

Surveillance Highlights

Supporting adolescents presenting with illicit drug toxicity

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CLINICAL VIGNETTE

A 16-year-old male-identifying young person is brought into the emergency department (ED) by emergency health services (EHS) who were called due to the teen having an unresponsive episode during an evening out with friends. He had taken a pill that he believed to be MDMA, and lost consciousness approximately 5 min after ingestion. His friend administered one dose of intranasal naloxone (4 mg), which had a partial effect, but the patient remained obtunded. EHS provided an additional dose of naloxone (0.4 mg given intramuscularly) during transport, with minimal improvement in the level of consciousness.

Upon arrival at the ED, the patient is minimally responsive and has a Glasgow Coma Scale (GCS) score of 9 (eyes 2, motor 5, and verbal 2). His heart rate is 78 beats/min, blood pressure is 104/68 mm Hg, respiratory rate is 10 breaths/min, oxygen saturation is 94% on 6 L of oxygen provided via a non-rebreather mask, and temperature is 36.1°C (axillary). An additional dose of intramuscular naloxone 0.4 mg is administered with minimal effect. Further investigations show a normal hematology panel and normal electrolytes. Capillary blood gas shows mild respiratory acidosis with a pH of 7.29, pCO₂ of 54, and HCO₃ of 24. A urine toxicology screen is positive for cannabinoids, MDMA, fentanyl, and benzodiazepines. Given the presence of benzodiazepines, reversal with flumazenil is considered, but not administered, as the patient's GCS score and respiratory rate are steadily improving. He is managed with supportive care until his GCS score returns to 15.

The patient is amenable to overnight observation in the ED. History is obtained using principles of youth-centred and trauma-informed care. The patient reports using cannabis most days of the week, and that this was his third time taking MDMA. He does not endorse any history of purposeful or accidental use of opioids or benzodiazepines. He describes using cannabis

to help manage symptoms of stress and low mood. He lives at home with two parents who are aware of his substance use and attends school regularly. Before discharge, the patient receives counselling on harm reduction strategies, including not using drugs when alone, and the use of naloxone and fentanyl testing strips. The patient is referred to outpatient mental health services and agrees to a follow-up medical appointment in 2 weeks.

LEARNING POINTS

- Overdose related to illicit drug toxicity is a public health emergency. It has been the leading cause of death for adolescents in British Columbia since 2022, and mortality rates are rising in other Canadian jurisdictions (1,2).
- Paediatricians are seeing overdose cases across Canada and may be unfamiliar with resources to support these situations. The Canadian Paediatric Surveillance Program (CPSP) completed a [one-time survey in 2022](#) to identify the proportion of respondents who had provided care to an adolescent with illicit drug toxicity from opioid, stimulant, or sedative use over a 2-year recall period. Fourteen percent of respondents who care for adolescents in their practice reported at least one case, yet less than 50% knew about, or had access to, local specific substance use services. The CPSP is launching a 3-year surveillance study with the goals of estimating the minimum annual incidence of illicit drug toxicity presentations among adolescents in Canada and better characterizing the population. To learn more about the study or report a case, visit <https://cpsp.cps.ca/surveillance/current-studies>.
- Adolescent deaths due to synthetic opioids, including fentanyl, have been increasing due to the toxic drug supply (3). Deaths from synthetic opioids can be prevented

by reversal with naloxone (4). Both intramuscular and intranasal formulations of naloxone are effective for pre-hospital reversal of opioid-induced respiratory depression (5). Public health initiatives have focused on improving access to both intramuscular and intranasal naloxone. More recently, there has been an increase in benzodiazepine in the illicit drug market in Canada (6). Most patients with benzodiazepine overdose can be safely managed with supportive care. Reversal with flumazenil can be considered, but should be reserved for patients with significant medical instability and who are not habituated to benzodiazepine use, to avoid causing precipitated withdrawal (7,8).

- Non-fatal overdose can be an opportunity to intervene with a young person, provide psychoeducation and harm reduction, initiate medically assisted treatment such as opiate agonist therapy, and refer them to substance use and mental health services (9).
- Providers caring for adolescents following an overdose event should approach patients using principles of trauma-informed care. Trauma-informed care refers to practices that recognize the impact of traumatic experiences on health and behaviour, and acknowledge that health interactions pose a risk of creating further trauma for young people (10).
- Young people who use drugs have highlighted the importance of harm reduction strategies for the prevention of overdose-related harms (11). A Canadian Paediatric Society Position Statement outlines general principles of harm reduction for adolescent health providers (12). Specific harm reduction strategies for adolescents at risk of overdose include naloxone provision and training, fentanyl test strip provision and education, and counselling adolescents not to use drugs when alone (13).
- Many adolescents who use drugs may have a concurrent mental health disorder (14). It is essential to evaluate and address both substance use and mental health needs in youth presenting with severe substance use and overdose-related harms (15).

ACKNOWLEDGEMENTS

All authors: No reported conflicts of interest. All authors have submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest. Conflicts that the editors consider relevant to the content of the manuscript have been disclosed.

FUNDING

No funding to report.

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