

# The European Mosaic: Prescription Drug Misuse Across Borders

## The Mosaic Approach to Post-marketing Surveillance

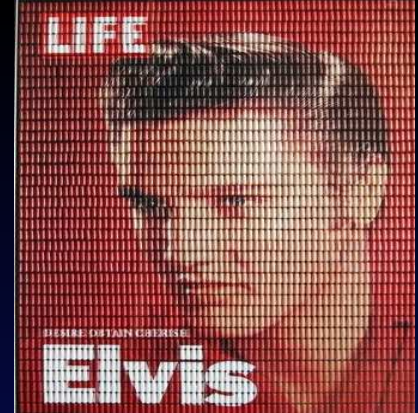
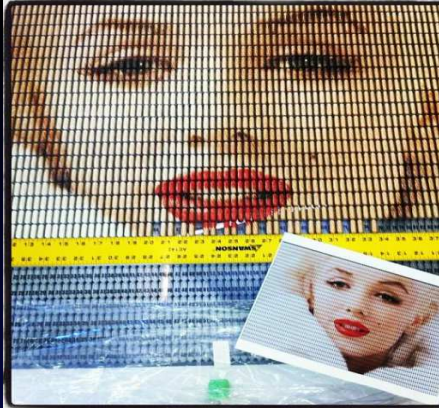
Richard C. Dart, MD, PhD

Executive Director, RADARS System, Denver Health

Professor, University of Colorado

# Competing Interests

- The RADARS System is the property of Denver Health and Hospital Authority, a political subdivision of the State of Colorado
  - Employees are prohibited from personal financial relationships with any company
- Many manufacturers of prescription opioids subscribe to RADARS
  - Subscribers receive information, but do not participate in developing the System, data collection, or analysis
  - Subscribers do not have access to the raw data
  - Subscribers may not use RADARS data for promotional purposes

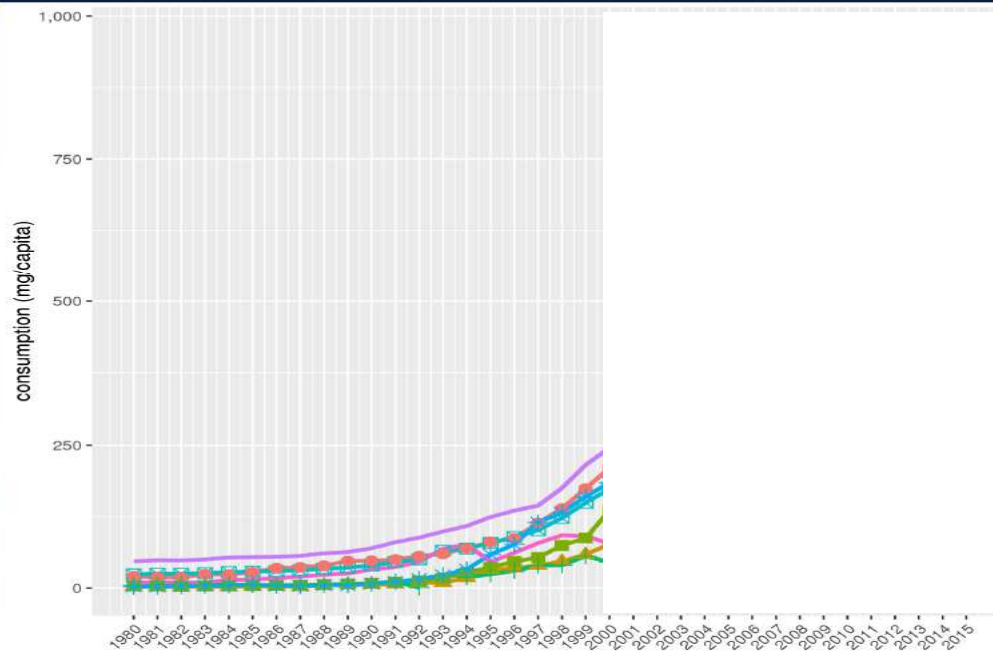


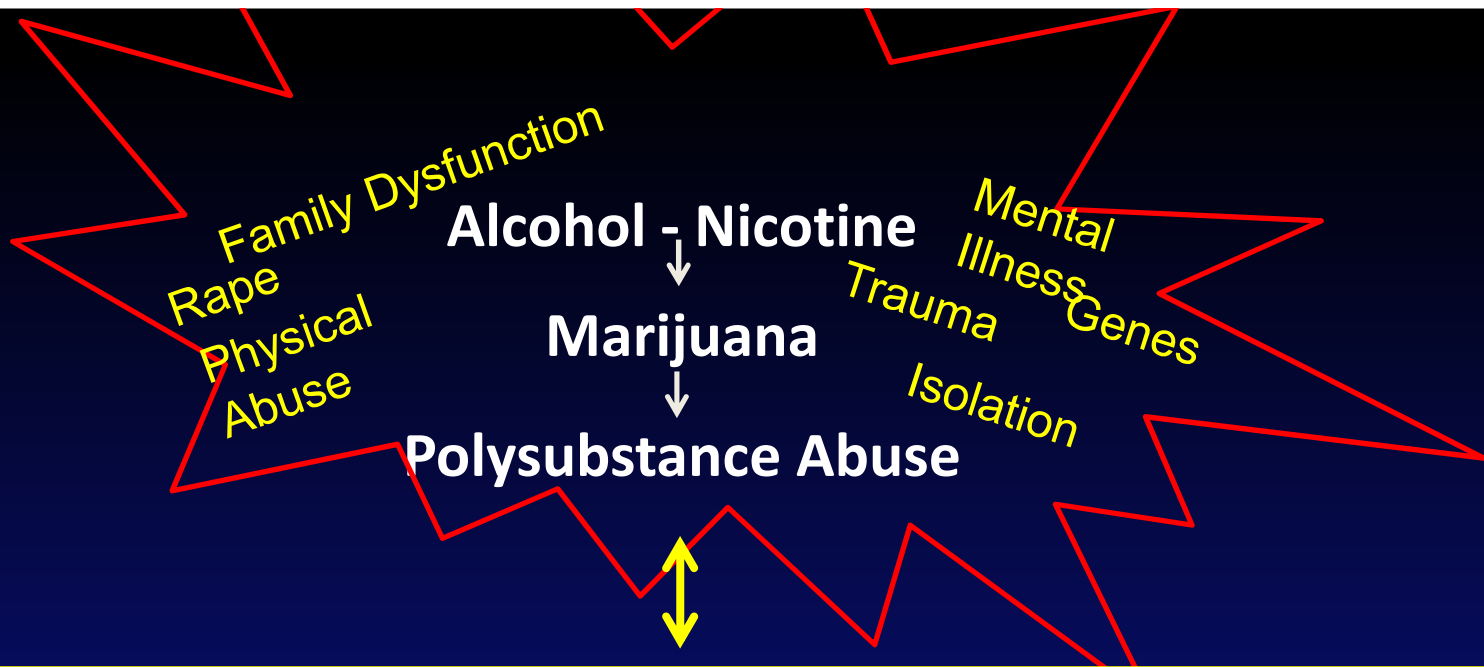
Artist: Jason Mecier



# The Problem

WHO: Total Opioid Consumption (Morphine Equivalence Mg/Capita), 1980-2015





<p><b>Opioids</b></p> <ul style="list-style-type: none"> <li>• Heroin</li> <li>• <b>Fentanyl</b></li> <li>• Rx analgesics</li> <li>• Loperamide</li> </ul>	<p><b>Benzodiazepines</b></p> <ul style="list-style-type: none"> <li>• Alprazolam</li> <li>• Diazepam</li> </ul>	<p><b>Antipsychotics</b></p> <ul style="list-style-type: none"> <li>• Quetiapine</li> <li>• Olanzapine</li> </ul>	<p><b>AEDs</b></p> <ul style="list-style-type: none"> <li>• Pregabalin</li> <li>• Gabapentin</li> </ul>
	<p><b>Stimulants</b></p> <ul style="list-style-type: none"> <li>• Cocaine</li> <li>• Amphetamine</li> <li>• Methylphenidate</li> </ul>	<p><b>Hallucinogens</b></p> <ul style="list-style-type: none"> <li>• Ketamine</li> <li>• LSD</li> </ul>	<p><b>NPS/synthetics</b></p> <ul style="list-style-type: none"> <li>• Mephedrone</li> <li>• Cathinones</li> <li>• Synth Cann'oids</li> </ul>



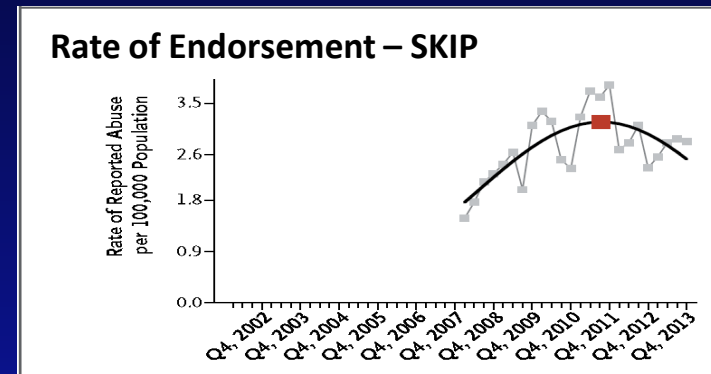
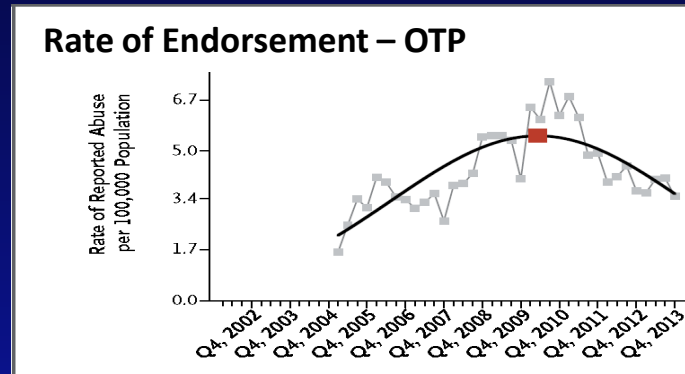
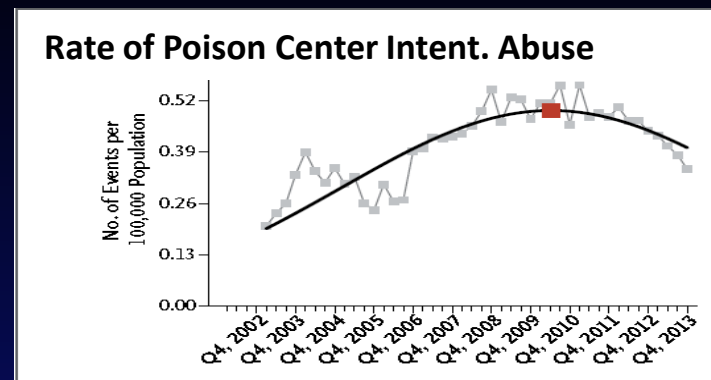
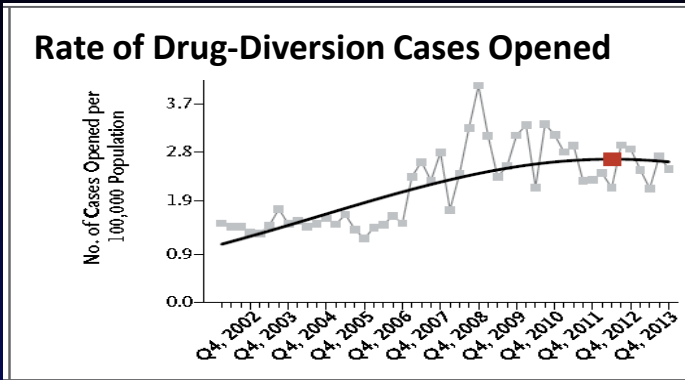
# Challenges of Postmarketing Surveillance of Prescription Drugs

- All the usual challenges of postmarketing surveillance +
  - Regulators' focus on intended use of a drug
    - Unexpected Adverse Events
  - Not Expected Events from Unusual and Inappropriate Uses of the Drug!
- Hidden nature of substance abuse
  - Illegal behaviors
  - Anonymity and Confidentiality
- Product identification

# Mosaic Surveillance

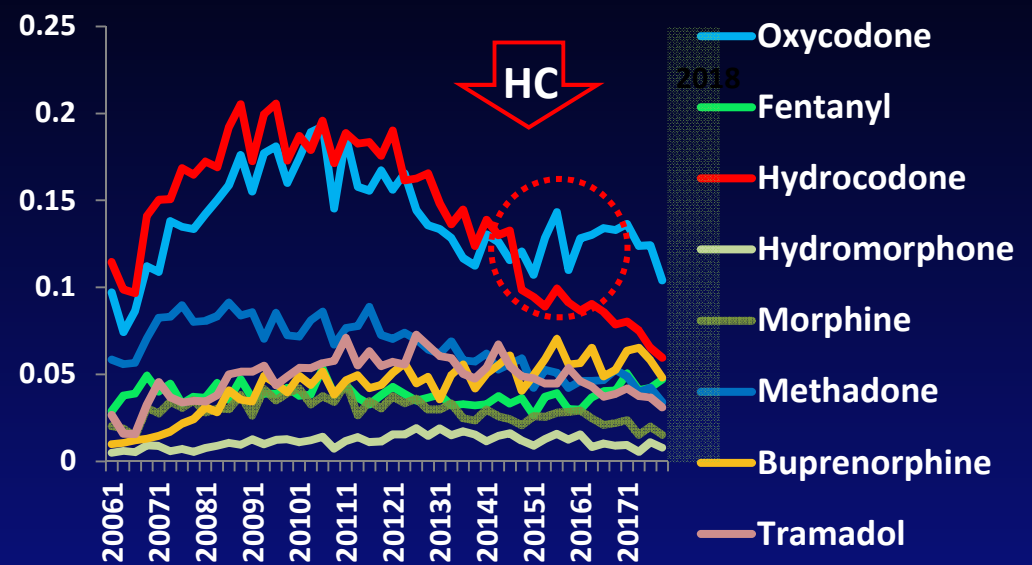
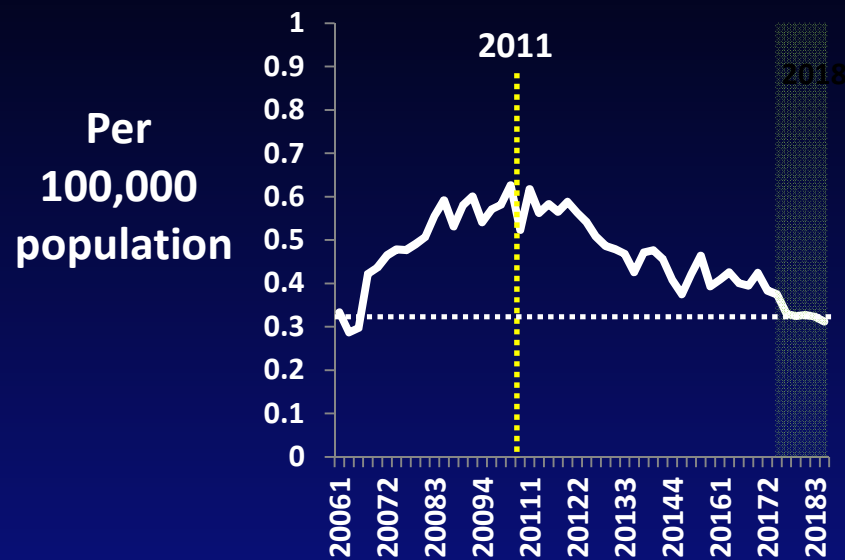


# Rx Drug Abuse Decreasing in US Since 2011



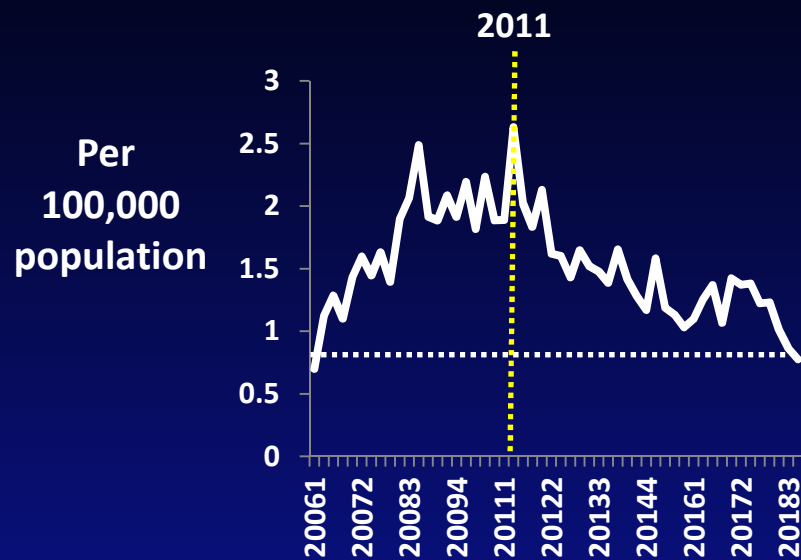


# United States, RADARS Poison Center Program Intentional Abuse, 2006 - 2018

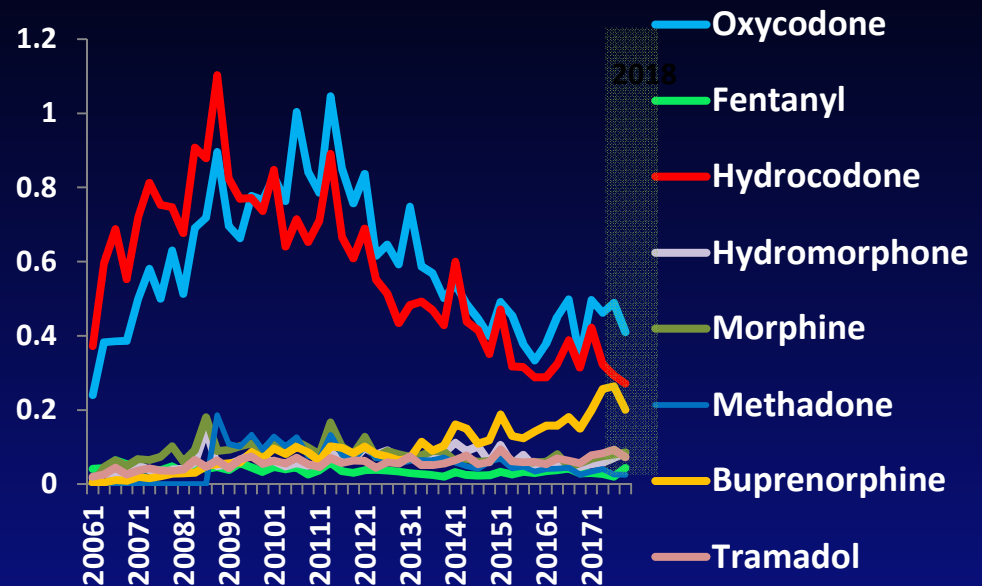


oxycodone, hydrocodone,  
hydromorphone, fentanyl,  
morphine, tramadol

# United States, RADARS Drug Diversion Program Intentional Abuse, 2006 - 2018

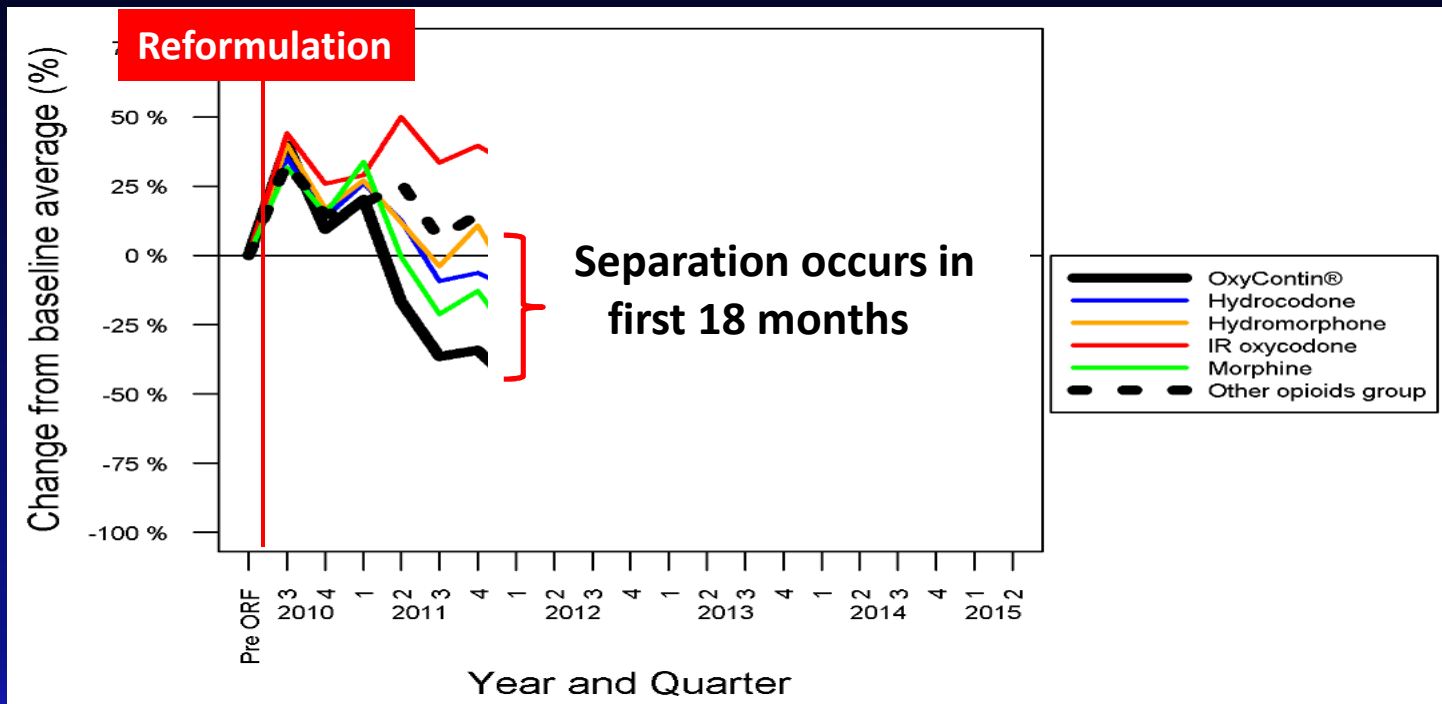


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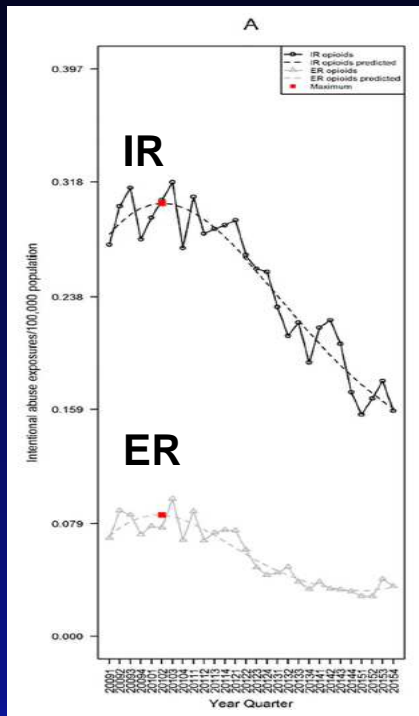
# Abuse Deterrent Formulations - Oxycodone ER, Drug Diversion Program, 2009 - 2015

250 law enforcement investigators in 49 states

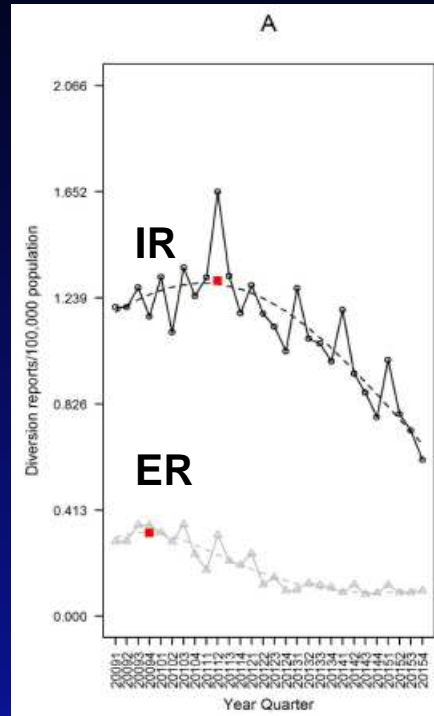


# ER Opioids Caused the Opioid Epidemic?

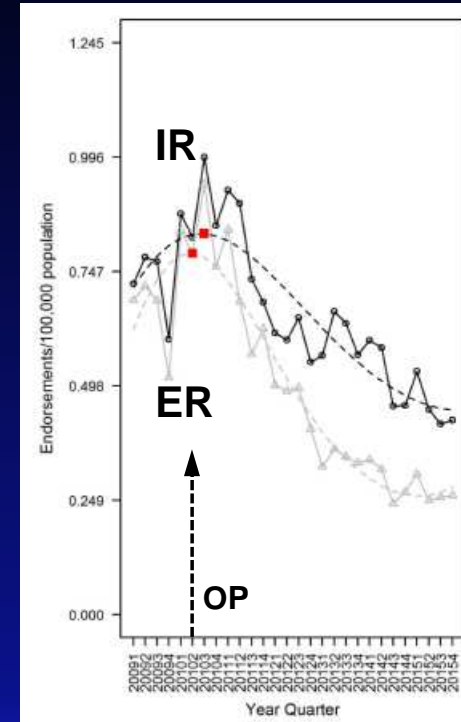
Poison Center



Drug Diversion

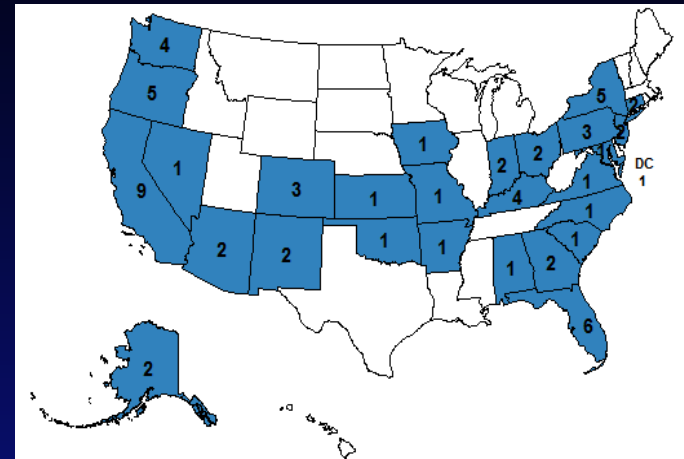


Treatment Centers



## StreetRx: If the Prescription Drug Market is Decreasing, Where is the Drug Coming From?

- 4 months: 67 reports of Rx oxycodone from Canada reported to **US** StreetRx website.
  - 51 (76%) confirmed drug was acquired in the US and used in Canada.
  - 9 (13%) - the drug was acquired in Canada but used in the US.
  - 7 (10%) did not report country



- 62 (92.5%) reports of crushable oxycodone products
- 5 (7.5%) reports of OxyNEO, the only difficult to crush (tamper-resistant) oxycodone product in our analysis.

## Speakers

- Prescription Drug Misuse in the U.K.
  - David Wood, MD
- Prescription Drug Misuse in Spain
  - Marta Torrens Melich, MD, PhD
- Prescription Drug Misuse in Germany
  - John Schwarz, PhD
- Prescription Drug Misuse in France and Italy
  - Janetta Iwanicki, MD