

# The Impact of Methamphetamine Use on Emergency Care in San Diego County

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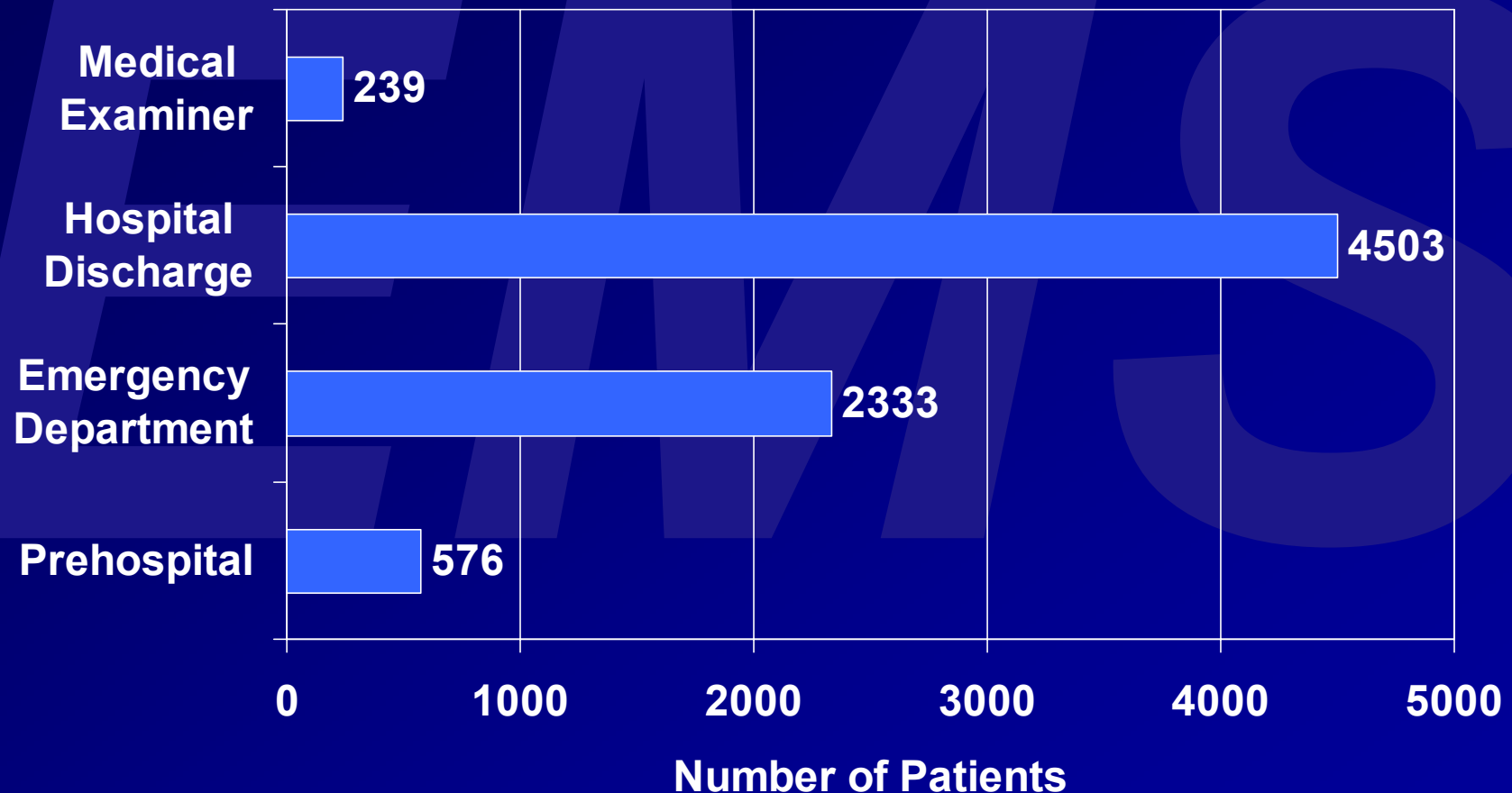
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Leslie Upledger Ray, PhD (c), MPH, MPPA, MA

# The Emergency Medical Care System

- Prehospital
  - Paramedic/EMT calls
- Emergency Department Discharges
  - Patients seen and discharged from ED
- Hospital Inpatient Discharges
  - Patients admitted to hospital
- Medical Examiner
  - Non-natural and unexpected deaths

# Meth/Amphetamine-Related Cases by Data Source (Injury “Pyramid”)



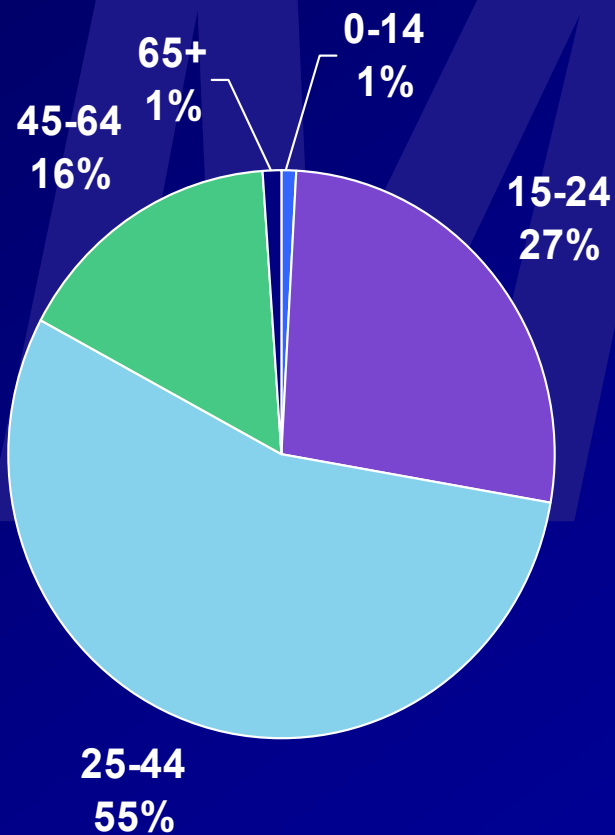
Source: County of San Diego Health and Human Services Agency,  
MICN database FY 2005/06; Emergency Department database FY 2005/06  
Hospital Discharge database 2004; Medical Examiner database 2005

Emergency Medical Services

# Prehospital Data: QCS

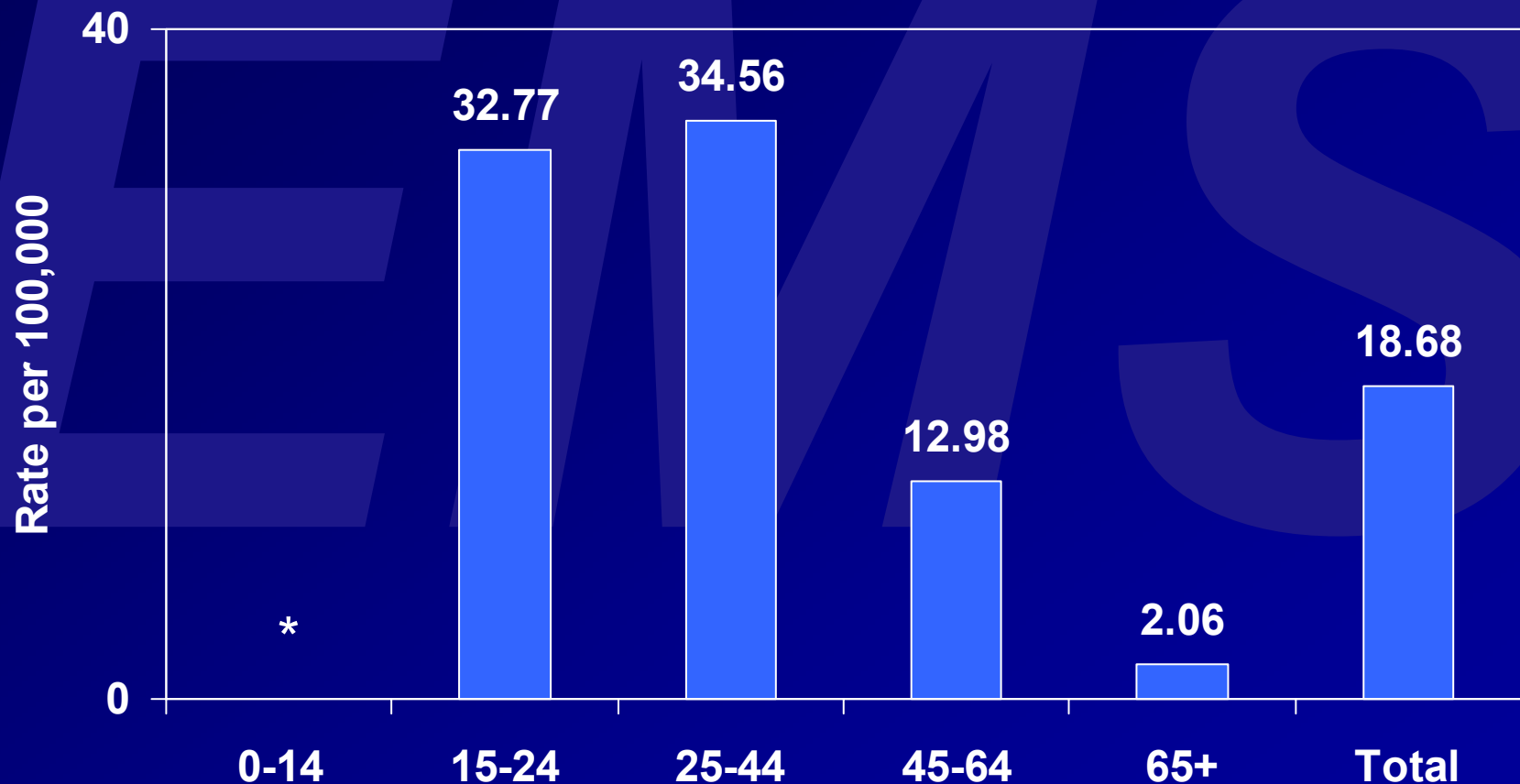
- Fiscal Year 2005/06
- MICN data
- 140,000 patients/year
- Inclusion criteria
  - key word search for “meth,” followed by individual record review
- Total meeting criteria: **576**
  - Population rate: **19 per 100,000**

# Age Distribution: Prehospital Patients



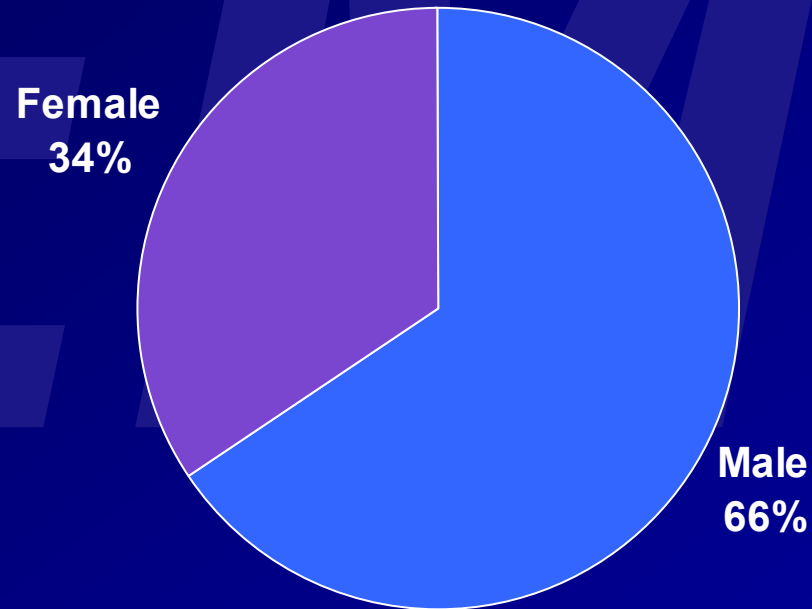
Source: County of San Diego Health and Human Services Agency,  
MICN database FY 2005/06

# Age-Specific Rates: Prehospital Patients



\*Rate not calculated, fewer than five incidents.

# Gender Distribution: Prehospital Patients

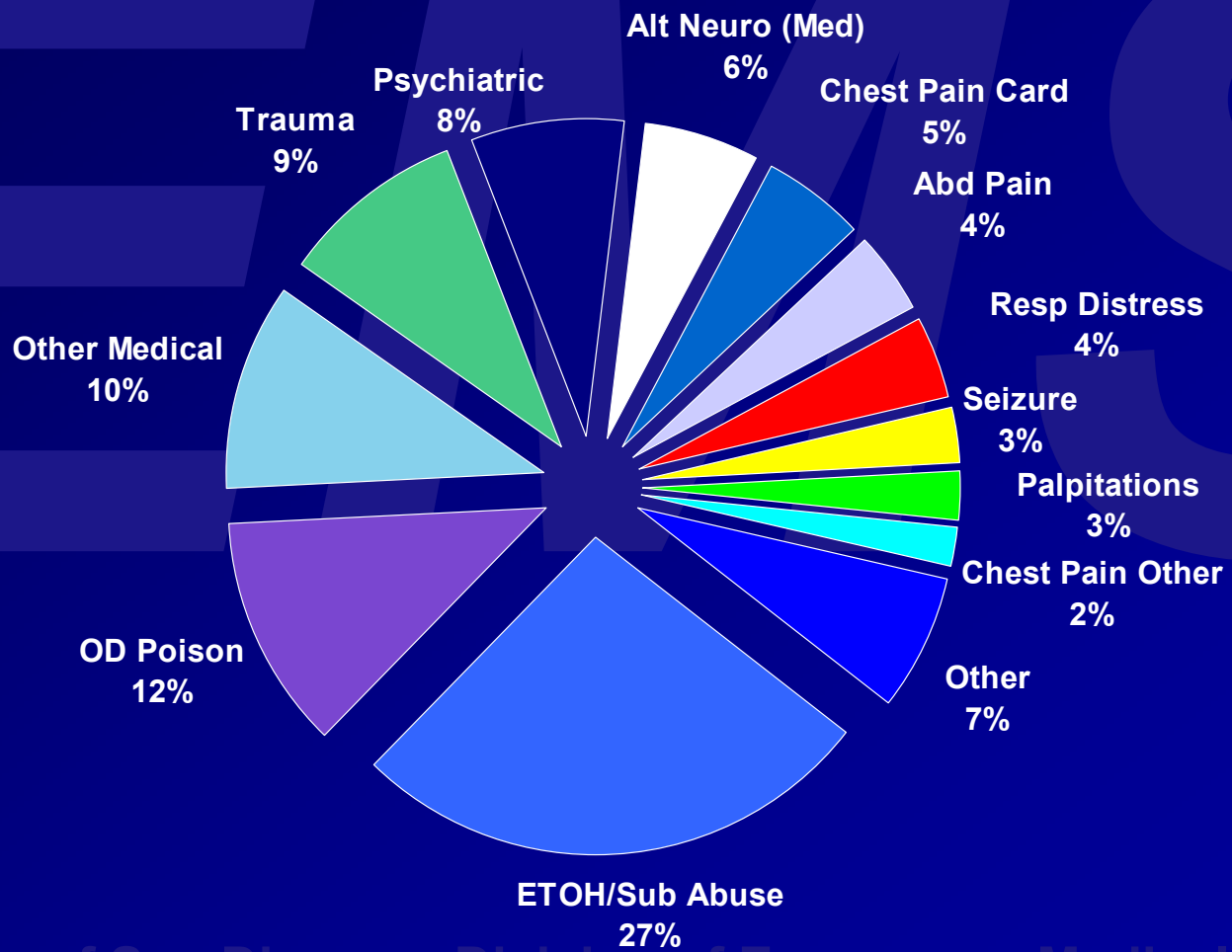


Source: County of San Diego Health and Human Services Agency,  
MICN database FY 2005/06

County of San Diego

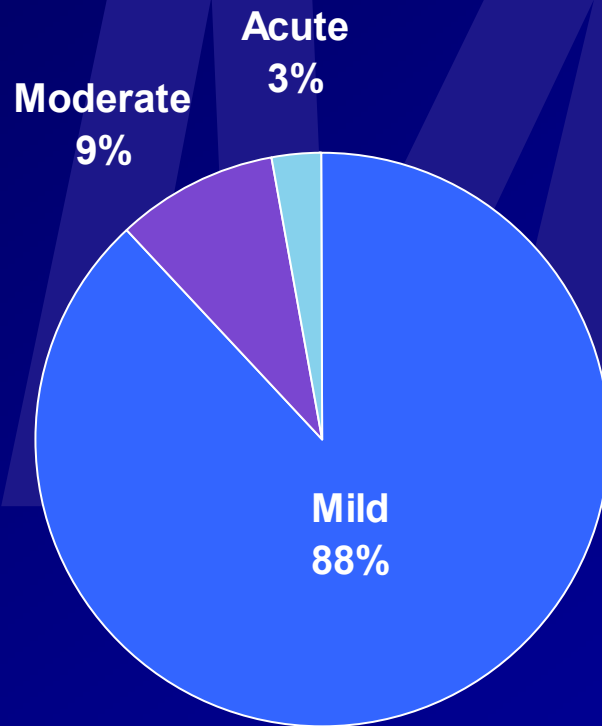
Division of Emergency Medical Services

# Chief Complaints: Prehospital Patients

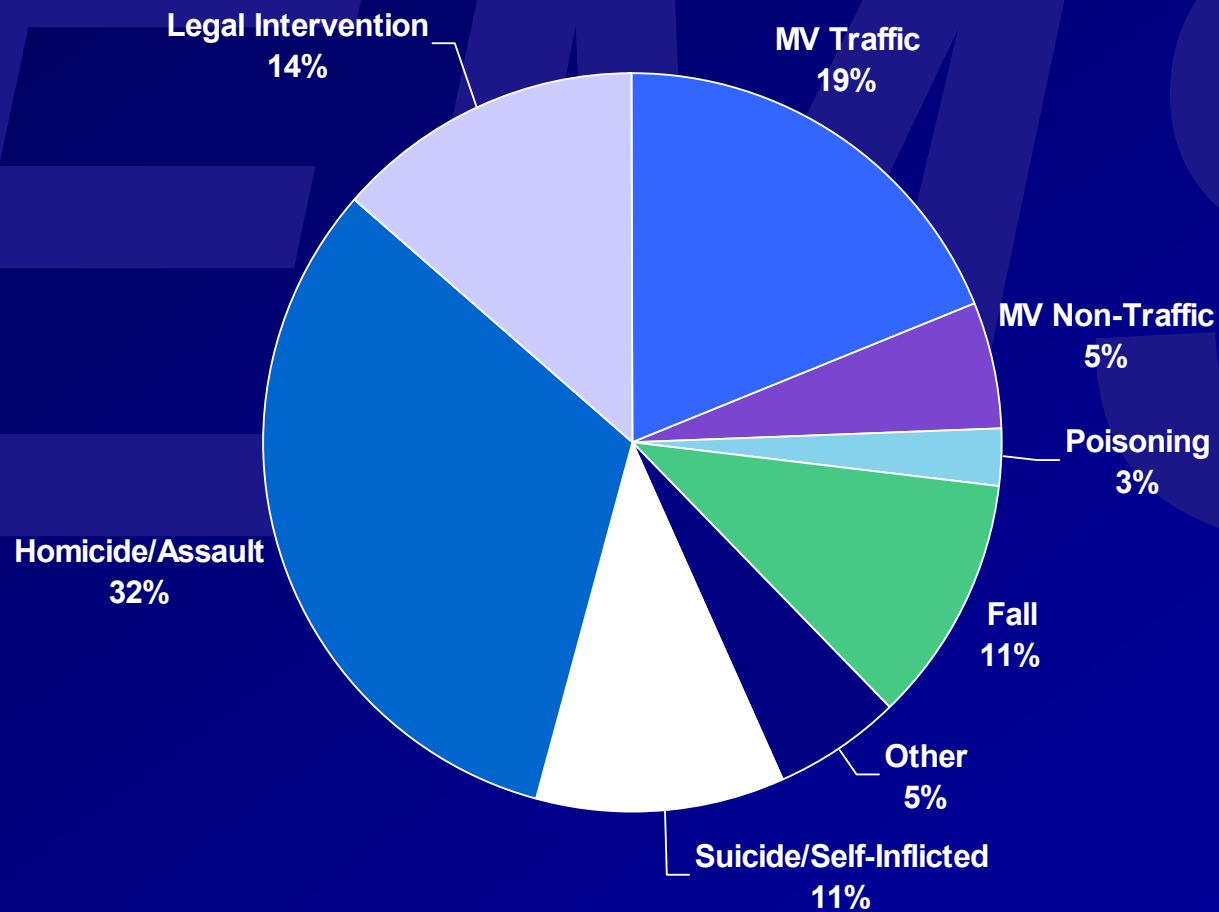


Source: County of San Diego Health and Human Services Agency, Division of Emergency Medical Services  
MICN database FY 2005/06

# Status/Acuity: Prehospital Patients

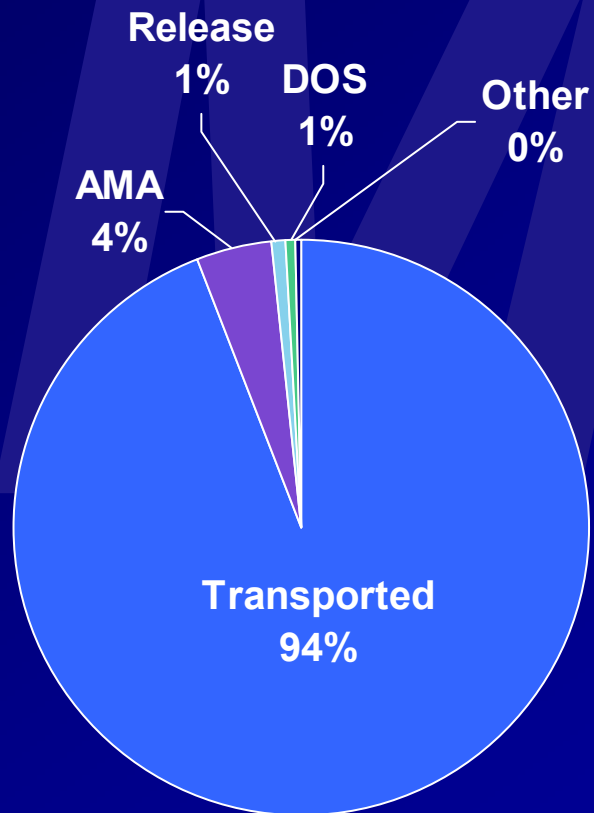


# External Cause of Injury: Prehospital Patients



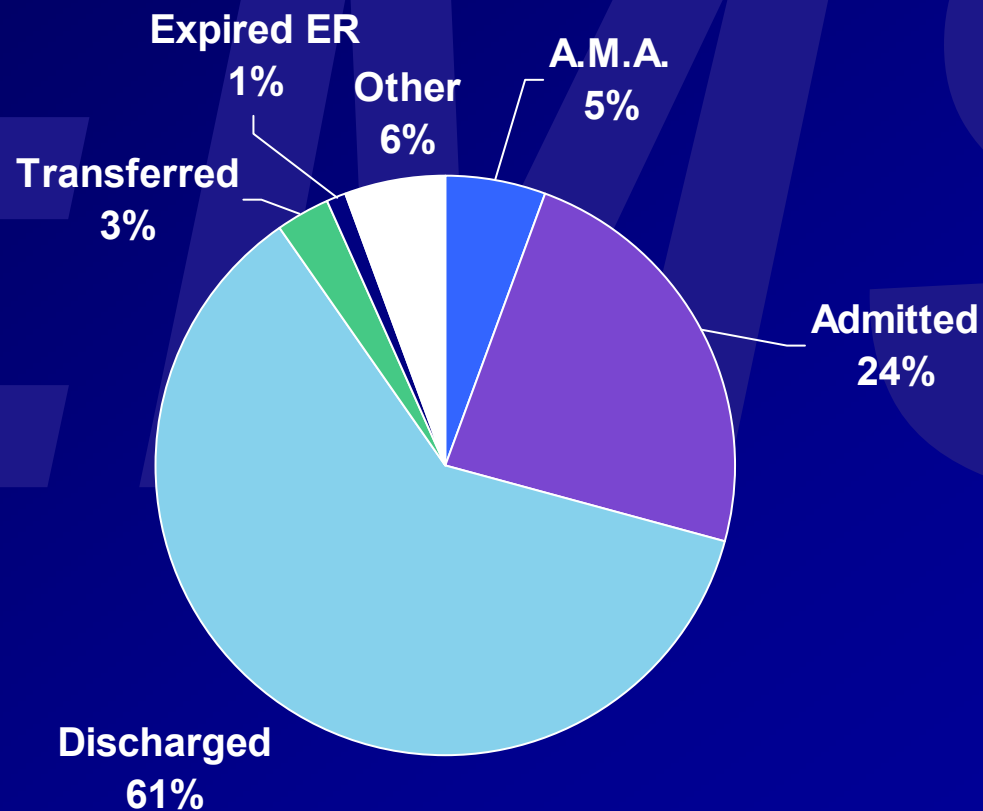
N=37

# Run Disposition: Prehospital Patients



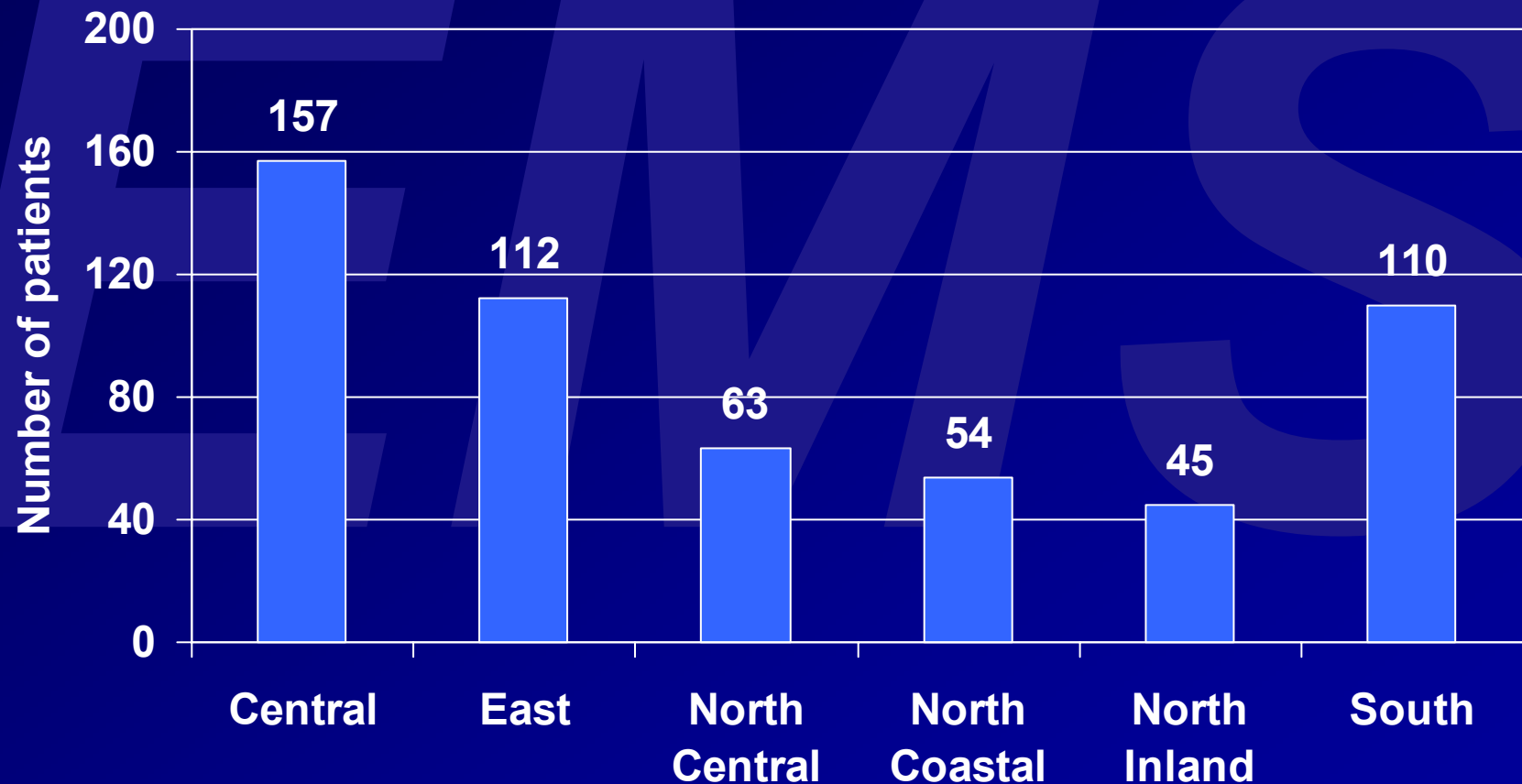
Source: County of San Diego Health and Human Services Agency,  
MICN database FY 2005/06

# Patient Disposition: Prehospital Patients



Source: County of San Diego Health and Human Services Agency,  
MICN database FY 2005/06

# HHSA Region of Receiving Hospital: Prehospital Patients

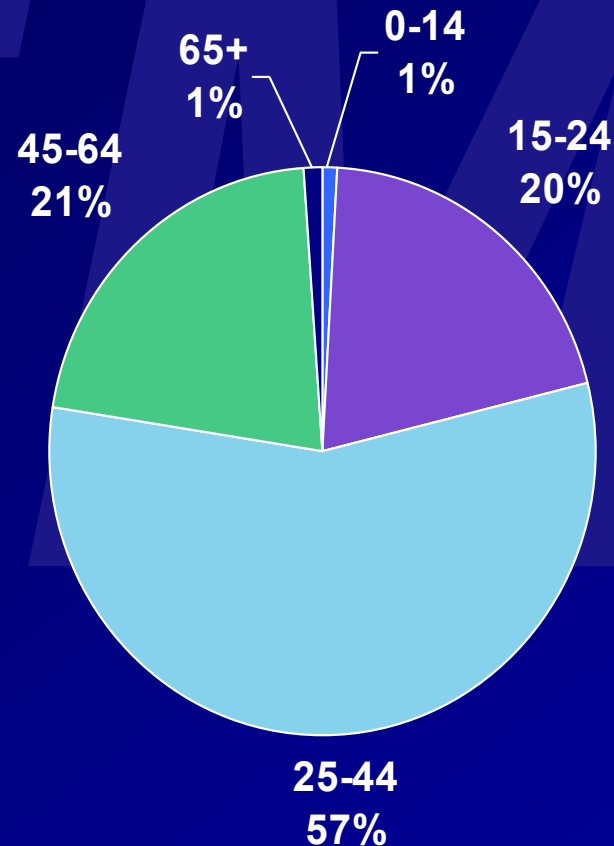


Source: County of San Diego Health and Human Services Agency,  
MICN database FY 2005/06

# Emergency Department Database

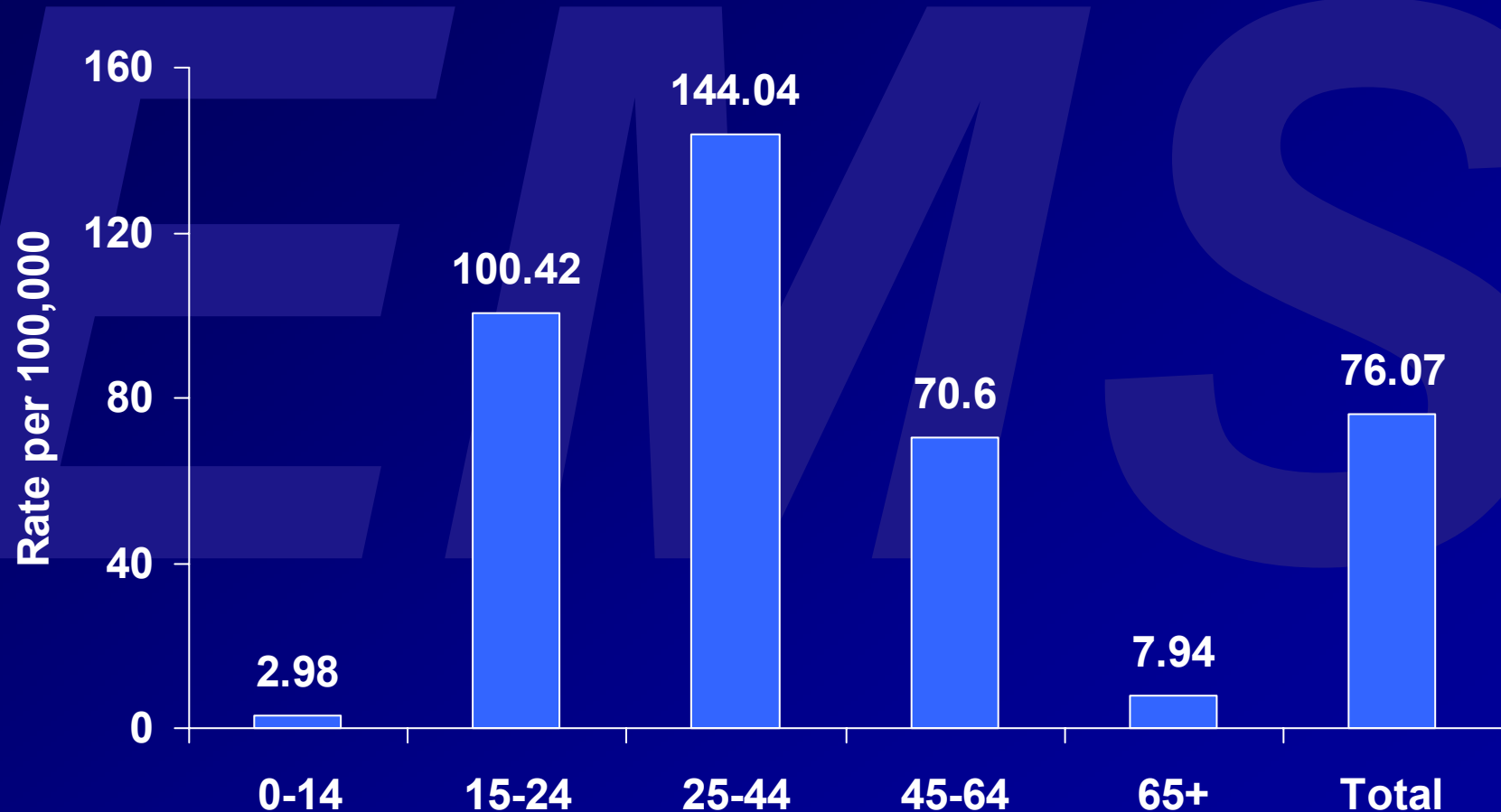
- Fiscal Year 2005/06
- Patients seen and discharged from emergency departments
- 584,049 Total Patients/year
- Inclusion criteria
  - Any ICD-9 diagnosis = 304.4 (amphetamine and other psychostimulant dependence) or 305.7 (amphetamine or related acting sympathomimetic abuse)
- Total meeting criteria: **2,333**
  - Population rate: **76 per 100,000**

# Age Distribution: ED Patients



Source: HASD&IC, CHIP, County of San Diego Health and Human Services Agency, Emergency Department database FY 2005/06

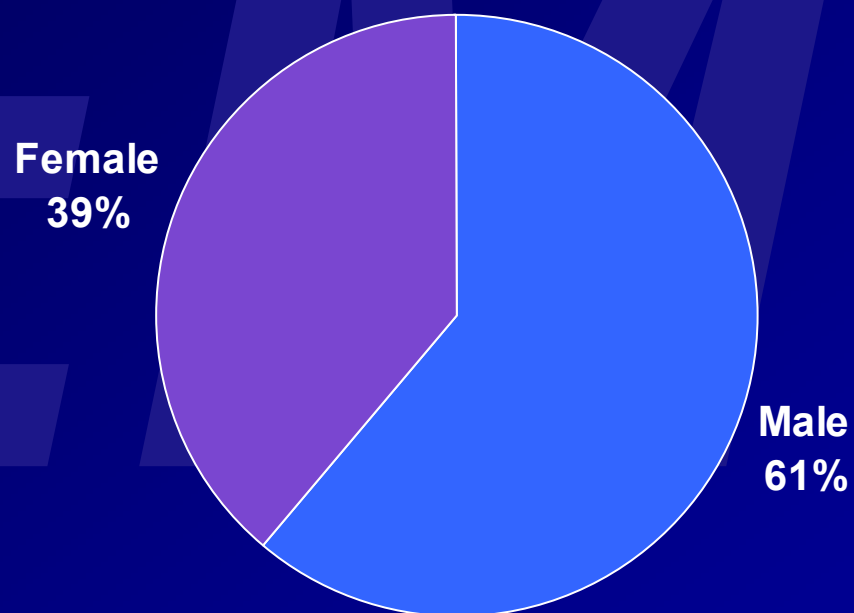
# Age-Specific Rates: ED Patients



Source: HASD&IC, CHIP, County of San Diego Health and Human Services Agency,  
Emergency Department database FY 2005/06

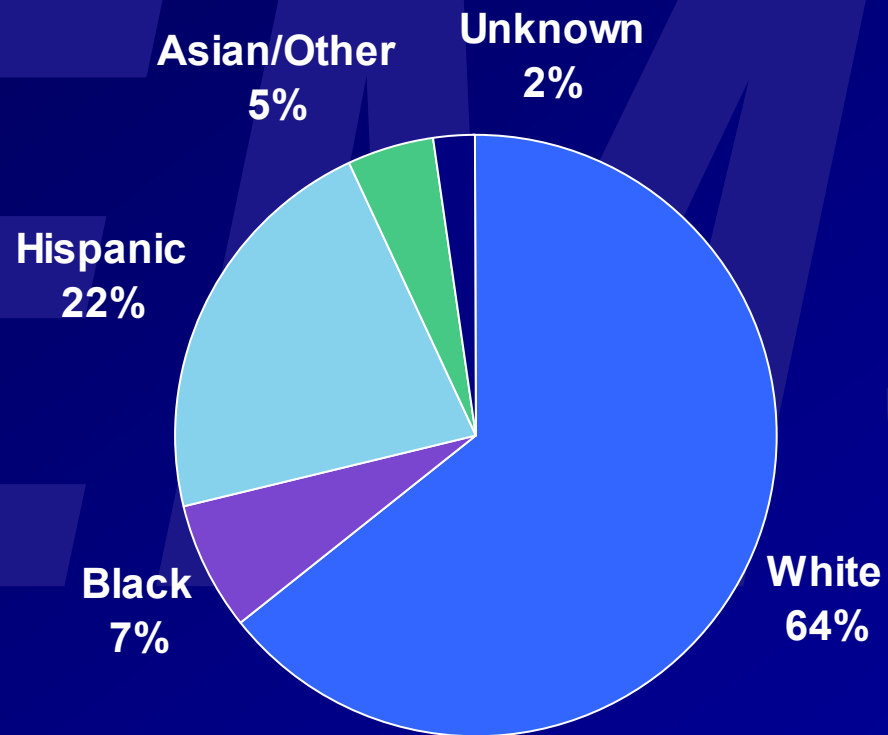
County of San Diego Division of Emergency Medical Services

# Gender Distribution: ED Patients



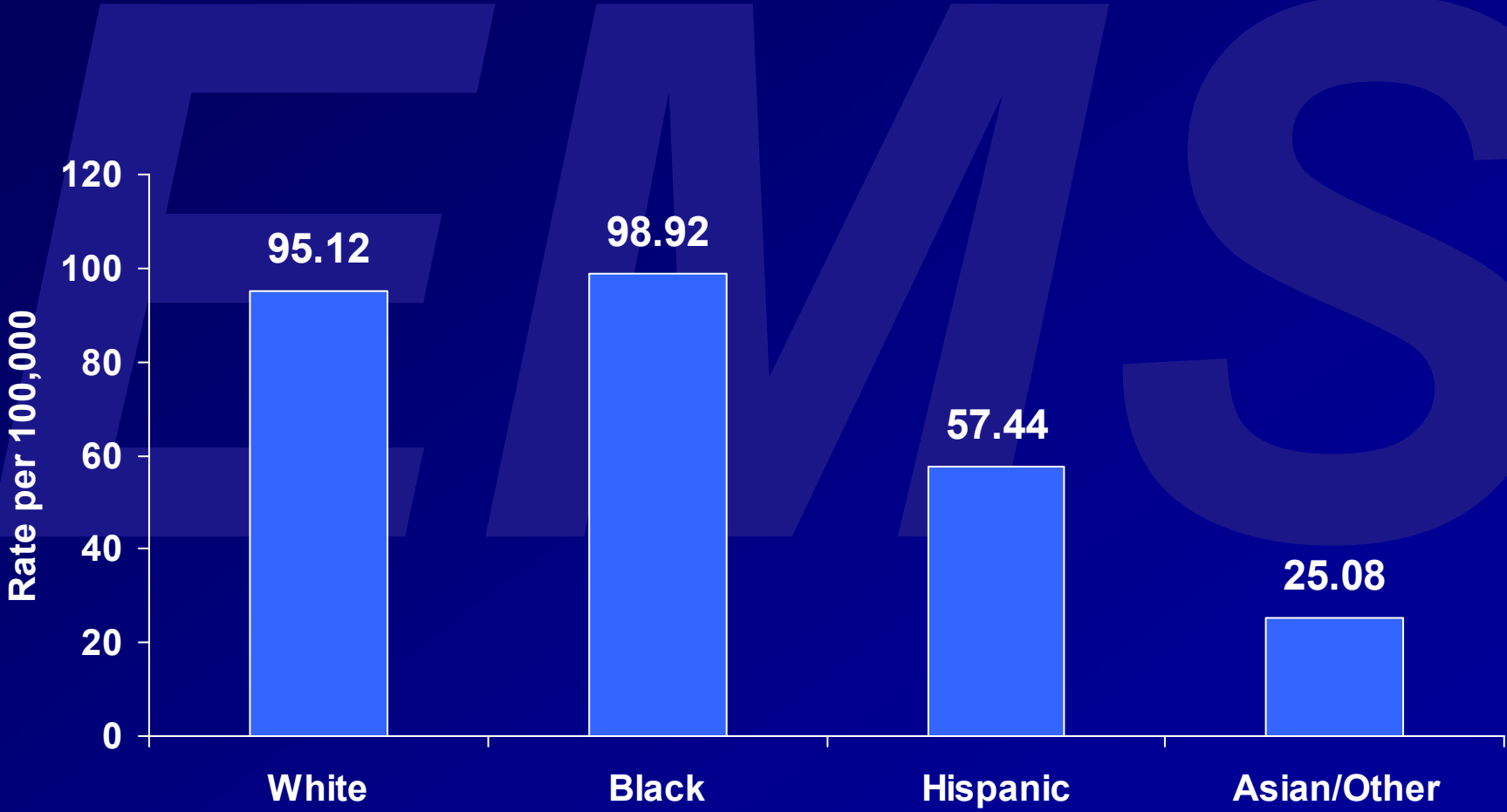
Source: HASD&IC, CHIP, County of San Diego Health and Human Services Agency,  
Emergency Department database FY 2005/06

# Race/Ethnicity Distribution: ED Patients



Source: HASD&IC, CHIP, County of San Diego Health and Human Services Agency, Emergency Department database FY 2005/06

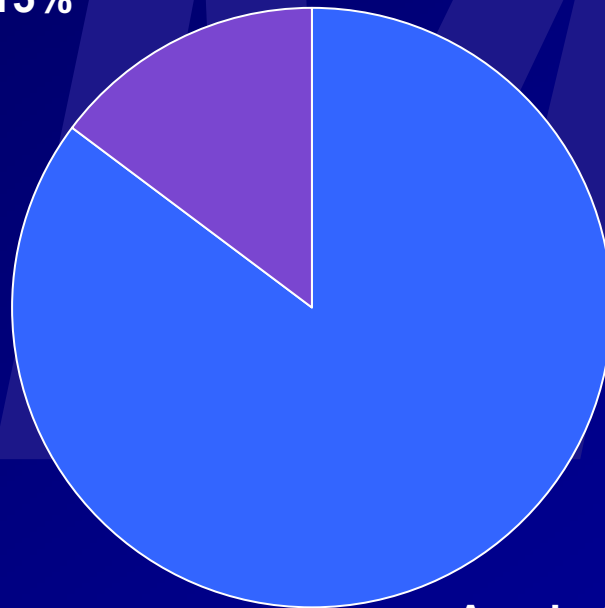
# Race/Ethnicity Rates: ED Patients



Source: HASD&IC, CHIP, County of San Diego Health and Human Services Agency, Emergency Department database FY 2005/06

# Amphetamine Abuse vs. Dependence: ED Patients

Amphetamine  
Dependence  
15%

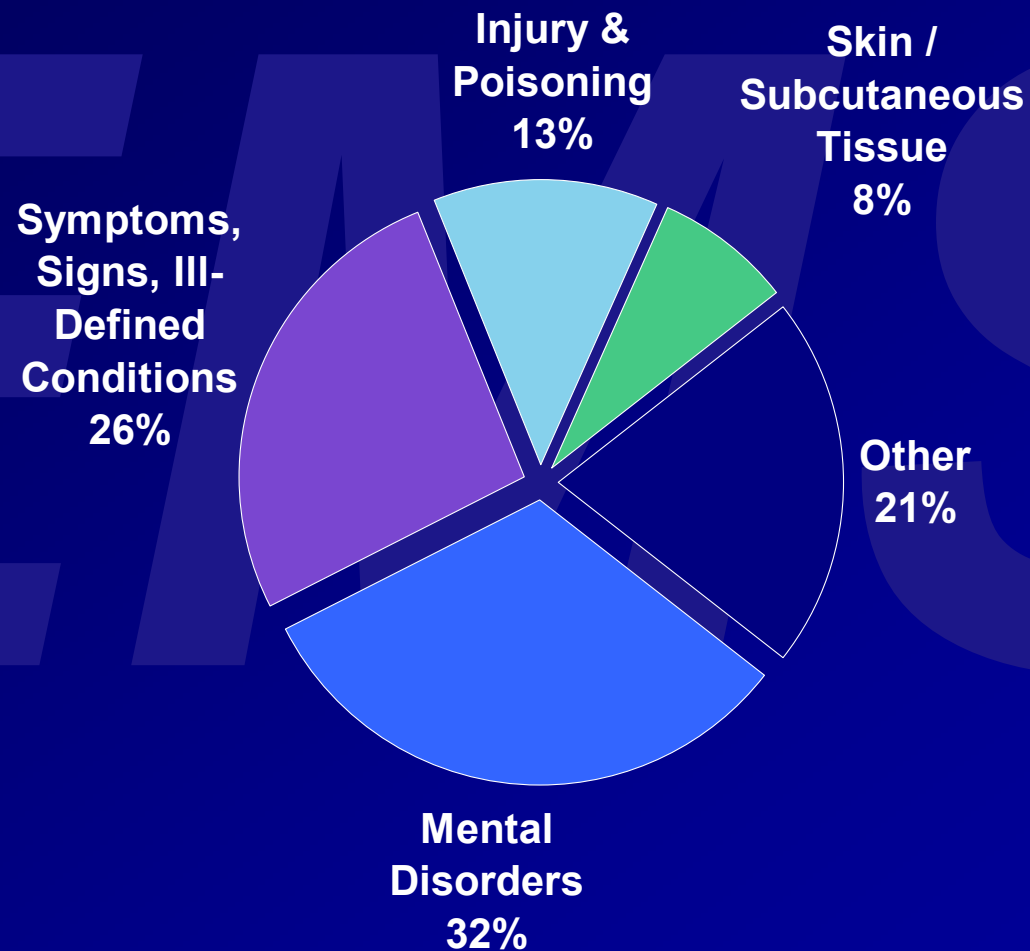


Amphetamine  
Abuse  
85%

Source: HASD&IC, CHIP, County of San Diego Health and Human Services Agency,  
Emergency Department database FY 2005/06

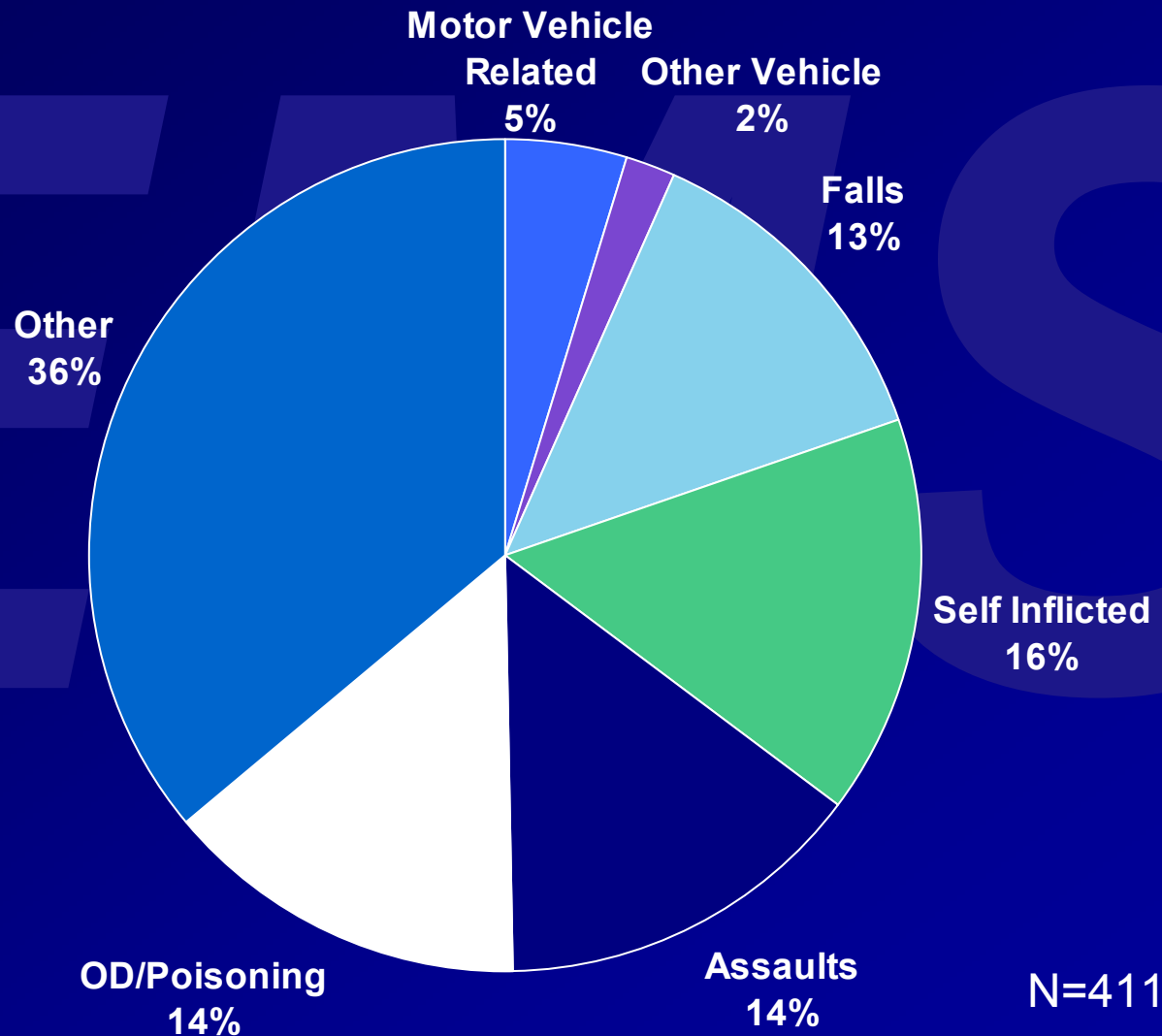
County of San Diego Division of Emergency Medical Services

# Primary Diagnosis: ED Patients



Source: HASD&IC, CHIP, County of San Diego Health and Human Services Agency, Emergency Department database FY 2005/06

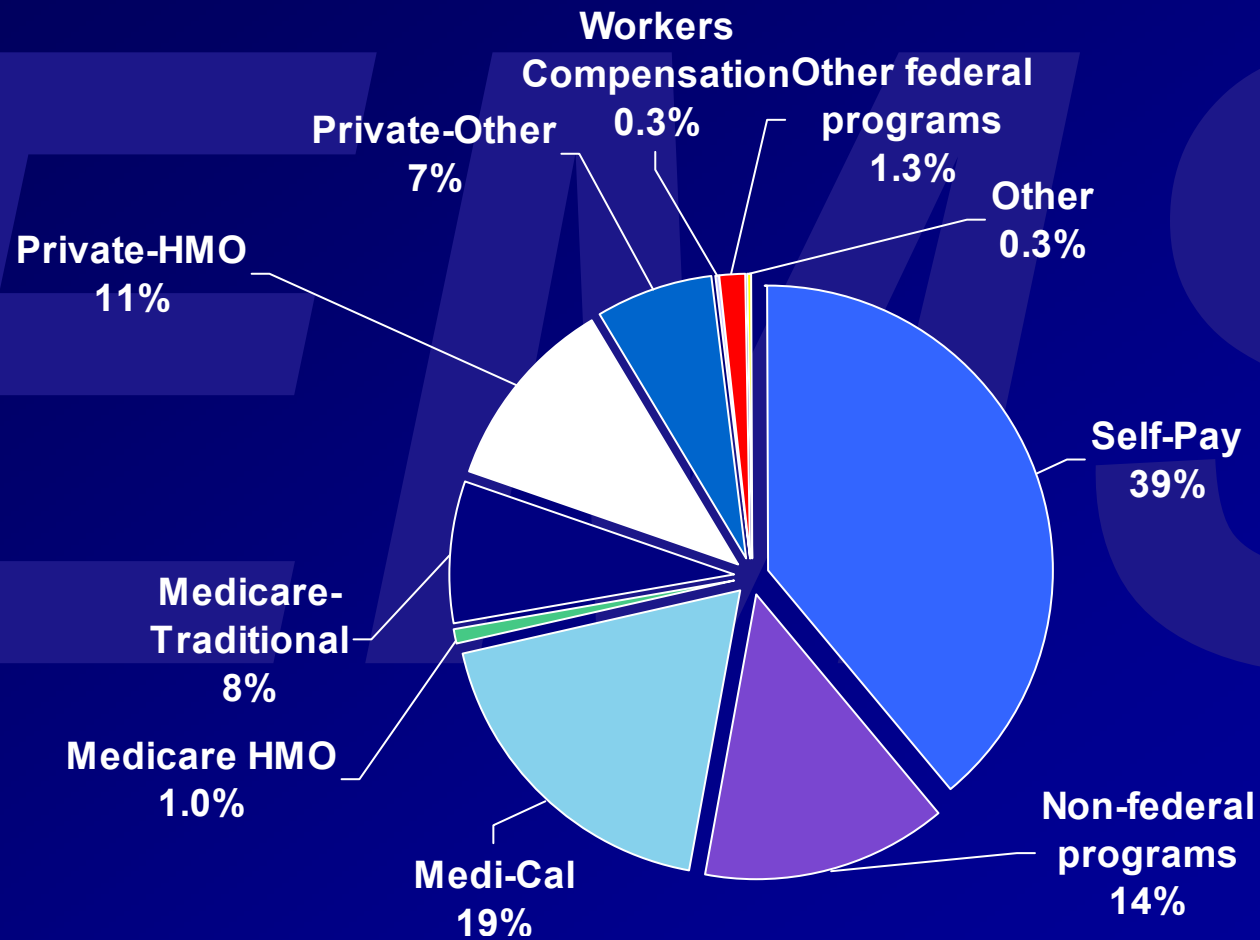
# External Cause of Injury: ED Patients (N=411)



Source: HASD&IC, CHIP, County of San Diego Health and Human Services Agency,  
Emergency Department database FY 2005/06

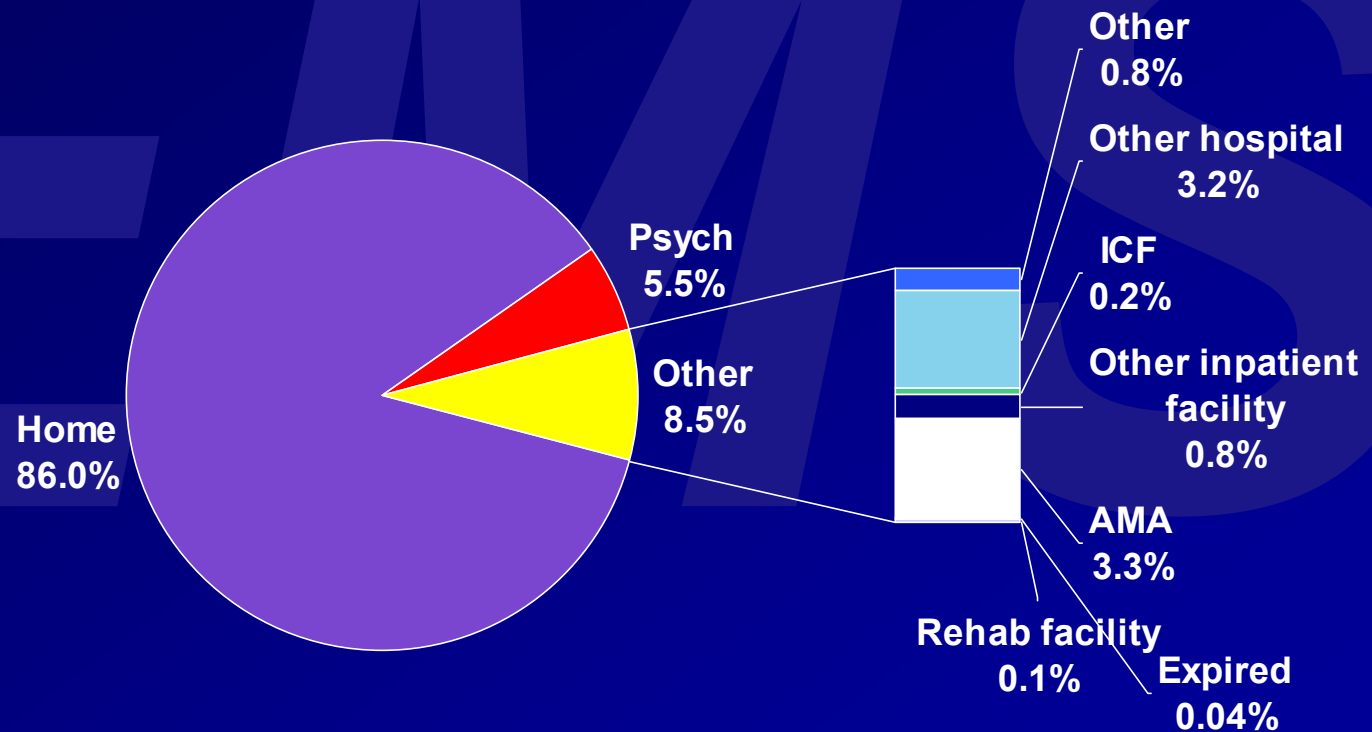
Division of Emergency Medical Services

# Source of Payment: ED Patients



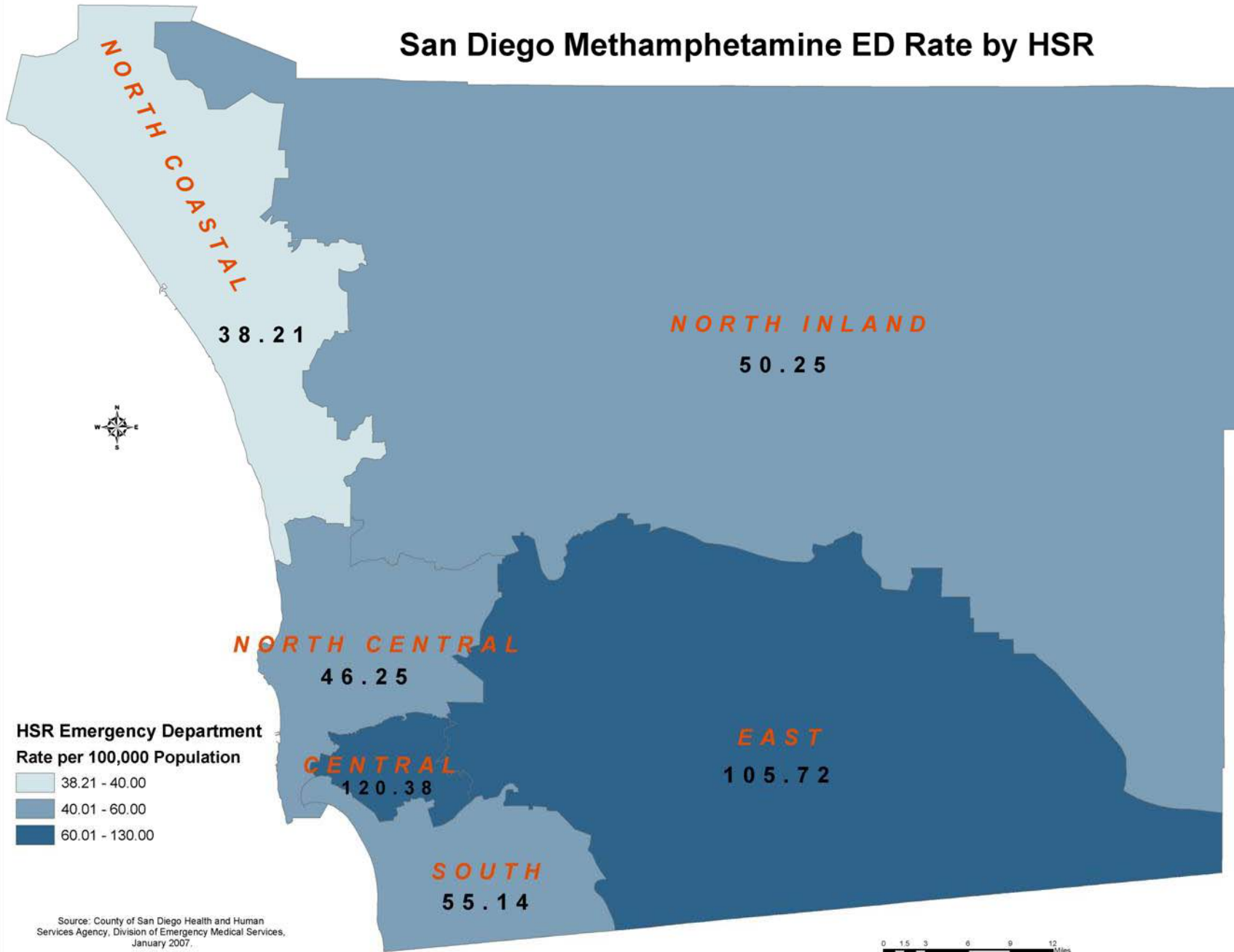
Source: HASD&IC, CHIP, County of San Diego Health and Human Services Agency, Emergency Department database FY 2005/06

# Discharge Disposition: ED Patients



Source: HASD&IC, CHIP, County of San Diego Health and Human Services Agency, Emergency Department database FY 2005/06

# San Diego Methamphetamine ED Rate by HSR



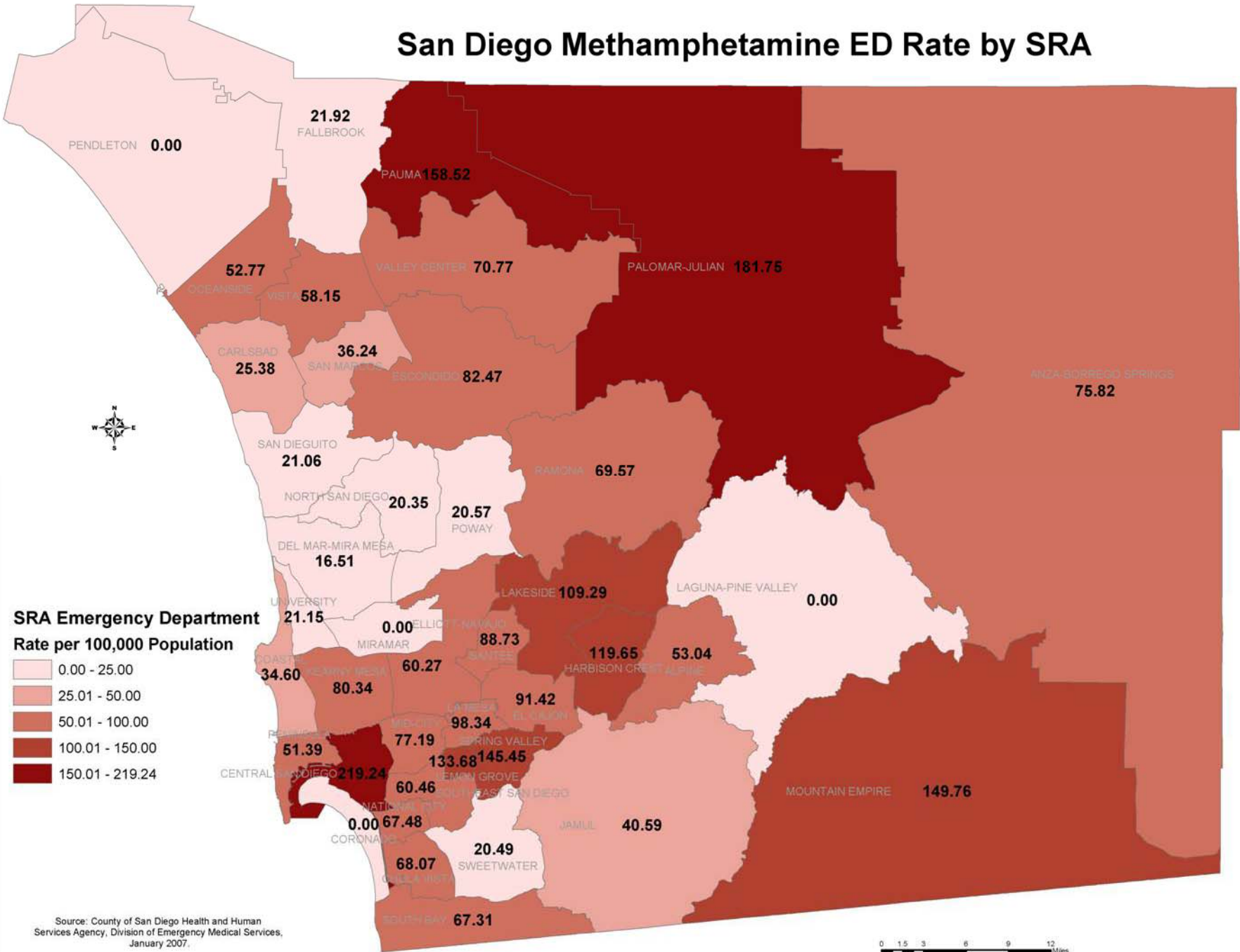
HSR Emergency Department  
Rate per 100,000 Population

- 38.21 - 40.00
- 40.01 - 60.00
- 60.01 - 130.00

Source: County of San Diego Health and Human Services Agency, Division of Emergency Medical Services, January 2007.

0 1.5 3 6 9 12 Miles

# San Diego Methamphetamine ED Rate by SRA



**SRA Emergency Department Rate per 100,000 Population**

- 0.00 - 25.00
- 25.01 - 50.00
- 50.01 - 100.00
- 100.01 - 150.00
- 150.01 - 219.24

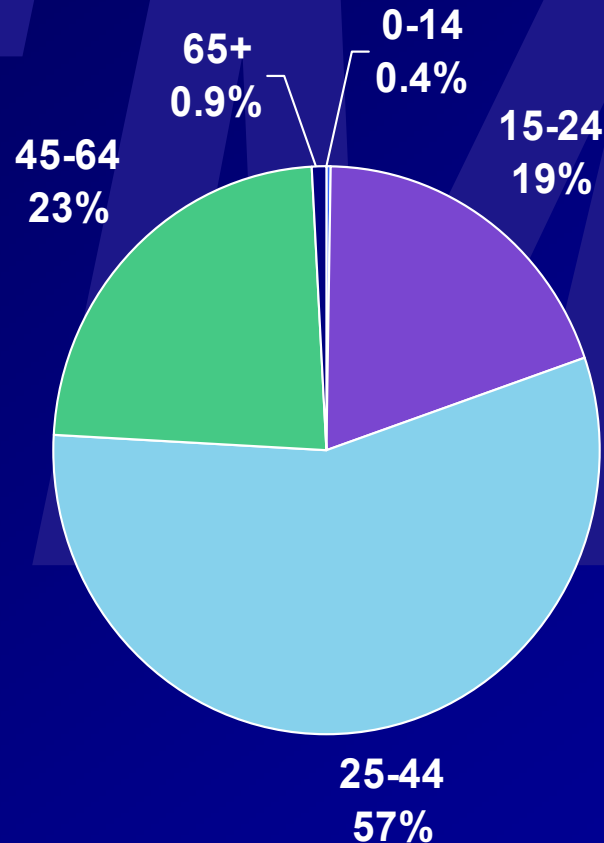
Source: County of San Diego Health and Human Services Agency, Division of Emergency Medical Services, January 2007.



# Hospital Patient Discharge Database

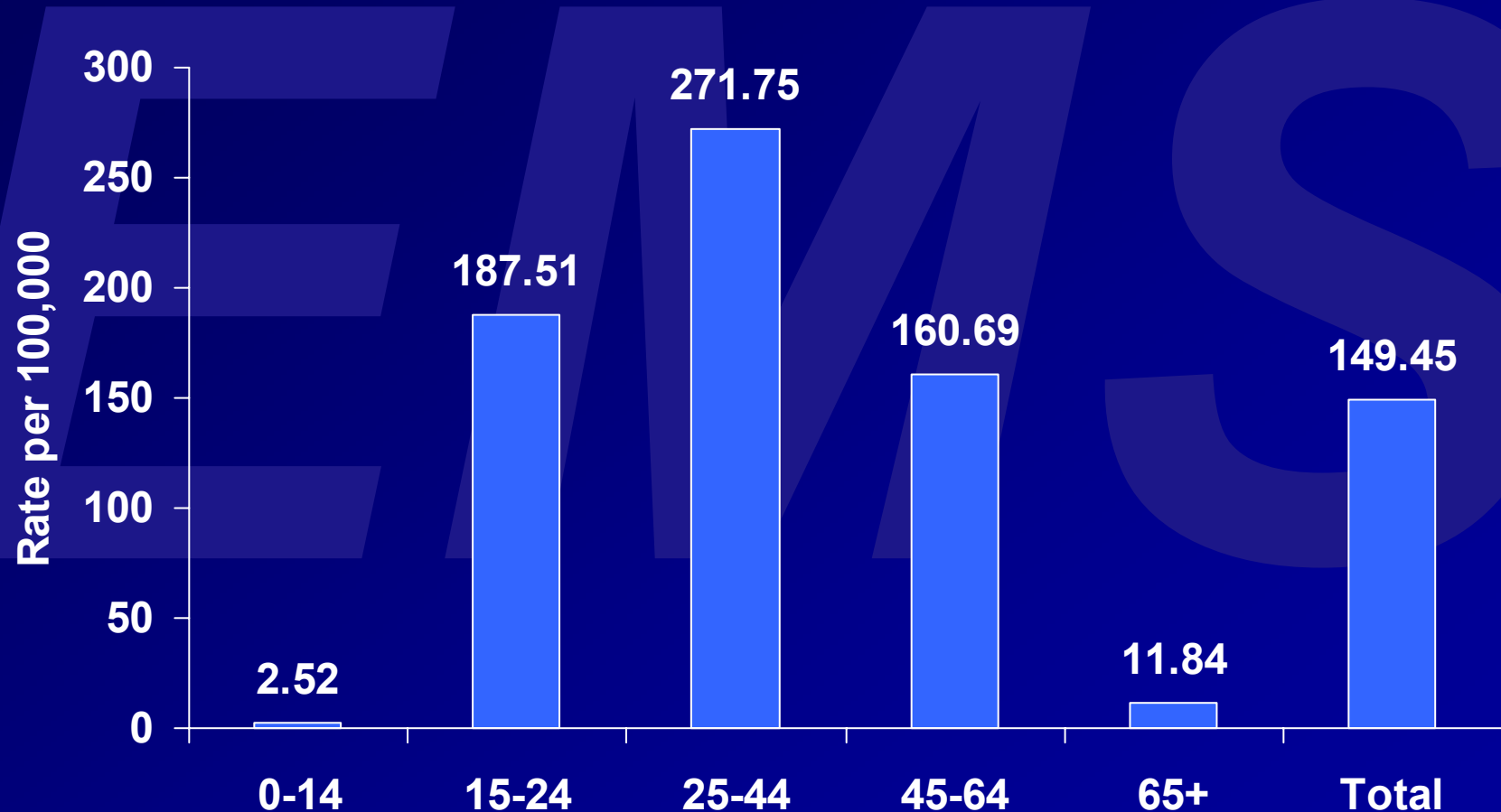
- Year 2004
- Includes all patients discharged after admission to hospital
- 297,096 patients/year
- Inclusion criteria
  - Any ICD-9 diagnosis = 304.4 (amphetamine and other psychostimulant dependence) or 305.7 (amphetamine or related acting sympathomimetic abuse)
- Total meeting criteria: **4,503**
  - Population rate: **149 per 100,000**

# Age Distribution: Hospital Inpatients



Source: County of San Diego Health and Human Services Agency,  
Hospital Discharge database 2004

# Age-Specific Rates: Hospital Inpatients

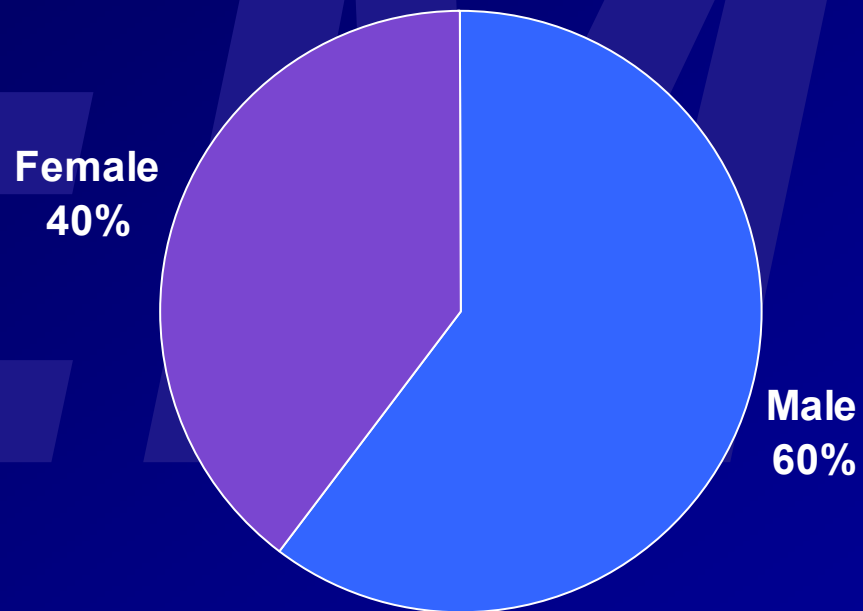


Source: County of San Diego Health and Human Services Agency,  
Hospital Discharge database 2004

County of San Diego

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# Gender Distribution: Hospital Inpatients

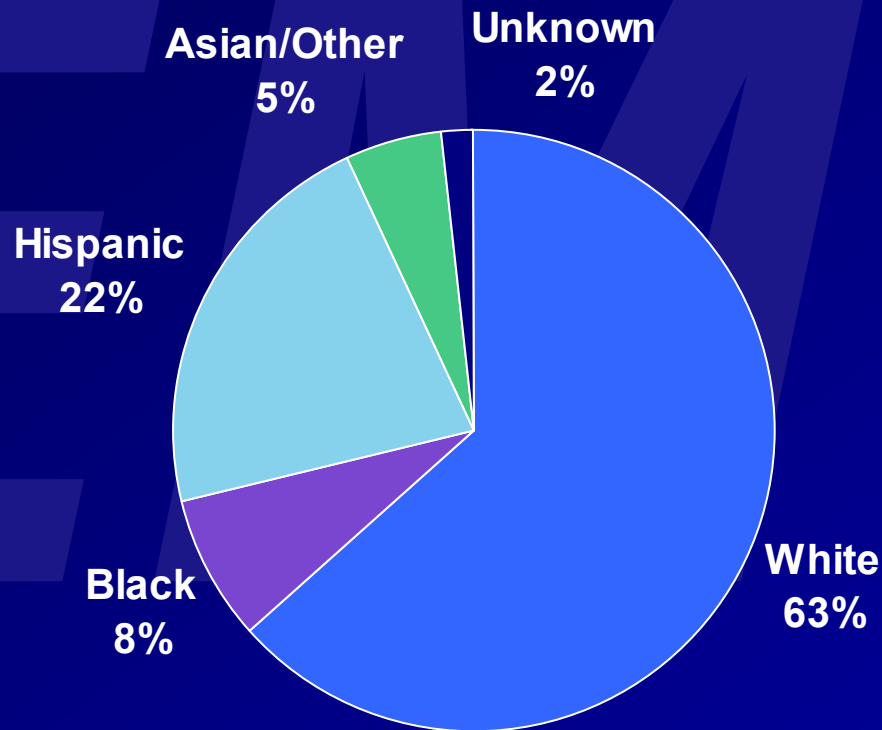


Source: County of San Diego Health and Human Services Agency,  
Hospital Discharge database 2004

County of San Diego

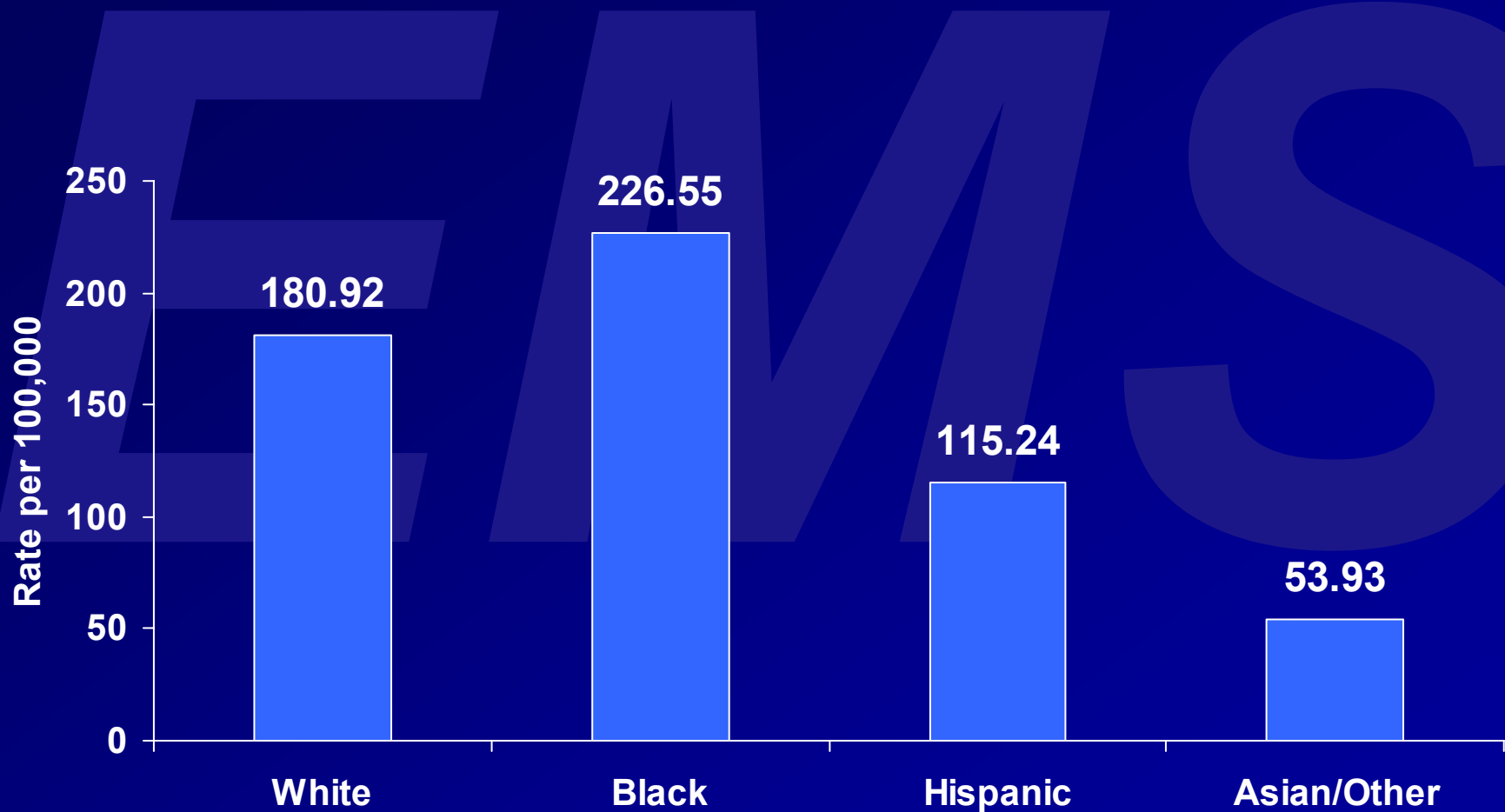
Division of Emergency Medical Services

# Race/Ethnicity Distribution: Hospital Inpatients



Source: County of San Diego Health and Human Services Agency,  
Hospital Discharge database 2004

# Race/Ethnicity Rates: Hospital Inpatients



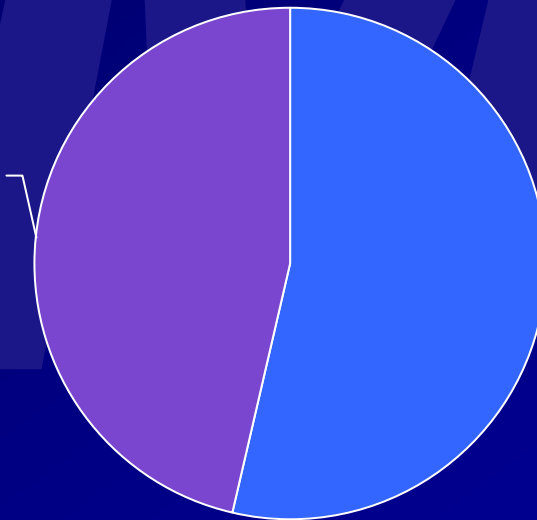
Source: County of San Diego Health and Human Services Agency,  
Hospital Discharge database 2004

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# Route of Admission: Hospital Inpatients

Not Hospital's  
ED  
46.3%



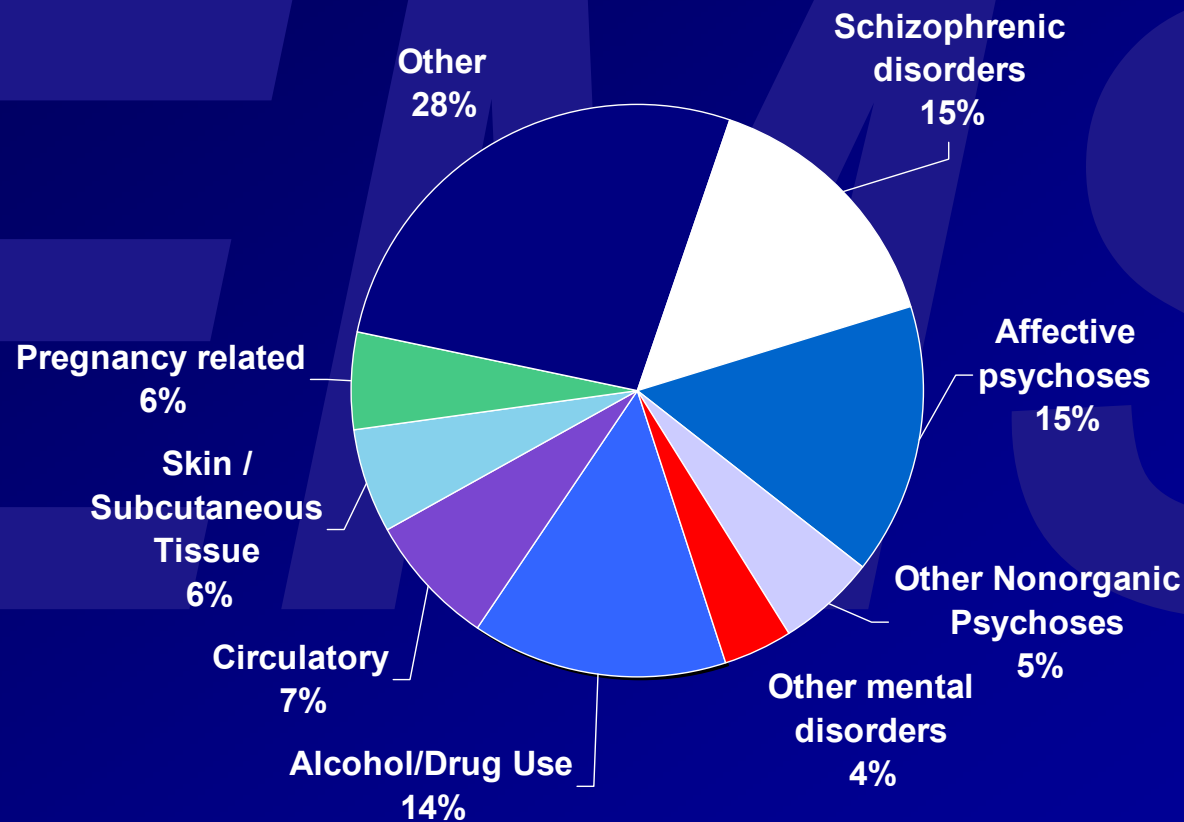
Hospital's ED  
53.7%

Source: County of San Diego Health and Human Services Agency,  
Hospital Discharge database 2004

County of San Diego

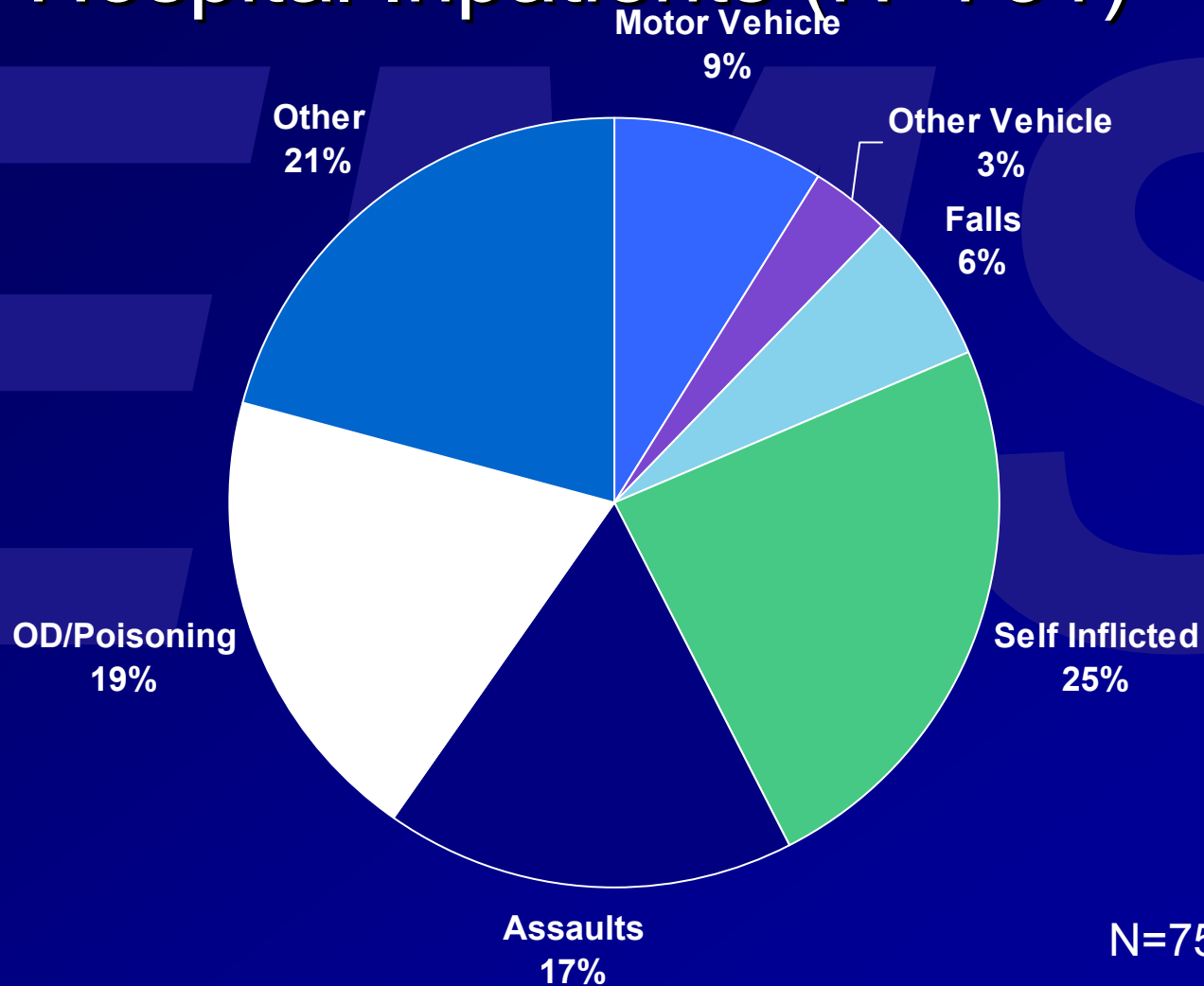
Division of Emergency Medical Services

# Primary Diagnosis: Hospital Inpatients



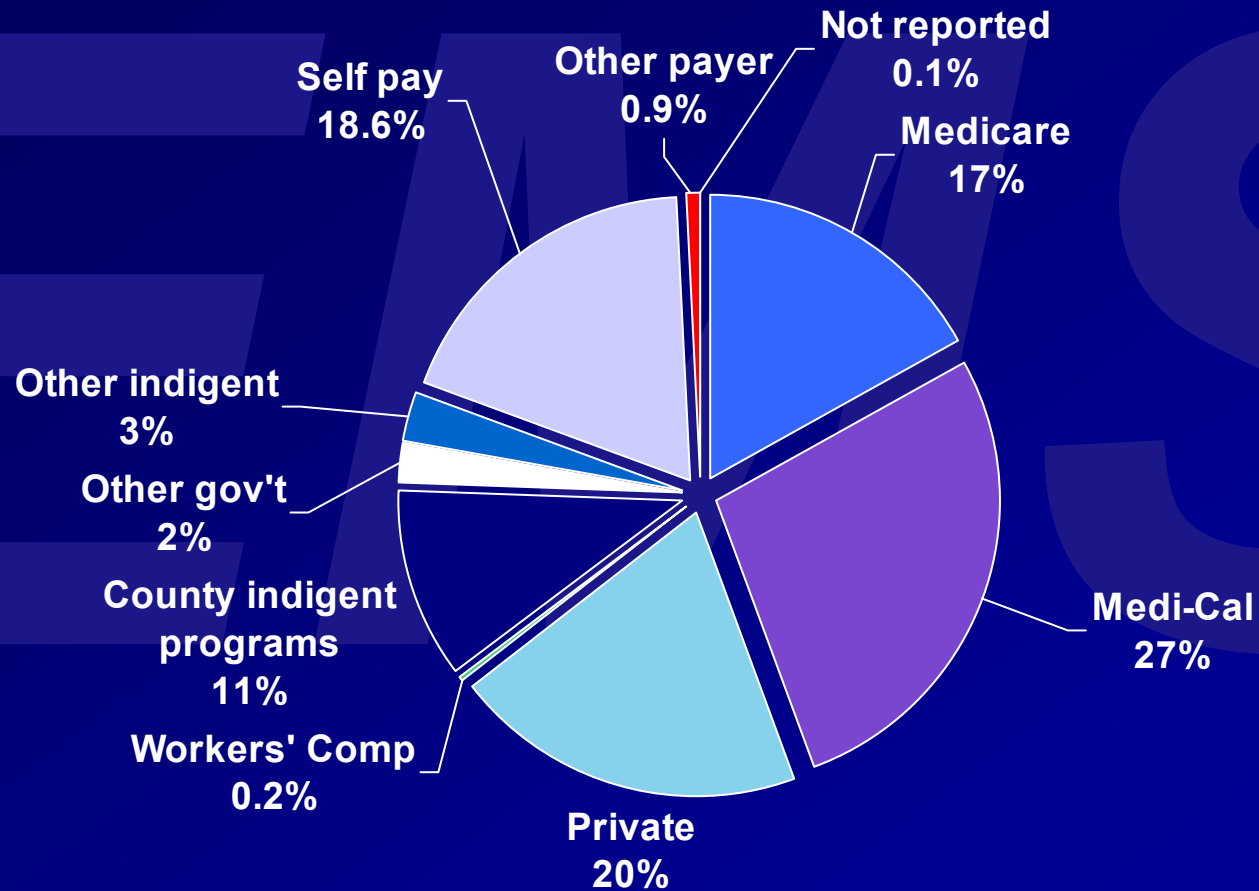
Source: County of San Diego Health and Human Services Agency,  
Hospital Discharge database 2004

# External Cause of Injury: Hospital Inpatients (N=751)



Source: County of San Diego Health and Human Services Agency, Emergency Medical Services Hospital Discharge database 2004

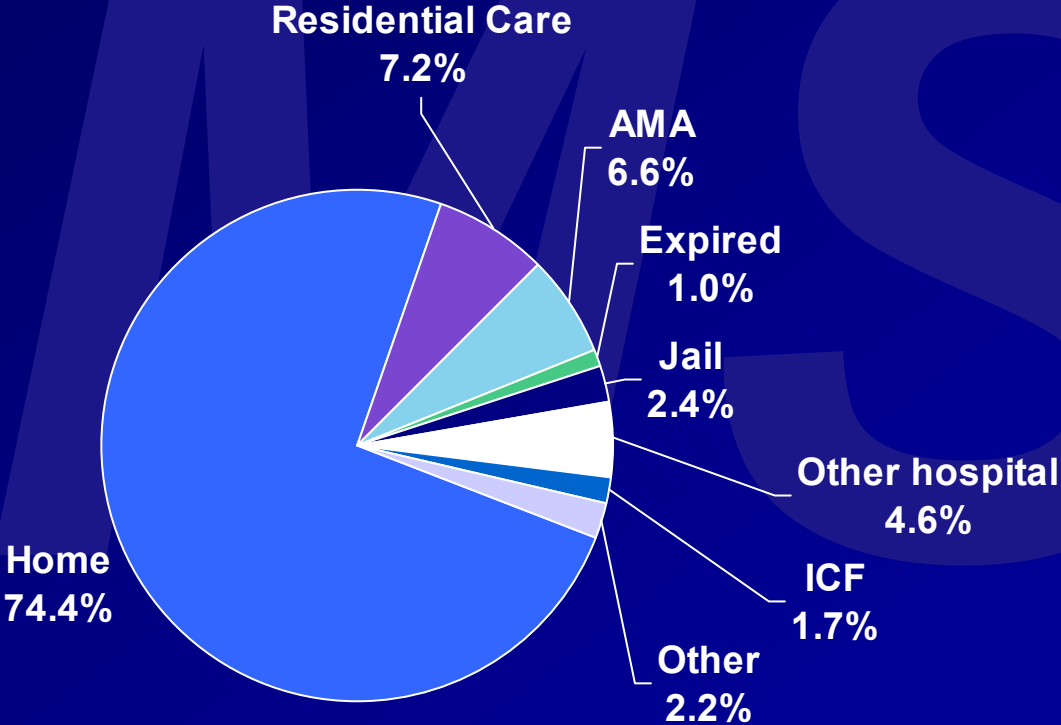
# Source of Payment: Hospital Inpatients



Source: County of San Diego Health and Human Services Agency,  
Hospital Discharge database 2004

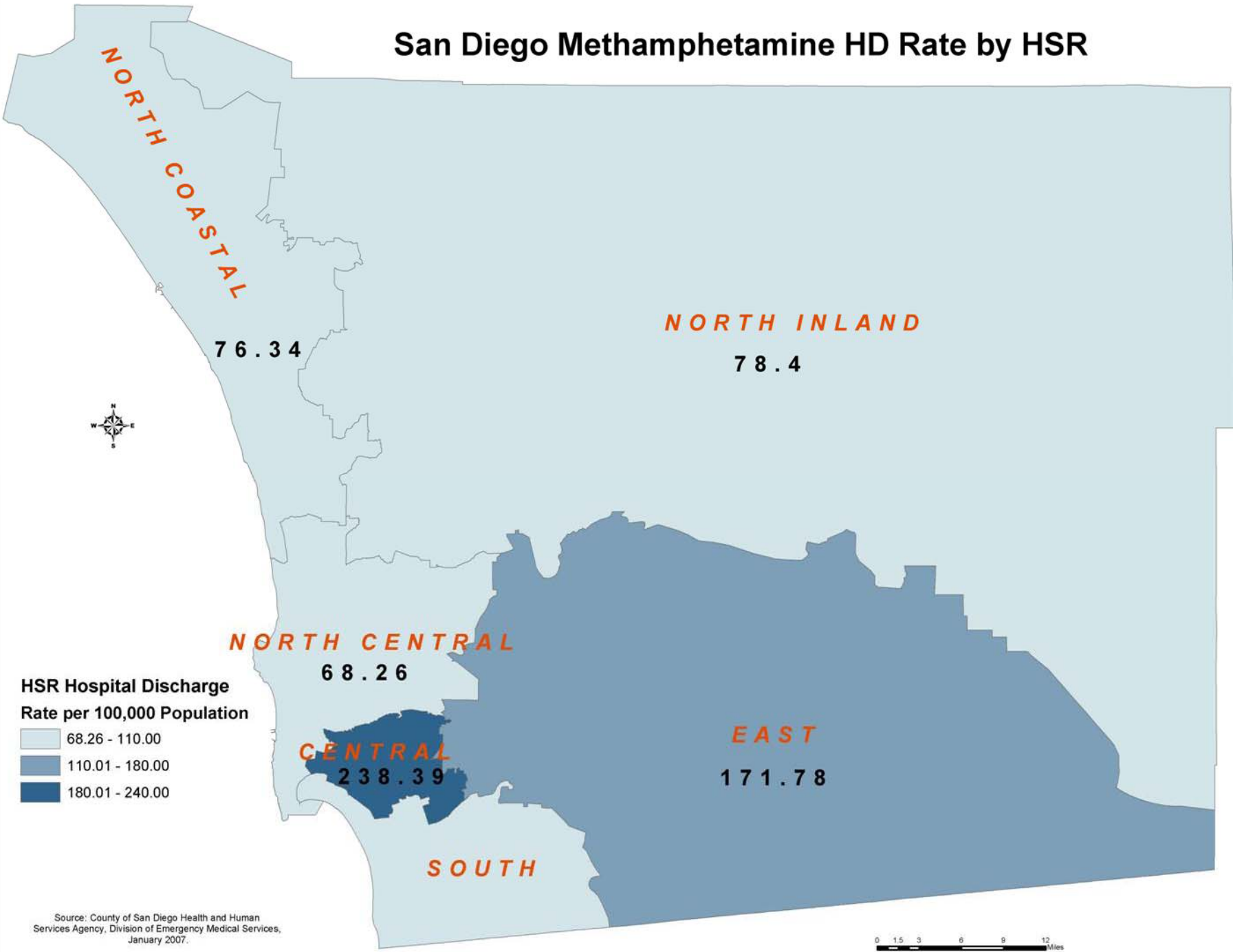
Division of Emergency Medical Services

# Discharge Disposition: Hospital Inpatients



Source: County of San Diego Health and Human Services Agency, Hospital Discharge database 2004

# San Diego Methamphetamine HD Rate by HSR



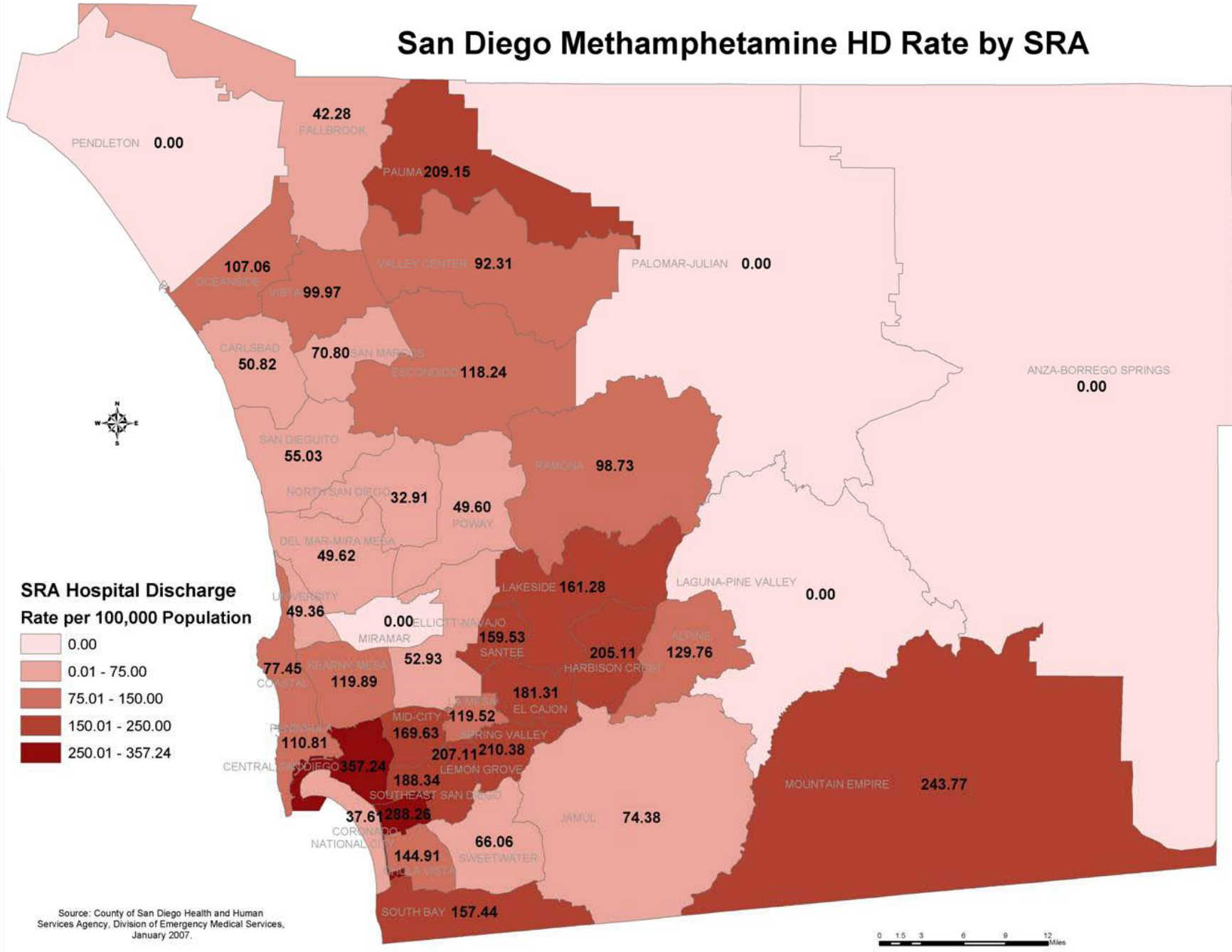
HSR Hospital Discharge  
Rate per 100,000 Population

- 68.26 - 110.00
- 110.01 - 180.00
- 180.01 - 240.00

Source: County of San Diego Health and Human Services Agency, Division of Emergency Medical Services, January 2007.

0 1.5 3 6 9 12 Miles

# San Diego Methamphetamine HD Rate by SRA



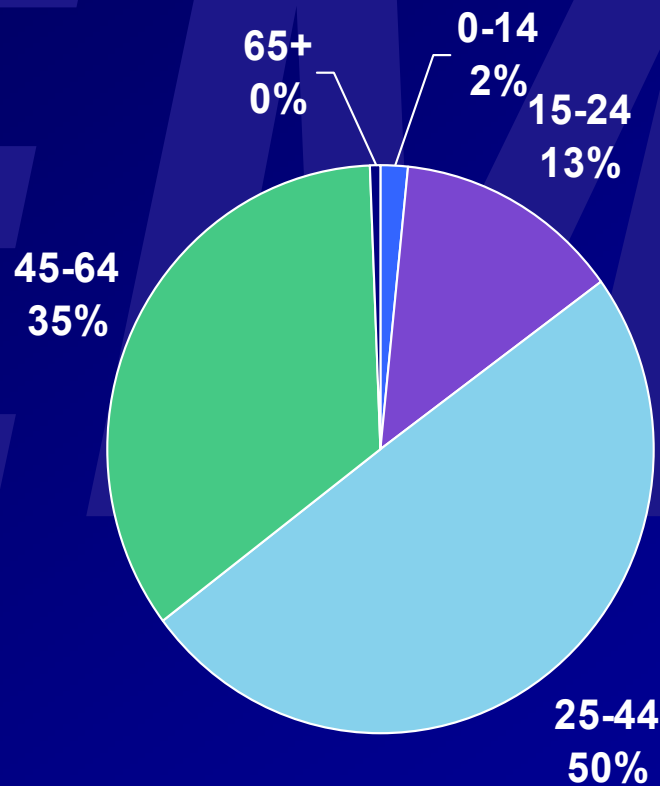
Source: County of San Diego Health and Human Services Agency, Division of Emergency Medical Services, January 2007.



# Medical Examiner Database

- Year 2005
- Includes all non-natural deaths occurring in San Diego County
- 2,580 investigations per year
  - 1,568 non-natural deaths
- Inclusion criteria
  - positive toxicology for methamphetamine
- Total meeting criteria: **245**
  - Population rate: **7.9 per 100,000**
  - 12% of all toxicologies

# Age Distribution: ME Cases

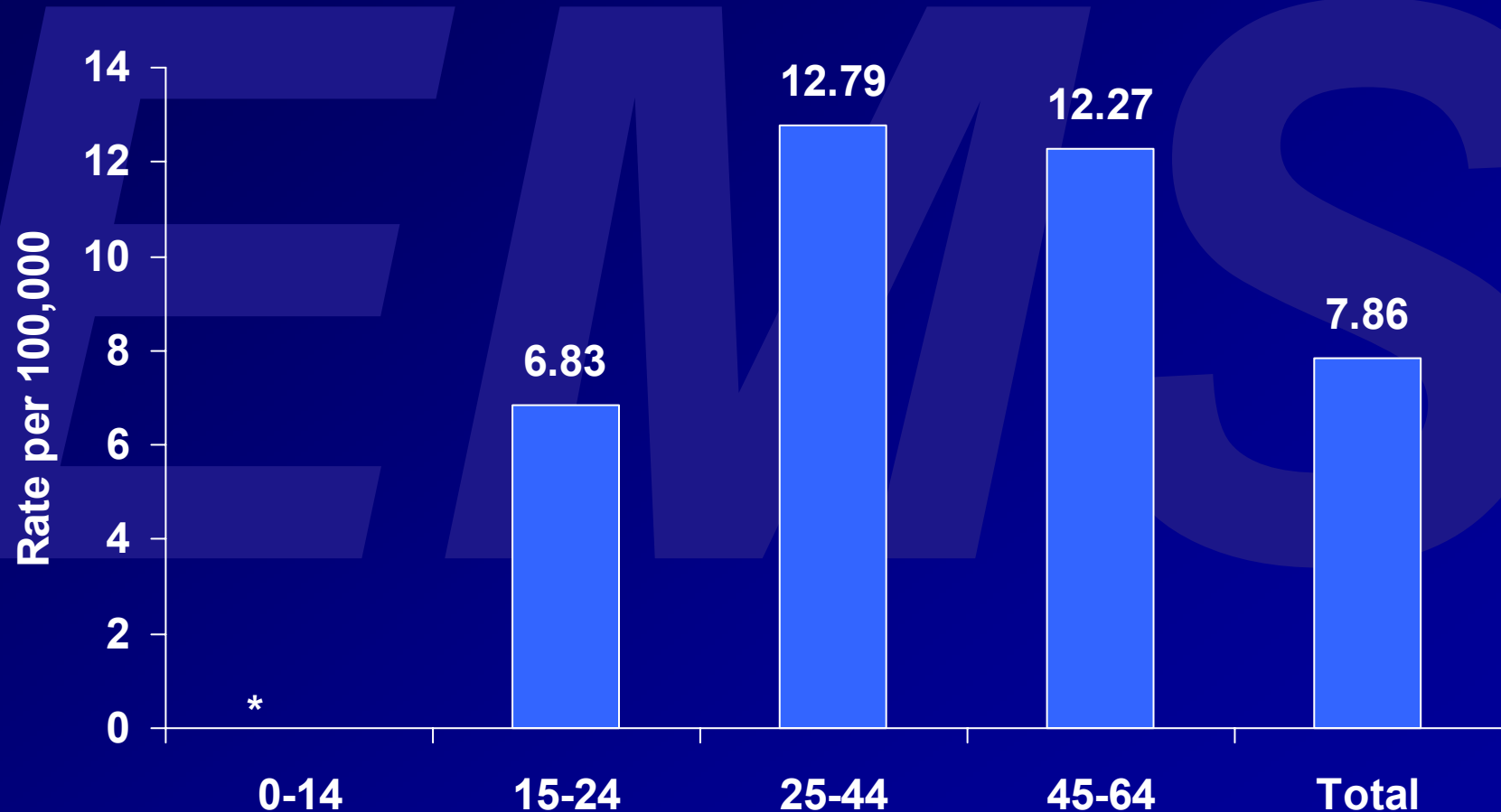


Source: County of San Diego Health and Human Services Agency,  
Medical Examiner database 2005

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# Age-Specific Rates: ME Cases



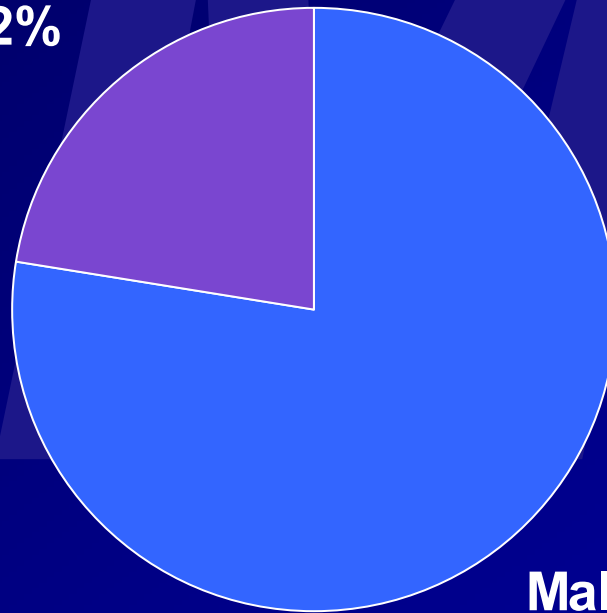
Source: County of San Diego Health and Human Services Agency,  
Medical Examiner database 2005

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# Gender Distribution: ME Cases

**Female**  
**22%**



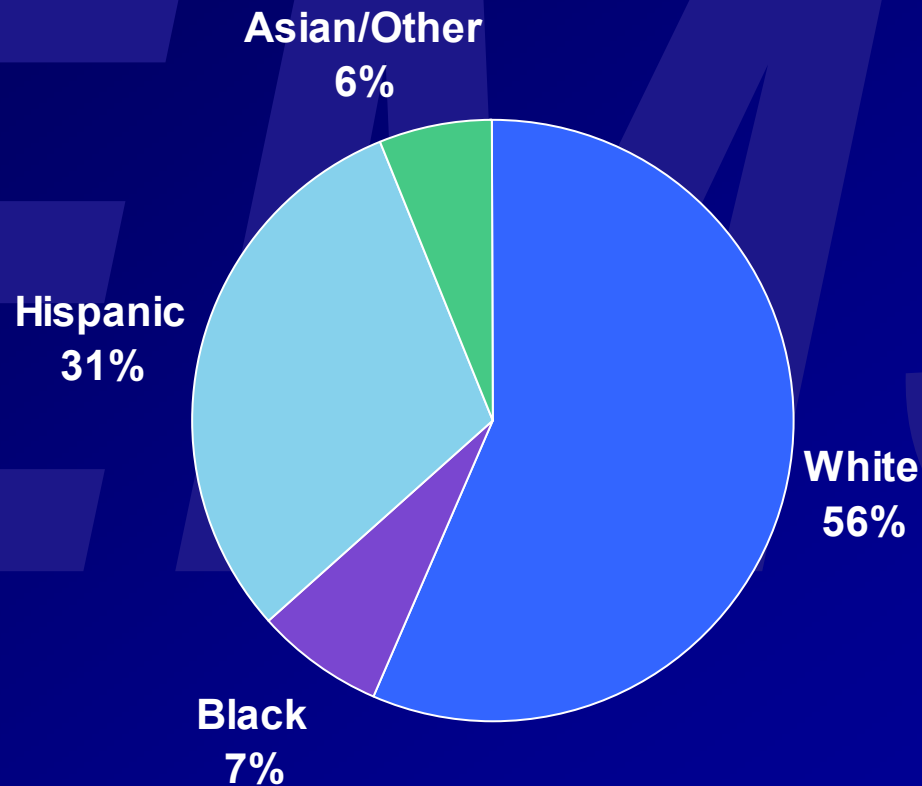
**Male**  
**78%**

Source: County of San Diego Health and Human Services Agency,  
Medical Examiner database 2005

County of San Diego

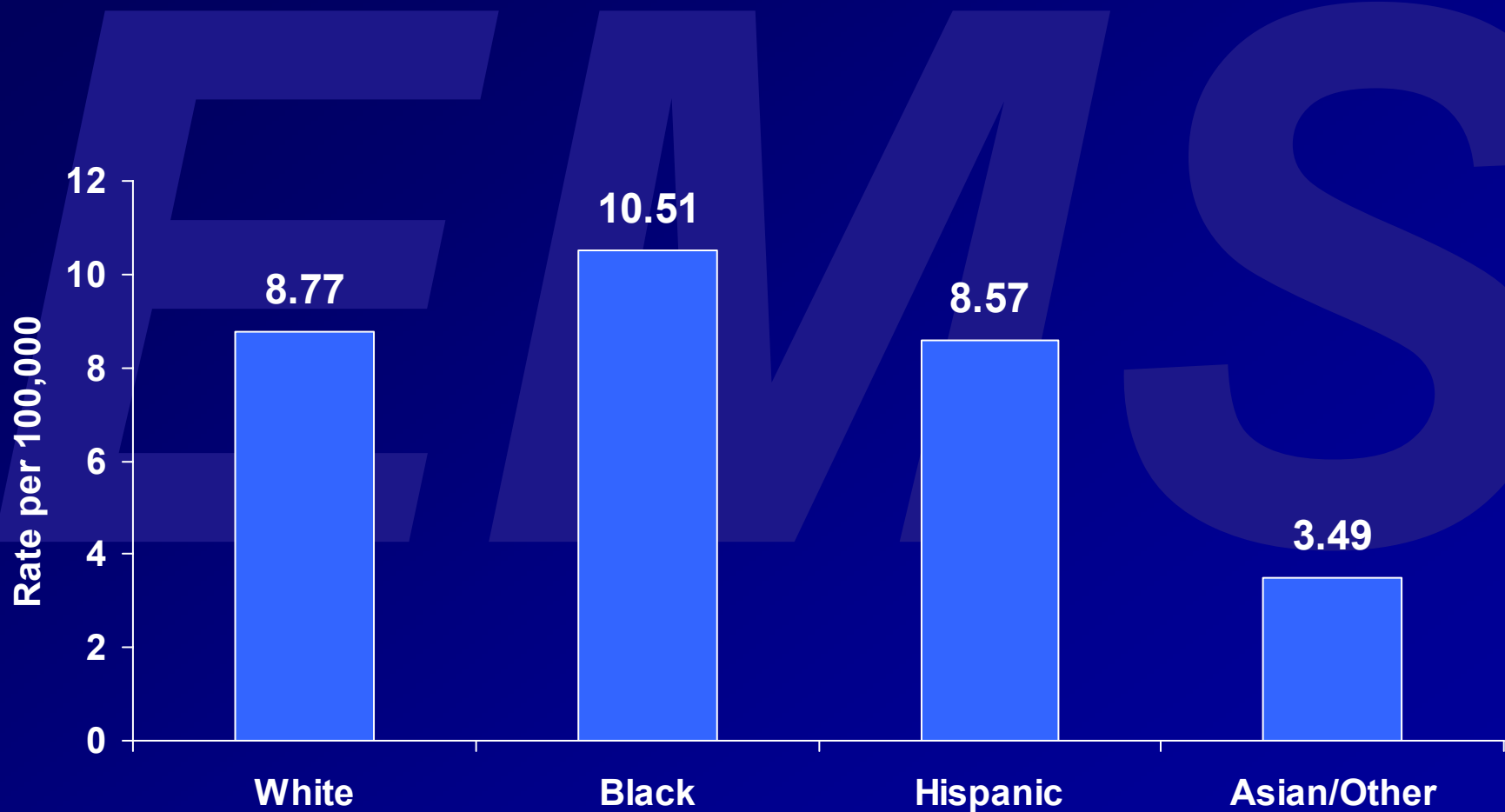
Division of Emergency Medical Services

# Race/Ethnicity Distribution: ME Cases



Source: County of San Diego Health and Human Services Agency,  
Medical Examiner database 2005

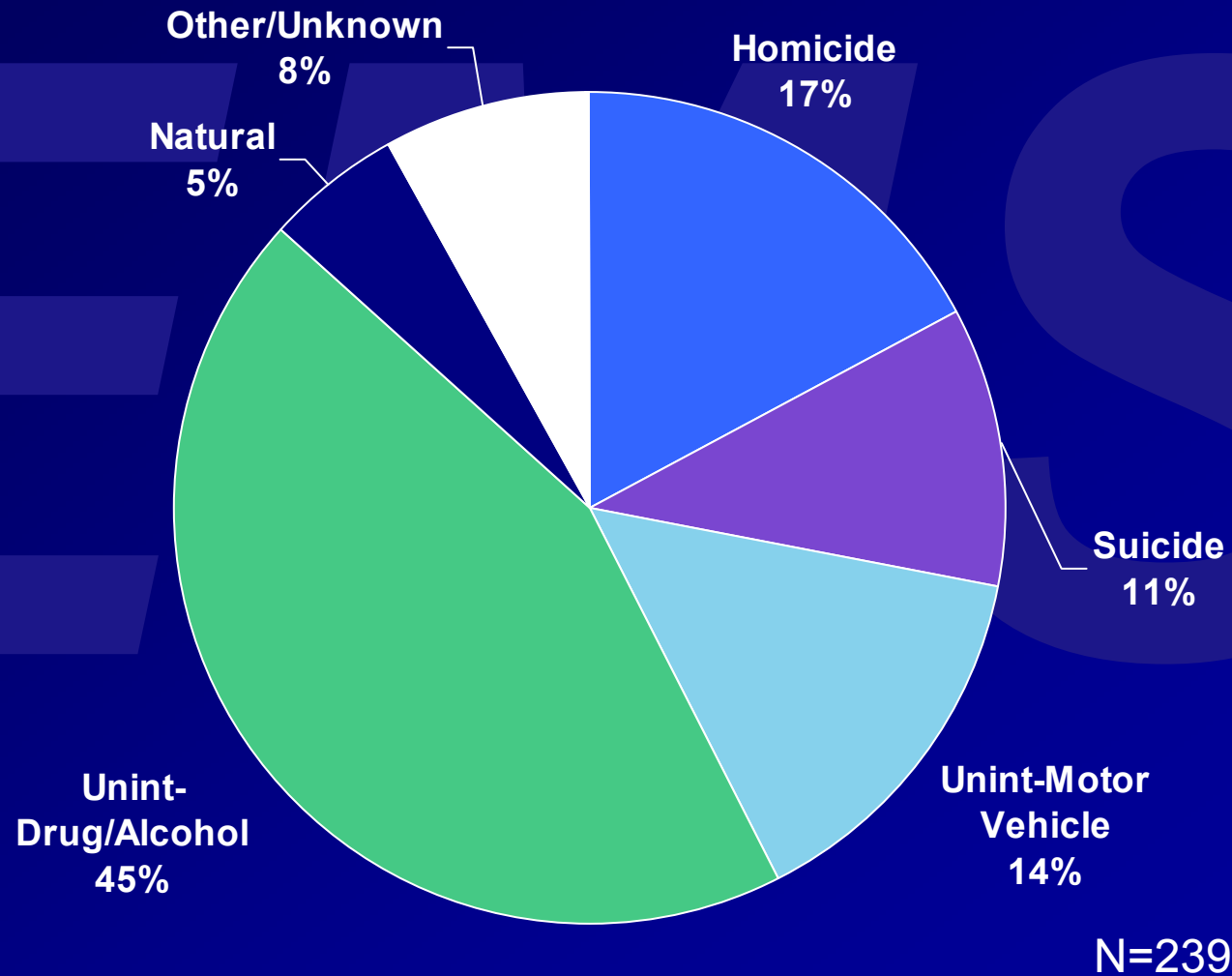
# Race/Ethnicity Rates: ME Cases



Source: County of San Diego Health and Human Services Agency,  
Medical Examiner database 2005

Division of Emergency Medical Services

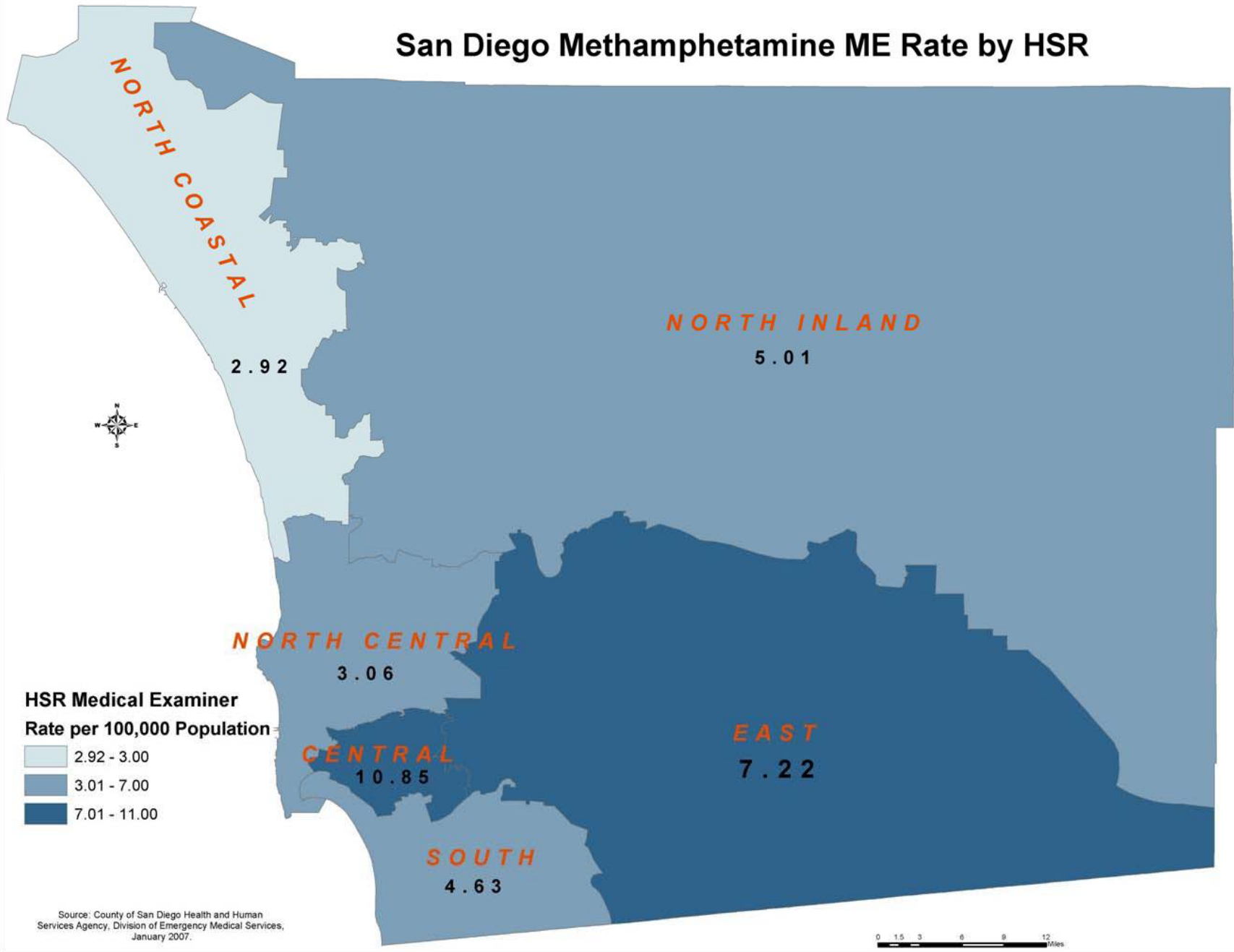
# Cause of Death: ME Cases



Source: County of San Diego Health and Human Services Agency,  
Medical Examiner database 2005

Division of Emergency Medical Services

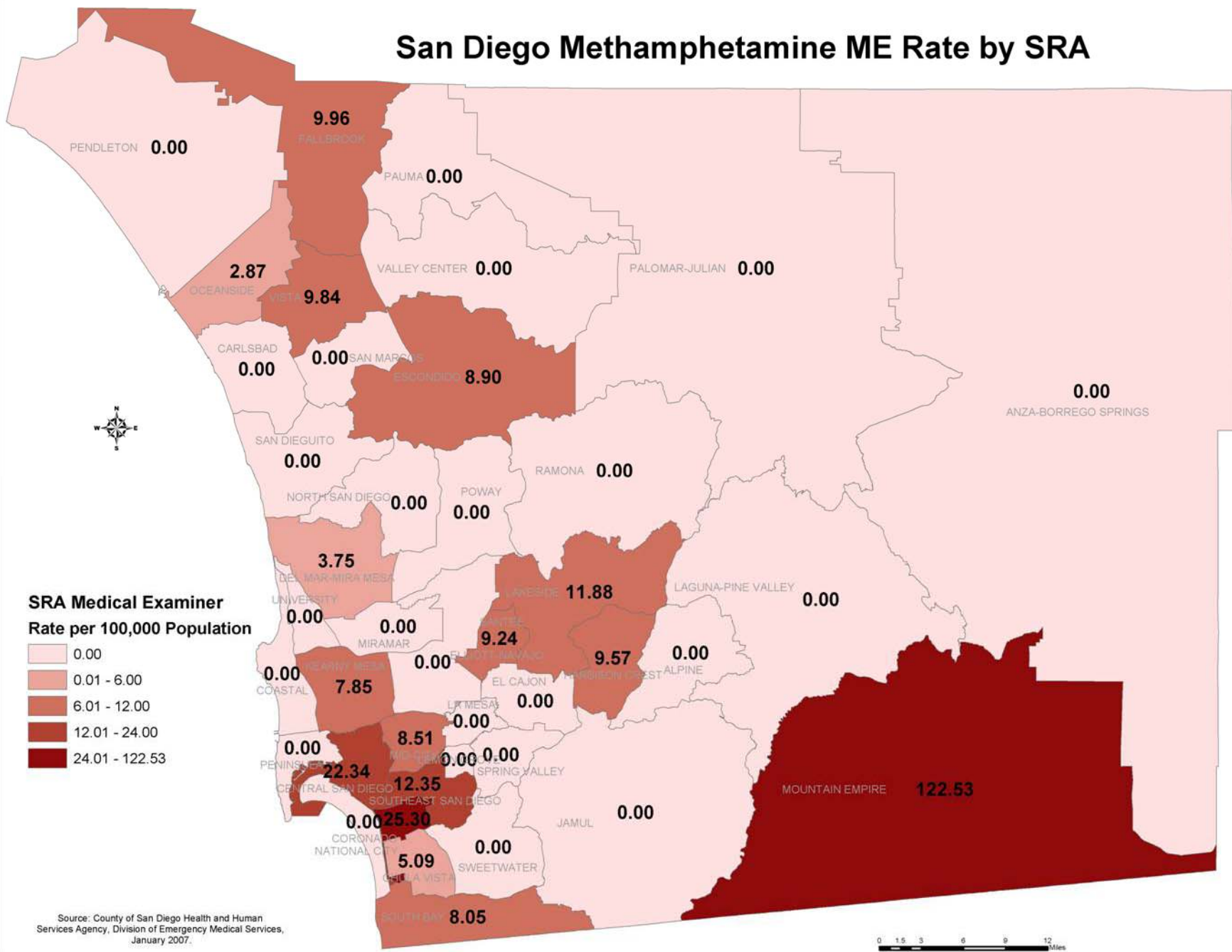
# San Diego Methamphetamine ME Rate by HSR



Source: County of San Diego Health and Human Services Agency, Division of Emergency Medical Services, January 2007.

0 1.5 3 6 9 12 Miles

# San Diego Methamphetamine ME Rate by SRA



Source: County of San Diego Health and Human Services Agency, Division of Emergency Medical Services, January 2007.



# Summary: Comparison of Phases of Care

- Meth pervasive in emergency cases and sudden deaths
- Age:
  - Comparable in ED, Hospital DC
  - Older in ME (35%  $\geq 45$  years vs. 22-24% in ED, HDC)
  - Younger in prehospital (27% 15-24 vs. 20% in ED, HDC)
- Sex:
  - More male in ME (77% vs. 61% in ED, HDC)
- Race/Ethnicity:
  - Whites, Blacks overrepresented
  - Hispanics, Asians underrepresented

# Summary (continued)

## ■ Primary Diagnoses/Complaints

### – Mental disorders

- 35% of hospital DC were schizophrenia/psychoses

### – Circulatory disorders

- 7.5% of hospital DC

### – Pregnancy

- 6% of hospital DC

### – Skin/Subcutaneous

- 8% of ED and hospital DC

# Summary: Injuries

- E-codes noted for 18% of ED patients, 17% of Hospital DC
- Higher % of injuries from self-inflicted and assault
- Self-Inflicted Injuries
  - 17% of ED; 24% of hospital DC; 12% of ME
- Assault
  - 14% of ED; 17% of hospital DC; 15% of ME
- Motor Vehicle Related
  - 6% of ED; 9% of hospital DC; 15% of ME

# Conclusions

- Meth impacts all phases of emergency care in San Diego County
- Increased psychosis (direction?)
- Increased violent injury risk
  - Self inflicted
  - Assault
- Geographic regions
  - Central
  - East

# Acknowledgements

- The presenters wish to thank the following for contributing data:
  - San Diego County Prehospital Agencies
  - San Diego County Emergency Departments
  - San Diego County Acute Care Hospitals
  - San Diego County Medical Examiner's Office
  - Hospital Association
  - CHIP

# Contact Information

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(619) 285-6479

[www.sdhealthstatistics.com](http://www.sdhealthstatistics.com)