53 or so Fentanyl derivates seen in US

- 1920 Possible
- 1400 of interest
- 512 possible illicit

JUST A TOUCH CAN BE DEADLY

Ohio cop's scare shows peril of handling fentanyl for officers in Chicago

FENTANYL FEARS
- Earlier this month, an Ohio police officer, Chris Green, accidentally overdosed when he touched powder on his shirt without realizing it was
ABC15 EXCLUSIVE

FENTANYL: ONE TOUCH CAN KILL

NEW AT 6
OFFICER'S ACCIDENTAL OD TOUCHE D FENTANYL
The Wild World of Illicit Drugs
States with Five Highest and Five lowest Prescription Rates

Prescriptions per 100 People

Alabama, Arkansas, Tennessee, Mississippi, Louisiana, Minnesota, Massachusetts, California, New York, Hawaii

Map showing prescription rates across the United States.
Figure 2. Forensic Laboratory Reports of Fentanyl, 2005 – 2017

Source: DEA

Figure 22. Drug Overdose Deaths Involving Selected Controlled Prescription Drugs, 1999 – 2017

Source: Centers for Disease Control and Prevention

*This category includes deaths from both licit and clandestinely-produced fentanyl.

**The majority of deaths in this category involve illicit methamphetamine
At what cost?

Direct health care costs from 2015-2018

$631 Billion

Estimated total economical impact from 2015-2018

$2.5 trillion!!
Profit?

<table>
<thead>
<tr>
<th>Drug</th>
<th>Cost Per 1 Kg to DTO</th>
<th>Approximate Number of Kgs Produced</th>
<th>Wholesale Price per Kg in USA</th>
<th>Revenue to DTO from 1 Kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heroin</td>
<td>$6,000 - 7,000</td>
<td>1 kg</td>
<td>$80,000</td>
<td>$80,000</td>
</tr>
<tr>
<td>Pure Fentanyl (99%)</td>
<td>$4,200 - 6,000</td>
<td>16–24 kg (4%-6%)</td>
<td>$80,000</td>
<td>$1,280,000 - 1,920,000</td>
</tr>
</tbody>
</table>
Fentanyl

- Patented by Janssen Pharmaceutica 1950’s
- 1963 started to be used in medical practice
- 25-40 times more potent than heroin
- 50-100 times more than morphine

Overdose by touch?

- **Lethal Dose of Fentanyl 2.55mg**
- Average human body has 18,000 cm² of skin
- Flux through the skin at 61 ng/cm²/hr
- 2.3 hrs to get 2.55mg in blood stream

**2.3 HOURS!**
Exposure after 15 min is 76 ng

- LD 50 = 2.55 mg = 2,550,000,000 ng
- Anesthetic Dose = 25.76 µg = 25,500 ng
- Analgesic Dose = 2.5 µg = 2,500 ng

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**Table 3. Recommended Personal Protective Equipment Descriptions**

<table>
<thead>
<tr>
<th>PPE Recommendations</th>
<th>Skin Protection</th>
<th>Eye/Face/Respiratory Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Risk PPE (I)</td>
<td>• Nitrile gloves, certified to NFPA 1999 (Single Use Examination Gloves)</td>
<td>• None</td>
</tr>
<tr>
<td></td>
<td>• Uniform</td>
<td></td>
</tr>
<tr>
<td>Moderate Risk / Small Volume Hazard (II)</td>
<td>• Nitrile gloves, certified to NFPA 1999 (Single Use Examination Gloves)</td>
<td>• P100 Filtering face piece respirator with safety glasses</td>
</tr>
<tr>
<td></td>
<td>• Uniform</td>
<td></td>
</tr>
<tr>
<td>Fire Risk (III)</td>
<td>• Structural fire fighting protective ensemble (garments, helmet, hood, gloves, and footwear), certified to NFPA 1971</td>
<td>• Self-contained breathing apparatus, certified to NFPA 1981</td>
</tr>
<tr>
<td>Moderate Risk / High Volume Hazard (IV)</td>
<td>• Nitrile gloves, certified to NFPA 1999 (Single Use Examination Gloves)</td>
<td>• P100 Filtering face piece respirator with non-vented or indirect vented goggles;half mask air-purifying respirator (PAPR) with P100 filters and non-vented or indirect vented goggles; or full facepiece APR with P100 filters</td>
</tr>
<tr>
<td></td>
<td>• Uniform</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Long sleeve and/or sleeve covers</td>
<td></td>
</tr>
<tr>
<td>High Risk / Particulate Hazard (V)</td>
<td>• Multiple-use emergency medical protective ensemble (garments, gloves, and footwear), certified to NFPA 1999; or Class 4 or 4R protective ensemble (garment, gloves, and footwear) certified to NFPA 1994</td>
<td>• Full facepiece APR with P100 filters; powered air-purifying respirator (PAPR) with high-efficiency particulate air (HEPA) filter; or self-contained breathing apparatus, certified to NFPA 1981</td>
</tr>
<tr>
<td>High Risk / Chemical Hazard (VI)</td>
<td>• Class 3, 3H or higher protective ensemble (garments, gloves, and footwear) certified to NFPA 1994 or NFPA 1991</td>
<td>• Full facepiece chemical, biological, radiological, nuclear (CBRN) APR or CBRN PAPR; or self-contained breathing apparatus, certified to NFPA 1981</td>
</tr>
</tbody>
</table>

https://www.interagencyboard.org/
Naloxone

- Symptoms and <8 resp/min
- Ventilation is key- Rescue breathing!!!
- To Date- **NOT** seeing opioids that are resistance to Naloxone

Is the home safe?
Is this hotel room safe?

Preparing the Forces

• As the network is attacked and the pipeline is tightened the incentive for production labs will increase
• Detection and Identification will be key!
Identification

- Blister packs do not work....
- How do we identify these unknowns?
- BTNX, Detectachem
- GC/MS
- RAMAN- (Tru Narc, Gemini, Tru-Defender, Cobalt, etc.)
- FT-IR
- Higher end technology emerging technology

FENTANYL
Heroin

SYNTHETICS

23

24