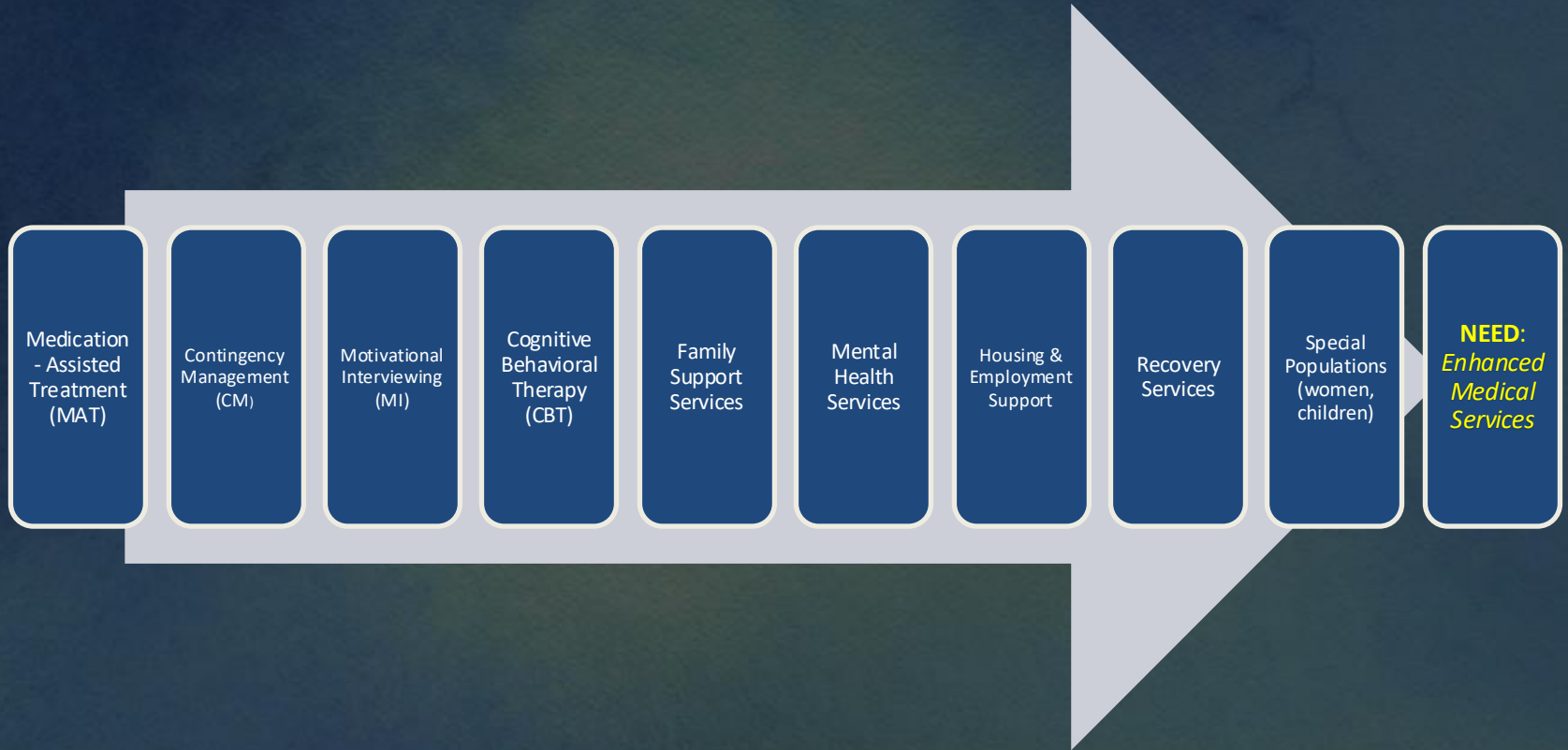


Emerging Lethal Synthetic Drugs and Dangerous Drug Mixtures: The Wave of the Future and How We Should Respond

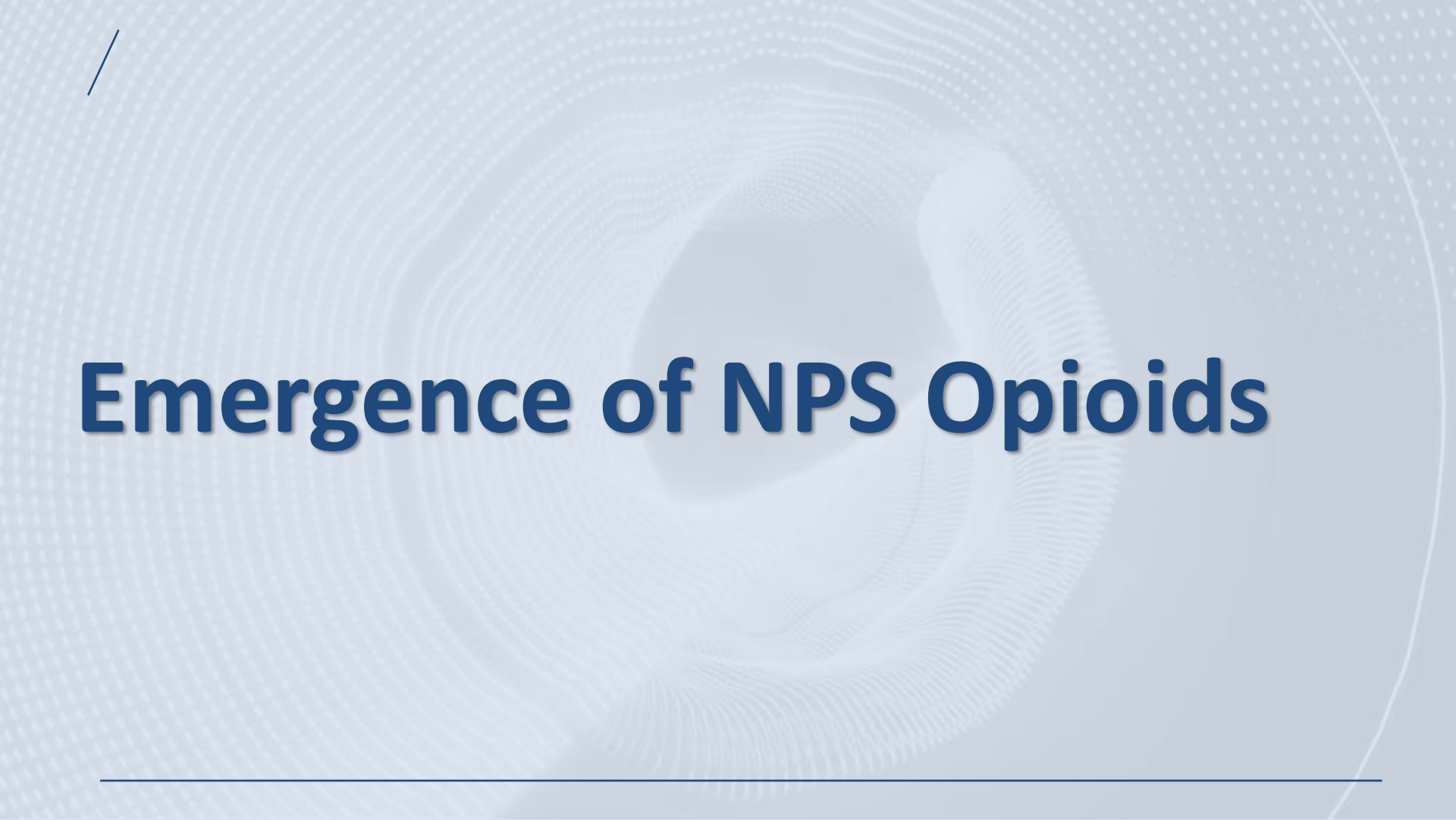
**ISSUP Global Webinar
(August 2026)**

**Thom Browne, Jr.
CEO
The Colombo Plan
Rubicon Global Enterprises
August 2026**

Treatment Improvements



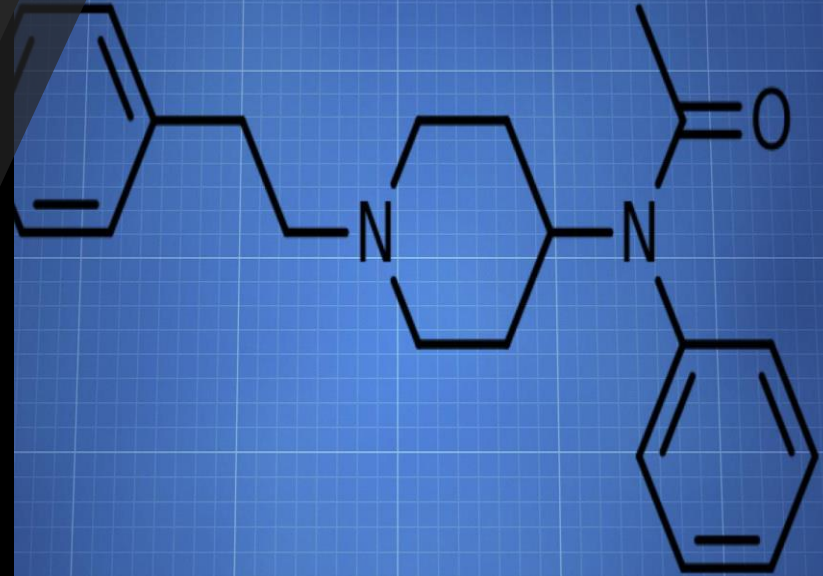
Mortality Perspective

The background of the slide features a light blue fingerprint pattern. Overlaid on this pattern is a large, faint, blue rose watermark. In the top left corner, there is a small, thin blue diagonal line. At the bottom of the slide, there is a thin horizontal blue line.

Emergence of NPS Opioids

Fentanyl

- **Fentanyl** is 80 to 100 times stronger than morphine and 50 times more potent than heroin
- **Acetyl Fentanyl** (15 X morphine)
- **Butyrfentanyl** (7 X morphine)
- **Carfentanil** is estimated to be 10,000 X more potent than morphine
- Fentanyl's effects include **respiratory depression** and **arrest**



Novel Synthetic Opioids

Phenylpiperidines (fentanyl, fluorofentanyl)

Benzimidazoles/Nitazenes (isotonitazene, etonitazene)

Orphines (bromorphine, chlorphine)

Benzamides (U-47700, U-51754, AH-7921, U-49900)

Acetamides (U-50488, U-51754)

Piperazines (MT-45)

Cinnamylpiperazines (AP-238, 2-methyl AP 237)



NOVEL OPIOIDS [Benzimidazole or “Nitazene”]

- Etonitazene
(1,000 – 1,500 X morphine)
- Isotonitazene
(500 X morphine)
- Metonitazene
(100 X morphine)
- Protonitazene
(200 X morphine)

A Great White shark is shown swimming in deep blue water, viewed from below. The shark's head is in the foreground, showing its eyes and open mouth with sharp teeth. Its body extends into the background, with its fins visible. The water is a deep, dark blue with some light reflecting off the surface.

Global Nitazene Threats





Global Nitazene Concerns: Australia

- [18/07/24](#) There is concern that [protonitazene](#) is now present in illicit oxycodone tablets in the community.
- [02/07/24](#) A white powder sold in Melbourne as cocaine contains the potent opioid '[protonitazene](#)'.
- [29/05/24](#) Four people have been hospitalized across Sydney with severe opioid overdose caused by [nitazenes](#).
- People who thought they were taking etazene were taking a more potent nitazene ([N-pyrrolidino protonitazene](#)) and a potent novel benzodiazepine ([bromazolam](#)).*
- [18/05/24](#) A granular brown powder sample tested at CanTEST was found to contain [N-pyrrolidino protonitazene](#), a potent synthetic opioid that is stronger than other opioids, including fentanyl.

* Both benzodiazepines and opioids inhibit respiration so that the effects of the combination may be additive.

A photograph of the Stonehenge monument in England, showing large grey stone structures arranged in a circular pattern on a green grassy field under a blue sky with white clouds. The image is partially obscured by a white curved line on the right side.

Global Nitazene Concerns: Europe

- Recently reported nitazenes in the **UK** (54 deaths)
- **Sweden** (over 3,000 fake oxycodone tablets containing **metonitazene** in Nov. 2023)
- **Finland** (1000 fake buprenorphine tablets containing **metonitazene** in 2024)
- **Latvia**
- **Estonia**
- **Ireland**
- **Belgium**
- **Slovenia**

Kush

(West Africa & Brazil)

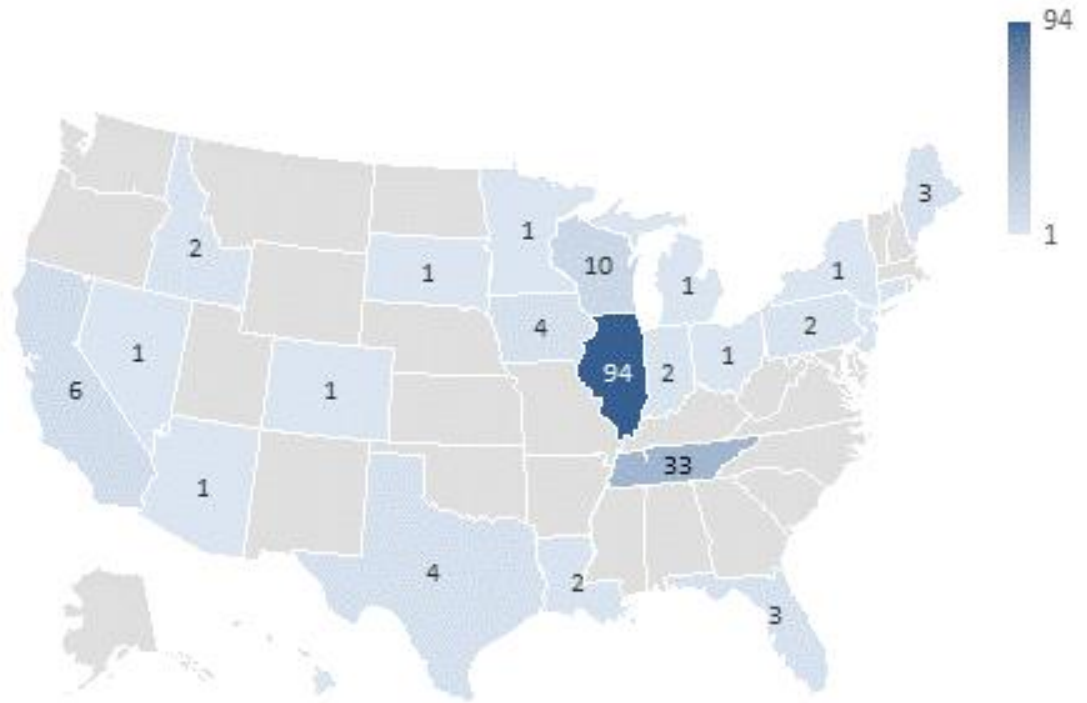
Synthetic Cannabinoids in combination with **Synthetic Opioids** rolled into a local leaf (e.g., tea leaf) and smoked:

- **MDMB-4en-PINACA** (synthetic cannabinoid)
- **Protonitazene** (novel synthetic opioid)
- **ADB-BUTINACA** (synthetic cannabinoid)
- **Cocaine**

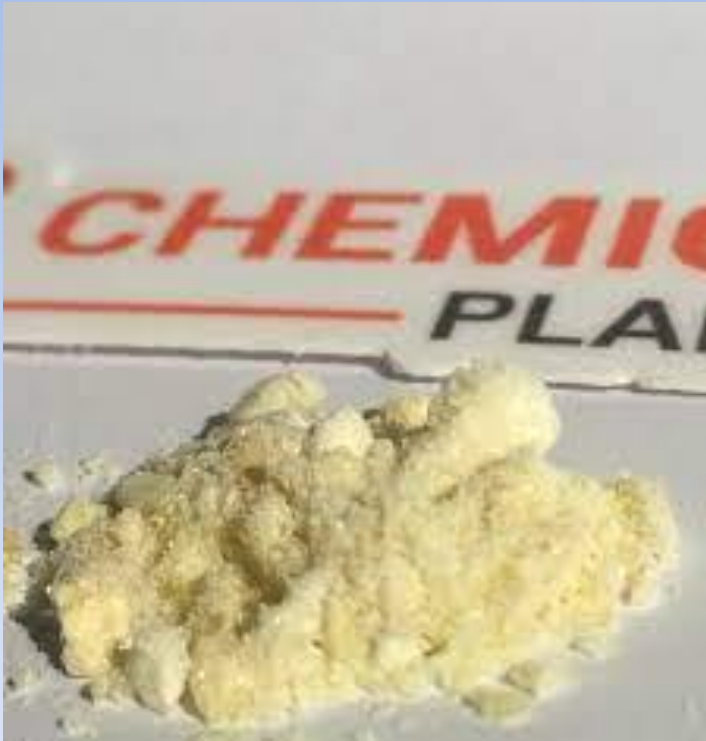
The background is a dark blue gradient with a complex, abstract pattern. It features concentric circles and a fingerprint-like texture, suggesting a focus on security or forensic science. The pattern is more pronounced in the center and fades towards the edges.

Latest NPS Opioid Threat: Orphine Analogs

Geographic Spread of Orphines



SYNTHETIC CANNABINOIDS (5F-MDMB-PICA)



- 340 reports by U.S. forensic labs between 2016 and 2018
- Serious adverse effects including **death** have been reported
- In August 2018, **in excess of 47 overdoses** were reported in **New Haven, Connecticut** following the use of 5F-MDMB-PICA. Analysis of drug evidence from the overdose event confirmed the presence of the synthetic cannabinoids 5F-ADB and FUB-AMB.
- In September 2018, in **Washington, DC**, **at least 244 overdoses** were reported following use of a synthetic cannabinoid product. Analysis of drug evidence from the overdose event confirmed the presence of the synthetic cannabinoids 5F-MDMB-PICA, FUB-AMB, and 5F-ADB.

Synthetic Benzos of Concern

Clonazalom

- One of most potent synthetic benzodiazepines
- Small dose can induce **intense sedation**
- Doses higher than **0.5 mg** can cause overdose



The background is a dark blue gradient with a complex, abstract pattern. It features concentric circles and a fingerprint-like texture, with a central dark area that resembles a stylized eye or a tunnel. The overall effect is a sense of depth and mystery.

Potent Synthetic Cathinone Threat: Dimethylpentylone



Dimethylpentylone

- A synthetic cathinone that replaced Eutylone in the drug supply
- May be sold as “Ecstasy”, “Molly”, or “MDMA” on recreational drug markets
- Linked to cardiac effects resulting in death
- Adverse effects include hyperthermia, arrhythmias, hallucinations, dehydration, etc.

Emerging Nitazene/Fentanyl Drug Mixtures in Street-level Drugs

Legend:

Black = legacy drugs

Purple = fentanyl compounds

Orange = other synthetic opioid

Blue = synthetic benzo

Red = traditional & emerging adulterants

Grey = synthetic hallucinogenic

Green = synthetic ketamine

Brown = synthetic cannabinoid

Yellow = vet adulterants

KY #245 (18)	OH #808 (23)	IN #1461 (13)	VT #432 (12)	IL #1212 (16)
Fentanyl	Fentanyl	Fentanyl	Fentanyl	Fentanyl
Fluorofentanyl	Methyl Fentanyl	Fluorofentanyl	Benzyl Fentanyl	Carfentanyl
Acetylfentanyl	Acetyl Fentanyl	Acetyl Fentanyl	4-ANPP	4-ANPP
4-ANPP	Fluoro Fentanyl	4-ANPP	Cocaine	Brorphine
Metonitazene	4-ANPP	N-Pyrrolidino Etonitazene	Metonitazene	Metonitazene
ISO/Protonitazene	N-desethyl Etonitazene	Heroin	N-desethyl Etonitazene	N-Pyrrolidino Iso/Protonitazene
Clonazolam (0.5 mg = OD?)	N-Pyrrolidino Iso/Protonitazene	Cocaine	5-methyl Etodesnitazene	N-Pyrrolidino Metonitazene
Medetomidine	2F-2OXO-PCE	Methamphetamine	Iso/Protonitazene	N-Pyrrolidino Etonitazene
Xylazine	3-OH-PCP	MDMB-4en-PINACA	Xylazine	Medotesnitazene
Diphenhydramine	Medetomidine	MDMB-INACA	Bromazolam	Iso/Protonitazene
Phenacetin	Xylazine	Xylazine	Quinine	Clonazolam (0.5 mg = OD?)
Quinine	Methamphetamine	Diphenhydramine	Acetaminophen	Heroin
	Cocaine	Quinine		
	Tramadol			



Morbidity Perspective

The background of the slide is a complex, abstract pattern. It features concentric circles and a grid of small dots that create a sense of depth and movement, resembling a tunnel or a vortex. The colors are primarily black, white, and gray, with some subtle blue highlights.

Non-Opioid Threats

The background is black. A large white circle is centered, with a thick pink double-line border. To the left of the circle is a white zigzag line. To the top right is a pink ring. To the bottom left is a small pink circle. To the bottom right is a large pink circle. To the right of the large circle are four white diagonal lines. The text is centered inside the large white circle.

**Dangerous Ketamine
& Stimulant
Mixtures
aka Pink Cocaine**

2C-B

Synthetic analog of mescaline
synthesized in 1974 by Alexander
Shulgin, a biochemist and
pharmacologist

A powerful stimulant and
hallucinogenic drug whose effects are
a cross between ecstasy and LSD



Drug Mixtures in Latin America

Pink Cocaine ('Tuci') designed to mimic the powerful stimulant/hallucinogenic 2C-B

- **Colombia:** Cocaine, Ketamine, and MDMA or Meth, Ketamine, and MDMA
 - **Uruguay:** Cocaine, Meth, and LSD
 - **Venezuela:** LSD and MDMA
 - **El Salvador:** Cocaine, MDMA, and Ketamine
 - **Panama:** Tramadol and Ketamine
-



Drug Mixtures in SE Asia

Happy Water

Malaysia:

Meth, Ketamine, and
MDMA

(dissolved in pink colored
water)

Labubu

Thailand:

Meth, Ketamine, and
MDMA

(2 recent deaths)

Dangers of Mixing Ketamine with Other Drugs

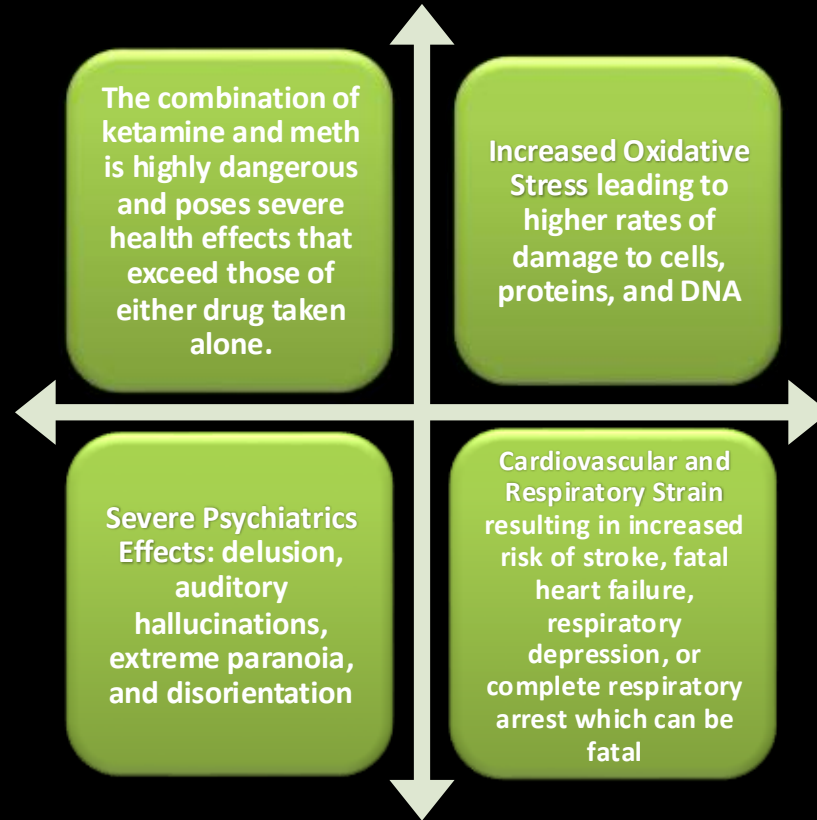
Stimulants

- Mixing ketamine with stimulants, like cocaine, methamphetamine, and MDMA (ecstasy), is risky. Stimulants speed up the nervous system, while ketamine slows it down. This creates a conflicting effect on the body, putting immense stress on the heart and other organs.
- The combination of ketamine with stimulants leads to an increased risk of heart attack, stroke, and other cardiovascular problems.

Opioids

- Ketamine and opioids pose a high risk when combined. Both substances have strong sedative effects, leading to extreme drowsiness and respiratory depression. The risk of overdose gets higher when these drugs are used together.
- Opioids can enhance the effects of ketamine, making users more prone to losing consciousness and experiencing life-threatening breathing problems.

Enhanced Health Risks of the Ketamine + Meth Combination



Long-term or heavy recreational use of **Ketamine** is strongly associated with severe damage to kidneys

Swelling

Renal failure
necessitating
dialysis

Necrosis or
tissue death



Vaping

Products That Are Typically Vaped

- **Nicotine**
- **Cannabis**
- **Synthetic Cannabinoids**
- **Etomidate**
- **Ketamine** (vaping KET causes severe lung damage & can trigger acute respiratory distress)
- **Kratom** (synthetic versions very dangerous)

Health Effects of Vaping

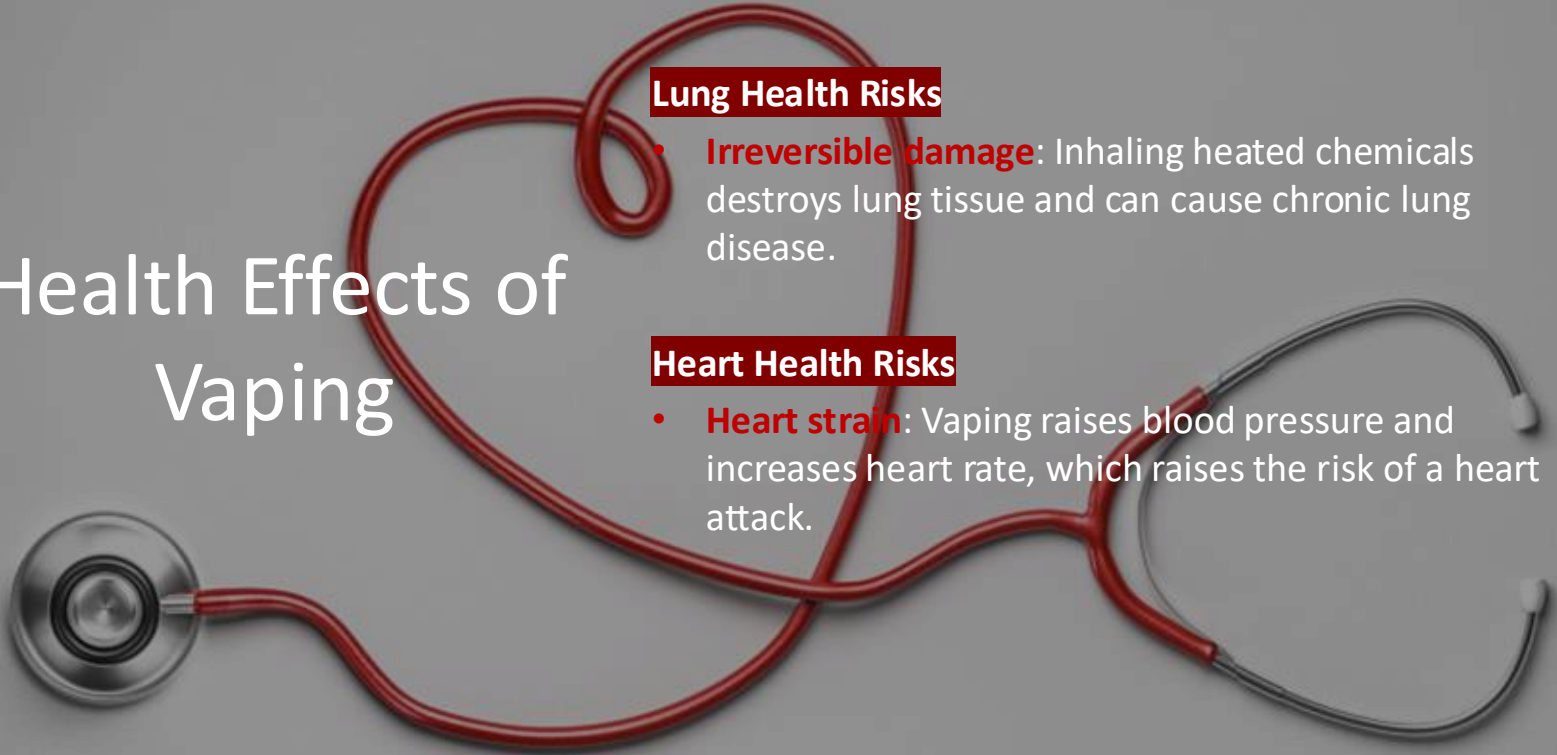
Vaping is not safe and poses major risks to your health, including **lung damage** and **heart problems**

Lung Health Risks

- **Irreversible damage:** Inhaling heated chemicals destroys lung tissue and can cause chronic lung disease.

Heart Health Risks

- **Heart strain:** Vaping raises blood pressure and increases heart rate, which raises the risk of a heart attack.



Flavorings Added to Vapes

Although some of the flavoring chemicals have been deemed safe when eating or drinking, once they are heated to produce an aerosol, they form **additional harmful compounds, heavy metals, and tiny particles** that go deep into the lungs and cause **lung damage and reduced ability to fight off infections.**



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Potential Global Threat: Etomidate Vapes



Etomidate - Literature

- **Etomidate:**
- Fast-acting intravenous anesthetic for quickly inducing **unconsciousness and sedation**.
- Reported as an adulterant or drug product in vapes in **Singapore, Philippines, New Zealand, Thailand, Malaysia, Taiwan, Hong Kong, South Korea**, and **Indonesia**
- Etomidate is typically sold in liquid form inside refillable vape pods (K-pods or space oil)
- **Etomidate in vapes internationally:**
 - <https://www.1news.co.nz/2025/11/04/illicit-anaesthetic-laced-vapes-linked-to-drug-harm-nationwide/>
 - <https://thediomat.com/2025/09/zombie-vapes-are-sweeping-across-southeast-asia-sparking-a-new-public-health-crisis/>
 - <https://www.theguardian.com/world/2025/aug/30/singapore-is-worried-about-a-rise-in-drug-laced-vaping-what-is-happening-and-what-is-the-drug-etomidate>

Etomidate Mixtures in SE Asia



- **Singapore:** Etomidate, Ketamine, Meth, and Cannabinoids
- **Thailand:** Etomidate and Ketamine
- **Indonesia:** Etomidate and Ketamine
- **Malaysia:** Etomidate, Medetomidine, and Cannabinoids
- **Malaysia:** Propoxate (analog of Etomidate)



Health Effects Etomidate Vaping

profound central nervous system depression

hormone imbalances

dangerously low blood potassium

muscle spasms, loss of consciousness

seizures

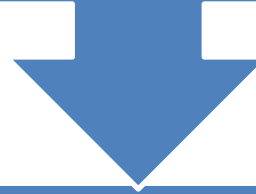
spikes in blood pressure

heart strain, and

fatal overdose

Health Effects: Etomidate + Ketamine Vaping

Vaping illicit products containing the medical anesthetics etomidate and ketamine causes severe, unpredictable, and life-threatening health effects.



Combining these powerful sedatives *intensifies* central nervous system depression, leading to rapid loss of consciousness, respiratory failure, dangerous cardiovascular shifts, and high risks of accidental death.

Immediate Physical and Neurological Effects (Etomidate + Ketamine)

- **Profound Sedation:** Rapid onset of deep unconsciousness, unresponsiveness, or "zombie-like" physical behavior.
- **Respiratory Depression:** Dangerously slow, shallow, or halted breathing that deprives the brain and organs of oxygen.
- **Motor Impairment:** Severe loss of balance, muscle weakness, tremors, and sudden collapse or inability to walk.
- **Cardiovascular and Gastrointestinal Stress:** Extreme spikes or drops in blood pressure, irregular heart rhythms, and violent nausea or vomiting.
- **Severe Dissociation and Psychosis:** Disturbing hallucinations, memory blackouts, extreme panic, and a complete detachment from reality driven by the ketamine component.

Medetomidine

- Medetomidine is a veterinary anesthetic drug with potent sedative effects and emerging illicit drug adulterant.
- Potency is 200-300 times greater than that of xylazine and makes opioid overdoses more difficult to reverse with naloxone.
- Found as a component in street drug mixtures in the US starting in 2022, often mixed with both fentanyl and xylazine.
- It can produce vasoconstriction, hypotension, slower respiratory rate, and bradycardia (slow heart rate).*

* H. Scheinin et al. Pharmacological effects of medetomidine in humans. Acta Vet Scand Suppl. 1989

**Etomidate is a non-opioid
intravenous sedative-hypnotic
agent**

Naloxone will not work

KRATOM

Kratom is a herbal substance derived from the leaves of a tropical evergreen tree native to Southeast Asia. It is widely used as an alternative remedy for pain, anxiety, and opioid withdrawal, but it **carries significant safety risks, including addiction, dependence, and potential overdose**

Kratom is unusual because its effects on the central nervous system change completely depending on how much is consumed:

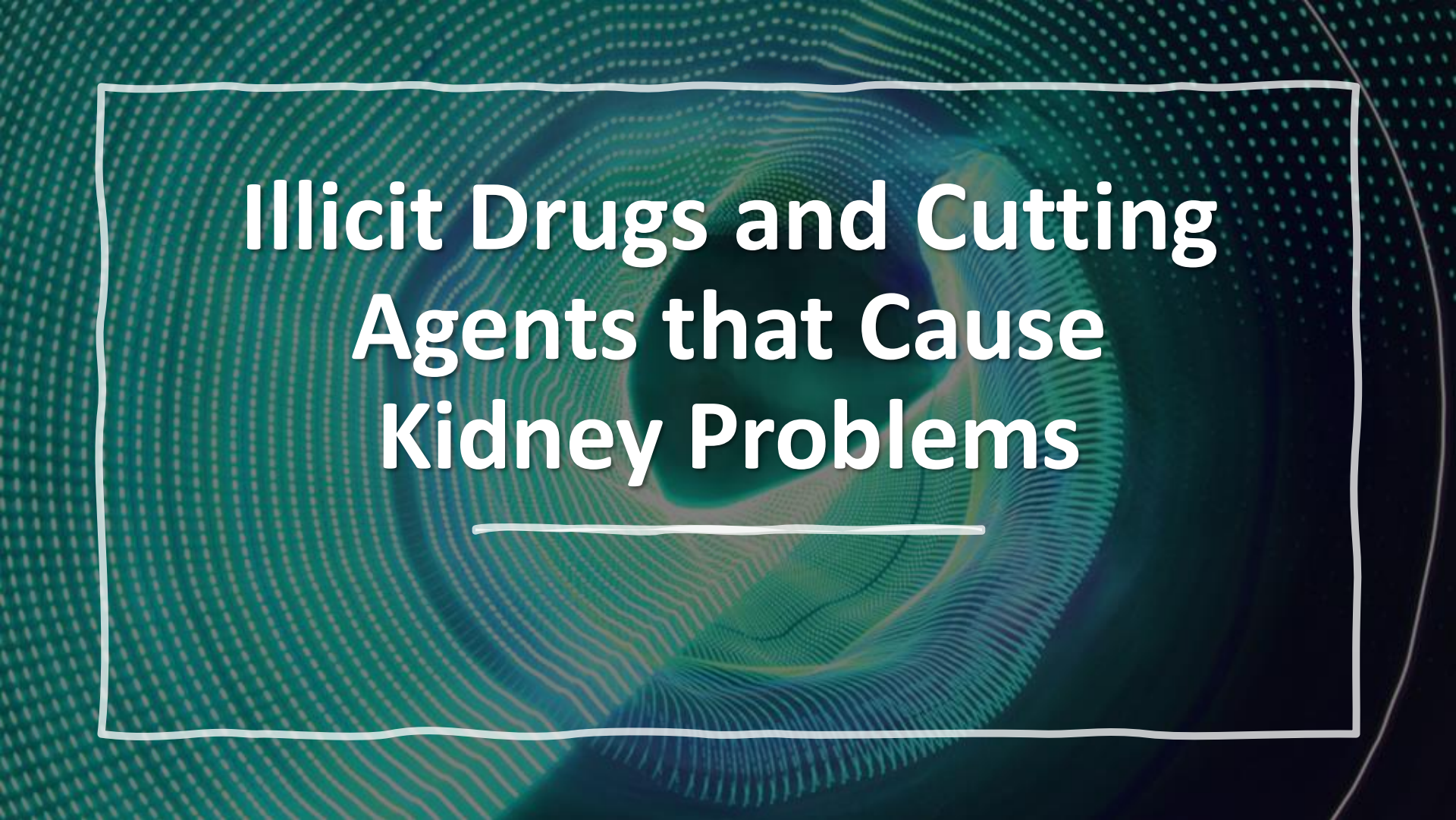
- **Low Doses (Stimulant-like):** Users report increased alertness, physical energy, and talkativeness, similar to a caffeine boost.
- **High Doses (Opioid-like):** It acts on the brain's opioid receptors, causing **sedative effects**, pain relief, and sometimes euphoria.

KRATOM (con't)

- Kratom leaves contain two major psychoactive ingredients (**in trace amounts**): **mitragynine** and **7-hydroxymitragynine (7-OH)**
- These leaves are crushed and then smoked, chewed, brewed with tea, or placed into gel capsules
- Mostly abused by oral ingestion in the form of a tablet, capsule, or extract
- Vaping poses additional health concerns

Rising Concerns: Concentrated Extracts and 7-OH

-
- While traditional kratom leaf powder contains trace amounts of the compound **7-hydroxymitragynine (7-OH)**, a severe public health concern involves highly concentrated, purified 7-OH tablets and synthetic derivatives that are entirely **lab synthesized** and sold at vape shops and online.
 - These isolated 7-OH products are highly potent—sometimes mimicking or exceeding the strength of morphine—and are driving a sharp rise in severe addictions and overdoses requiring **naloxone (Narcan)**.
 - Abruptly stopping 7-OH use triggers a severe opioid-like withdrawal syndrome. **Buprenorphine** successfully used to manage withdrawal.



Illicit Drugs and Cutting Agents that Cause Kidney Problems

A blurred night photograph of the Chicago skyline, featuring numerous skyscrapers and city lights that appear as soft, out-of-focus bokeh circles in shades of yellow, orange, and white against a dark blue twilight sky. The lights from a bridge or road in the foreground are also visible, creating a sense of depth and movement.

Chicago Experience

Synthetic Cannabinoids & Kidney Damage



Synthetic cannabinoids (often known as "K2" or "Spice") are increasingly recognized as a cause of acute kidney injury (AKI), particularly in young, otherwise healthy individuals.

Synthetic cannabinoids are potent chemical cocktails that can lead to rapid, severe kidney failure, sometimes requiring dialysis.

Most Common Population: The majority of reported cases involve young males (average age around 25) with a history of using synthetic cannabinoids.

Recovery: While severe on presentation, the AKI is often reversible with supportive care (intravenous fluids). However, some cases are severe enough to require hemodialysis.

While the immediate injury is often reversible, the long-term effects of repeated acute kidney injuries from synthetic cannabinoid use could potentially contribute to **chronic kidney disease (CKD)**.

CASE #4

BLOOD SPECIMENS

- **MDMB-4en-PINACA** (0.2 ng/mL)
 - Synthetic Cannabinoid
- **Protonitazene** (0.59 ng/mL)
 - NPS Opioid
- **2F-2oxo-PCE** (6.7 ng/mL)
 - NPS Hallucinogen
- **Bromazolam** (<10 ng/mL)
 - NPS Benzodiazepine
- **Desalkylgidazepam**
 - NPS Benzodiazepine



DRUG MATERIALS

- **MDMB-4en-PINACA** & MDMB-INACA *5*
- ADB-BUTINACA
- MDMB-BUTINACA
- MDMB-5-methyl INACA
- Protonitazene
- 2F-2oxo-PCE
- Bromazolam
- Desalkylgidazepam
- N,N-Dimethylpentylone
- Xylazine



Handwritten notes:
Circled: *Case 4*
August



Phenacetin

- Phenacetin induces hemolytic anemia, a disorder in which **red blood cells are destroyed prematurely, affecting oxygen transfer***
- Respiratory depression & cardiac arrest may ensue from lack of oxygen
- The chronic use of phenacetin is associated with nephrotoxicity and analgesic nephropathy (**kidney damage**)**
- In one prospective study, phenacetin was associated with **an increased risk of death due to renal diseases, cancers, and cardiovascular diseases*****

*Millar J, et al, Phenacetin-induced hemolytic anemia. Can Med Assoc J (1972) Apr 8; 106(7): 770-775

** C. Cole, Liverpool John Moores University, Centre for Public Health, CUT: A Guide to Adulterants, Bulking Agents and Other Contaminants Found in Illicit Drugs, Centre for Public Health, Faculty of Health and Applied Social Sciences, Liverpool John Moores University, Liverpool, 2010

***Du bach et al (1991) An epidemiologic study of abuse of analgesic drugs. Effects of phenacetin and salicylate on mortality and cardiovascular morbidity (1968 to 1987). *N Engl J Med*. 324 (3): 155-60

Severe Health Problems Accelerated with Adulterated Drugs versus Adulterated Aspirin

Health Problems from Aspirin Containing
Phenacetin Took Years to Appear. Aspirin was
Taken as needed for Pain in the 1960s



Crack Used 15-30 X day X 7 days/week X 6 months
Today Health Problems Appear within Months

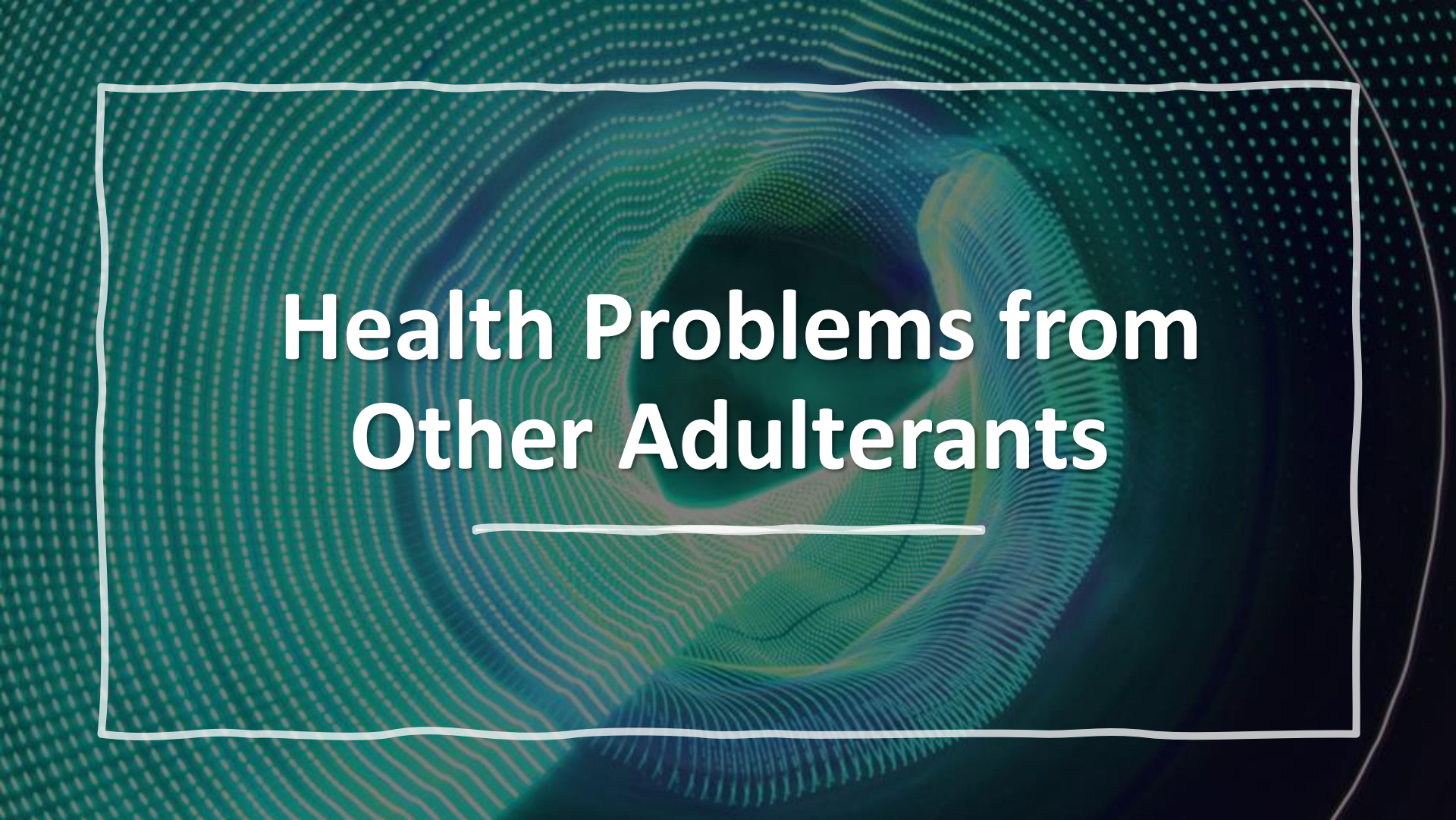


Long-term or heavy recreational use of **Ketamine** is strongly associated with severe damage to kidneys

Swelling

Renal failure
necessitating
dialysis

Necrosis or
tissue death



Health Problems from Other Adulterants

Levamisole is Toxic



Levamisole is a veterinary pharmaceutical used primarily to treat worm & parasitic infestations in livestock.

It has also been used experimentally and historically to treat various autoimmune disorders and cancers in humans.

Withdrawn from the Canadian (2003) and USA (1999) markets due to **toxicity**.

Results in a decrease of white blood cells that can **lower immunity and increase opportunist infections (e.g., CV-19)**.

Metamizole/Dipyrone

Metamizole is a pain reliever, fever reducer, and spasm reliever

Side effect of agranulocytosis (a dangerously suppressed immune system that places user at very high risk for serious infections due to a severely lowered white blood cell count)*

Combining dipyrone with opiates like heroin results in analgesic potentiation and produces supra-additive effects**

* Brack A, Rittner HL, Schäfer M (March 2004). "Nichtopioidanalgetika zur perioperativen Schmerztherapie" [Non-opioid analgesics for perioperative pain therapy. Risks and rational basis for use]. Der Anaesthetist (in German). 53 (3): 263–80.

** Hernandez-Delgadillo G & Cruz S. (2004). Dipyrone potentiates morphine-induced antinociception in dipyrone-treated and morphine-tolerant rats. Eur. J. of Pharmacol. 502, 67-73.



Aminopyrine



Banned analgesic & anti-inflammatory

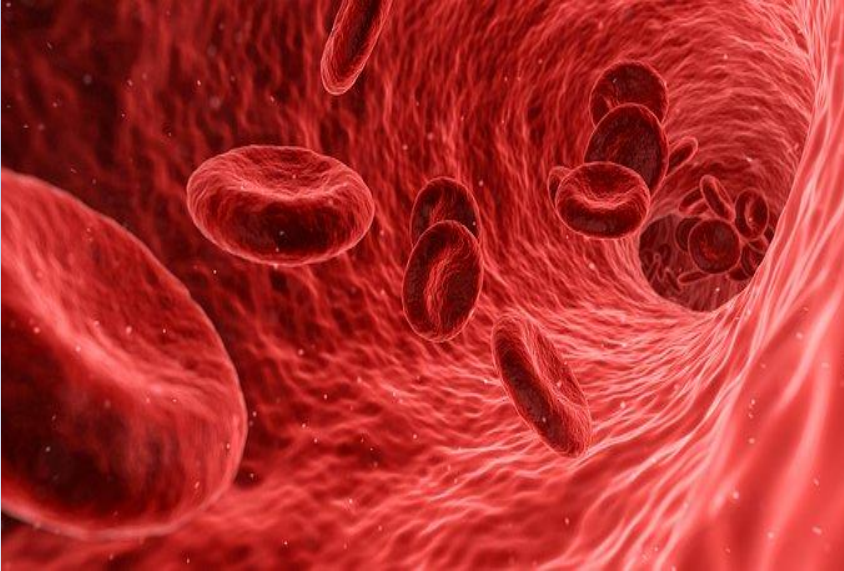
Dramatic decrease in white blood cells, leading to increased susceptibility to infection, suppressing immune function and the body's ability to fight off even minor infections*

People who smoke coca paste or crack cocaine contaminated by aminopyrine can experience overwhelming, rapidly-developing, life threatening infections* (**e.g., CV-19**)

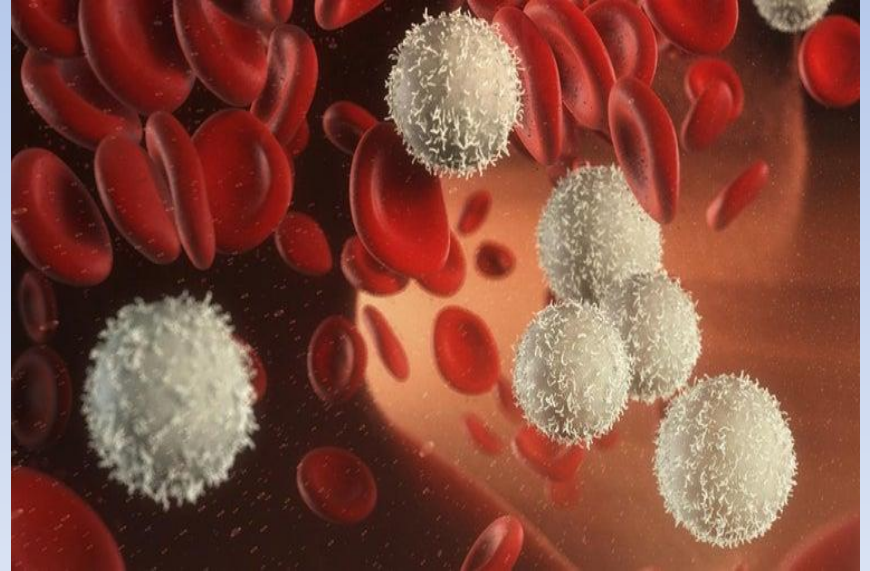
* Gilman AG, et al (eds.). Goodman and Gilman's *The Pharmacological Basis of Therapeutics*. 8th ed. New York, NY. Pergamon Press, 1990., p. 655.

Adulterant Effects on Health

Phenacetin Depletes Red Blood Cells, Damages Kidneys, and Bladder Cancer



Levamisole, Metamizole & Aminopyrine Deplete White Blood Cells



Middle East Captagon

(Chronic Health Effects)

- **Methamphetamine** – stimulant (**cardiac arrhythmia**)
- **Amphetamine** – stimulant (**cardiac arrhythmia**)
- Ephedrine – stimulant (**cardiac arrhythmia**)
- Caffeine – stimulant (**rapid heartbeat**)
- **Theophylline** – bronchodilator (potentiates stimulants, **cardiac arrhythmia**)
- Acetaminophen – analgesic (**liver damage**)
- Diphenhydramine – antihistamine (**cardiac arrhythmia**)
- Lidocaine – local anesthetic (**cardiac arrhythmia**)
- Procaine – local anesthetic (slow/**irregular heartbeat**)
- Quinine – antimalarial (**cardiac arrhythmia**)
- Allopurinol – xanthine oxidase inhibitor (**lowers WBCs/liver damage**)
- Trimethoprim – antibiotic (**lowers WBCs/liver damage**)
- Chlorphenamine - antihistamine (**cardiac arrhythmia**)
- Diphenylamine – fungicide (**heart, liver, kidney damage/destroys RBCs**)
- 1-Phenyl-1-Propanal – preservative for cosmetics (acute oral toxicity)

Since stimulants cause the heart to beat faster and with greater force, both of which can raise blood pressure, they may cause short-term spikes in the risk of heart rhythm disorders (arrhythmias) and other cardiovascular problems. [Harvard Health Publishing. “How stimulants may affect your heart.” 2/1/2022]

Recommended Medical Monitoring for Clients with SUD

Renal (Kidney): *Ketamine, Syn Cannabinoids, Cutting Agents (Phenacetin), Kush, Drug Mixtures with Ketamine*

Cardiovascular (Heart): *Stimulants (Meth, Amphetamine, Cocaine); Drug Mixtures (Meth or Etomidate + Ket), Cutting Agents (Quinine, Diphenhydramine, Lidocaine, Theophylline)*

Pulmonary (Lung): *Smoked or Vaped Drugs (Cannabis, Syn Cannabinoids, Crack Cocaine, Kratom), Drug Mixtures (Meth or Etomidate + Ket)*

Circulatory System (Blood – WBCs & RBCs): *Cutting Agents (Phenacetin, Levamisole, Metamizole, Aminopyrine)*