

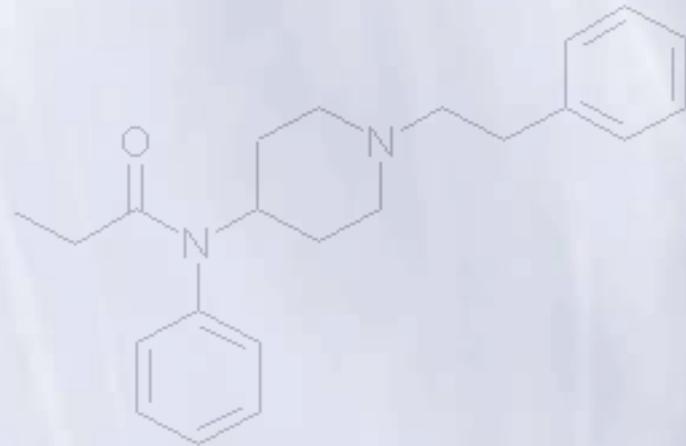


Drug Enforcement Administration

OVERVIEW OF FENTANYL SITUATION

JULY 2006

FENTANYL : Nomenclature

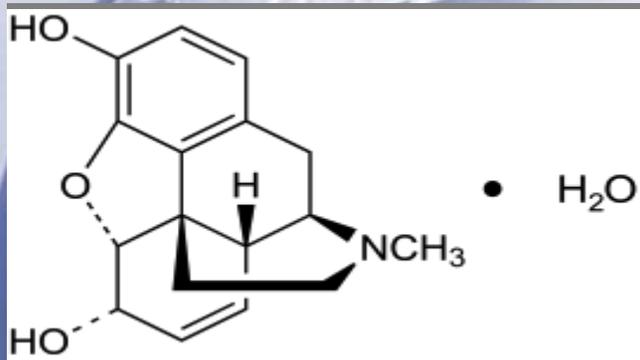


- **N-(1-phenethyl-4-piperidyl)-N-phenylpropanamid**

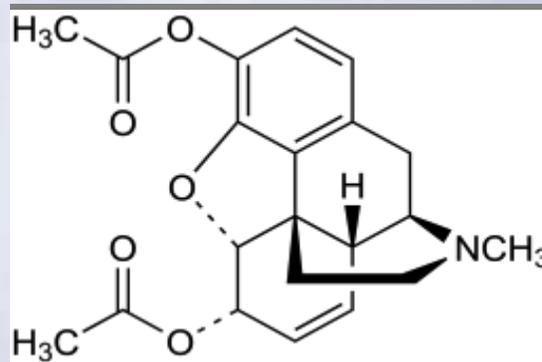
also known as

- **(N-(1-Phenethyl-4-piperidyl)propionanilide)**

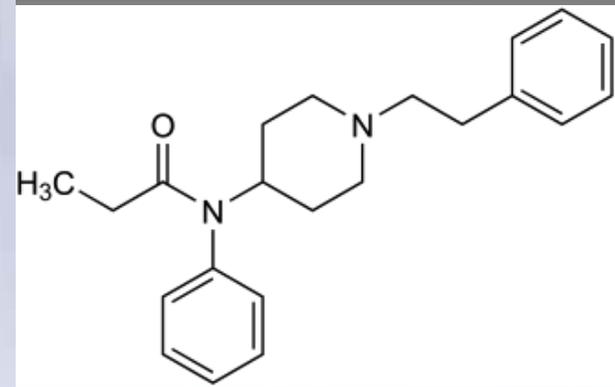
Nature of Analgesic Narcotic



Morphine
(Natural)



Heroin
(Diacetylmorphine)
(Semi-Synthetic)



Fentanyl
(Synthetic)

Pharmaceutical Fentanyl

Transdermal patches
(Duragesic®)



Oral lozenges (Actiq®)



FENTANYL: Warnings

- The Material Safety Data Sheet (MSDS) for Fentanyl indicates “DANGER! MAY BE FATAL IF SWALLOWED, INHALED, OR ABSORBED THROUGH SKIN. POTENT NARCOTIC.”
- If Fentanyl comes in contact with skin (i.e. the hands) it could subsequently enter the body through inadvertent touching of the mouth, nose, or other mucous membranes. The onset of adverse health effects, such as disorientation, coughing, sedation, respiratory distress or cardiac arrest is very rapid and profound, usually occurring within minutes of exposure.
- Narcan, (naloxone) an opioid antagonist, is an antidote for opiate overdose and may be administered intravenously, intramuscularly, or subcutaneously.

FENTANYL SAFETY & HAZARDS

- Potentially lethal at very low levels. Can be absorbed through the skin as well, e.g. Duragesic product.
- Doses of 100 micrograms (1/10 mg) per hour are used clinically for chronic pain.
- Avoid inhalation of powder or dust. Taking samples or opening a package could stir up powder. Use gloves and dust mask or APR when handling sample or SCBA for suspected lab.
- It is believed that Fentanyl, *or a derivative*, was used in October 2002, by the Russian Army to end the Chechan militant terrorist siege in a Moscow theater. Over 100 civilians died in the process.

FENTANYL SAFETY & HAZARDS

- Symptoms of ingestion include: coughing, dizziness, respiratory arrest, coma, or death.
- If inhaled, move to fresh air. Respiratory arrest.
- If ingested, induce vomiting.
- If you know you will be working with Fentanyl, contact EMS responders to see if Narcan (naloxone) is available. Narcan is an antidote for opiate overdose.
- Call DEA Lab if you have any questions.

FENTANYL

HEROIN SIGNATURE PROGRAM

100mg versus 4mg



125 micrograms



125 micrograms



LYNN PEAVEY CO.
800-255-6499

0 1 2 3

CASE # _____ Date ____ / ____ / ____

COLOR TESTS FOR FENTANYL

Cocaine



Fentanyl

Scott's Test

Meth



Fentanyl

Marquis Test

Meth



Fentanyl

Secondary
Amine Test
(Sodium Nitroprusside)

A blue-tinted image of the Earth from space, showing the continents of North and South America. The text 'CLANDESTINE FENTANYL PRODUCTION' is centered over the Atlantic Ocean. The background features a faint grid pattern and light rays.

CLANDESTINE
FENTANYL
PRODUCTION

Synthetic: Fentanyl

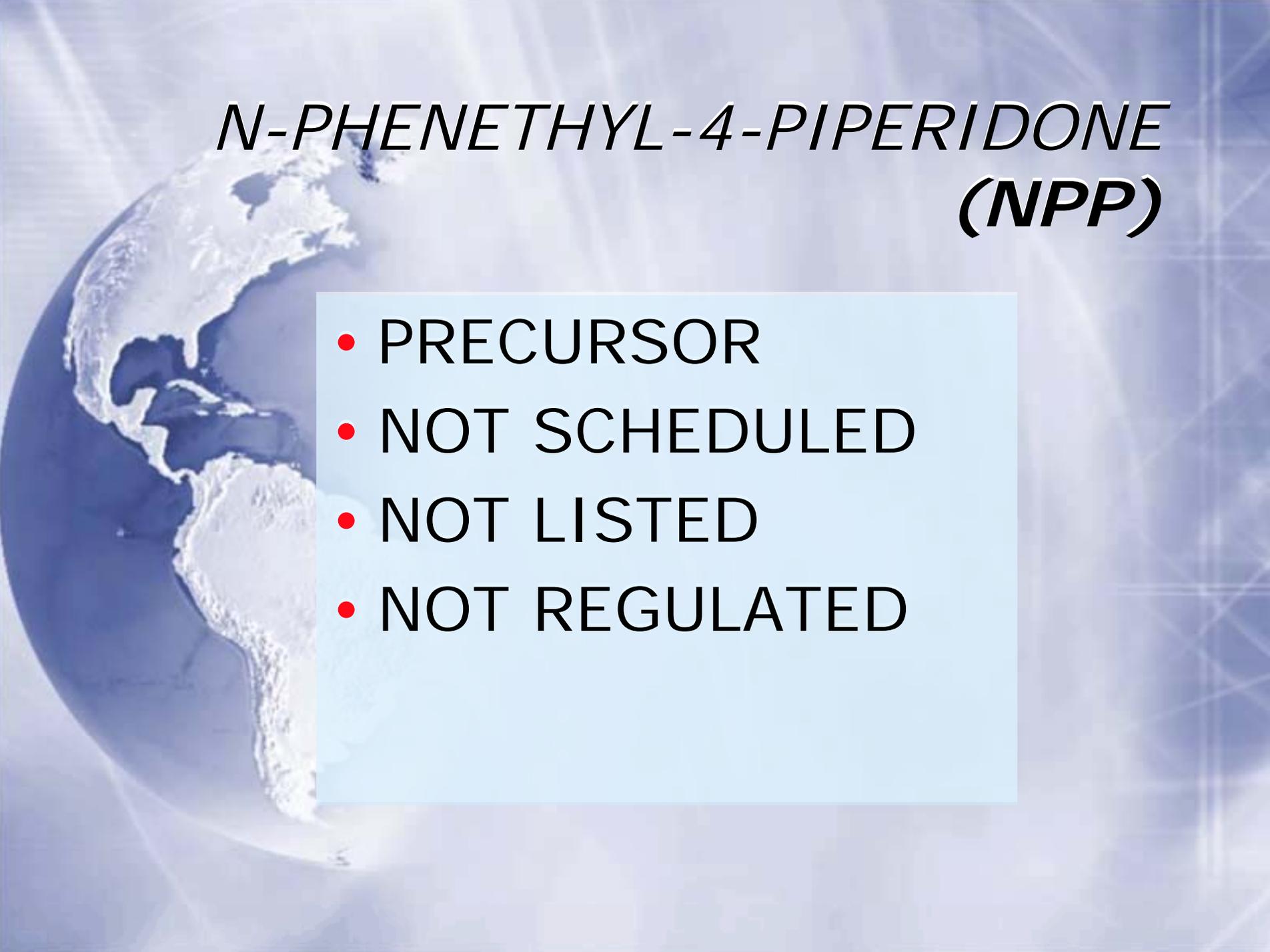


FENTANYL: Synthesis

- In 1965, Janssen Pharmaceutica patented the original synthesis for fentanyl, which used **N-benzyl-4-piperidone** as the starting material.
- In the early 1980's, an alternate fentanyl synthesis route was published in the scientific literature that used **N-phenethyl-4-piperidone (NPP)** as the initial starting material.
- The synthetic route can be determined by the identification of "marker" by-products in the seized material.

FENTANYL: NO EQUIVALENT OTC
PRECURSORS LIKE METHAMPHETAMINE
& PSEUDOEPHEDRINE
COLD PREPARATIONS





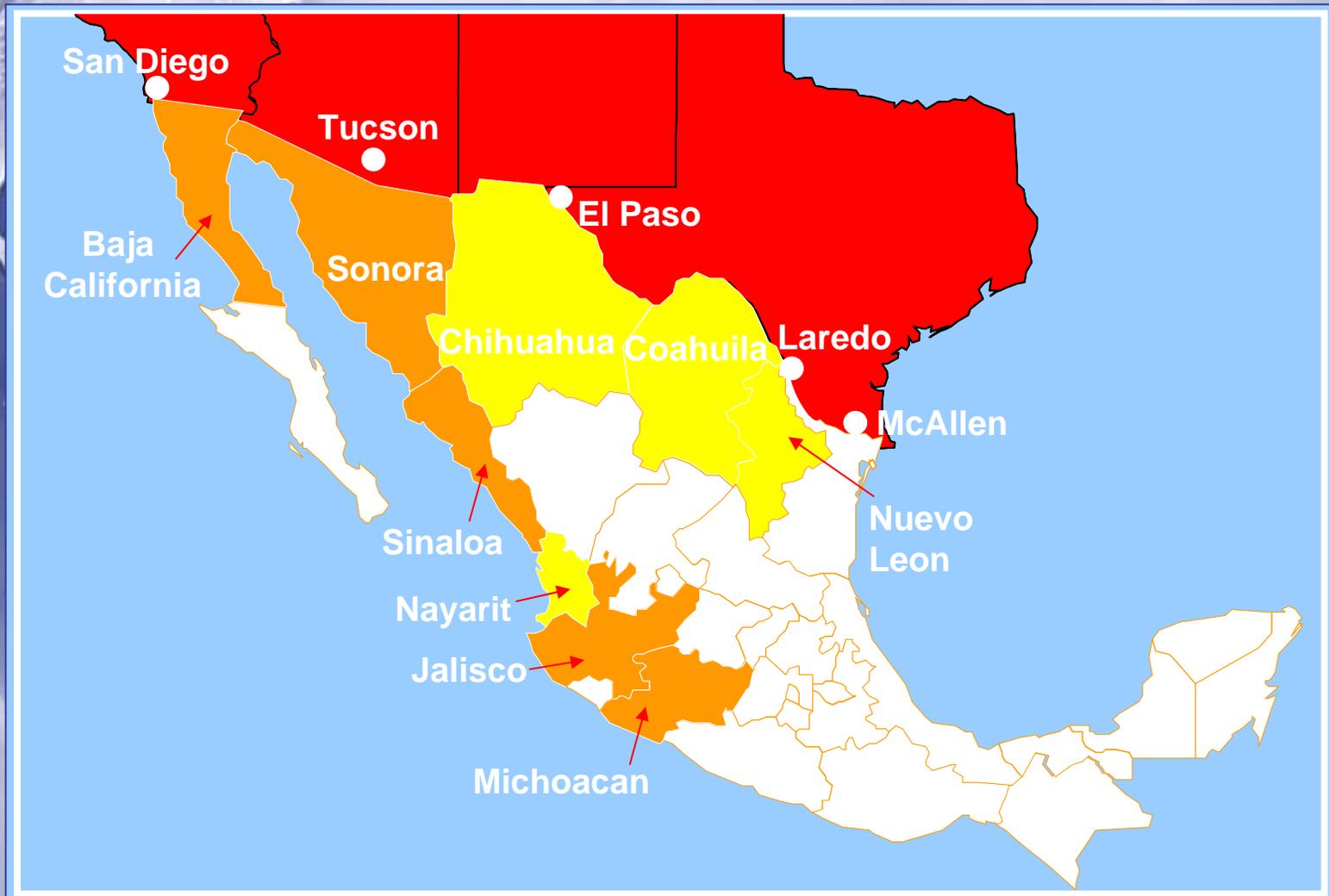
N-PHENETHYL-4-PIPERIDONE (NPP)

- PRECURSOR
- NOT SCHEDULED
- NOT LISTED
- NOT REGULATED

DOMESTIC FENTANYL CLAN LAB SEIZURES

DATE	PLACE
04/14/90	BONITA, CA
08/15/90	SAN JOSE, CA
12/31/91	FALLBROOK, CA
02/03/93	WICHITA, KS
12/14/00	BIG BEAR, CA
12/17/03	NEWTON SQUARE, PA
05/03/04	SANTA CLARA, CA
06/15/05	SAN DIEGO, CA
11/22/05	AZUSA, CA

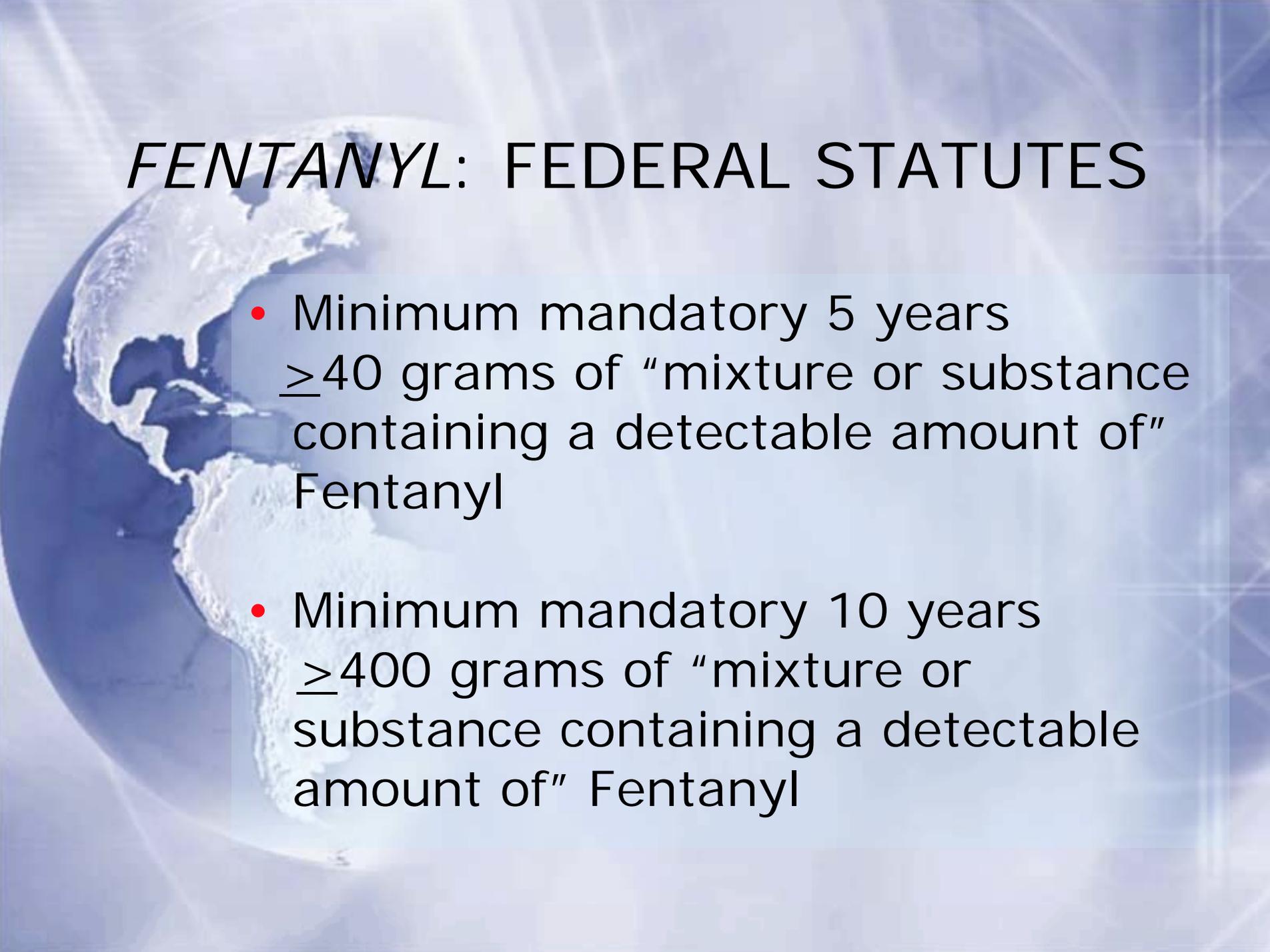
Methamphetamine Laboratories in Mexico: *Fentanyl, too?*





INTERNATIONAL AND DOMESTIC Law Enforcement Challenges

- CYBERSPACE
- INTERNET CHAT-ROOMS
- BULLETIN BOARDS
- CODE / KEY WORDS
- ENCODED E-TRAFFIC



FENTANYL: FEDERAL STATUTES

- Minimum mandatory 5 years
≥40 grams of “mixture or substance containing a detectable amount of” Fentanyl
- Minimum mandatory 10 years
≥400 grams of “mixture or substance containing a detectable amount of” Fentanyl

FEDERAL STATUTORY PENALTIES – FENTANYL & ANALOGUES

10 years	5 years	20 – Life	0-20
400 grams Fentanyl*	40 grams Fentanyl*	Fentanyl* + Death or Serious Injury	Lesser quantities -see Sent. Guidelines
100 grams Analogue	10 grams Analogue	Analogue + Death or Serious Injury	Lesser quantities -see Sent. Guidelines

- *Fentanyl = N-phenyl-N-[1-(2-phenylethyl)-4-piperidinyl] propanamide in statute
- Quantities refer to a “mixture or substance containing a detectable amount of” the substance

CONTROLLED SUBSTANCE ANALOGUES

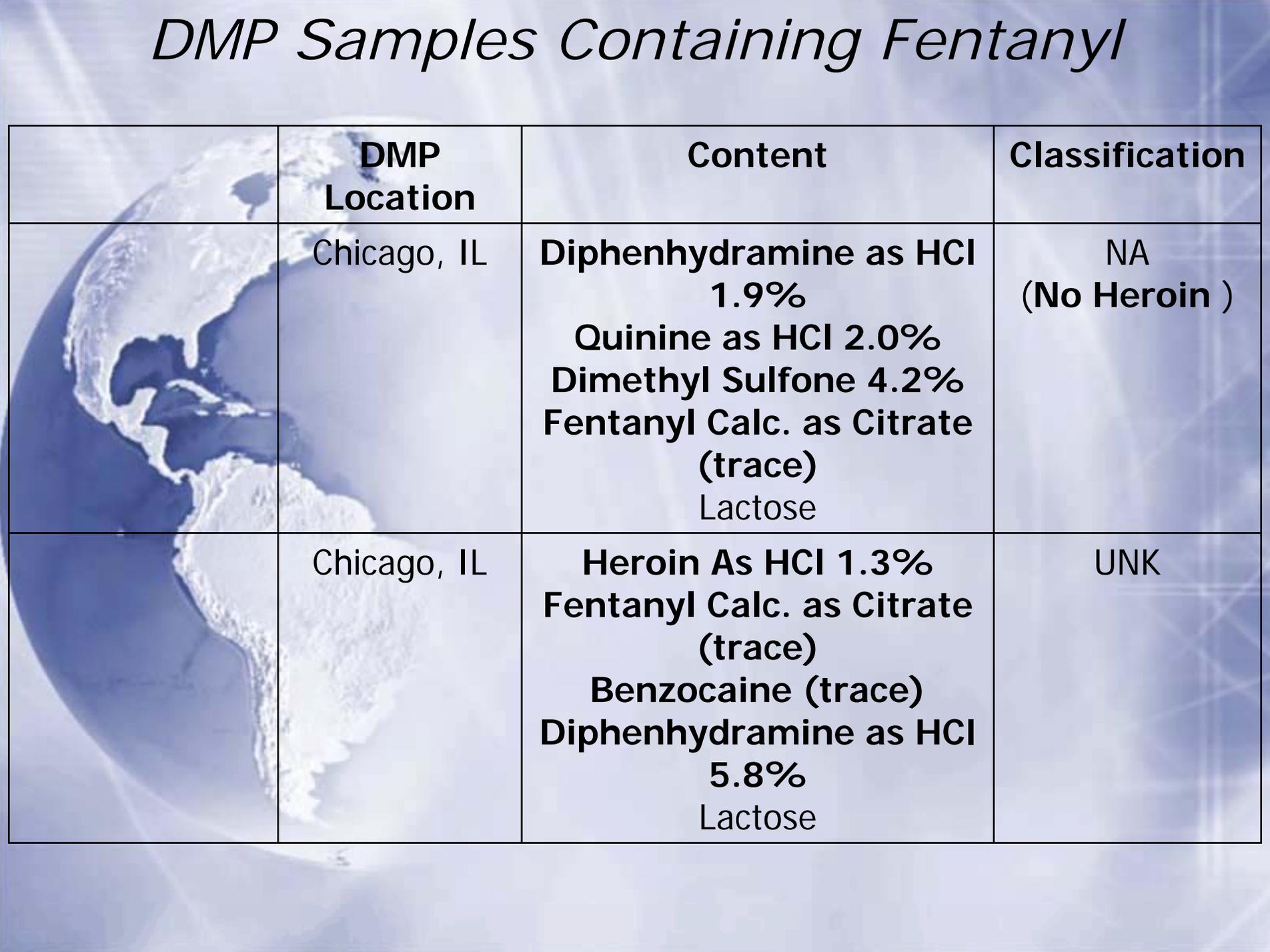
- Generally: “Designer Drug” that Resembles a Controlled Substance
- Legally: 3-pronged Definition
 - Structure: “substantially similar” to I/II
 - Effect: “substantially similar” to I/II
 - (Intended / Represented effect)



CONTROLLED SUBSTANCE ANALOGUES

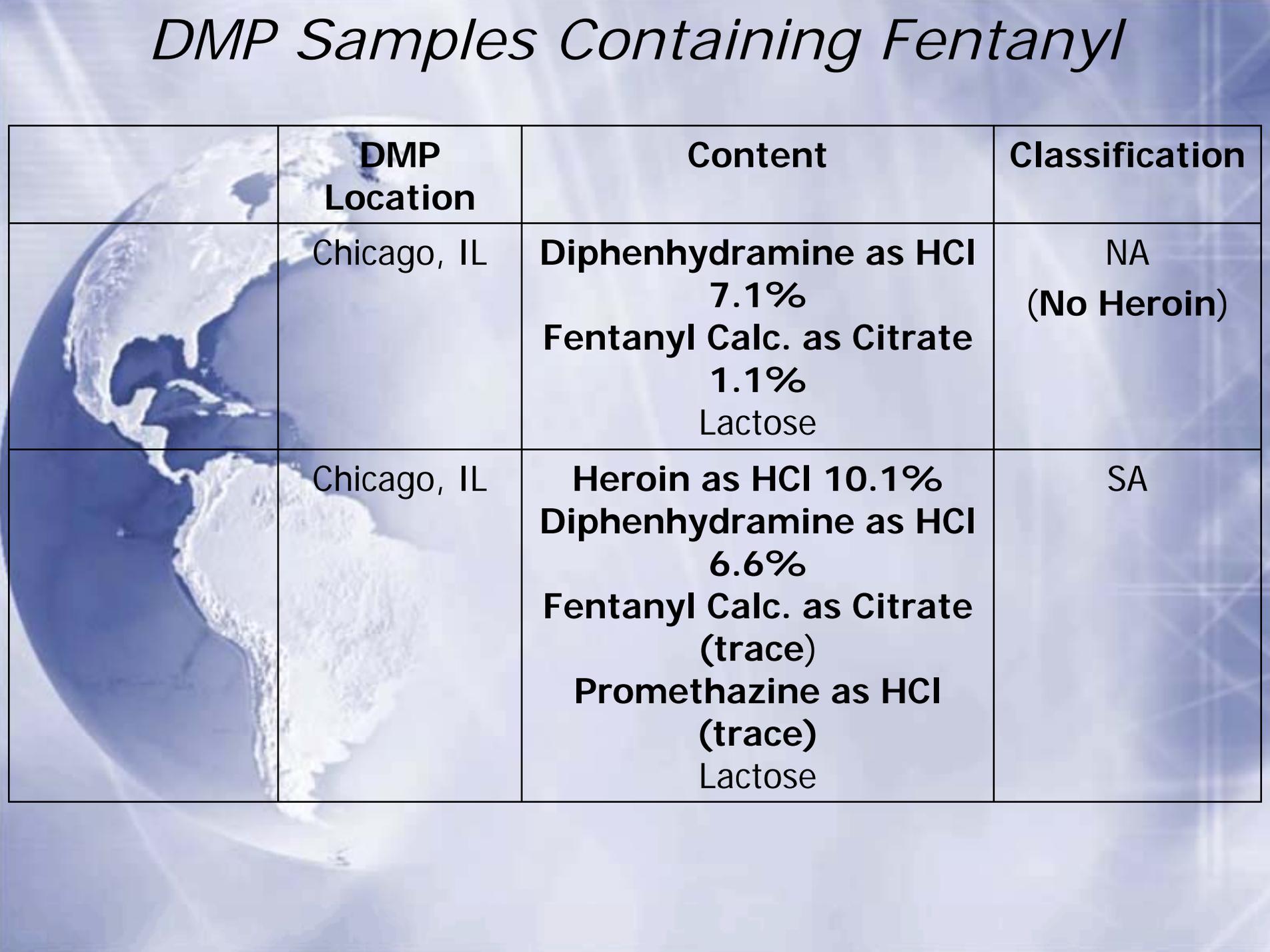
- Analogues are NOT
 - “Counterfeits”
 - Imitations
 - “Immediate Precursors”
 - FDA-Approved Drugs

DMP Samples Containing Fentanyl



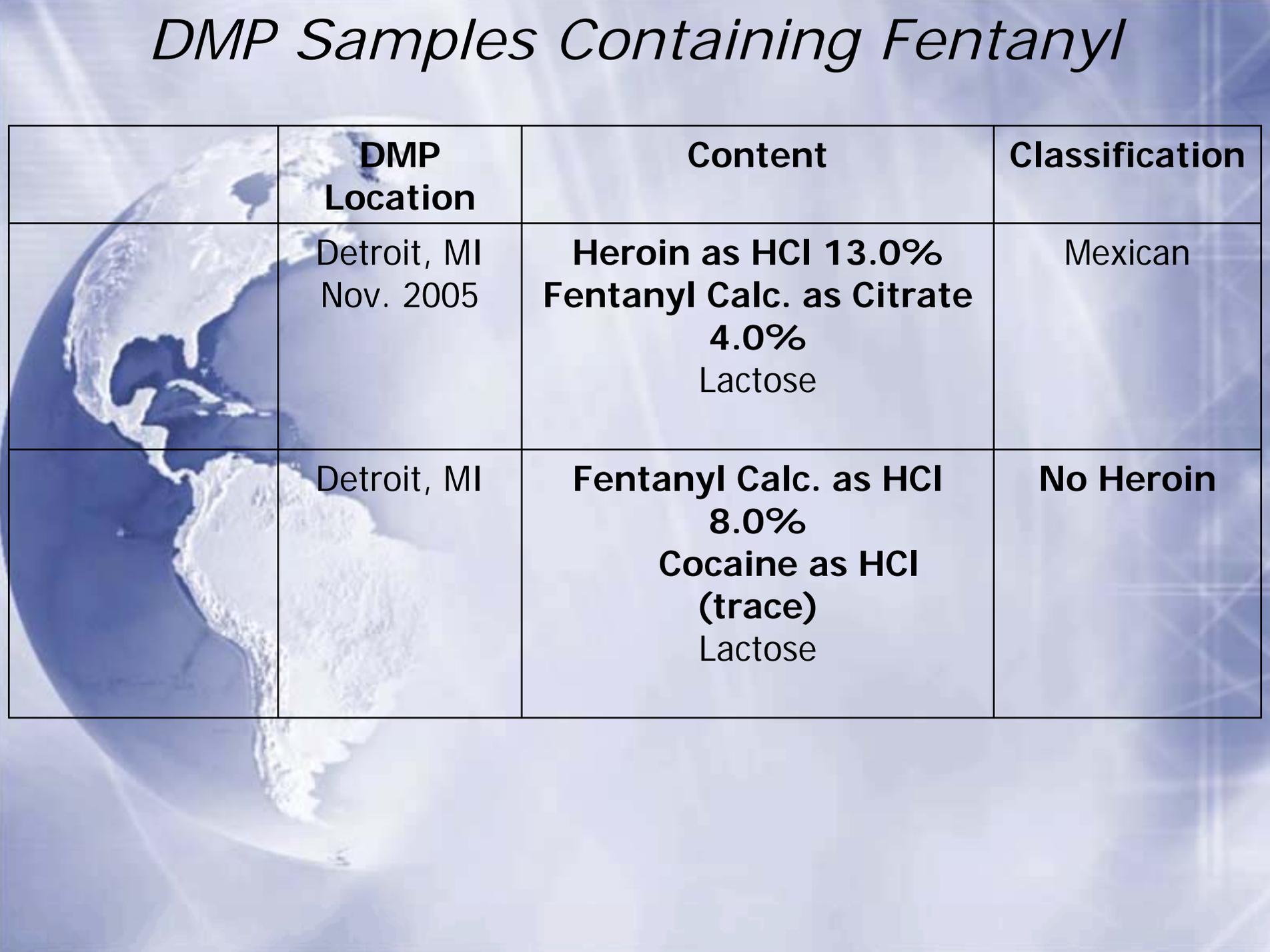
	DMP Location	Content	Classification
	Chicago, IL	Diphenhydramine as HCl 1.9% Quinine as HCl 2.0% Dimethyl Sulfone 4.2% Fentanyl Calc. as Citrate (trace) Lactose	NA (No Heroin)
	Chicago, IL	Heroin As HCl 1.3% Fentanyl Calc. as Citrate (trace) Benzocaine (trace) Diphenhydramine as HCl 5.8% Lactose	UNK

DMP Samples Containing Fentanyl



	DMP Location	Content	Classification
	Chicago, IL	Diphenhydramine as HCl 7.1% Fentanyl Calc. as Citrate 1.1% Lactose	NA (No Heroin)
	Chicago, IL	Heroin as HCl 10.1% Diphenhydramine as HCl 6.6% Fentanyl Calc. as Citrate (trace) Promethazine as HCl (trace) Lactose	SA

DMP Samples Containing Fentanyl



	DMP Location	Content	Classification
	Detroit, MI Nov. 2005	Heroin as HCl 13.0% Fentanyl Calc. as Citrate 4.0% Lactose	Mexican
	Detroit, MI	Fentanyl Calc. as HCl 8.0% Cocaine as HCl (trace) Lactose	No Heroin

DMP Samples Containing Fentanyl

Case	DMP Location	Content	Classification
	St. Louis, MO	Fentanyl Calc. as HCl 2.3% Diphenhydramine as HCl 5.8% Lactose	No Heroin
	St. Louis, MO	Heroin as HCl 7.4% Fentanyl Calc. as HCl 1.9% Diphenhydramine as HCl 6.1% Lactose	

Goals

- Determination of Synthetic Routes in Seized Samples
- Method Development to Detect Specific Impurities in Synthetic Routes
- Determination of Licit vs. Clandestinely Produced Fentanyl
- Link Samples Based on Chemical Profiles



Considerations

- Motivation
 - Money-Huge Profit Margin
- Trafficking Easy
 - Keep it small, make it big,.....
\$\$\$\$
- BUT...



Considerations

- Deaths - Why?
 - Small therapeutic window
- Possibly Attributed to:
 - Distributors not familiar with such a potent drug
 - At Distribution – too strong at the street level - inhomogeneous
 - High risk associated with distributing ineffective product
 - If one is good, two is better