

# STRATEGIES TO REDUCE PRESCRIPTION OPIOID MISUSE IN THE USA

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# US Prescription Opioid Misuse: The Facts

More Americans die every year from drug overdose than motor vehicle accidents

<http://wonder.cdc.gov>

In 2010:

- motor vehicle traffic deaths 33,687
- poisoning deaths 42,917
  - drug poisoning deaths 38,329
  - **opioid overdose deaths 16,651 (43%)**

# Surveillance of Prescription Drug Misuse: US RADARS® System

- Researched Abuse, Diverted and Addiction-Related Surveillance (RADARS) System
- Conducting prescription drug abuse, misuse and diversion surveillance in the United States since 2001
- Provide common ground for Industry, Regulatory Agencies, Academics and Clinicians

# United States RADARS<sup>®</sup> System

## Mosaic Approach

**College  
Survey**  
CS-US

**Early  
Experimenters**

**Poison  
Center**  
PC-US

**Acute  
Events**

**Opioid Tx  
Program**  
OTP-US

**Patients in  
Treatment**

**Survey of Key  
Informant Pts**  
SKIP-US

**Patients in  
Treatment**

**Drug  
Diversion**  
DD-US

**Criminal Justice/  
Law Enforcement**

**Street  
Price**  
SRx-US

**Users/  
Buyers**



# Strategies Employed

**Abuse Deterrent  
formulations**

**Prescription Drug  
Monitoring Programs**

**Risk Evaluation  
& Mitigation Plans**

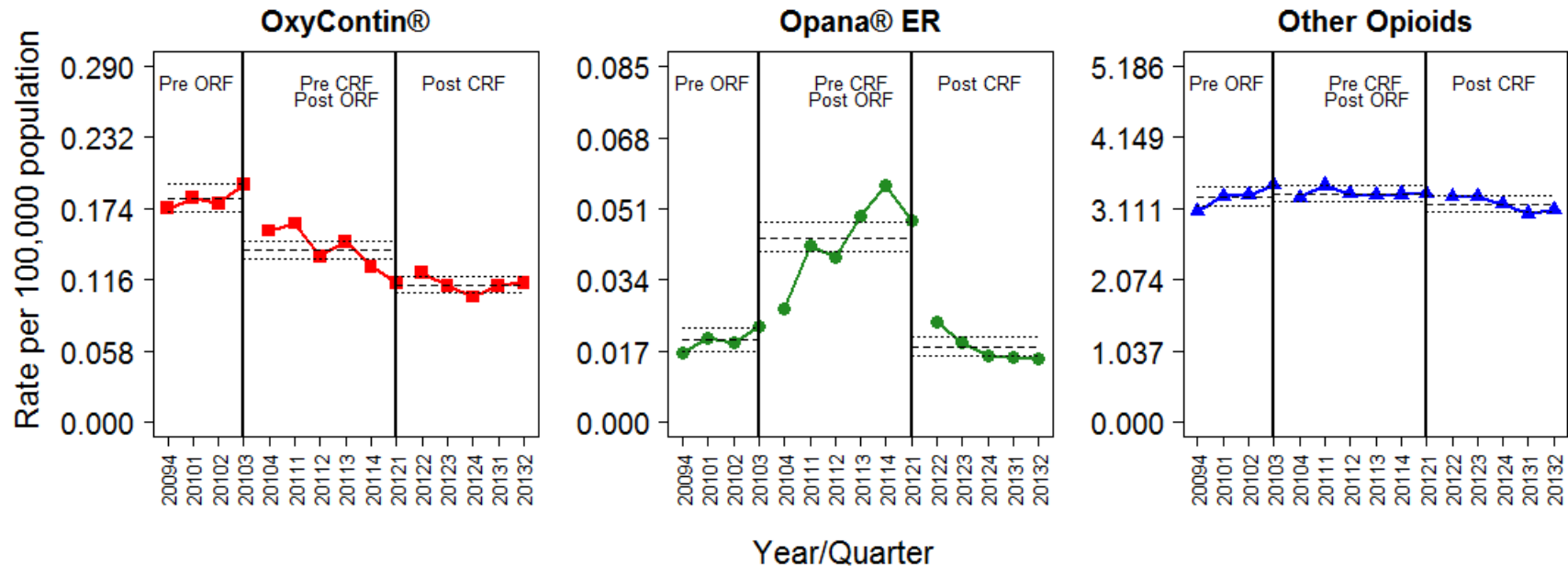
**Community Based  
Interventions**

**Others: Pill Mills, Law Enforcement,  
Prevention, Education, Harm Reduction**

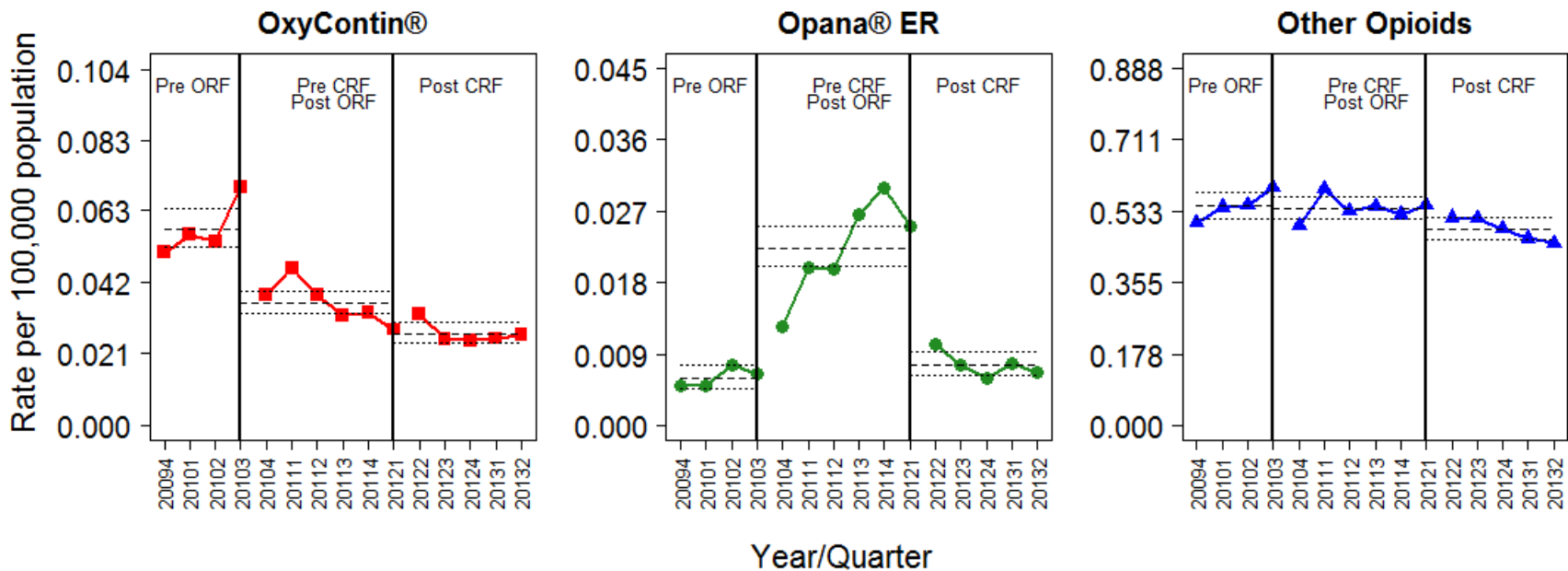
# Strategy: Abuse Deterrent Formulations

- ***Physical/Chemical barriers*** –prevent chewing, crushing, cutting, grating, or grinding. Resist extraction of the opioid using common solvents like water, alcohol, or other organic solvents.
- ***Agonist/Antagonist combinations*** –opioid antagonist added to interfere with, reduce, or defeat the euphoria associated with abuse. The antagonist can be sequestered and released only upon manipulation of the product.
- ***Aversion*** – Substances combined to produce unpleasant effect if dosage form is manipulated prior to ingestion or a higher dosage than directed is used.
- ***Delivery System*** (including depot injectable formulations and implants) –drug release designs or method of drug delivery that offers resistance to abuse.
- ***Prodrug*** –lacks opioid activity until transformed in the gastrointestinal tract can be unattractive for intravenous injection or intranasal routes of abuse.

# Poison Center Intentional Exposures, Population Rate OxyContin®, Opana® ER, Other Opioids

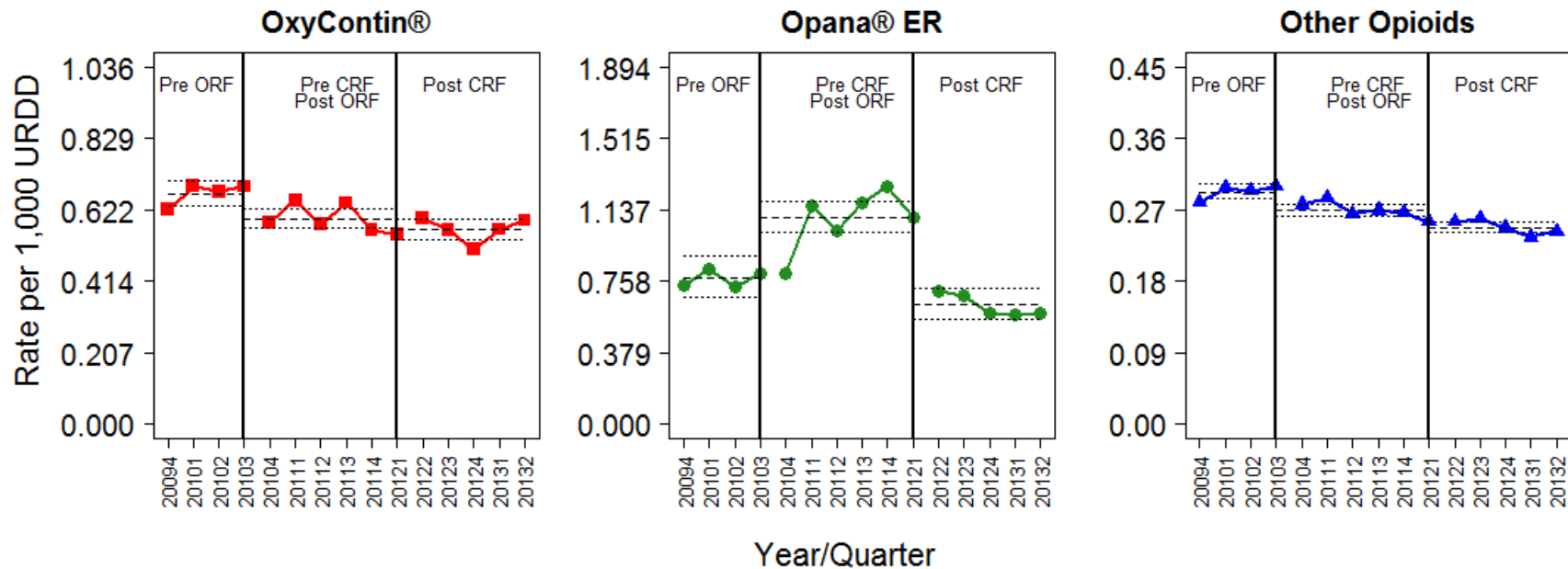


# Poison Center Intentional Abuse, Population Rate OxyContin®, Opana® ER, Other Opioids

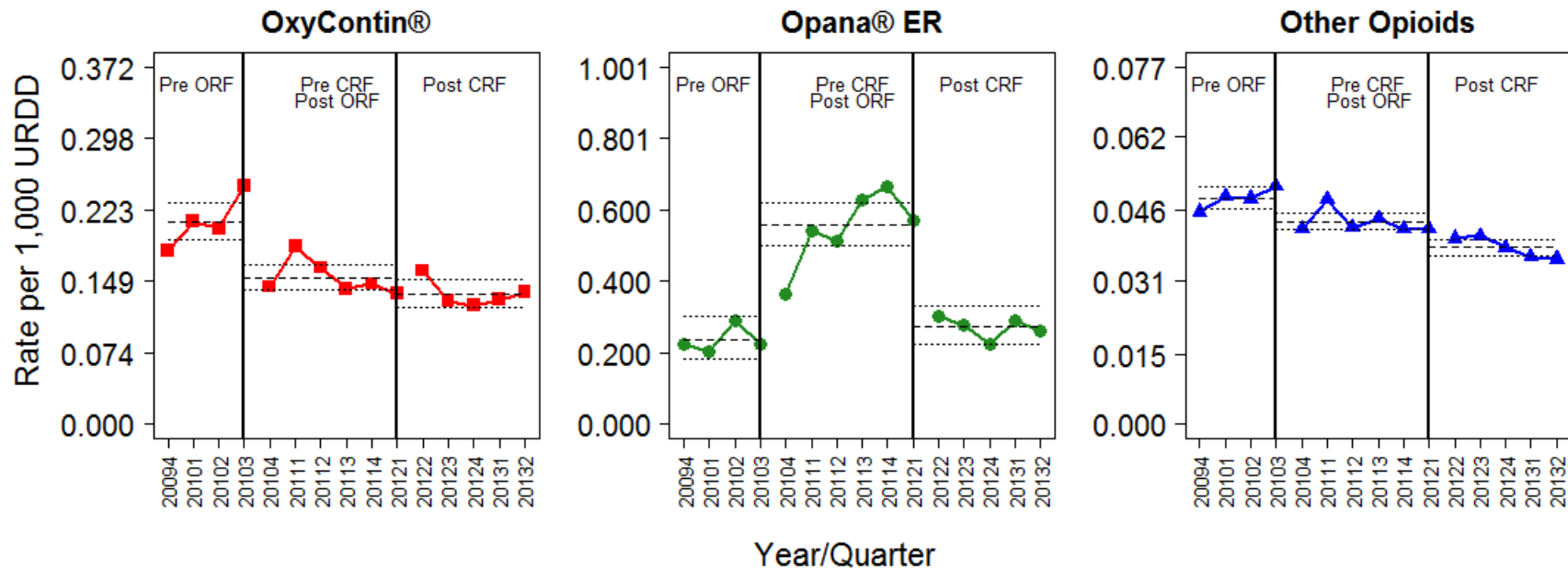




# Poison Center Intentional Exposures, URDD Rate OxyContin®, Opana® ER, Other Opioids

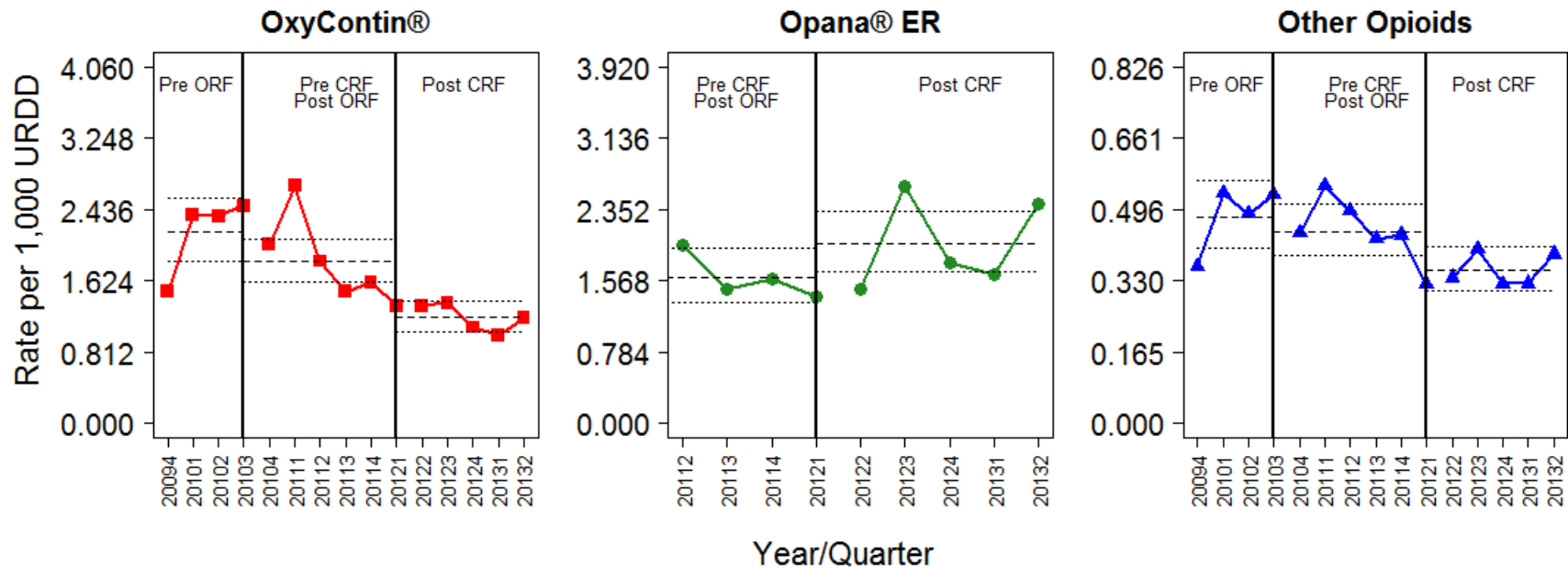


# Poison Center Intentional Abuse, URDD Rate OxyContin®, Opana® ER, Other Opioids



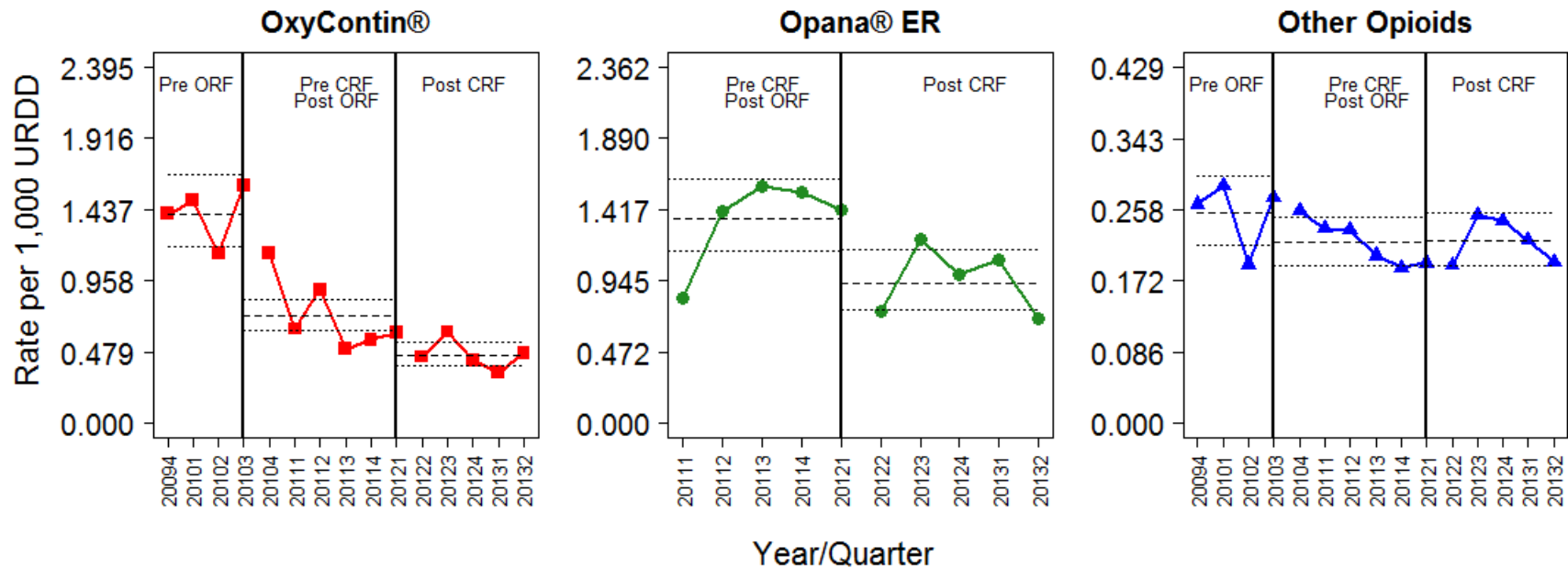
# Treatment Programs, URDD Rate

## OxyContin®, Opana® ER, Other Opioids

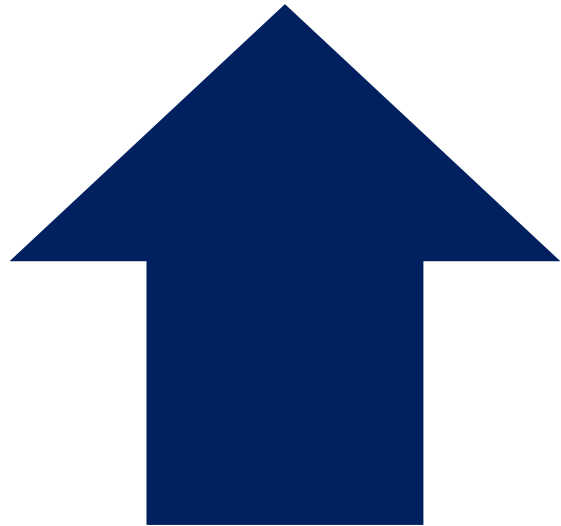


# Drug Diversion, URDD Rate

## OxyContin®, Opana® ER, Other Opioids



# Strategy: Abuse Deterrent Formulations

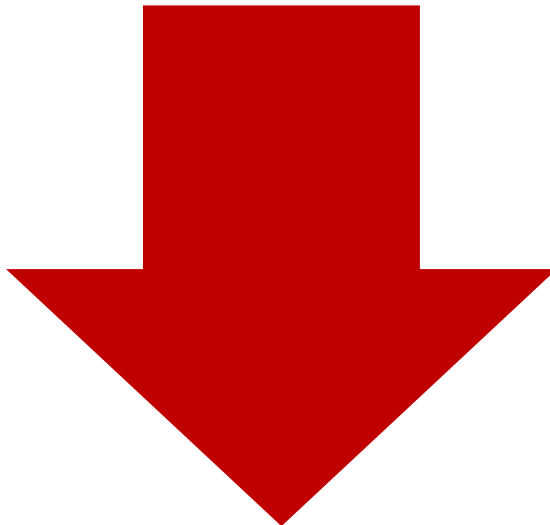


**Effective in reducing non-oral abuse of specific product**

**Reduction of inappropriately prescribing**

**Less desirable for misuse**

**Retains pain medication efficacy**



**Little/no impact on oral misuse**

**Does not prevent physical dependence or addiction to active ingredient**

**Not required on all prescription opioids = limited effect**

**Risk of defeating ADF technology**

# Strategy: Prescription Drug Monitoring Programs

Statewide electronic databases of prescriptions dispensed for controlled substances (i.e., prescription drugs of abuse that are subject to stricter government regulation)

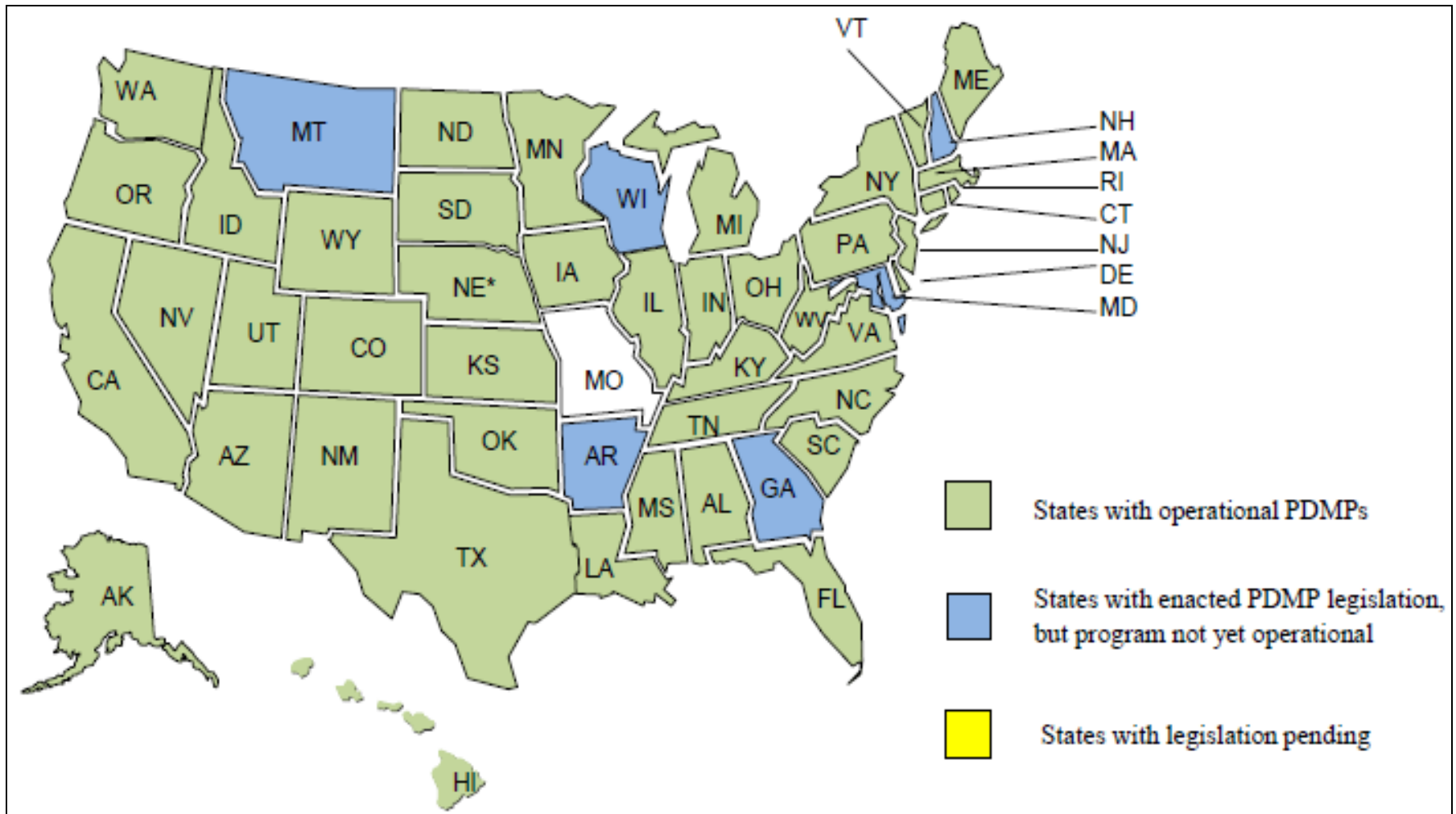
Large variation between programs (data architecture, ownership, use, compliance)

# Strategy: Prescription Drug Monitoring Programs

Used by

- **prescribers** to check individual patient's history with controlled substances during medical management to support access and legitimate medical use
- **pharmacy boards** to monitor prescriber behavior
- **pharmaceutical companies** to monitor inappropriate prescriber behavior and target interventions
- **law enforcement** to target efforts in combatting diversion
- **researchers** to study emerging trends and impact of interventions
- **regulatory agencies** to inform public health initiatives

# PDMPs Operational in 43 States



Source: National Association of Model State Drug Laws  
Last updated 9/11/2012; accessed 9/15/2012



# Strategy: Prescription Drug Monitoring Programs

- 2012 review article summarized all peer-reviewed research published between 2001 and 2011 (11 articles; not all addressed effectiveness).
  - Concluded that PDMPs reduce “doctor shopping,” change prescribing behavior, and reduce prescription drug abuse.
- RADARS System Study – Published 2012

**Pain Medicine**

*Pain Medicine* 2012; 13: 434–442  
Wiley Periodicals, Inc.



## OPIOIDS, SUBSTANCE ABUSE & ADDICTIONS SECTION

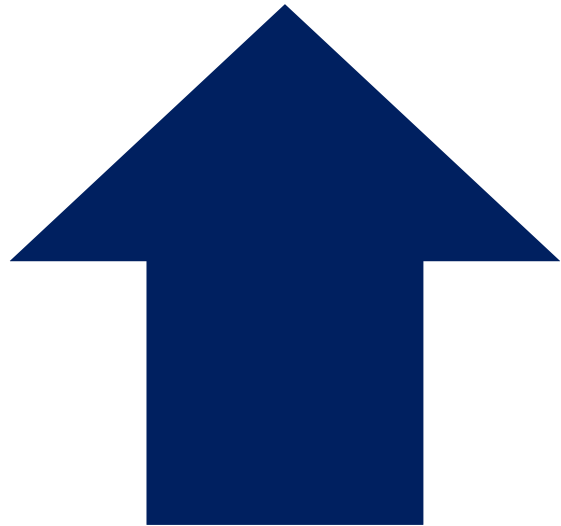
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### *Original Research Article*

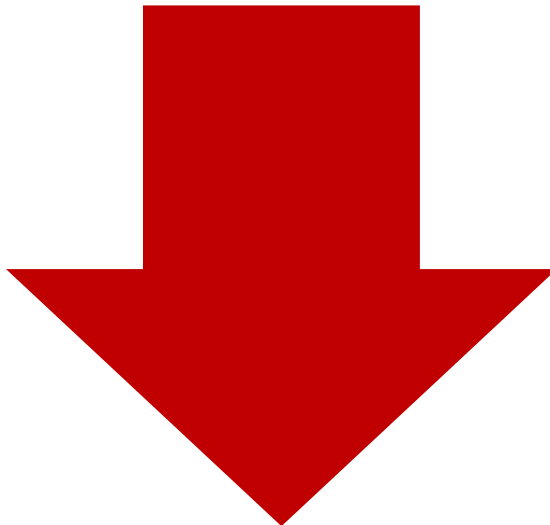
### **Do Prescription Monitoring Programs Impact State Trends in Opioid Abuse/Misuse?**



# Strategy: Abuse Deterrent Formulations



**Effective in reducing abuse**  
**Combats “doctor shopping”**  
**Changes prescribing behavior**  
**Rate of increase slower in states w/PDMP**



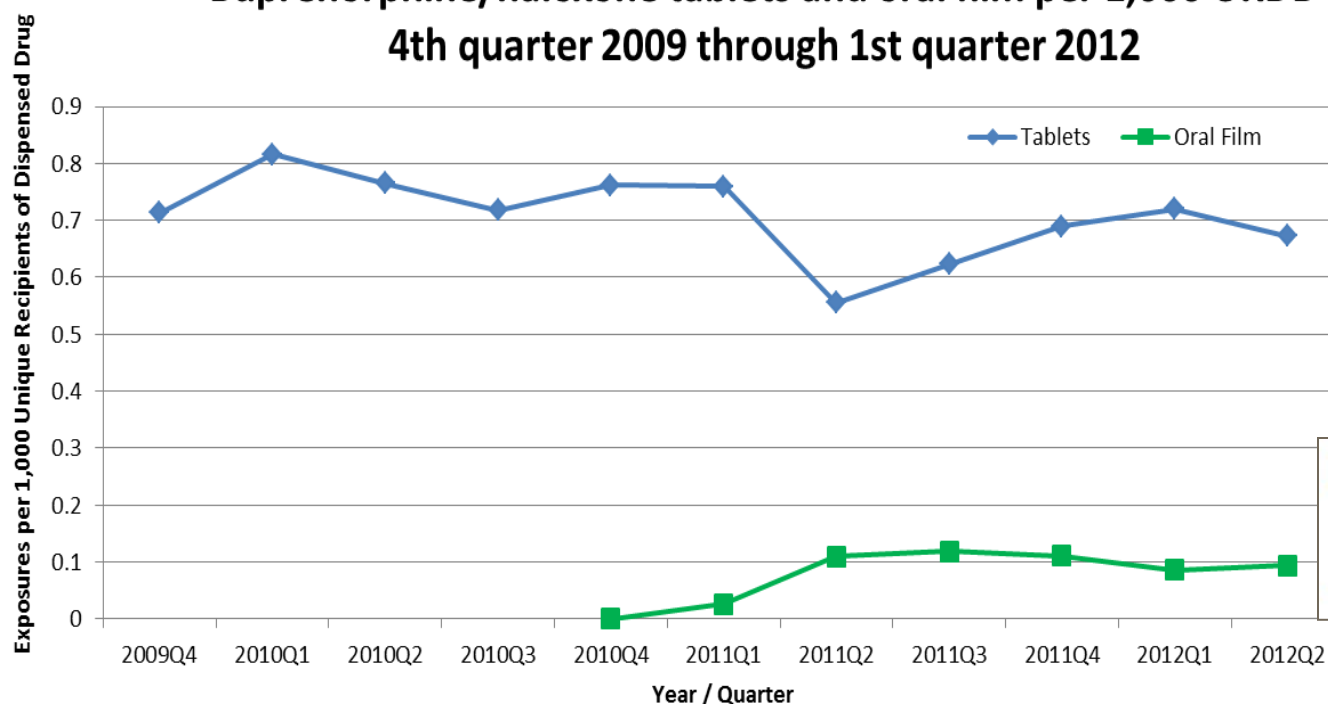
**State-based variation; no interstate integration (yet)**  
**Not all PDMPs cover hydrocodone, codeine, and tramadol**  
**Cannot account for all sources of supply**  
**Require prescriber to submit a query**

# Strategy: Risk Evaluation & Mitigation Strategy

- Risk Evaluation and Mitigation Strategies (REMS)
  - Product specific, shared or class-wide
  - Purpose to implement actions that prevent and mitigate risk of a particular drug
  - Actions may include:
    - Medication guide for patients – risks and prevention (i.e. accidental exposures in children)
    - Call center for patients and providers
    - Provider training and certification BEFORE they are able to prescribe the drug
    - Limitations on how many patients or prescriptions each provider may have
    - Patient registries
    - Monitoring of REMs activities

# Pediatric Accidental Exposures

**The RADARS® System Poison Center Program**  
**Unintentional exposure rates of children aged 0-5 years to**  
**Buprenorphine/naloxone tablets and oral film**  
**4th quarter 2009 through 1st quarter 2012**



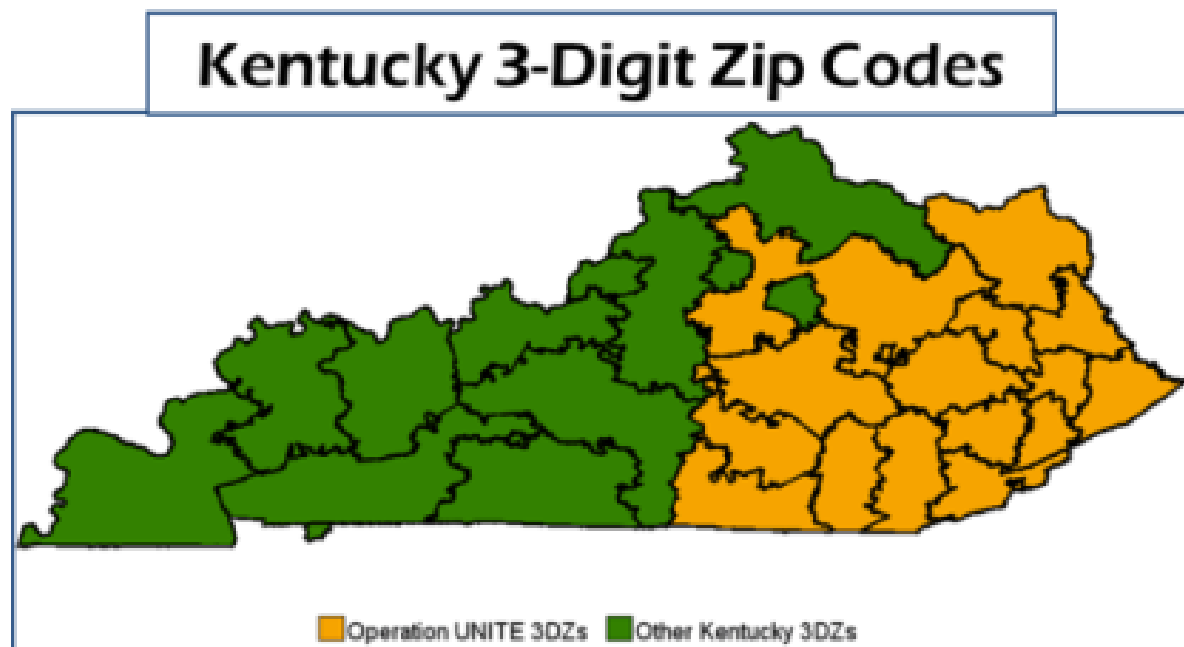
Data available at:

<http://www.amersa.org/2012%20Conferences/2012%20Book%20of%20Abstracts.pdf>.

# Strategy: Community Based Interventions

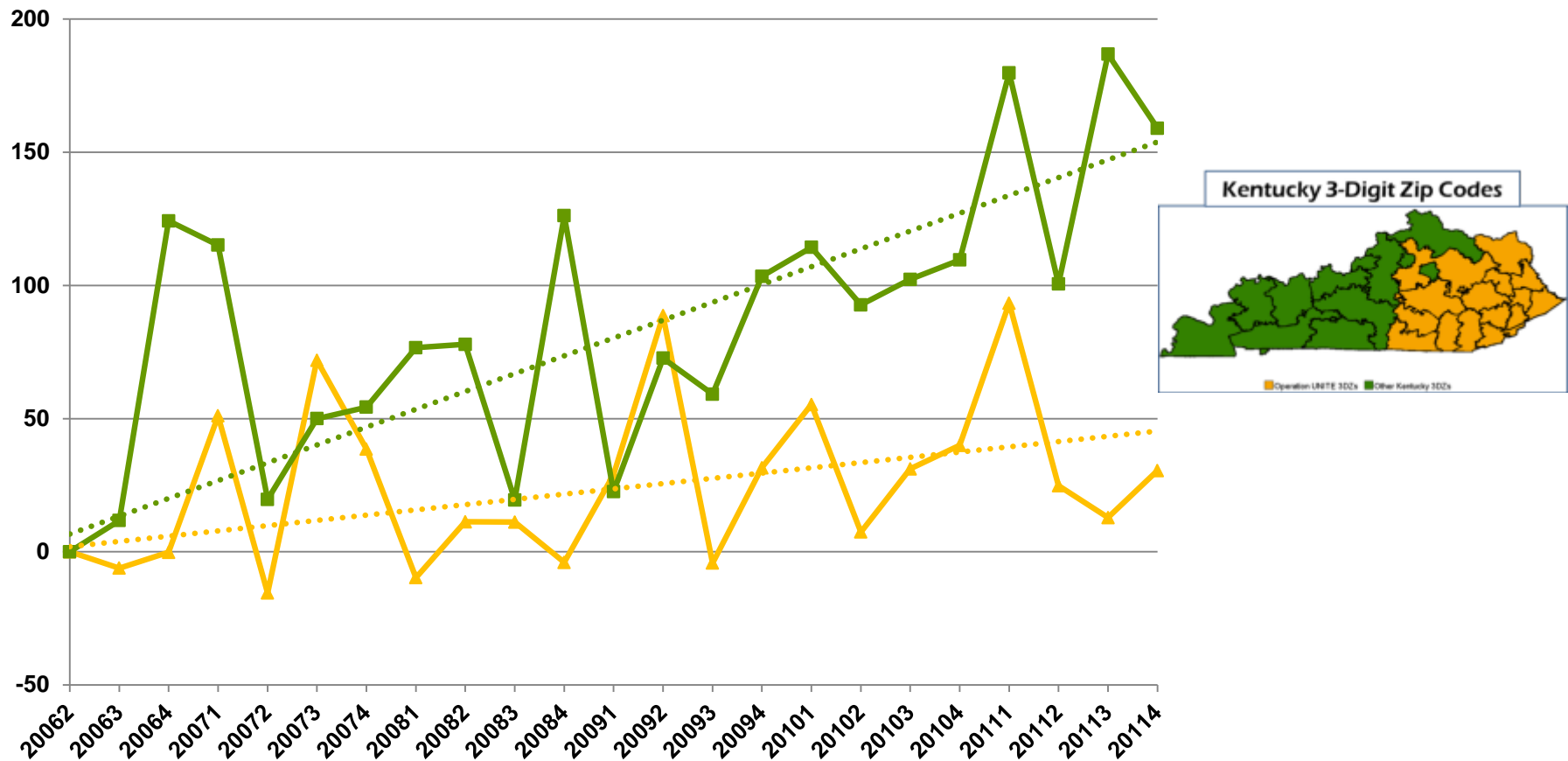
## Operation UNITE

- “Unlawful Narcotics Investigations, Treatment and Education”
- Three-pronged intervention
  - Education
  - Enforcement
  - Treatment

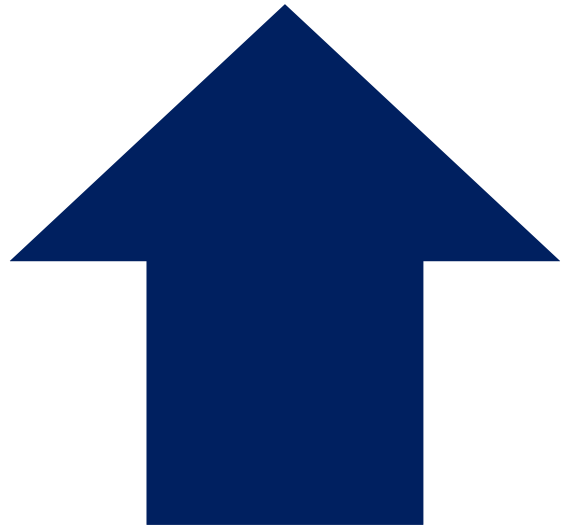


# Rise in Abuse Less in Targeted Region

**The RADARS® System Poison Center Program**  
**Intentional Abuse Population Rates – All Opioids 2<sup>nd</sup> Quarter 2006 to**  
**4<sup>th</sup> Quarter 2011, Percent Change from Baseline**



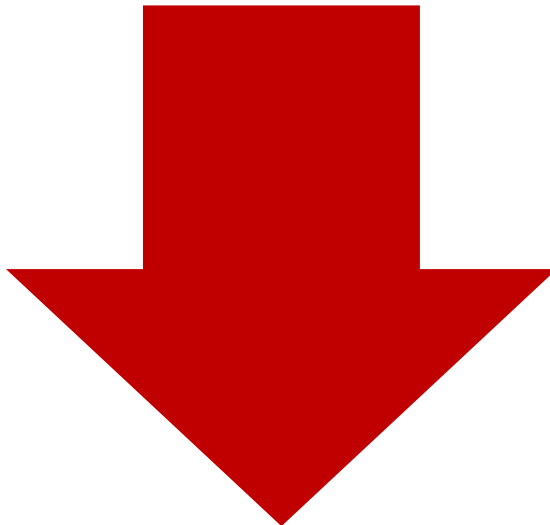
# Strategy: Community Based Interventions



**Effective in reducing rate of decline in abuse in targeted area**

**Target interventions developed for specific issues in specific areas**

**Smaller population usually means more homogenous population reducing confounders**



**Limited impact by geographic region**

**Sustainability**

**Can be expensive for little return**

**Require community engagement**



# REVIEW OF OPIOID AND STIMULANT TRENDS IN THE UNITED STATES

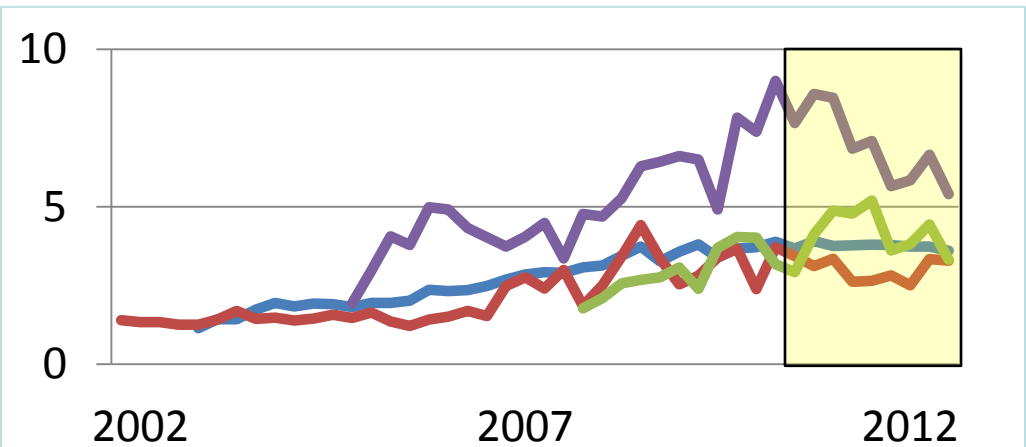
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Have we reached the plateau?

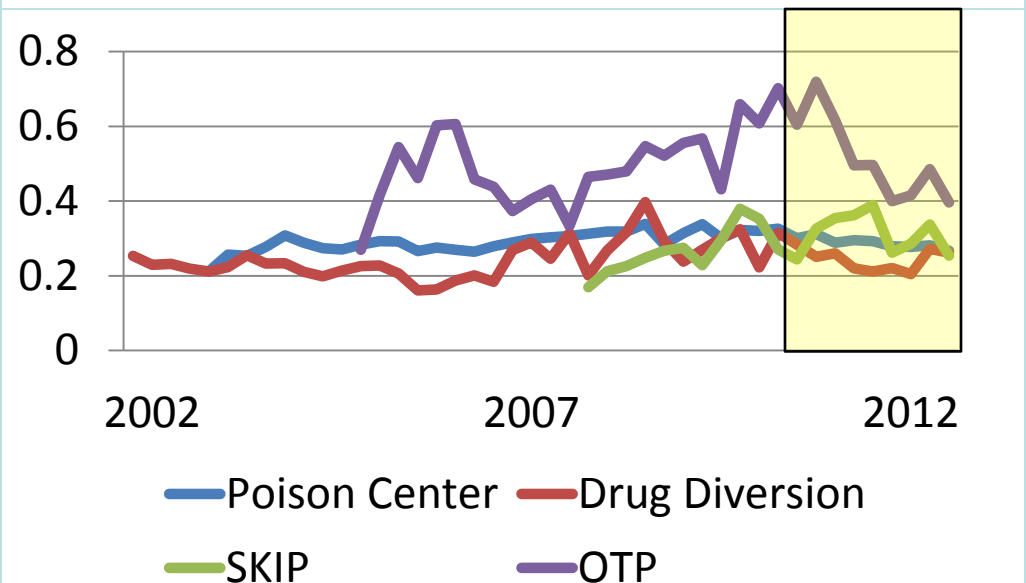
# Overall Opioid Abuse Trends in United States

## Population Rates, 2002-2012

Population Rate



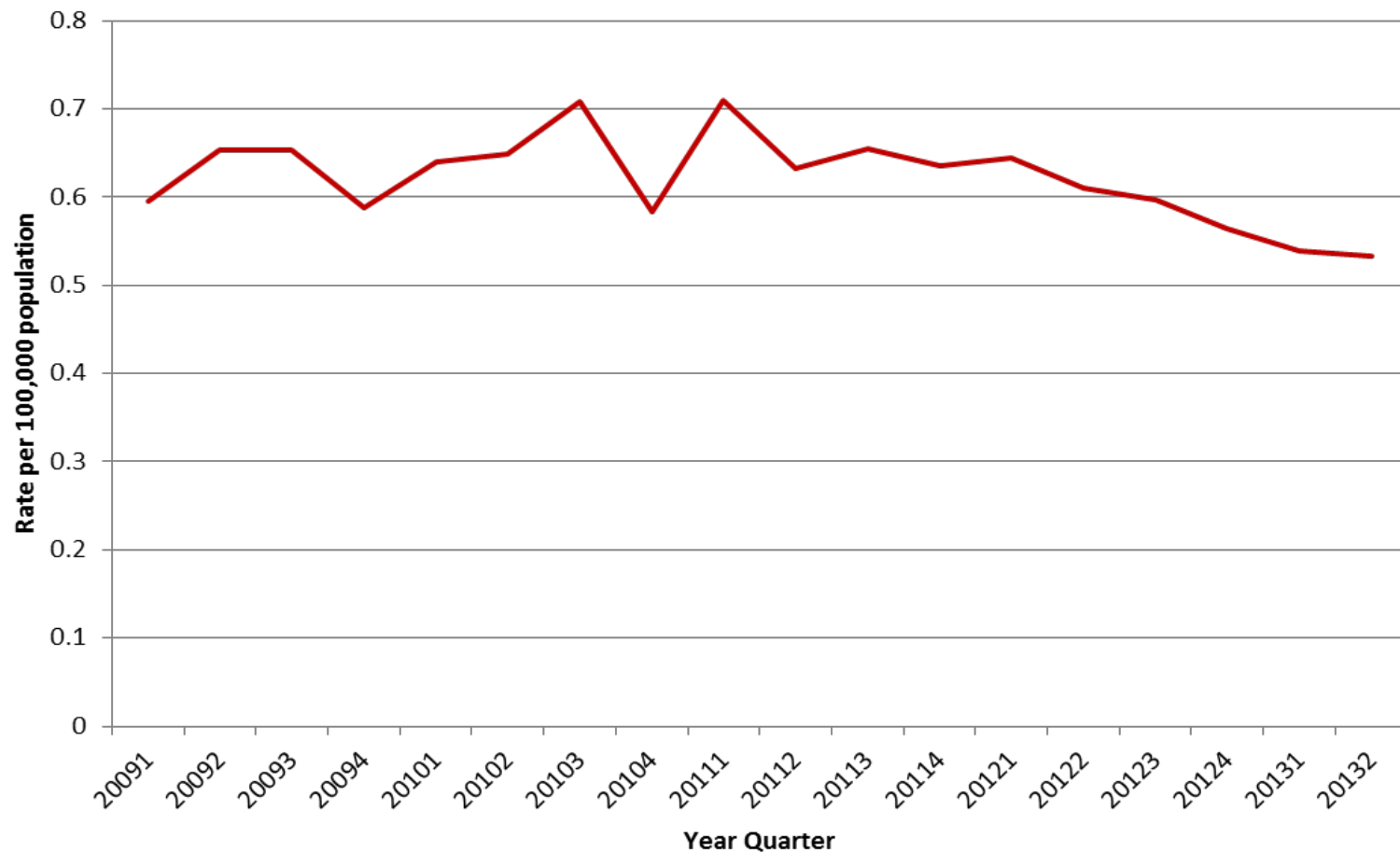
Availability Rate  
(URDD)



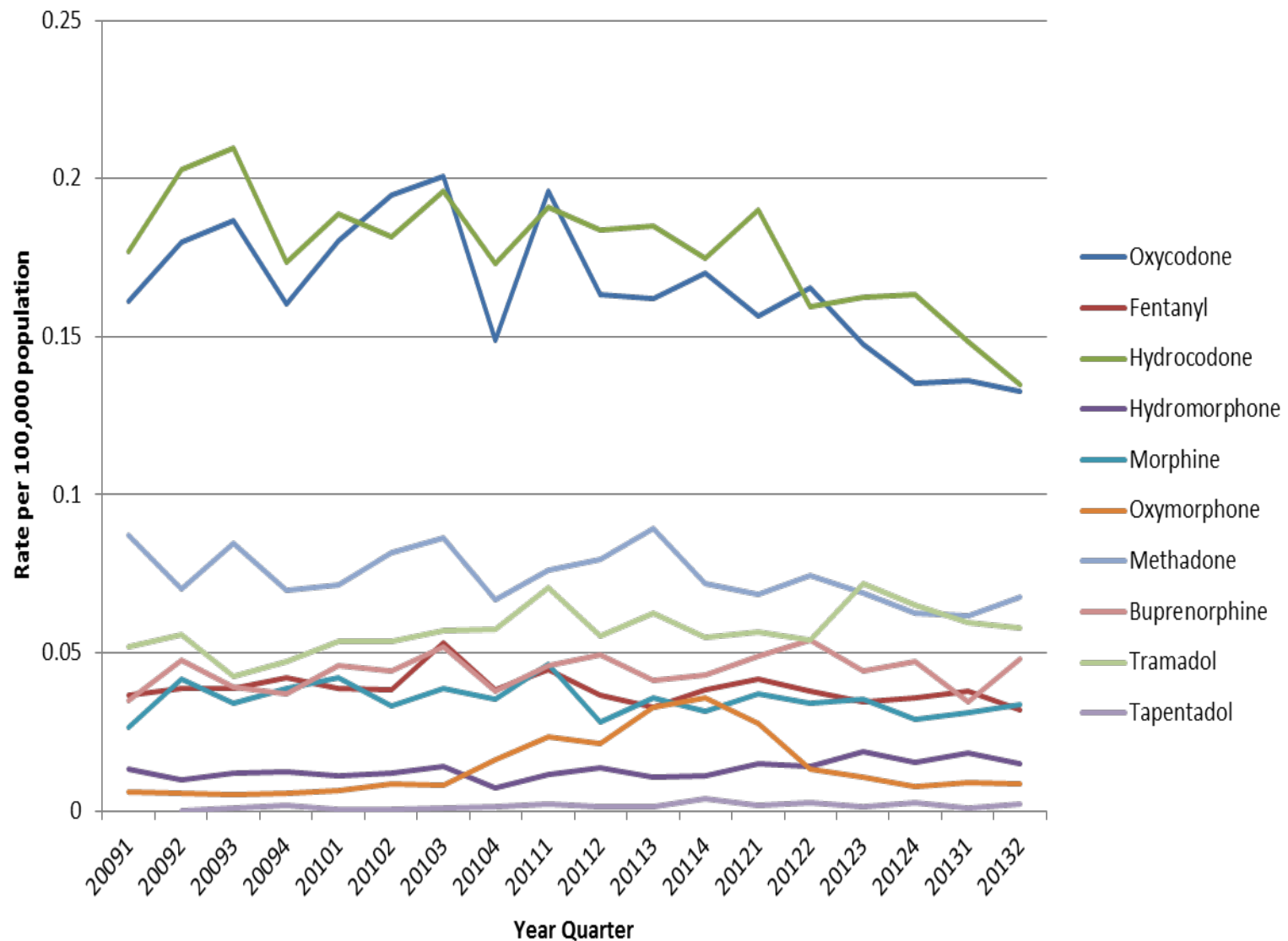
## Poison Center Program – Abuse Exposures

### Population Rate – All Opioids

2009 Q1 through 2013 Q2



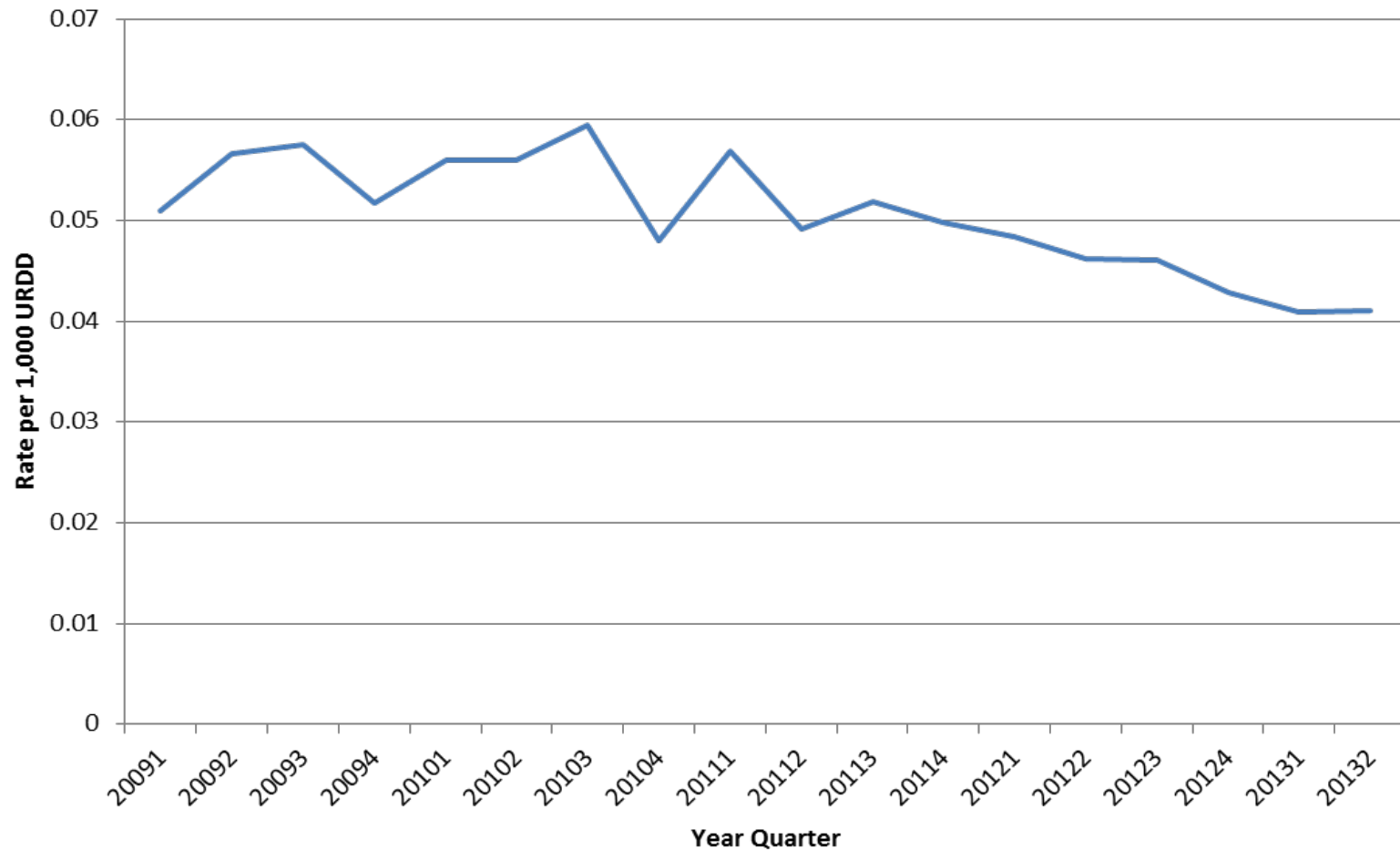
## Poison Center Program – Abuse Exp - Pop Rate by Drug 2009 Q1 through 2013 Q2



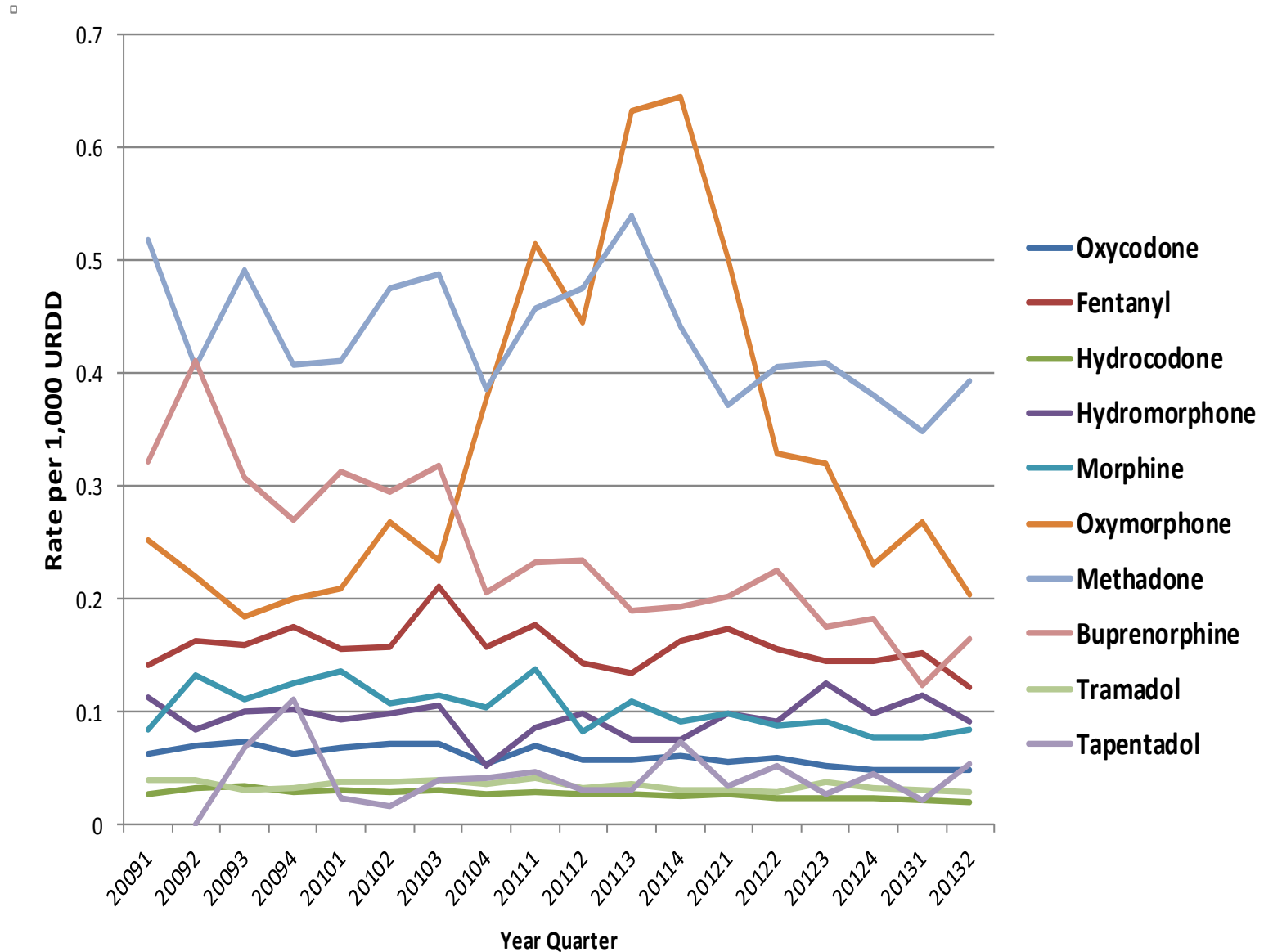
# Poison Center Program – Abuse Exposures

## URDD Rate – All Opioids

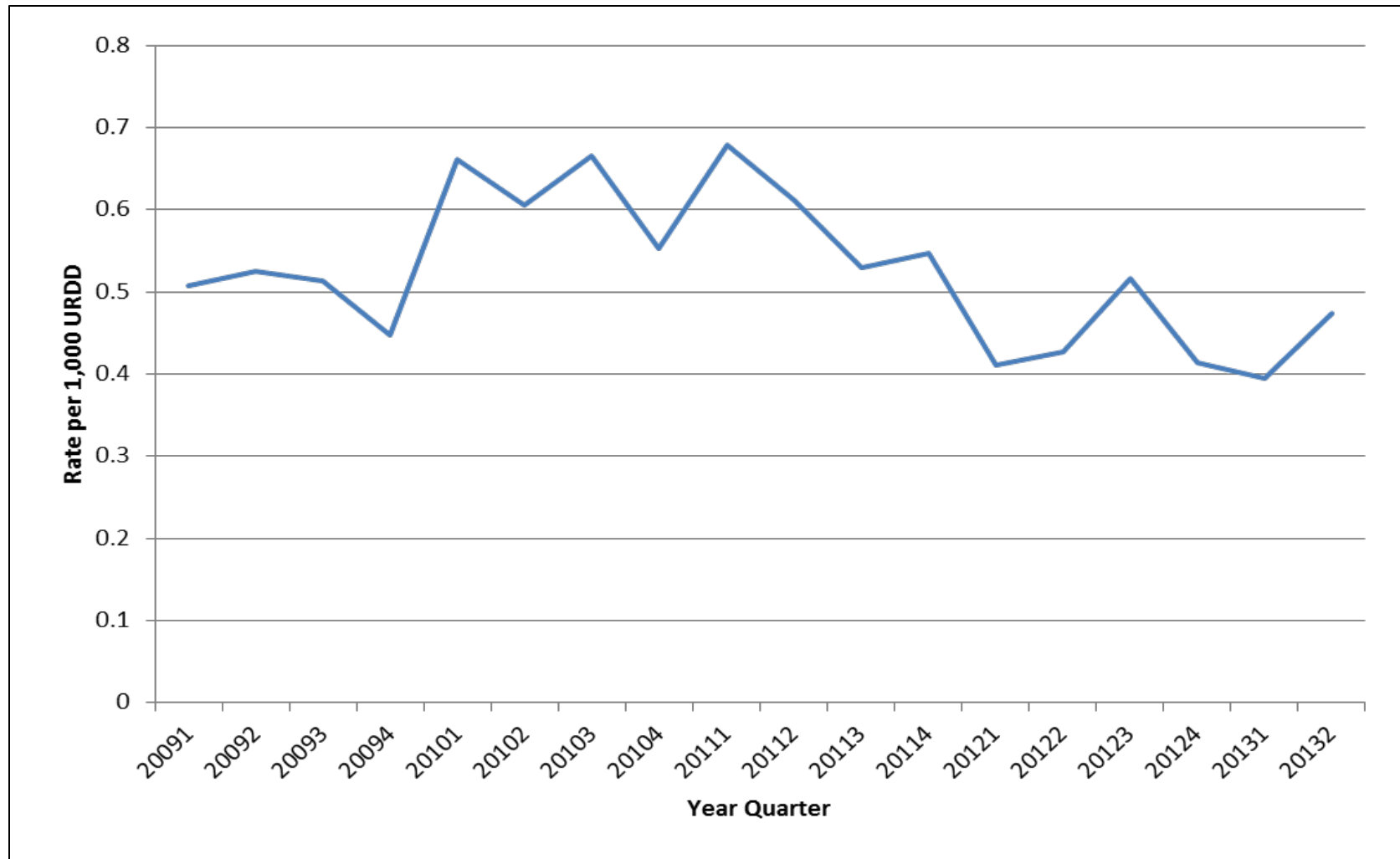
### 2009 Q1 through 2013 Q2



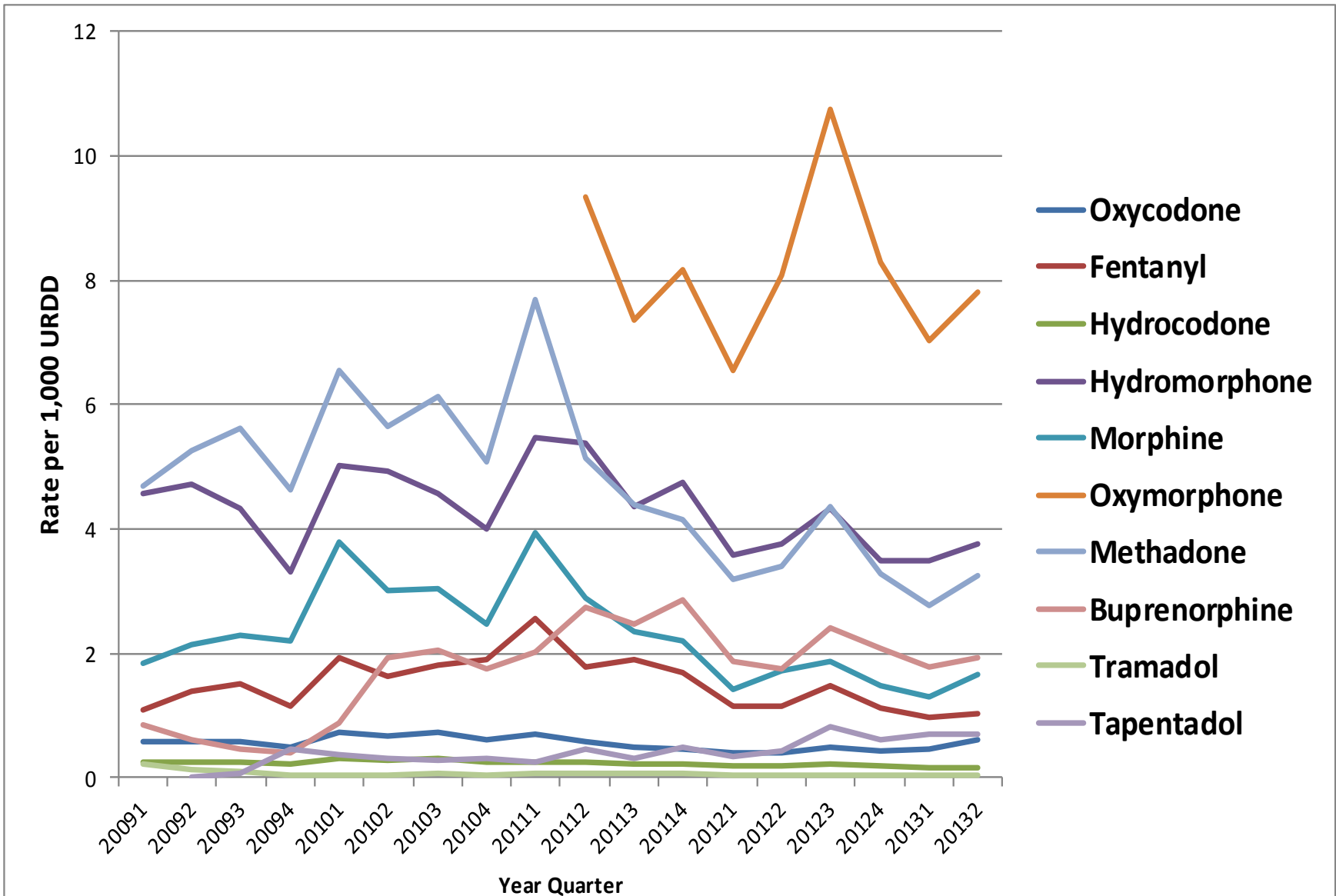
## Poison Center Program – Abuse Exp - URDD Rate by Drug 2009 Q1 through 2013 Q2



## Treatment Programs– URDD Rate – All Opioids 2009 Q1 through 2013 Q2

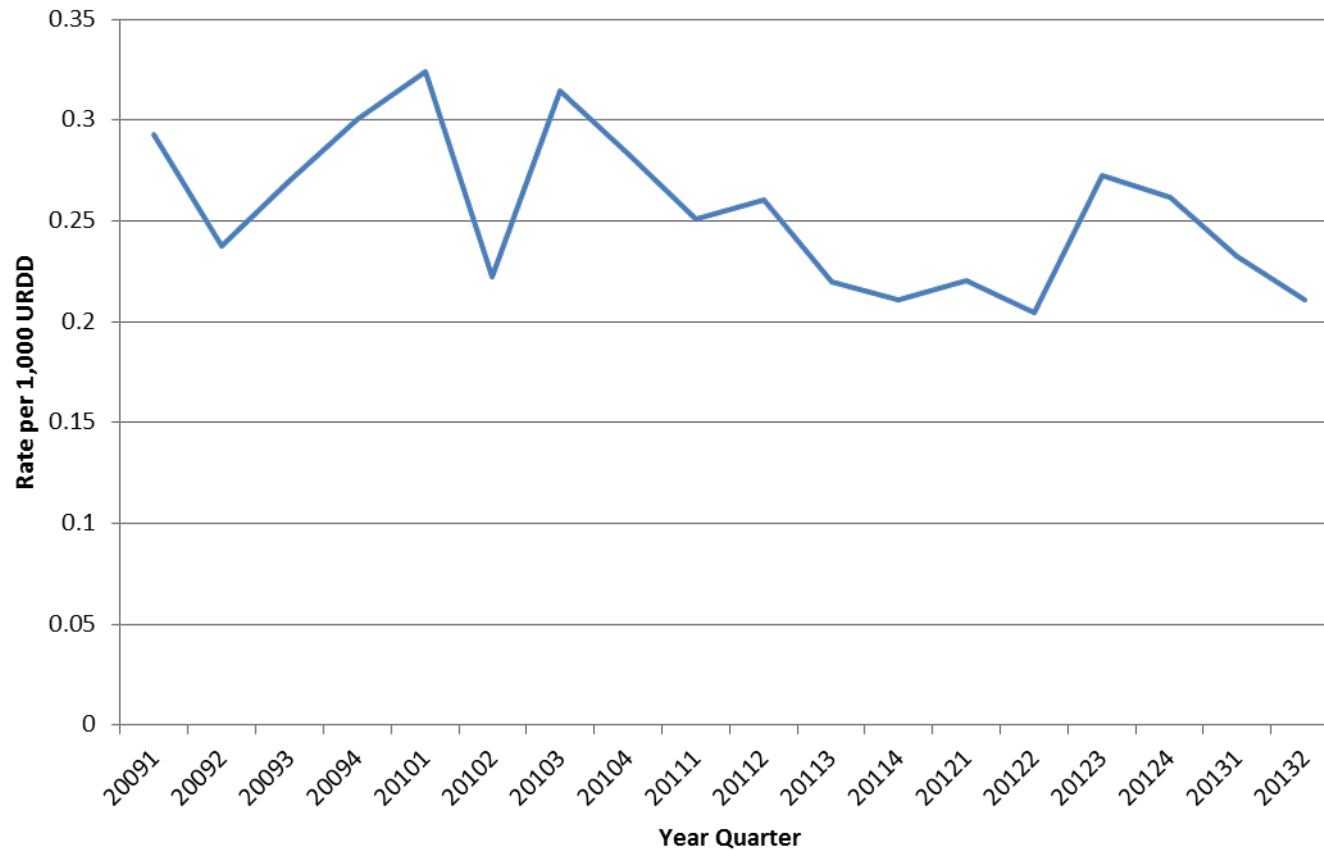


## Treatment Programs– URDD Rate by Drug 2009 Q1 through 2013 Q2

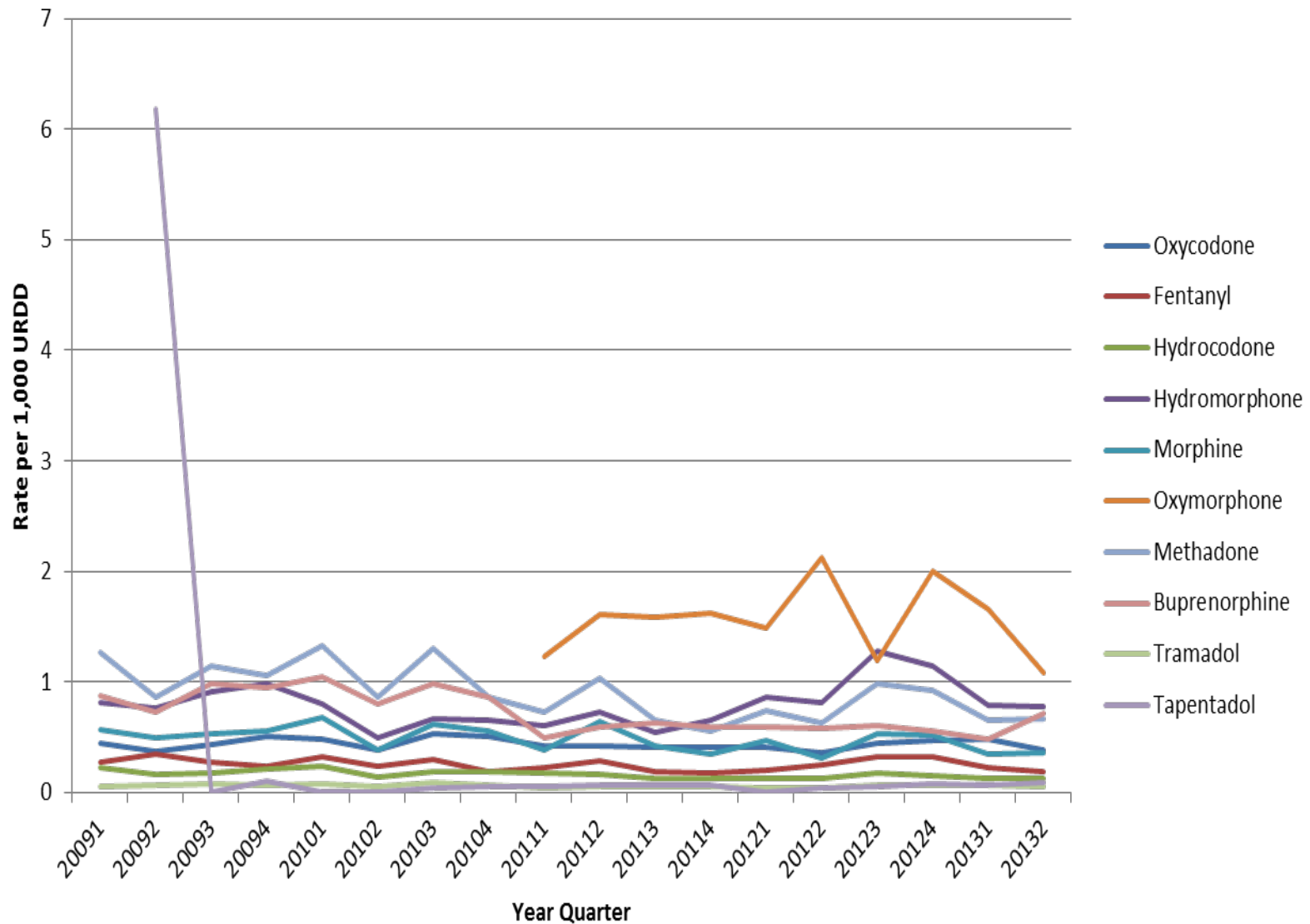




## Drug Diversion Program – URDD Rate – All Opioids 2009 Q1 through 2013 Q2



## Drug Diversion Program – URDD Rate by Drug 2009 Q1 through 2013 Q2



# What the Future Holds

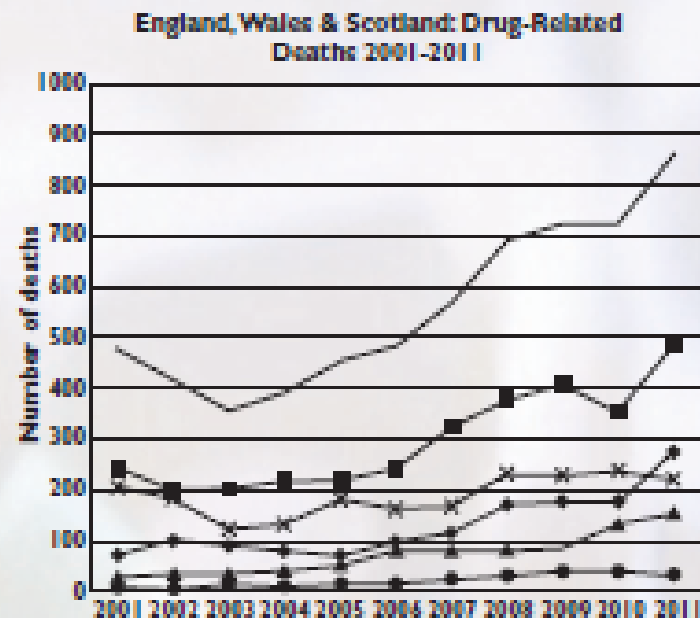
- Pharmaceutical innovations
  - Active ingredients and abuse deterrent platforms
- Regulatory strategies
  - Integration of Prescription Drug Monitoring Programs
  - Guidance on requirements for labeling of abuse deterrent formulations (incentives for companies to develop technology)
  - Requirement of additional post market studies (observational and clinical trials)
- Measuring impact
  - Multimodal (“mosaic”) approach
- Global Movement

## Letter to the Editors

### Prescription opioid abuse in the UK

Isabelle Giraudon,<sup>1</sup> Karen Lowitz,<sup>2</sup> Paul I. Dar

<sup>1</sup>Health Consequences, Prevalence, Consequences and Data Man  
Addiction (EMCDDA), Lisbon, Portugal, <sup>2</sup>Rocky Mountain Poison &  
Denver, CO, USA and <sup>3</sup>Medical Toxicology Office – Guy's and St T



**Figure 1**

Drug-related deaths by selected drugs reported in England, Wales and Scotland, 2001–2011. Note that heroin and morphine are reported as one category in the data from England, Wales and Scotland; given that the focus of this analysis is on prescription opioids, that category was not included in this analysis. ■, methadone in England and Wales; ▲, tramadol in England and Wales; ×, other opiates in England and Wales; —, England and Wales total opioid-related deaths (excluding heroin/morphine); ◆, methadone in Scotland; and ●, tramadol in Scotland

# Global Movement

**The National (Dubai UAE)**  
**Thursday, November 23, 2013**



# RADARS<sup>®</sup> System Europe

## Mosaic Approach

