

Ketamine Prescriptions Increasing, Especially for Mental Health Treatment

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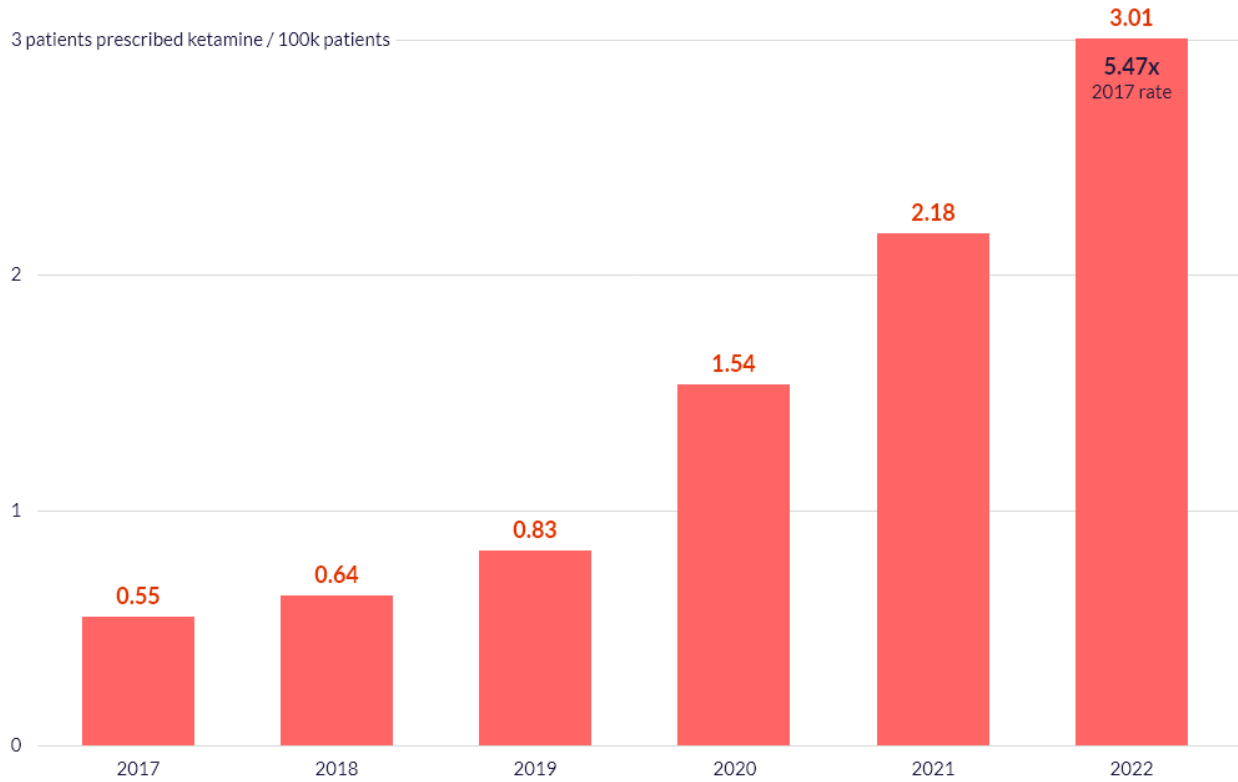
Key Findings:

- Prescriptions for ketamine have been steadily on the rise since 2017.
- Pain diagnoses continue to be associated with most ketamine prescriptions, but ketamine associated with depression has risen steadily over time.
- Despite prescriptions being on the rise, we have not seen a substantial increase in ketamine overdoses.

In medical settings, ketamine has traditionally been used for anesthesia and treatment of severe pain.¹ In 2019, an intranasal version was approved by the Food and Drug Administration (FDA) for treatment-resistant depression.² Since then, ketamine clinics have become increasingly popular for the prescription and administration of the medication.³ Recreational use of ketamine has been reported to be increasing, but it comes with risks such as breathing difficulties, seizures, amnesia, and overdose.^{4,5} Because of the risks associated with misuse, the FDA issued a warning in 2022 to advise that ketamine be dispensed and administered only under a safety program called a Risk Evaluation and Mitigation Strategy (REMS).⁶

To evaluate trends in ketamine use, we reviewed 125,919,204 patients and found 3,714 of them who were prescribed ketamine between 2017 and 2022. The number of patients with a ketamine prescription in 2022 was 5.47 times the 2017 rate, as seen in Figure 1.

Ketamine Prescription Rates



3,714 distinct patients "Ketamine Prescription Rates," 2023. EpicResearch.org

Figure 1. The number of patients with ketamine prescriptions per 100,000 patients annually.

Pain diagnoses have been the most common diagnoses for encounters where ketamine is prescribed, but major depression and anxiety diagnoses have been on the rise, as seen in Figure 2.

Percentage of Patients With Diagnosis When Prescribed Ketamine

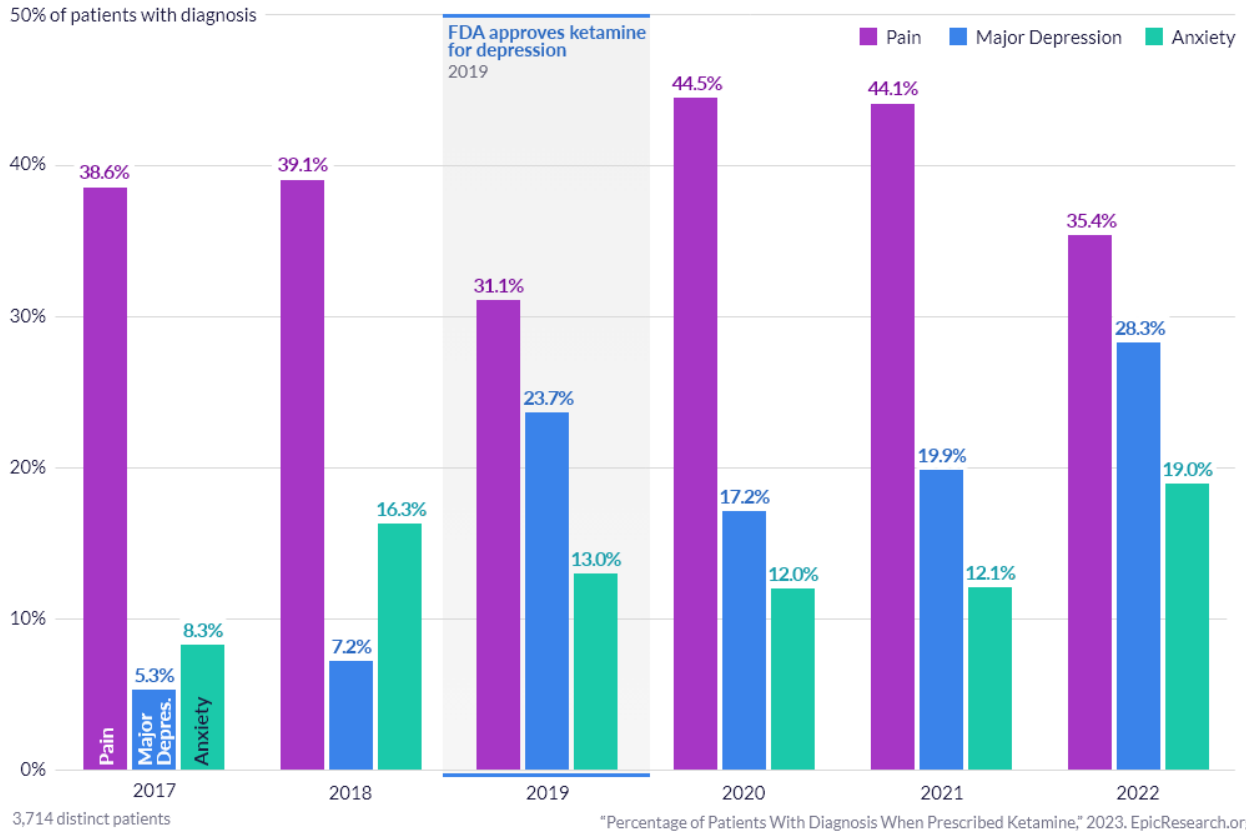


Figure 2. The percentage of patients by encounter diagnosis annually where ketamine was prescribed.

We also looked at the incidence of ketamine overdoses to determine if the increase in prescriptions has led to an increase in ketamine overdoses. As seen in figure 3, we found that the rate of ketamine overdoses did rise after the FDA approval for depression in 2019 but decreased for the first time in 2022, which may be the result of the REMS program.²

Ketamine Overdose Rates

8 patients overdosing / 10M patients

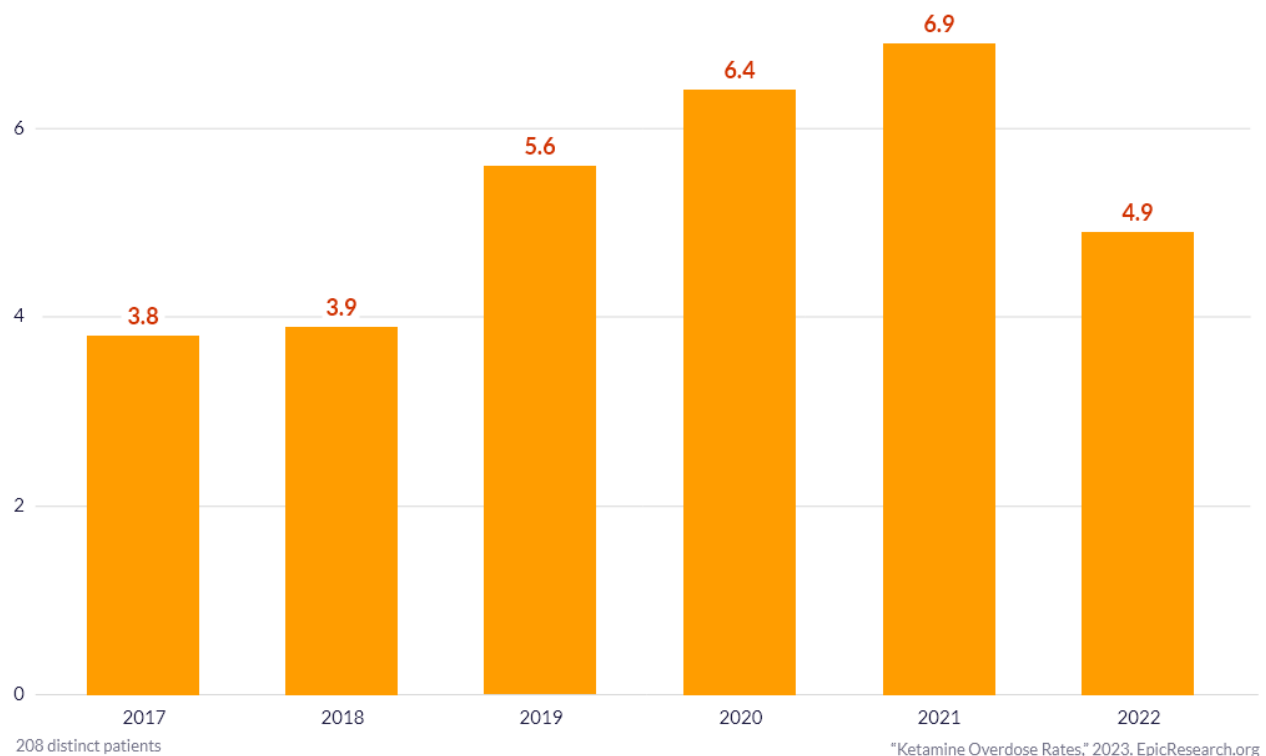


Figure 3. Patients with a ketamine overdose per 10 million patients annually.

These data come from Cosmos, a HIPAA-defined Limited Data Set of more than 184 million patients from 199 Epic organizations including 1,141 hospitals and more than 24,900 clinics, serving patients in all 50 states and Lebanon. This study was completed by two teams that worked independently, each composed of a clinician and research scientists. The two teams came to similar conclusions.

References

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Data Definitions

| Term | Definition |
|--------------------------|--|
| Study period | 1/1/2017 - 12/31/2022 |
| Study population | Patients with at least one encounter in the study period and studied care was provided in the United States. |
| Ketamine | An active prescription for ketamine HCl or esketamine HCl |
| Major depression | Major depression An encounter or billing diagnosis with ICD-10-CM codes F33.2, F33.1, or F32.9 |
| Pain | An encounter or billing diagnosis with ICD-10-CM codes G89.29, G89.4, G89.3, G62.9, M79.2, or M79.18 |
| Anxiety | An encounter or billing diagnosis with ICD-10-CM codes F41.1 or F41.9 |
| Ketamine overdose | An encounter or billing diagnosis with SNOMED code 295507009. |