

Killer or Filler; what happens to patients when illicit substances are cut for profit?

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Disclosure Statement

I have no personal or financial conflicts of interest relating to this presentation



Objectives

- **Identify possible harmful agents used as fillers for illicit drugs**
- **Describe potential harmful reactions or adverse events that might occur due to illicit substance fillers**
- **Summarize the added risks of using illicit substances that have been altered with potentially harmful fillers.**



Adulterants or Diluents

- **Potentially in all illicit substances**
- **May mimic illicit substances**
- **May mimic other disease states**



Adulterants

- **Potentially add effect**
- **Make up for loss of effect, due to dilution of active ingredient**
- **Assist user in administration of illicit substances**



Buffers

- Also considered ‘cutting agents’, diluents
- Increase profit
- **2017: more buffers seized in Canada, than illicit substances**
- Example is phenacetin, which may have serious adverse effects:
 - Carcinogen
 - Hemolytic anemia
 - Methemoglobinemia
 - Renal damage



Heroin: Adulterants and Diluents

- **Procaine, lidocaine**
- **Fentanyl, sufentanyl, chemicals similar to fentanyl**
- **Acetaminophen, tramadol, codeine, morphine, caffeine**
- **Clostridial spores, anthrax**
- **Quinine, diphenhydramine**
- **Phenobarbital, diazepam**
- **Lactose, dextrose, mannitol, sucrose**
- **Strychnine (rat poison), papaverine, lead, chalk, brick dust, starch, laundry detergent, pesticides**



Methamphetamine: Adulterants and Diluents

- **Acetaminophen**
- **Ketamine**
- **Caffeine, ephedrine, pseudoephedrine**
- **Talc, starch, sugars**
- **Lead, phosphine gas, dimethyl sulfone (industrial solvent)**



Cocaine: Adulterants and Diluents

- **Phenacetin (removed from US market, carcinogen)**
- **Amphetamine, methamphetamine, caffeine**
- **Procaine, lidocaine, benzocaine, tetracaine**
- **Diltiazem**
- **Acetaminophen, fentanyl, hydroxyzine, cetirizine**
- **Dextrose, sucrose, lactose, vinegar**
- **Cornstarch, flour, talcum powder, lead, creatine, kerosene, hydrochloric acid, boric acid, strychnine (rat poison), Dimethyl terephthalate (real use: plastic manufacturing)**



Ketamine: Adulterants and Diluents

- **Paracetamol**
- **Caffeine**
- **Lactose, inositol, mannitol**
- **Cornstarch, talcum powder, glass, detergent, baking soda**



Ecstasy: Adulterants and Diluents

- **Dextromethorphan, acetaminophen**
- **Amphetamine, methamphetamine, pseudoephedrine**
- **Ketamine, phencyclidine**
- **Methyl salicylate**
- **Paramethoxymethamphetamine, paramethoxyamphetamine (illegal in US)**
- **Any other psychoactive drug, including prescription meds**



Molly (3,4-methylenedioxy-methamphetamine) Adulterants and Diluents

- **Easily purchased on-line**
- **Often promoted as 'pure'**
- **Less than 20% tested actually contains Molly (3,4-methylenedioxy-methamphetamine)**
- **Synthetic: may be anything, even compounds not yet known**
- **Illicit labs create new chemical structures to sell as Molly (3,4-methylenedioxy-methamphetamine)**



Cannabis/ Marijuana: Adulterants and Diluents

- **Nicotine: tobacco**
- **Common: fungi, bacteria, mold**
- **Pesticides: naphthalene, and others**
- **Plain household herbs**
- **Psychoactive drugs**
- **Aluminum, lead, other heavy metals**
- **Glass, butane, rubbing alcohol, heptane**



Pulmonary Emboli

- **Patients who inject illicit substances are at risk**
- **Highest risk: injection of non-IV substances such as oral medications**
- **Cotton: when cotton balls are used as a filter**
- **Bulking materials: talc, cellulose, starch, etc**
- **Emboli may occur anywhere in vasculature, not just lungs**



Levamisole

- **What is it?**
 - **Veterinary medication**
 - **Withdrawn from human market**
- **Contaminant since at least 2002, primarily cocaine**
- **Why is it used?**
 - **Profit**
 - **Adulterated cocaine appears pure**



Levamisole Complications

- **Potentially**
 - **Neutropenia, agranulocytosis**
 - **Arthralgias**
 - **Retiform purpura**
 - **Skin necrosis**
- **Usually reversible**
- **Not reversible in some patients, unknown percentage**



Levamisole Skin Necrosis

- **Usually reversible**
- **Supportive care**
- **Recurrence with continued cocaine abuse**
- **Increased severity with continued cocaine abuse**
- **Incidence expected to increase**



Fentanyl

- **Is it truly fentanyl?**
 - **Often made in underground labs**
 - **Chemical structure may be altered**
- **Why is it used?**
 - **PROFIT**
 - **Usual profit on heroin \$100's to \$1000's**
 - **Fentanyl increases profit to MILLIONS of \$\$**
 - **Not used to cause death**
 - **Unintentional outcome**
 - **Not profitable to kill users**



Fentanyl

- **Of what is it potentially a contaminant**
 - **Heroin**
 - **Alprazolam (Xanax)**
 - **Hydrocodone**
 - **Potentially any other CNS depressant**
 - **Cocaine (recent contaminant)**



False Rumors

- **Marijuana has not yet been found with fentanyl in it, in the US**
- **Krokodil (desomorphine) has NOT been seen in the US, but has been seen in Russia**
- **Licking needles cleans them**
 - **must use either clean needles or bleach and water**
 - **Most users lick needles for other purposes**



Questions?

Thank you for having me speak!

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