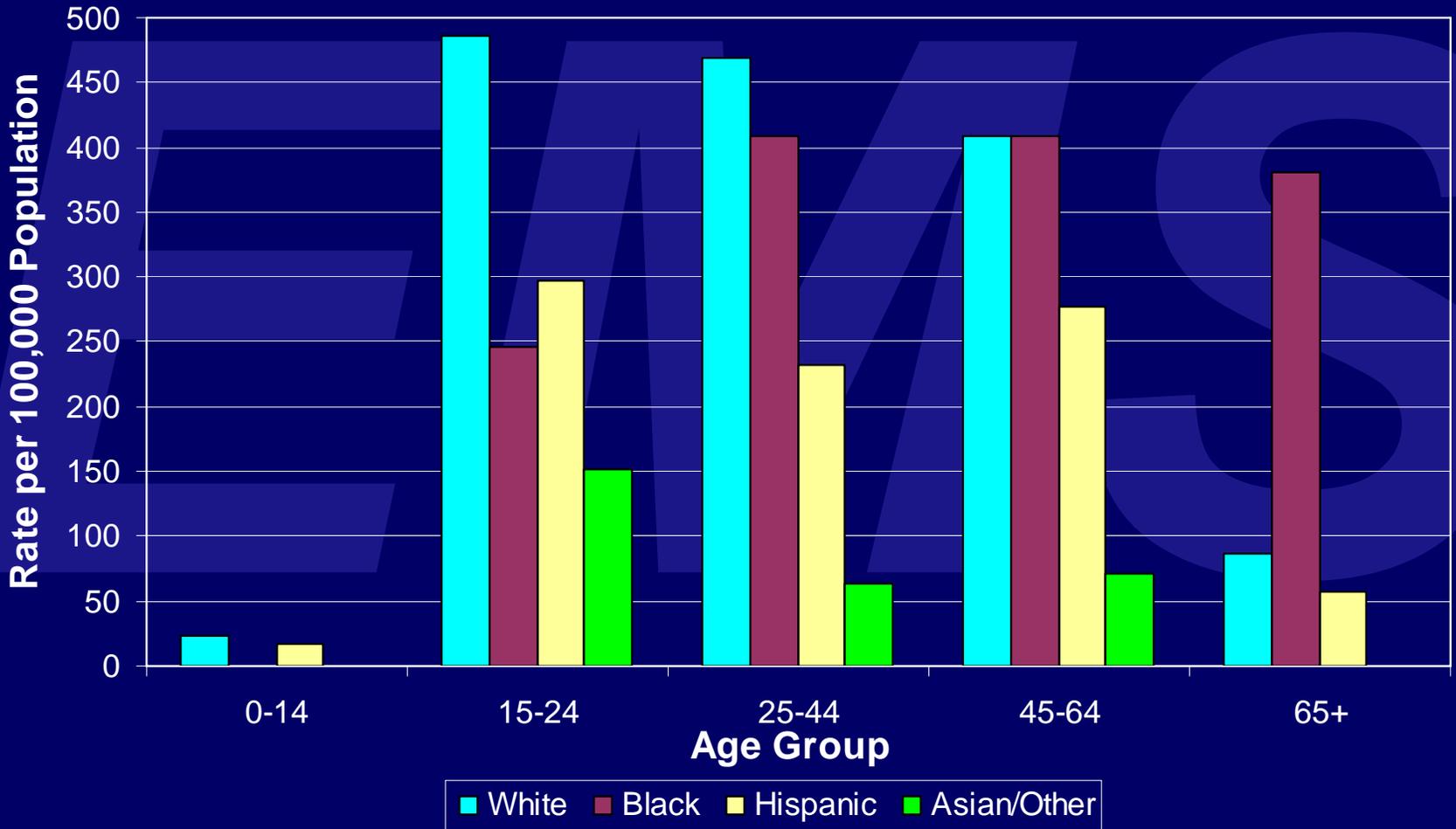
ED Discharge Patients With a Primary Diagnosis of Substance Use/Abuse by Disposition (N=1,916)

Transfer to Another Hospital
2.8%

Left Against Medical Advice
2.7%

Other
1.6%

Discharged to Psych Hospital or Unit
3.5%

Home for Self Care
89.5%

Source: HASD&IC, CHIP, CoSD EMS, Emergency Department Database, July – September 2005.
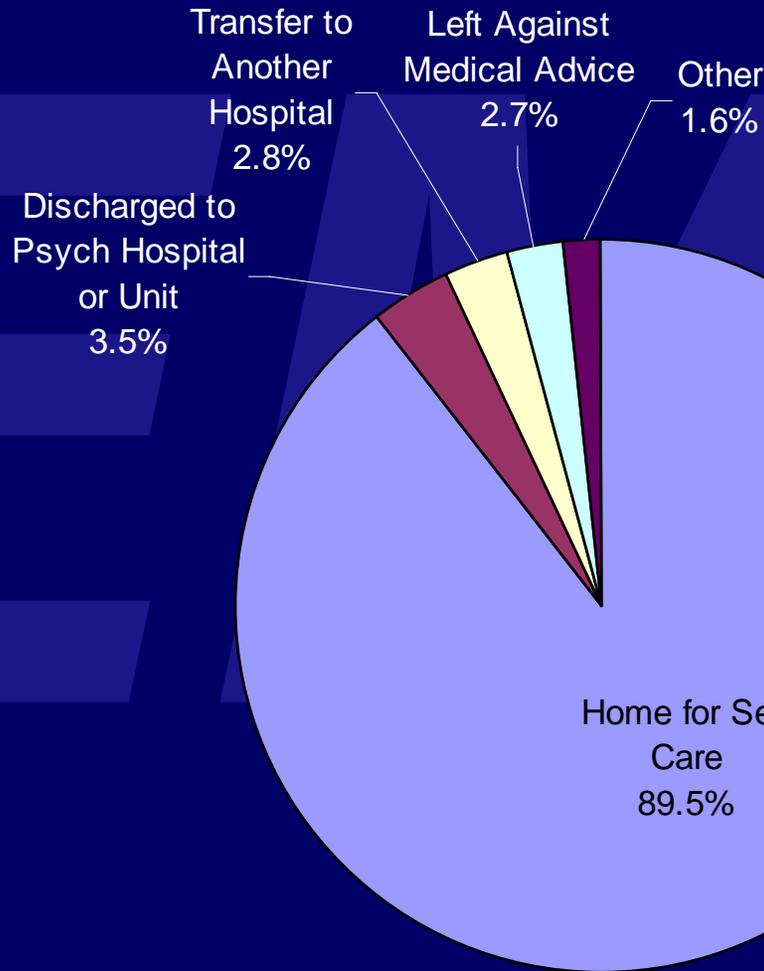
ED Discharge Patients With a Primary Diagnosis of Substance Use/Abuse by Expected Source of Payment (N=1,916)

Other
4.2%

Private
28.3%

Self-Pay
40.1%

Medicare
9.9%

Medi-Cal
10.5%

Non-Federal
6.9%

Source: HASD&IC, CHIP, CoSD EMS, Emergency Department Database, July – September 2005.

All ED Discharge Patients by Expected Source of Payment (N = 147,001)

Other
5.5%

Self-Pay
16.0%

Non-Federal
Programs
4.9%

Medi-Cal
17.9%

Medicare
18.3%

Private
Insurance
37.4%

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County of San Diego   Division of Emergency Medical Services
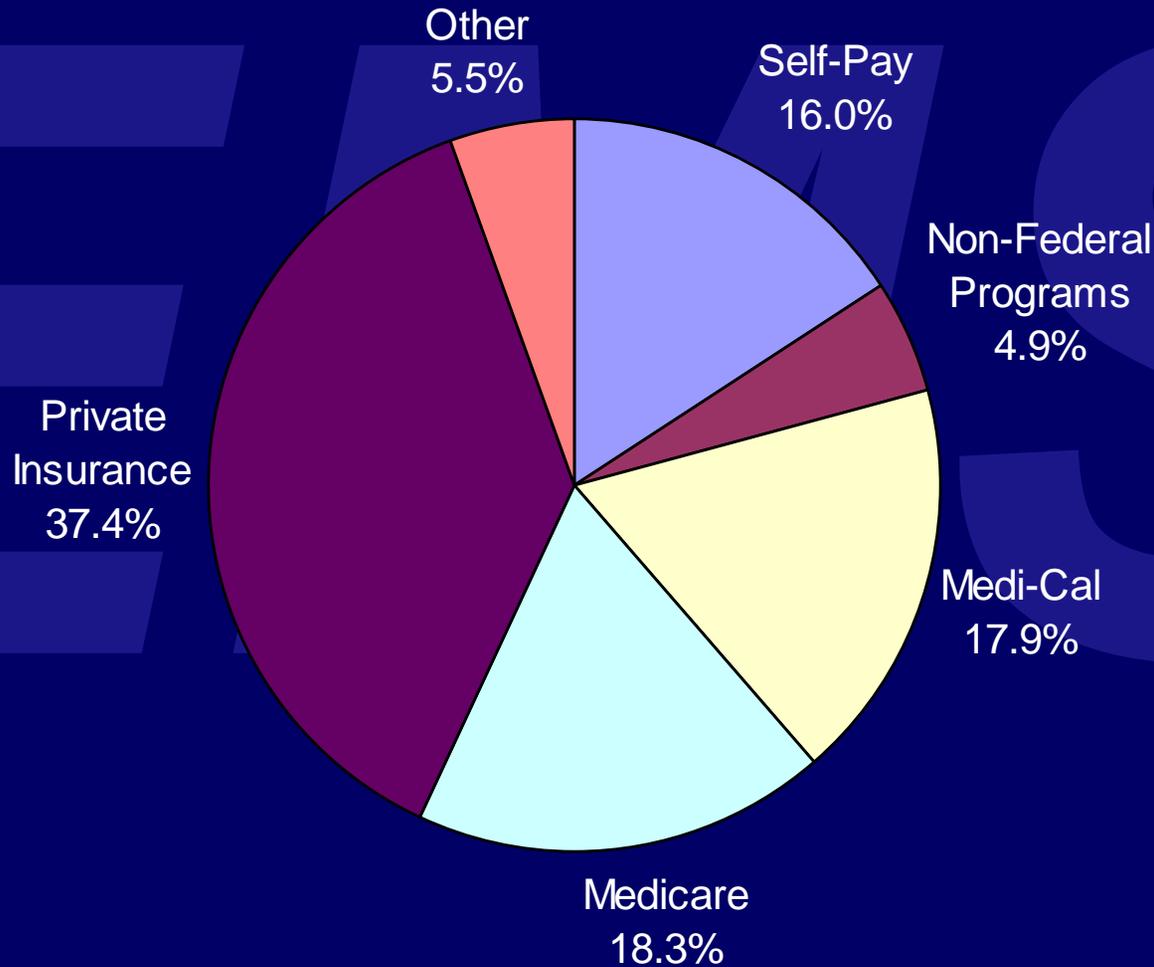
ED Discharge Patients With A Substance Use/Abuse Primary Diagnosis by Expected Source of Payment (N=1,916)

	Alcoholic Psychoses		Drug Psychoses		Alcohol Dependence Syndrome		Drug Dependence		Nondependent Alcohol Abuse		Nondependent Drug Abuse	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Self-Pay	139	48.9	43	26.7	126	40.3	16	30.2	327	41.2	118	37.9
Non-Federal	28	9.9	8	5.0	22	7.0	4	7.5	42	5.3	29	9.3
Medi-Cal	14	4.9	24	14.9	24	7.7	5	9.4	73	9.2	62	19.9
Medicare	29	10.2	35	21.7	35	11.2	6	11.3	60	7.6	24	7.7
Private	60	21.1	42	26.1	90	28.8	20	37.7	257	32.4	74	23.8
Other	14	4.9	9	5.6	16	5.1	2	3.8	35	4.4	4	1.3
Total	284	100.0	161	100.0	313	100.0	53	100.0	794	100.0	311	100.0

Source: HASD&IC, CHIP, CoSD EMS, Emergency Department Database, July – September 2005.

Mental Illness and Substance Use/Abuse Summary

- 10,192 ED discharge patients with any mental illness diagnosis
  - 3,746 (37%) with a primary MI diagnosis
    - 1,036 (28%) with additional MI diagnoses
    - 728 (19%) with additional substance use/abuse diagnoses

- 10,304 ED discharge patients with any substance use/abuse diagnosis
  - 1,916 (19%) with a primary substance use/abuse diagnosis
    - 668 (35%) with additional substance use/abuse diagnoses
    - 334 (17%) with additional MI diagnoses

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