Nitazenes: potent synthetic opioids

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Summary

- Nitazenes are a class of very high potency opioids
- First synthesized in 1950s, emerged in the illicit US drug supply in 2019
- LA County have one confirmed nitazene fatality in April 2024, but no significant signal of nitazene involved overdoses from LA County medical examiner
- Opioid overdose involving nitazenes can be reversed by naloxone but may require multiple doses.

Pharmacology

- Nitazenes: potent activator of μ-opioid receptor
- Potency: some nitazenes have greater potency than fentanyl
  - Protonitazene has 3x the potency of fentanyl
- Increase risk of fatal respiratory arrest at small doses
- Not detected on routine drug testing – requires laboratory testing

Common nitazene analogs

- Frequent analogs in reports: isotonitazene, butonitazene, protonitazene, metonitazene, etonitazene.
- Detected forms: powders and counterfeit pills (pressed as oxycodone/oxycodone/benzodiazepines), vape liquids, and nasal sprays
- Supply sources: illicit synthesis and diversion in illicit drug supply

Nitazene Overdose

- Nitazenes can cause opioid overdose: Respiratory depression, constricted pupils, decreased consciousness
- Naloxone and nalmafene: effective, but repeated doses may be required as compared with lower potency opioid exposures.
- Supportive care: airway control, ventilation, continuous monitoring (given long or variable metabolite activity).

Public health risks

- High overdose risk among people using counterfeit pills or using multiple types of substances.
- Overdose risk increased by:
  - Use alongside sedatives or stimulants
  - Variable potency across batches
- Public health interventions include naloxone distribution, drug checking services, availability of medications for opioid use disorder and treatment services

References

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- Kozell LB et al., pharmacology of nitazene variants (2025).
- Jadhav GR et al., Frontiers in Pharmacology (2024) — metabolism and detection.
- DOJ / U.S. Attorney's Office Central District of California press release (Nov 21, 2024) — protonitazene case.
- DEA press release (Nov 22, 2024).
- BMJ / Public alerts on nitazenes (2024).
- LA County Public Health reports on fentanyl and overdose trends (2015–2024).

For More Information

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