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### 117. The Prevalence of Novel Psychoactive Substances in Opioid Overdose Patients

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**Background:** Novel Psychoactive Substance (NPS) use has been increasing in the U.S.; however, more research is needed to identify epidemiological patterns of their use, particularly among opioid overdose patients.

**Research Question:** What is the prevalence of NPS in suspected opioid overdose patients presenting to the emergency department (ED)?

**Methods:** The Toxicology Investigators Consortium Fentanyl study is an ongoing prospective multicenter cohort of eight U.S. medical centers. Adults with suspected opioid overdose who present to the ED were included. Qualitative toxicological analyses were performed on blood samples using liquid chromatography quadrupole time-of-flight mass spectrometry for the presence of over 900 psychoactive substances.

**Results:** Among the total sample (n=537), 170 cases (31.7%) tested positively for at least one NPS. 113 cases (21.0%) had at least one NPS opioid, 51 (9.5%) had at least one NPS benzodiazepine, and 2 (0.3%) had at least one NPS stimulant. Twelve cases (2.2%) tested positively for NPS alkaloids (2.2%), 2.8% tested positively for NPS cannabinoids, and 1 tested positively for a dissociative NPS (deschloroketamine). Among those with confirmed opioid overdoses (n=493), only one case had an NPS opioid in isolation. Other combinations included 11.4% with fentanyl and an NPS opioid, and 6.7% with fentanyl, an NPS opioid, and a prescription opioid. Three percent of cases had a combination of all four types of opioids: NPS, fentanyl, prescription opioid, and non-fentanyl opioid. The majority (64.3%) of fentanyl and NPS opioid cases (n=56) also included stimulants. Three percent of cases had both NPS opioids and NPS benzodiazepines.

**Conclusion:** Approximately one-third of patients presenting to the ED with an apparent opioid overdose were found to have additionally taken an NPS. NPS opioids were commonly found alongside fentanyl, prescription opioids, stimulants, and benzodiazepines.