



NEW YORK CITY DEPARTMENT OF HEALTH
AND MENTAL HYGIENE
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Commissioner

2023 HEALTH ADVISORY #12
Poisonings Related to Drinking Poppers (Alkyl Nitrites)

Please distribute to all clinical staff in emergency medicine, pharmacy, primary care, family medicine, internal medicine, cardiology, addiction medicine, and psychiatry

June 22, 2023

Dear Colleagues,

Cases of methemoglobinemia associated with recreational ingestion of alkyl nitrites (“poppers”) have been reported in increasing numbers to the New York City Poison Center. Many cases receive treatment in an emergency department, and patients are often admitted for inpatient or intensive care.

Poppers are used recreationally for muscle relaxation, sexual enhancement, and euphoria. They are generally inhaled—the bottle of liquid is held to the nostril and inhaled deeply—but some users drink the liquid. Some packaging resembles “5-Hour Energy®” drinks; users have ingested poppers thinking it was an energy drink. Others have reported not knowing how to avoid health risks when using poppers.

Nitrites can cause methemoglobinemia by any route of exposure but ingestion delivers a much higher amount than a single inhalation and can significantly increase risk.

Patients with methemoglobinemia can experience headaches, difficulty breathing, nausea, fatigue, confusion, loss of consciousness or altered mental status. They can develop cyanosis. Pulse oximetry often reads low, and there may be little to no response to supplemental oxygen [see [Goldfrank's Toxicologic Emergencies, 11th edition](#); [Acquired Methemoglobinemia. N Engl J Med](#)].

Guidance for managing patients with reported exposures to poppers:

- Ensure that diagnostics and treatments for methemoglobinemia are available and providers are trained in their use. In the absence of co-oximetry, methemoglobinemia is suggested by chocolate-brown appearance of venous blood.
- Maintain a high suspicion for alkyl nitrite (popper) toxicity if a patient presents with clinical signs of methemoglobinemia or reports exposure to solvent cleaners, aromatizers, or nail polish removers.
- Patients who are treated and become asymptomatic without further clinical concerns can be discharged home (i.e., they do not require admission or prolonged observation).
- Provide education to encourage harm reduction (avoid drinking poppers, avoid excessive inhalations in a short period) to patients reporting recreational use of poppers. Remember that harm reduction is best promoted with a non-judgmental approach.
- Contact the NYC Poison Center at 212-764-7667 if you know or suspect a patient has been exposed to alkyl nitrites or poppers or who is diagnosed with methemoglobinemia. Reporting of poisoning by drugs or other agents is mandated by the New York City Health Code Section 11.03(a) and facilitates increased understanding and improved treatment of poisonings. Patients can also call the Poison Center directly with any questions.

Sincerely,

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