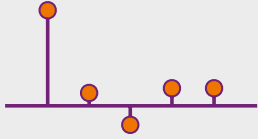# Data from the Drug Overdose Surveillance and Epidemiology (DOSE) System are Used for Action

Provides timely data on nonfatal overdoses treated in emergency departments

Identifies overdose anomalies or outbreaks and changes in trends

Informs drug overdose response and prevention activities

The drug overdose epidemic continues to worsen in the United States

The overdose epidemic affects people in every age group, sex category, race and ethnicity, and geographic area. Monitoring trends in emergency department (ED) visits and hospitalizations for overdose can provide timely data to inform drug overdose response and prevention activities.

CDC's Drug Overdose Surveillance and Epidemiology (DOSE) System

In 2016, CDC's DOSE System began as part of the Enhanced State Opioid Overdose Surveillance (ESOOS) program. As of 2019, DOSE captures data from 47 states and the District of Columbia as part of the Overdose Data to Action (OD2A) program.

DOSE was developed to analyze data at the local, state, and national levels using

1. Electronic health record (EHR) data collected monthly, with a one-month lag, from **syndromic surveillance systems** to rapidly identify anomalies and provide situational awareness of changes in nonfatal drug overdose-related ED visits. Among 42 participating states and the District of Columbia (Figure), the average percent of ED visits currently captured in syndromic surveillance data exceeds 90%. The syndromic surveillance data are updated on the DOSE dashboard each month.

2. **Discharge data** collected quarterly, with a 3.5-month lag, for a more complete and accurate understanding of overdose burden in EDs and among hospitalizations. Among 25 participating states (Figure), the average percent of ED visits/hospital admissions currently captured in discharge data exceeds 95%.

DOSE combines data captured by health departments on ED visits and hospitalizations using standardized definitions for suspected nonfatal overdoses involving all drugs, all opioids, heroin, and all stimulants. These data include demographic characteristics of those who experienced an overdose, such as sex, age, county of patient residence, and intentionality.

Data collected through DOSE are used for rapid identification of nonfatal overdoses

Timelier reporting and analysis of EHR data from EDs is used to identify, track, and respond to changes in drug overdose trends more quickly.

Rapid availability of data helps to promote response readiness for overdose increases at the state or national level and improves coordination among:

- Health departments
- Healthcare providers
- Law enforcement
- Communities
- Public health
- Government agencies

Figure. Jurisdictions Participating in DOSE

Data shared
- Syndromic + Discharge
- Syndromic only
- Discharge only
- Unfunded
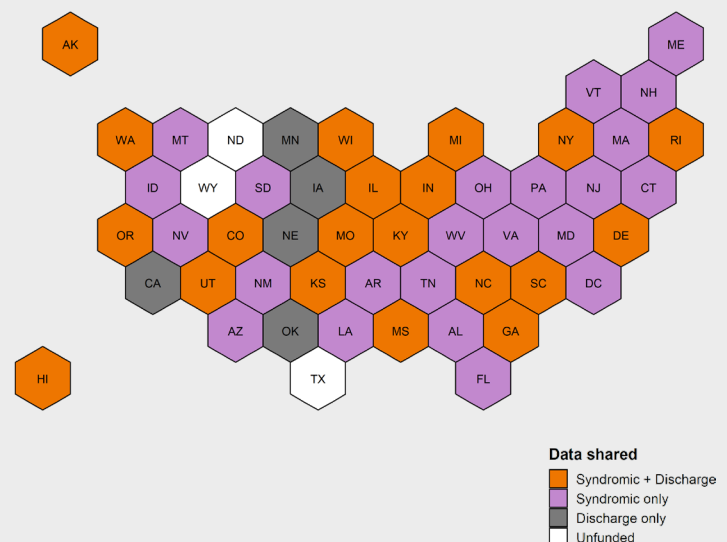
CDC's Drug Overdose Surveillance and Epidemiology (DOSE) System

The DOSE System includes two complementary types of data that are collected and analyzed separately. A comparison of the differences between these two data types is provided in the table below.

		Syndromic Surveillance Data	Discharge Data
	Data source description	Preliminary information from ED visits before a diagnosis is confirmed	Finalized discharge data used to identify the reason for ED visit/hospital admission for billing purposes
	Timeliness	Faster (one-month delay)	Slower (delayed several months to a year)
	Data completeness	Less complete (data are preliminary and may only be from a subset of hospitals)	More complete
	Utility	Rapid assessment of trends and identification of overdose spikes	Estimating long-term trends and burden
	Data shared with CDC	Disaggregated by (1) age group and sex, and (2) county of patient residence	Disaggregated by (1) age group, sex, and intentionality, and (2) county of patient residence and intentionality
	Definitions	Syndrome definitions are applied to the chief complaint and discharge diagnosis fields with free text and standardized coding schemes *Visits that meet at least one of the two options are counted:* **Option 1: Discharge Diagnosis Field** Search all diagnosis codes for ICD-10-CM or SNOMED codes that indicate acute drug poisoning of unintentional or undetermined intent **Option 2: Chief Complaint Field*** ✓At least one drug term (e.g., opioid) ✓At least one overdose term (e.g., poisoning) ✗No terms indicating withdrawal, detox, denying drug use, seeking treatment *Automatic inclusion if overdose and naloxone term	Utilizes ICD-10-CM coding schemes to query key fields that describe the reason for ED visit/hospital admission *Visits that meet the following criteria are counted:* **Discharge Diagnosis Field** Search all diagnosis codes for ICD-10-CM codes that indicate acute drug poisoning, stratified by intent
	Quantifies overdose visits for	All Drugs, All Opioids, Heroin, All Stimulants, Benzodiazepines,* Cocaine,* Fentanyl,* Methamphetamine* (* in development)	

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