

Extreme Heat and People Who Use Drugs

What Clinicians Can Do

Climate change has contributed to rising temperatures and extreme heat in the U.S. The average temperature is projected to rise another 2.7°F by 2050.

Extreme heat is the leading weather-related cause of death in the United States.

Warmer temperatures and extreme heat pose additional health risks for people who use drugs and those living with substance use disorder.

This guide provides information to clinicians on the prevention and treatment of heat-related illnesses. Since people who use drugs may not be familiar with all the symptoms of heat stress, clinicians should discuss heat illness symptoms and prevention with patients who are at risk.

Table 1. Types of Heat Illness and Their Symptoms

Heat Stress	Heat Exhaustion	Heat Cramps	Heatstroke
<ul style="list-style-type: none"> • Feeling of discomfort • Physiologic strain – indicated by increases in core temperature and heart rate in response to strain 	<ul style="list-style-type: none"> • Rapid heartbeat • Heavy sweating • Extreme weakness or fatigue • Dizziness • Nausea, vomiting • Irritability • Fast, shallow breathing • Slightly elevated body temperature 	<ul style="list-style-type: none"> • Muscle cramps, pain, or spasms in the abdomen, arms, or legs 	<ul style="list-style-type: none"> • High body temperature • Confusion • Loss of coordination – ataxia • Hot, dry skin or profuse sweating • Throbbing headache • Seizures, coma

Sources: Jardine DS. Heat illness and heat stroke. *Pediatr Rev.* 2007 Jul;28(7):249-58. doi: 10.1542/pir.28-7-249. Erratum in: *Pediatr Rev.* 2007 Dec;28(12):469 and National Institute for Occupational Safety and Health. (2010). NIOSH Fast Facts: Protecting Yourself from Heat Stress. (DHHS (NIOSH) Publication No. 2010-114). <http://www.cdc.gov/niosh/docs/2010-114/pdfs/2010-114.pdf>.

The Impact of Rising Temperatures on People Who Use Drugs

Our cardiovascular system works harder to cool our body during hot weather. This can cause heat illness – hyperthermia. Higher temperatures and more frequent heat waves pose major health risks to people who use drugs:

- Increased risk of heat-related illness.
- Increased risk of accidental overamping in people using cocaine. [Overamping](#) occurs when a person experiences adverse reactions from using one or more stimulant drugs – i.e., cocaine, crack, methamphetamine.

Increased Risk of Overamping in People Using Cocaine

[Overamping](#) occurs when a person experiences adverse reactions from using one or more stimulant drugs – i.e., cocaine, crack, methamphetamine. There is an increase in overamping resulting in accidental death during temperatures 75°F and above.¹

Death and serious injury from extreme heat is a serious public health concern, especially for some high-risk groups, like people who use cocaine.

Substances and Increased Risk of Heat-Related Illness

Drug-induced hyperthermia is a hypermetabolic state caused by medications and other agents that alter neurotransmitter levels.²

Hyperthermia after illicit substance use commonly occurs due to sympathomimetic/serotonin toxicity – along with environmental factors, such as prolonged high ambient temperatures and/or physical exertion.³

A variety of drugs can contribute to heat-related illness. Below are some of the more common substances used illicitly that can precipitate hyperthermia by decreasing the body's response to heat:

- Amphetamines: methamphetamine, Methylenedioxymethamphetamine (MDMA), Para-methamphetamine (PMA, PMMA)
- Cocaine
- Synthetic Cathinone – i.e., “bath salts”
- Hallucinogens

Some substances decrease awareness of heat-related illness and/or the body's responsiveness to heat. For example:

- Alcohol, which can also contribute to dehydration
- Benzodiazepines
- Opioids – Those who regularly take opioids have reported that their efficacy is reduced in warmer weather and may potentially take higher doses on warmer days.⁴)

Key Points

- Paramedics and emergency department staff must recognize drug-induced and drug-related hyperthermia. Agitated people have died of hyperpyrexia because body temperature was not measured, and elevations in body temperature went unrecognized.
- Emergency providers must take care not to solely anchor on the diagnosis of opioid overdose.
- Patients brought to the Emergency Department after receiving naloxone in the field on hot days should be evaluated by core temperature for concurrent injury from heat exposure.
- When discharging people who use drugs during heat waves, regardless of whether their visit involved heat exposure, it is recommended to consult social work or care coordination. Also, [connect patients with a local harm reduction agency, such as a drug user health hub or syringe service program which has air-conditioning](#) to ensure that they are being discharged to safe conditions.

Social Determinants of Health and Heat-Related Illness

Socioeconomic and other factors worsen heat-related health risks for people who use drugs.

- Lack of stable housing and access to air-conditioning, showers, and other vital cooling mechanisms.
- Using drugs in housing without air-conditioning, parked cars, and even the outdoors during heat waves increases heat exposure and the risk of heat-related illness and mortality.
- People who don't speak English, or who are isolated in other ways, may not be able to understand heat warnings and may have reduced access to appropriate health and support services.

Prevention and Mitigation

- Taking a social history during heat waves should always include asking patients about their access to air-conditioned space and clean drinking water.
- Take the opportunity to educate those at risk about how to manage their health during hot weather. Some important harm reduction messages include:
 - Hydration is key, drink plenty of water, even if you don't feel thirsty.
 - Wear a wet scarf, bandana, or shirt. If you need to cool your body temperature, this tip works quickly.
 - Eat light meals. Avoid hot and heavy meals – they will add heat to your body.
 - Seek shade and cool environments: Minimize heat exposure by staying in shaded areas or air-conditioned spaces like libraries or local harm reduction agencies/syringe service programs whenever possible.
 - Plan drug use accordingly: Consider the impact of hot weather on drug effects. Reduce your dose and your frequency, and use your drugs in safe, familiar places with people you trust.
 - Extreme heat can cause swelling in your lower extremities. Be mindful when choosing an injection site and take caution if you already suffer from edema. Keep your legs elevated and try compression socks to improve circulation.
 - Connect with support networks: Stay connected to trusted friends, support groups, or harm reduction organizations that can provide aid and support during hot weather.
 - Direct clients to nearby [cooling centers](#).
 - [NYC Cooling Centers](#)

- Partner with local transportation agencies, libraries, or community centers to offer unhoused people access to air-conditioning during heat waves.
- Educate the community on the [Home Energy Assistance Program \(HEAP\)](#) Cooling Assistance Benefit, and help patients access free air-conditioners.
- Know the [extreme-heat-related data in your county](#) to determine priority needs and [geographical areas](#).
- Develop an [emergency action plan](#) in the event of a heat-related emergency.

¹ Bohnert, A. S. B., Prescott, M. R., Vlahov, D., Tardiff, K., & Galea, S. (2010, March 2). *Ambient temperature and risk of death from accidental drug overdose in New York City, 1990-2006*. *Addiction*; Wiley-Blackwell.

² Musselman ME, Saely S. Diagnosis and treatment of drug-induced hyperthermia. *Am J Health Syst Pharm*. 2013 Jan 1;70(1):34-42.

³ Brown, H., & Pollard, K. A. (2021). Drugs of Abuse: Sympathomimetics. *Critical care clinics*, 37(3), 487–499.

⁴ Puig, M. M., Warner, W., Tang, C. K., Laorden, M. L., & Turndorf, H. (1987). Effects of temperature on the interaction of morphine with opioid receptors. *British journal of anaesthesia*, 59(11), 1459–1464.

⁵ Liechti M. E. (2014). Effects of MDMA on body temperature in humans. *Temperature (Austin, Tex.)*, 1(3), 192–200.