



## Data Brief

# Substance Use Disorders in California Hospital-Based Encounters Emergency Department and Inpatient Trends (2020–2022)

January 2026

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### Key Findings:

This data brief examines California hospital utilization related to substance use from 2020–2022, drawing on encounter-level data reported by the Department of Health Care Access and Information (HCAI). The analysis highlights trends in encounter volume, patient demographics, substance types, and payer mix across emergency department (ED) and inpatient settings.

### In 2022:

- Over **1.1 million** hospital encounters involved a diagnosed SUD, representing 7% of all hospital-based encounters statewide.
  - An estimated **652,000 unique individuals** received SUD-related care in ED or inpatient settings.
  - **Inpatient encounters** accounted for **43%** of all SUD-related hospital utilization.
  - **Medi-Cal** financed **49% of inpatient** and **55% of ED SUD encounters**.
  - Alcohol (**37%**), stimulants (**23%**), cannabis (**19%**), and opioids (**12%**) accounted for over 90% of SUD diagnoses, a distribution that remained stable across the study period.
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## **1. Introduction**

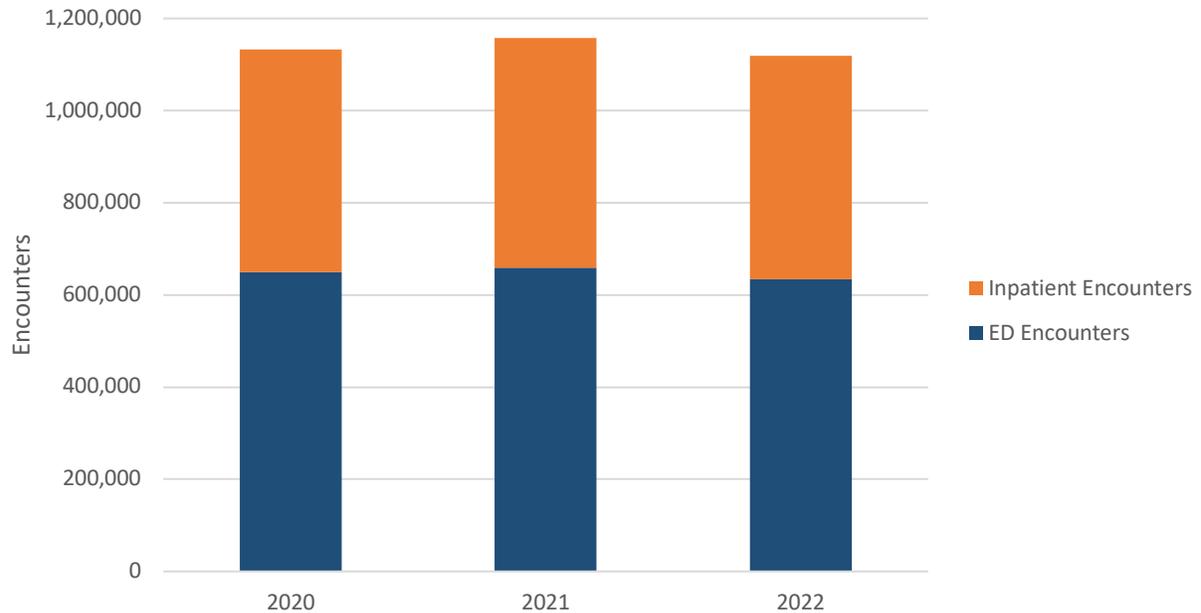
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Substance use disorders remain a persistent driver of hospital utilization in California. Despite expanded insurance coverage under the Affordable Care Act, increased availability of medication-assisted treatment, and substantial state investments in behavioral health infrastructure, hospital-based care related to substance use has not declined meaningfully.

Emergency departments continue to serve as a primary point of access for individuals experiencing acute substance-related crises, including overdose, intoxication, withdrawal, and co-occurring psychiatric conditions. National surveillance data show increases in drug- and substance-related emergency department visits in recent years, underscoring the ED's ongoing role as a critical entry point for acute SUD-related care (CDC, 2023; SAMHSA, 2023).

## 2. Utilization Patterns

**Table 1.** Substance Use and ED and Inpatient Utilization, 2020-2022



|                  | 2020             | 2021             | 2022             |
|------------------|------------------|------------------|------------------|
| <b>ED</b>        | 649,686 [57.3%]  | 659,334 [56.9%]  | 633,944 [56.7%]  |
| <b>Inpatient</b> | 483,174 [42.7%]  | 498,636 [43.1%]  | 484,768 [43.3%]  |
| <b>Total</b>     | 1,132,860 [100%] | 1,157,970 [100%] | 1,118,712 [100%] |

*†Emergency department (ED) and inpatient encounters are reported as mutually exclusive in HCAI data. Encounters in which patients are treated and discharged from the ED are reported as ED encounters. Encounters in which patients are admitted to the hospital—whether through the ED or another point of entry—are reported as inpatient encounters.*

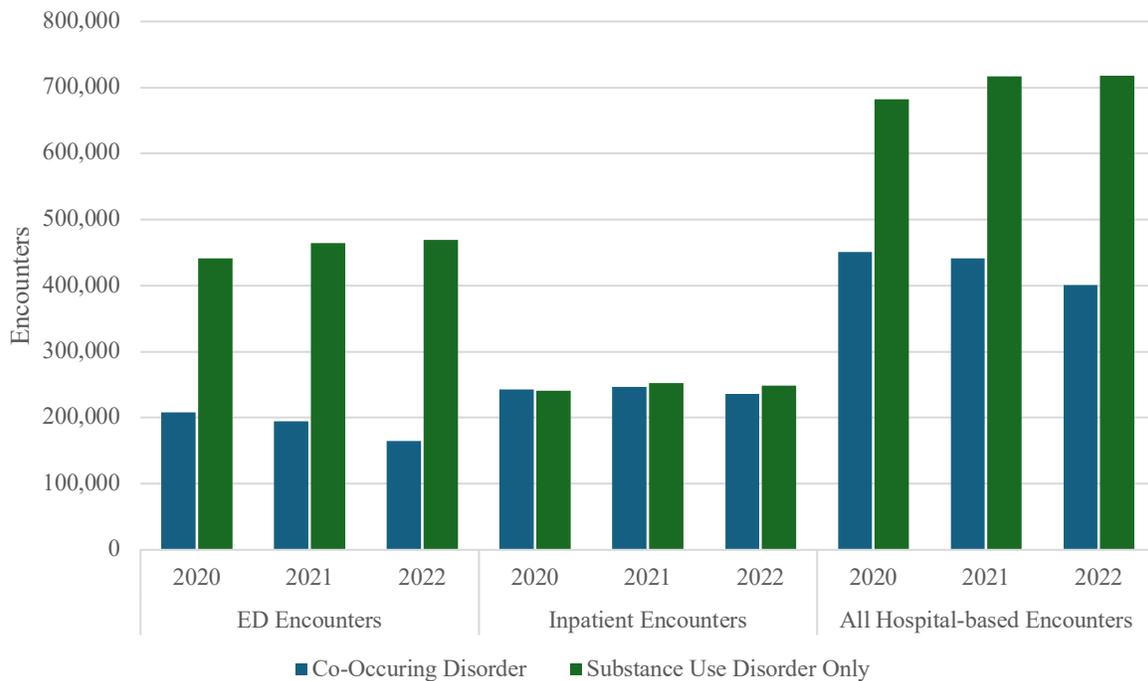
From 2020 through 2022, annual SUD-related hospital encounters in California remained relatively stable, exceeding one million encounters each year. The majority of SUD-related encounters (approximately 57%) were for patients treated exclusively in the emergency department, while a sizeable minority (approximately 43%) involved patients who were admitted to the hospital (inpatient), often following initial evaluation in the ED.

This inpatient share is substantially higher than the proportion of inpatient care among hospital visits overall, which was approximately 23% in 2022. The disproportionate use of inpatient care among patients with SUD is consistent with greater clinical severity, medical complexity, and the need for prolonged stabilization compared with non-SUD hospital encounters.

**Table 2.** Substance Use and Mental Health Co-Occurrence in the ED and Inpatient Settings, 2020-2022

† **Co-Occurring Disorder:** One or more mental health diagnoses **and** one or more substance use disorder (SUD) diagnoses.

**Substance Use Disorder:** One or more SUD diagnoses **and no** mental health diagnoses. Both categories may also include physical health diagnoses.



|                              | ED Encounters      |                    |                   | Inpatient Encounters |                    |                    | All Hospital-based Encounters |                     |                     |
|------------------------------|--------------------|--------------------|-------------------|----------------------|--------------------|--------------------|-------------------------------|---------------------|---------------------|
|                              | 2020               | 2021               | 2022              | 2020                 | 2021               | 2022               | 2020                          | 2021                | 2022                |
| <b>Co-Occurring Disorder</b> | 208,341<br>[32.1%] | 194,761<br>[29.5%] | 164,974<br>[26%]  | 242,537<br>[50.2%]   | 246,495<br>[49.4%] | 235,768<br>[48.6%] | 450,878<br>[39.8%]            | 441,256<br>[38.1%]  | 400,742<br>[35.8%]  |
| <b>SUD Disorder Only</b>     | 441,345<br>[67.9%] | 464,573<br>[70.5%] | 468,970<br>[74%]  | 240,637<br>[49.8%]   | 252,141<br>[50.6%] | 249,000<br>[51.4%] | 681,982<br>[60.2%]            | 716,714<br>[61.9%]  | 717,970<br>[64.2%]  |
| <b>All SUD</b>               | 649,686<br>[100%]  | 659,334<br>[100%]  | 633,944<br>[100%] | 483,174<br>[100%]    | 498,636<br>[100%]  | 484,768<br>[100%]  | 1,132,860<br>[100%]           | 1,157,970<br>[100%] | 1,118,712<br>[100%] |

Patterns of co-occurring mental health diagnoses differed substantially by care setting. In the ED, most SUD-related encounters involved SUD without a documented mental health diagnosis. In contrast, inpatient encounters showed an approximately even split between SUD-only cases and those with co-occurring mental health conditions.

Patients with co-occurring SUD and mental illness are known to experience greater clinical complexity, higher admission rates, and more frequent healthcare utilization. (Kahn et al., 2023).

### **3. Estimating the Unique Patients Treated in 2022**

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Because HCAI’s public datasets are encounter-based, the number of unique individuals receiving care could not be directly observed. To estimate the number of unique patients, we modeled the mean number of encounters per calendar year that a patient with a substance use disorder (SUD) would be expected to have in the emergency department (ED) and inpatient settings. These modeled utilization rates were then used to convert encounter counts into estimates of unique patients.

#### **ED Treat-and-Release**

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For ED utilization, we relied on a large retrospective case-control study of more than 7 million emergency department visits in California, which reported a mean of 1.69 ED visits per patient per year in the general ED population (Peterson et al., 2018). To account for higher ED utilization among patients with substance use disorders, we adjusted this baseline using published incidence rate ratios for severe mental health conditions—including substance use disorders—reported in that study.

Visits Per Calendar Year:

$$1.69 \text{ (overall ED baseline)} \times 1.23 \text{ (elevated utilization associated with SUD)} \\ \approx 2.07 \text{ ED visits per patient-year}$$

Estimated number of unique ED treat-and-release patients with SUD

$$633,944 \text{ SUD-related ED visits} \div 2.07 \text{ visits per calendar-year} \\ \approx \mathbf{305,966 \text{ unique patients}}$$

#### **Inpatient Admission**

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For inpatient utilization, we relied on a large multi-hospital observational study of patients with substance use disorders that examined hospital readmission patterns, including both the probability of 30-day readmission and the distribution of repeat readmissions (Morel et al., 2020). That study found that 22.3% of SUD inpatients experienced a 30-day readmission; among those readmitted, 70.7% had one readmission, 17.0% had two, and 12.4% had three or more readmissions over the study period.

Using these estimates, we modeled the expected number of readmissions per patient, applied a small calendar-year adjustment to account for reduced follow-up among late-year admissions, and scaled the result to reflect California’s higher overall 30-day hospital readmission rate relative to the national average. This approach yielded an estimated mean inpatient utilization of 1.40 hospital admissions per SUD patient per calendar year.

Estimated number of unique inpatient patients with SUD

$$484,768 \text{ SUD-related hospital admissions} \div 1.40 \text{ admissions per calendar-year} \\ \approx \mathbf{346,352 \text{ unique patients}}$$

### ED and Inpatient Setting

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ED and inpatient settings combined yield an **estimated 652,318 unique patients** treated for SUD in 2022.

This estimate is likely conservative. Prior research indicates that substance use disorders remain underidentified in administrative and clinical data, particularly when substance use is not the primary focus of care (Williams et al., 2022).

**Table 3.** Estimated Number of Unique Patients Diagnosed with Substance Use Disorders (SUD) in Emergency Department and Hospital Settings, 2020–2022

| Year | All Visits | SUD-Related Visits | Estimated Unique Patients with SUD | % of All Visits with SUD |
|------|------------|--------------------|------------------------------------|--------------------------|
| 2022 | 15,883,463 | 1,118,712          | <b>652,318</b>                     | 7.0%                     |
| 2021 | 14,465,437 | 1,157,970          | <b>674,481</b>                     | 8.0%                     |
| 2020 | 13,468,383 | 1,132,860          | <b>658,777</b>                     | 8.4%                     |

### Demographic Patterns

**Table 4.** Distribution of Substance Use Disorder (SUD) Encounters by Sex, in Emergency Department and Hospital Settings, 2022

| Sex          | Encounters with SUD | All Hospital-based Encounters |
|--------------|---------------------|-------------------------------|
| Female       | 388,033 [34.7%]     | 8,557,169 [53.9%]             |
| Male         | 730,382 [65.3%]     | 7,323,804 [46.1%]             |
| All Patients | 1,118,415 [100%]    | 15,880,973 [100%]             |

†Encounter totals may vary slightly across tables due to missing or unknown demographic information for some encounters.

Men accounted for 65% of SUD-related encounters in 2022, despite representing less than half of all hospital encounters statewide. Across ED and inpatient settings, encounters involving men were more than twice as likely to include an SUD diagnosis compared with encounters involving women.

**Table 5.** Distribution of Substance Use Disorder (SUD) Encounters by Race/Ethnicity, in Emergency Department and Hospital Settings, 2022

| <b>Race/Ethnicity</b>         | <b>Encounters with SUD</b> | <b>All Hospital-based Encounters</b> |
|-------------------------------|----------------------------|--------------------------------------|
| White                         | 487,279 [43.6%]            | 5,445,341 [34.3%]                    |
| Hispanic                      | 370,277 [33.1%]            | 6,589,366 [41.5%]                    |
| Black                         | 144,466 [12.9%]            | 1,526,009 [9.6%]                     |
| Asian/Pacific Islander        | 30,274 [2.7%]              | 1,167,931 [7.4%]                     |
| American Indian/Alaska Native | 6,085 [0.5%]               | 51,936 [0.3%]                        |
| Other/ Unknown                | 80,331 [7.2%]              | 1,102,880 [6.9%]                     |
| All Patients                  | 1,118,712 [100%]           | 15,883,463 [100%]                    |

Racial/ethnic differences were present, but modest, with Asian/Pacific Islander patients substantially underrepresented and Hispanic patients slightly underrepresented among SUD encounters.

**Table 6.** Distribution of Substance Use Disorder (SUD) Encounters by Age in Emergency Department and Hospital Settings, 2022

| <b>Age Group</b> | <b>Encounters with SUD</b> | <b>All Hospital-based Encounters</b> |
|------------------|----------------------------|--------------------------------------|
| 0 to 18          | 39,210 [3.5%]              | 3,376,641 [21.3%]                    |
| 19 to 39         | 447,610 [40%]              | 4,605,115 [29%]                      |
| 40 to 59         | 393,550 [35.2%]            | 3,526,180 [22.2%]                    |
| 60+              | 237,772 [21.3%]            | 4,374,090 [27.5%]                    |
| All Patients     | 1,118,142 [100%]           | 15,882,026 [100%]                    |

Adults aged 19–39 and 40–59 experienced the highest rates of SUD diagnosis (9.7% and 11.2%, respectively) and together accounted for over three-quarters of all SUD-related encounters. Rates were markedly lower among youth (ages 0–18) and adults aged 60 and older.

## 4. Diagnostic Patterns

**Table 7.** Distribution of Diagnosed SUD Types Emergency Department and Hospital Settings, 2022

|   | ED Encounters   | Inpatient Encounters | All Hospital-based Encounters |
|---|-----------------|----------------------|-------------------------------|
| Alcohol-related disorders                 | 274,659 [37.9%] | 229,683 [35.5%]      | 504,342 [36.8%]               |
| Stimulant-related disorders               | 157,132 [21.7%] | 159,197 [24.6%]      | 316,329 [23.1%]               |
| Cannabis-related disorders                | 143,562 [19.8%] | 112,488 [17.4%]      | 256,050 [18.7%]               |
| Opioid-related disorders                  | 80,653 [11.1%]  | 85,509 [13.2%]       | 166,162 [12.1%]               |
| Miscellaneous substance-related disorders | 54,092 [7.5%]   | 37,920 [5.9%]        | 92,012 [6.7%]                 |
| Sedative-related disorders                | 9,684 [1.3%]    | 17,665 [2.7%]        | 27,349 [2%]                   |
| Hallucinogen-related disorders            | 4,265 [0.6%]    | 4,142 [0.6%]         | 8,407 [0.6%]                  |
| Total                                     | 724,047 [100%]  | 646,604 [100%]       | 1,370,651 [100%]              |

† Because encounters may include multiple SUD diagnoses, diagnostic totals exceed the number of SUD-related encounters and should be interpreted as diagnosis counts rather than patient counts.

Alcohol-related disorders represent the largest share of SUD diagnoses in California hospital encounters (36.8% in 2022), followed by stimulant (23.1%) and cannabis-related disorders (18.7%). Opioid-related conditions account for a smaller but still substantial share (12.1%), while sedative and miscellaneous substances make up the remainder.

Differences in diagnostic distributions between ED and inpatient settings were modest, with stimulant-, opioid-, and sedative-related disorders slightly more common in inpatient care. Diagnostic proportions remained stable from 2020–2022, suggesting that the substance mix driving hospital utilization did not shift materially during the study period.

Relative to national ED surveillance data, California reports a lower share of alcohol-related encounters and a higher share associated with cannabis and stimulants. These differences are consistent with regional patterns, including elevated methamphetamine-related morbidity in Western states and higher rates of cannabis-related hospital presentations following legalization (Hall & Weier, 2015; Jones et al., 2022; NIDA, 2023)

## 5. Payer Patterns

**Table 8.** Distribution of Encounter Payers by Care Setting, 2022

| Payor            | ED Encounters      |                      | Inpatient Encounters |                      | All Hospital-based Encounters |                      |
|------------------|--------------------|----------------------|----------------------|----------------------|-------------------------------|----------------------|
|                  | SUD                | All                  | SUD                  | All                  | SUD                           | All                  |
| Medi-Cal         | 349,897<br>[55.2%] | 5,413,359<br>[44.1%] | 236,973<br>[48.9%]   | 1,131,132<br>[31.4%] | 586,870<br>[52.5%]            | 6,544,491<br>[41.2%] |
| Private Coverage | 124,114<br>[19.6%] | 3,527,759<br>[28.7%] | 92,955<br>[19.2%]    | 1,018,071<br>[28.3%] | 217,069<br>[19.4%]            | 4,545,830<br>[28.6%] |
| Medicare         | 79,483<br>[12.5%]  | 2,292,718<br>[18.7%] | 119,034<br>[24.6%]   | 1,259,416<br>[35.0%] | 198,517<br>[17.7%]            | 3,552,134<br>[22.4%] |
| Uninsured        | 62,629<br>[9.9%]   | 665,545<br>[5.4%]    | 19,320<br>[4.0%]     | 71,976<br>[2.0%]     | 81,949<br>[7.3%]              | 737,521<br>[4.6%]    |
| Other Payer      | 17,821<br>[2.8%]   | 380,661<br>[3.1%]    | 16,486<br>[3.4%]     | 122,826<br>[3.4%]    | 34,307<br>[3.1%]              | 503,487<br>[3.2%]    |
| Total            | 633,944<br>[100%]  | 12,280,042<br>[100%] | 484,768<br>[100%]    | 3,603,421<br>[100%]  | 1,118,712<br>[100%]           | 15,883,463<br>[100%] |

Medi-Cal was the dominant payer for SUD-related care, financing 55.2% of ED encounters and 48.9% of inpatient encounters in 2022. These shares exceed Medi-Cal's proportion of all ED (44.1%) and inpatient (41.2%) encounters, indicating that encounters involving an SUD diagnosis were more likely than non-SUD encounters to be financed by Medi-Cal.

Medicare accounted for a smaller share of SUD-related encounters than of all encounters, covering 12.5% of SUD-related ED encounters and 24.6% of SUD-related inpatient encounters, compared with 18.7% and 35.0% of all ED and inpatient encounters, respectively.

Uninsured encounters represented 9.9% of SUD-related ED encounters and 4.0% of SUD-related inpatient encounters, exceeding their share of all ED (5.4%) and inpatient (2.0%) encounters and indicating greater uninsured exposure among patients with SUD.

Private insurance covered 19.4% of SUD-related hospital encounters, substantially lower than its share of all hospital encounters (28.6%).

From 2020 to 2022, payer distributions remained relatively stable. The most notable change was a modest decline in uninsured SUD-related encounters, corresponding with a slight increase in Medi-Cal's share of both SUD-related and non-SUD hospital encounters. These trends are consistent with broader declines in uninsured hospital utilization in California during this period.

## **6. Conclusion**

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Substance use disorders continue to exert sustained pressure on California's hospital system, with utilization patterns that remained largely stable from 2020 to 2022 despite major policy and coverage expansions. SUD-related care was concentrated in emergency departments and relied heavily on public insurance, particularly Medi-Cal. Notably, inpatient admissions accounted for a substantially larger share of SUD-related hospital encounters than of hospital encounters overall, consistent with a higher likelihood of hospital admission among encounters involving SUD.

Together, these findings highlight the central role of hospitals in delivering acute SUD-related care and support ongoing efforts to strengthen outpatient treatment capacity, improve transitions from hospital to community settings, and expand harm-reduction and follow-up services shown in prior research to reduce recurrent hospital utilization.

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## Data Source and Definitions

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California's Department of Health Care Access and Information (HCAI) publishes data on emergency department (ED) visits and inpatient admissions related to behavioral health conditions, including mental health disorders, substance use disorders (SUD), or both.

### Definitions

HCAI's behavioral health categories are adapted from definitions developed by the Center for Health Information and Analysis, in consultation with clinicians and the Agency for Healthcare Research and Quality. Subcategories are defined using Clinical Classifications Software Refined (CCSR) codes.

- **Mental health disorders:** mood disorders; suicidal ideation, self-harm, and suicide attempts; schizophrenia; and other psychotic conditions.
- **Substance use disorders:** alcohol, cannabis, stimulant, opioid, hallucinogen, sedative, and other substance-related disorders.
- **Co-occurring disorders:** patients diagnosed with at least one mental health disorder and at least one substance use disorder.
- **Emergency Department (ED) encounters:** encounters in which patients are evaluated and treated in the emergency department and discharged without admission to the hospital.
- **Inpatient encounters:** encounters in which patients are admitted to the hospital for inpatient care, including admissions that originate in the emergency department or through other points of entry.

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## **About the Author**

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