

VAPING OTHER DRUGS

The Dark Side of Vaping

E-cigarettes have grown in popularity and claim to be a safer alternative to traditional cigarettes. However, for some, e-cigarettes have become an easy, almost undetectable way to abuse a wide range of synthetic drugs. People are vaping dangerous substances: alcohol, hash oil, caffeine, psychedelics, LSD, marijuana (THC), heroin, and opioids (fentanyl). They are doing this discreetly in vape pens, sometimes right in front of police, parents, and teachers. Some of these e-liquids are easily purchased online, making the user believe these products are a “safe high”. This couldn’t be further from the truth. Inhaling an unknown mix of unregulated synthetic chemicals is incredibly dangerous and can have a deadly effect (Education Specialty Publishing, LLC, 2016).



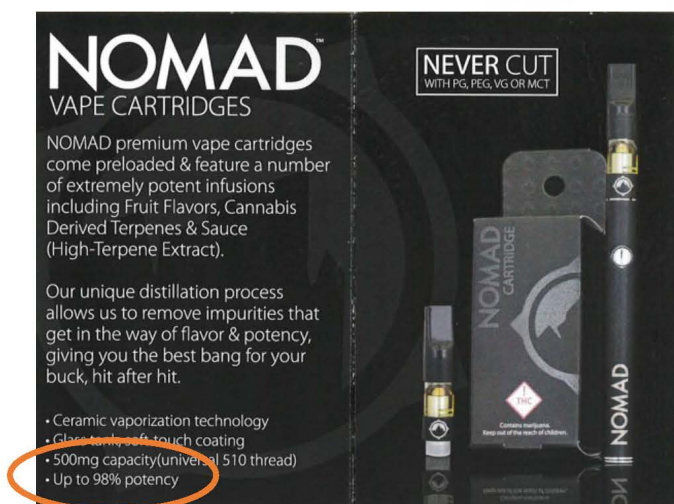
Source:123RF, [jeremynathan]



Source:123RF, [lightwise]

VAPING OTHER DRUGS

THC (Marijuana)



Source: Nomad Vapor, 2021



Source: 123RF, [Arturs Budkevics]

THC (Tetrahydrocannabinol found in marijuana) vaping devices can have high percentages of potency. In the picture shown above, the NOMAD device is listed as having up to 98% potency. That means this device alone has up to 98% pure THC. Currently we do not have studies on the effects of 98% pure THC and what it can do to the brain. We do know that small amounts of THC can lead to “anxiety, paranoia, depression, schizophrenia, addiction, and has been linked to suicide among teenagers” (National Institute on Drug Abuse, 2019). Store purchased THC vaping devices are commonly known as Dank Vapes. They can be made at home with homemade liquids.

- The amount of THC in marijuana has been increasing steadily over the past few decades. For a person who's new to marijuana use, this may mean exposure to higher THC levels with a greater chance of harmful reaction. Higher THC levels may explain the rise in emergency room visits involving marijuana use.
- Higher THC levels may also mean a greater risk for addiction if people are regularly exposing themselves to high doses.

(National Institute on Drug Abuse, 2019)

VAPING OTHER DRUGS

Dabbing (Marijuana Concentrates)

Dabbing is also a highly potent THC (Tetrahydrocannabinol) concentrated mass that is most similar in appearance to either honey or butter, which is why it is referred to or known on the street as “honey oil” or budder“ .

Marijuana concentrates contain extraordinarily high THC levels that could range upwards of 98%. This form of marijuana can be up to four times stronger in THC content than high grade or top-shelf marijuana, which normally measures around 20% THC levels.



Source:123RF, [Roxana Gonzalez Leyva]

The products resulting from these methods may be:

- a gooey liquid wax (*hash oil or honey oil*)
- a soft solid with a texture like lip balm (*wax or budder*)
- a hard, amber-colored solid (*shatter*)

Hash oil and waxes can be consumed using vape pens. Solids can also be placed on a heated platform usually made of titanium, quartz, or ceramic, where they are vaporized by high heat and inhaled through a dabbing tool, often called a rig.

(National Institute on Drug Abuse, 2020).



Source:123RF, [Charles Wollertz]

VAPING OTHER DRUGS

Cannabinoid Hyperemesis Syndrome

Cannabinoid hyperemesis syndrome (CHS) affects heavy, chronic marijuana users. Originally CHS was rarely seen among marijuana users, until vaping and dabbing became popular. With the use of high THC content in dabbing and vaping, we have seen a rise of CHS among marijuana users.

When a person inhales too much THC, the receptors in their brain stop accepting THC and over stimulate the receptors associated to the central nervous system and the gastrointestinal tract. That is why most people experiencing this will vomit and find relief by taking hot showers or baths.



**Cannabinoid
Hyperemesis
Syndrome**

Source: Haynes (2019)



(Habboushe et al., 2018, p. 660)

Patients with CHS generally have a history of multiple emergency department visits and hospitalizations. Major features for the syndrome include:

- Severe cyclic nausea
- Vomiting
- Resolution of symptoms with cannabis cessation
- Symptom relief with hot showers or baths
- Abdominal pain (epigastric or periumbilical)
- Weight loss of greater than five kilograms

(Iacopetti & Packer, 2014, p. 65-67).

VAPING OTHER DRUGS

Methamphetamine

Behavioral Effects

- Includes alertness, energy and euphoria, restlessness, insomnia, hyperthermia, seizures, agitation, psychosis, paranoia, thirst, diaphoresis, paresthesia, headaches, aggression, angina, nausea and vomiting, hallucinations, palpitations, dyspnea, ventricular fibrillation, myocardial infarction, tooth decay (meth mouth), coma, and renal failure as well as rhabdomyolysis and suicidal ideation have been reported.

Usual routes of administration

- Inhalational, oral, intravenous, and intranasal.

Vaping Usage





- Literature indicates that an increasing number of individuals are using drug vaporization, such as e-cigarettes, as a new method of administration for methamphetamine. Additionally, researchers have recently shown that methamphetamine is present at reasonable concentrations in vapor from e-cigarettes.


(Breitbarth et al., 2018, p.103)

Vaping devices test positive for meth at high school

Maggie McGuire Moab Sun News Oct 10, 2019



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 EIN

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Source: Moab Sun News, 2009)

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Cocaine

Behavioral Effects

- Includes myocardial infarction, cerebrovascular accident, ventricular tachycardia and ventricular fibrillation, seizures, paranoia, hyperthermia, bizarre and violent behavior, respiratory arrest, delirium, psychosis, anxiety, muscle rigidity, blurred vision and nausea. Inhalation of 'crack' cocaine has also been associated with more violent behavior and aggression when compared with the use of the hydrochloride salt of cocaine.

Usual Routes of Administration

- Intranasal, intravenous, and inhalational.

Vaping Usage

- Illicit drug forums suggest that cocaine in its free base form (crack cocaine) is being used in electronic cigarette style devices, with users stating that e-liquids containing cocaine are available for purchase on the dark web.

(Breitbarth et al., 2018, p.105)

The screenshot shows a news website interface. At the top is a navigation bar with the NBC 12 logo and links for 'WATCH LIVE', 'NEWS', 'DECISION 2020', 'ON YOUR SIDE', 'NATIONAL', 'WEATHER', 'ABOUT US', and 'TV'. Below the navigation bar is a Fitbit advertisement for the 'SENSE & VERSA 3 INFINITY BAND (LUNAR WHITE) - LARGE' priced at \$29.95 with free shipping. The main content area features a 'CRIME' section with the headline 'Employees charged with selling cocaine, crystal meth out of vape shop'. Below the headline is a photograph of a police car's emergency light bar. To the right of the headline is a small video player with a 'Learn more' button. At the bottom right is a weather forecast for Richmond, VA, showing a temperature of 58°F and a 'FULL FORECAST' link. The source is cited as 'Source: Smith (2020)'.

VAPING OTHER DRUGS

Heroin

Heroin is an opioid, working as a central nervous system depressant. Following administration of heroin, it crosses the blood-brain barrier and is rapidly converted into morphine along with other metabolites.

Behavioral Effects

- Includes agitation, hallucinations, paranoia, sinus tachycardia, seizures, lethargy hypotonia, apnea, leukoencephalopathy, pulmonary edema, coma, and sudden death have been reported following heroin use. Pyrolysis products from vaporizing heroin at high temperatures have been shown to induce encephalopathy, inhalation of heroin has also been shown to cause acute eosinophilic pneumonia.

Usual Routes of Administration

- Most commonly injected intravenously, but can also be inhaled or snorted intranasally.

Vaping Usage

- Illicit drug forums suggest that the freebase form of heroin is being used in personal electronic devices such as e-cigarettes. A convenience survey found that 7.1% of responding electronic vaping device users had vaped heroin. There is also evidence on illicit drug forums of other opioids, including oxycodone and morphine, being used in e-cigarettes.

Heroin in vape pens? Overdoses hospitalize 2 high school students, WV cops say

BY JARED GILMOUR
NOVEMBER 01, 2019 06:58 PM



Vapes and e-cigarettes have grown in popularity in recent years. Often advertised as a less dangerous alternative to cigarettes, medical professionals still have much to learn about their health effects.

BY JASON VORHEES | SAMANTHA MAX | JENNA EASON

Source: Gilmour (2019)

(Breitbarth et al., 2018, p.106)

VAPING OTHER DRUGS

MDMA

MDMA, also known as ‘Ecstasy’ or ‘Molly’

Behavioral Effects

- Includes nausea, vomiting, restlessness, tremor, hyperreflexia, irritability, trismus and bruxism, palpitations, confusion, aggression, psychosis, panic attack, hyperthermia, serotonin syndrome, cardiac arrhythmias, hypertension, hyponatremia, seizures, coma, and death.

Usual Routes of Administration

- Oral, intranasal, inhalational, and via intravenous injection . MDMA blocks the reuptake of monoamine neurotransmitters (norepinephrine, serotonin, dopamine).

Vaping Usage

- There is evidence on internet drug forums of users employing vaporization techniques, such as e-cigarettes and table-top vaporizers, to vape MDMA. In several cases, users made mention of ensuring the drug was converted into the free-base form before vaporization. A recent survey determined that 11.7% of electronic vaping device users have vaped MDMA.

(Breitbarth et al., 2018, p.103-104)

DEA warns about nearly undetectable drugs in vape cartridges

by Jeremy Harris | Friday, July 12th 2019

AA



Drug agents in Utah say they are seeing an increase in the prevalence of illicit drugs being distributed in vape pen cartridges. (Photo: KUTV FILE)

Source: Harris (2019)

VAPING OTHER DRUGS

Fentanyl

Fentanyl is an opioid with 50–100 times the potency of morphine. Fentanyl is of particular importance given their role in the current opioid epidemic, with 19,413 deaths in the United States in 2016, more than double the number in 2015.

Behavioral Effects

- Similar to that of other opioids, including: analgesia, anxiolysis, euphoria, and drowsiness. constipation, nausea, pruritus, orthostatic hypotension, chest wall rigidity, confusion, hallucinations, weakness, and seizures are all possible toxic effects.
- In cases of overdose, signs include: extreme fatigue, obtundation (altered consciousness), cardiac arrest, bradypnea, severe confusion, and respiratory arrest.

Usual Routes of Administration

- Oral, enteral tubes, transdermal, transmucosal, and aerosol vaping usage

Vaping Usage

- A recent survey study found that 7.3% of electronic vaping device users had vaped fentanyl (2.5% of all survey respondents). In the literature, there is a case report of a 36-year old male presenting to the emergency department with altered mental status following vaping combined with oral consumption of ‘synthetic opium’, which upon further analysis was discovered to contain acetyl fentanyl. There is also a case of a 26-year old male found deceased with an e-cigarette near the body. Acetyl fentanyl was identified in both biological samples and the e-cigarette fluid.

Vape oil found to contain fentanyl, Mississippi authorities say

Therese Apel Mississippi Clarion Ledger

Published 1:36 p.m. CT Aug. 17, 2018 | Updated 2:08 p.m. CT Aug. 17, 2018



Source: Apel (2018)

(Breitbart et al., 2018, p.106)