

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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