

RADARS[®] System

California Society of Addiction Medicine Opioid Pre-Conference Workshop

September 5, 2012

Richard Dart, MD, PhD

Director – Rocky Mountain Poison and Drug Center

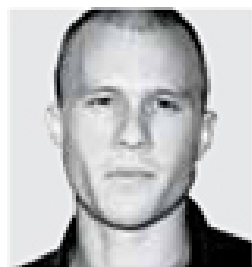
*Professor, University of Colorado, Department of Emergency
Medicine*



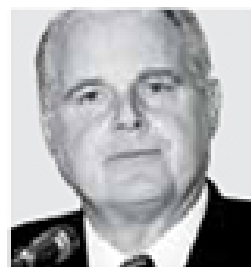
Opioids and the Stars

Some celebrities have been publicly linked with use of these powerful painkillers (in several cases, with more than one such medication).

Reported past users of OxyContin, generic oxycodone, or Percocet (which consists of oxycodone and acetaminophen):



Heath Ledger
(actor; oxycodone was in his blood when he died)



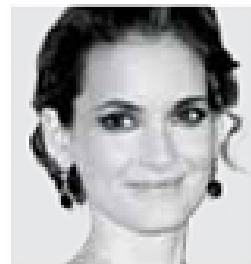
Rush Limbaugh
(radio talk show host)



Courtney Love
(singer)



Cindy McCain
(businesswoman, wife of Sen. John McCain)



Winona Ryder
(actress)



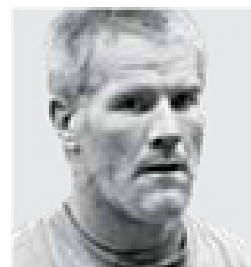
Steven Tyler
(singer, *American Idol* judge)



Jamie Lee Curtis
(actress)



Eminem
(singer)



Brett Favre
(retired football star)



Walter Payton
(late football legend)



Matthew Perry
(actor)



Nicole Richie
(reality TV personality)

PHOTOS: ZUMA PRESS (LEDGER, TYLER); ETHAN MILLER/GETTY (LIMBAUGH); JIM SPELLMAN/GETTY (LOVE); RONALD MARTINEZ/GETTY (FAVRE); STEVE GRANITZ/GETTY (CURTIS); JOHN BIEVER/GETTY (PERRY); ALLEN BEREZOVSKY/GETTY (RYDER); FRAZER HARRISON/GETTY (MCCAIN); SAM SNAP/GETTY (EMINEM)

Objectives

- Is Suboxone an abuse deterrent formulation?
- Misuse and abuse of buprenorphine in high risk populations
- What happens to innocent bystanders?
- Misuse and abuse of buprenorphine in California v. Nation
- Other abuse/tamper deterrent formulations



What is the RADARS® System?

- History
 - 2006, Acquired by Denver Health and Hospital Authority
 - Multiple pharmaceutical subscribers
 - Independent program
 - Denver Public Safety Net Hospital for 150 years
 - State sanctioned independent authority
- Purpose
 - Measure rates of misuse, abuse and diversion of prescription drugs



Moscow
S

Marketing
ons



SYSTEM 10th ANNIVERSARY
RADARS
SYSTEM


**Poison
Center**

Acute Events
51 Centers
47 States

Drug Diversion

Criminal Justice
280 investigator
50 states

**Opioid Tx
Program
(OTP)**

Patients in Tx
73 programs
33 states

**Survey of Key
Informants'
Patients (SKIP)**

Patients in Tx
125 practices
50 states

**College
Survey**

2000 students
50 States
3x each year

StreetRx

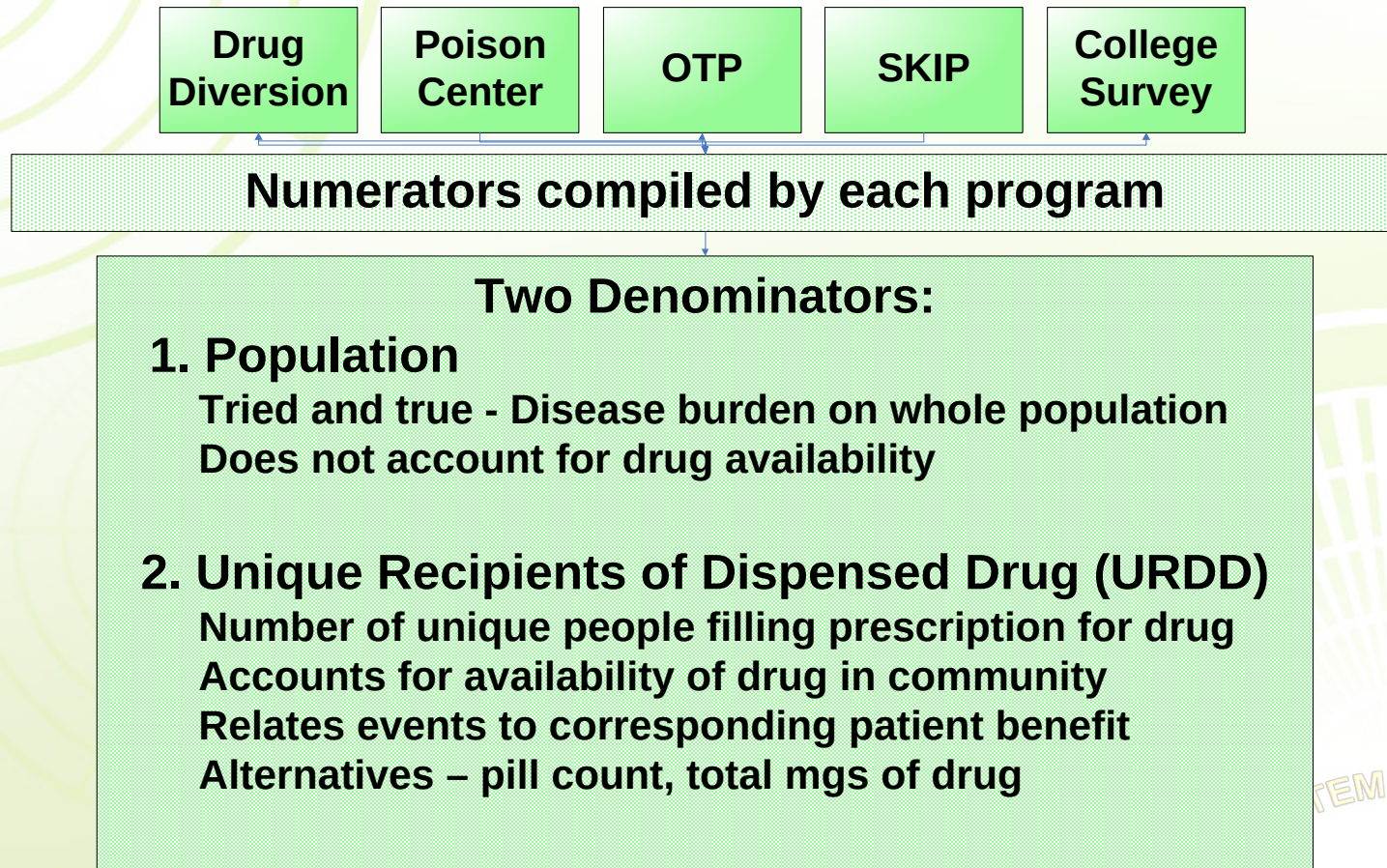
www.streetrx.com

Users/Buyers
Crowdsourcing
50 states



RADARS® System Process

Adding the Denominator



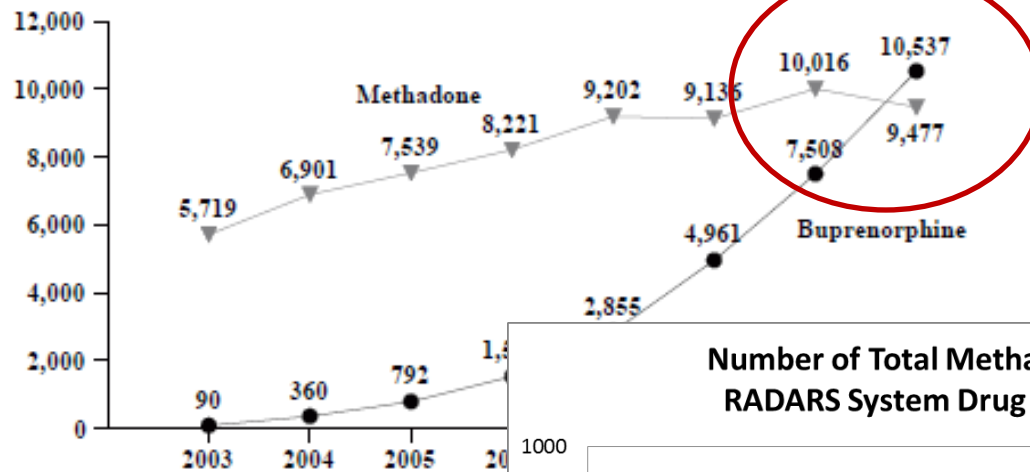
RADARS[®] System

National Buprenorphine Rates

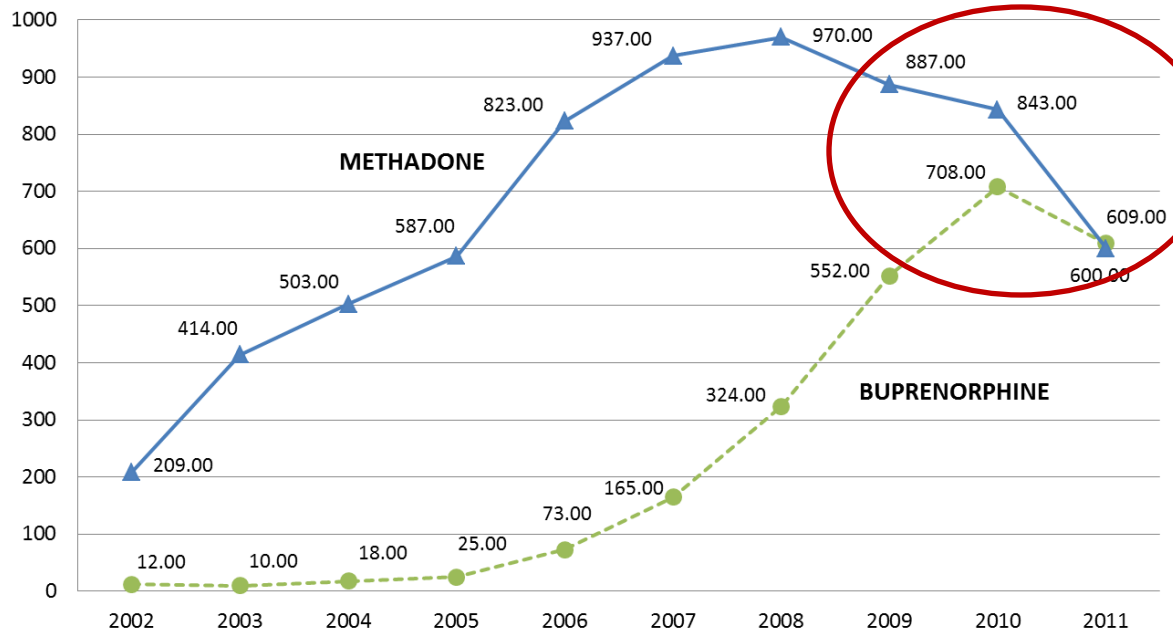
Buprenorphine Data Comparison

RADARS System & CESAR Fax

Estimated Number of Total Methadone and Buprenorphine Reports,
U.S. Law Enforcement-Seized Drug Exhibits Analyzed by Forensic Laboratories, 2003-2010

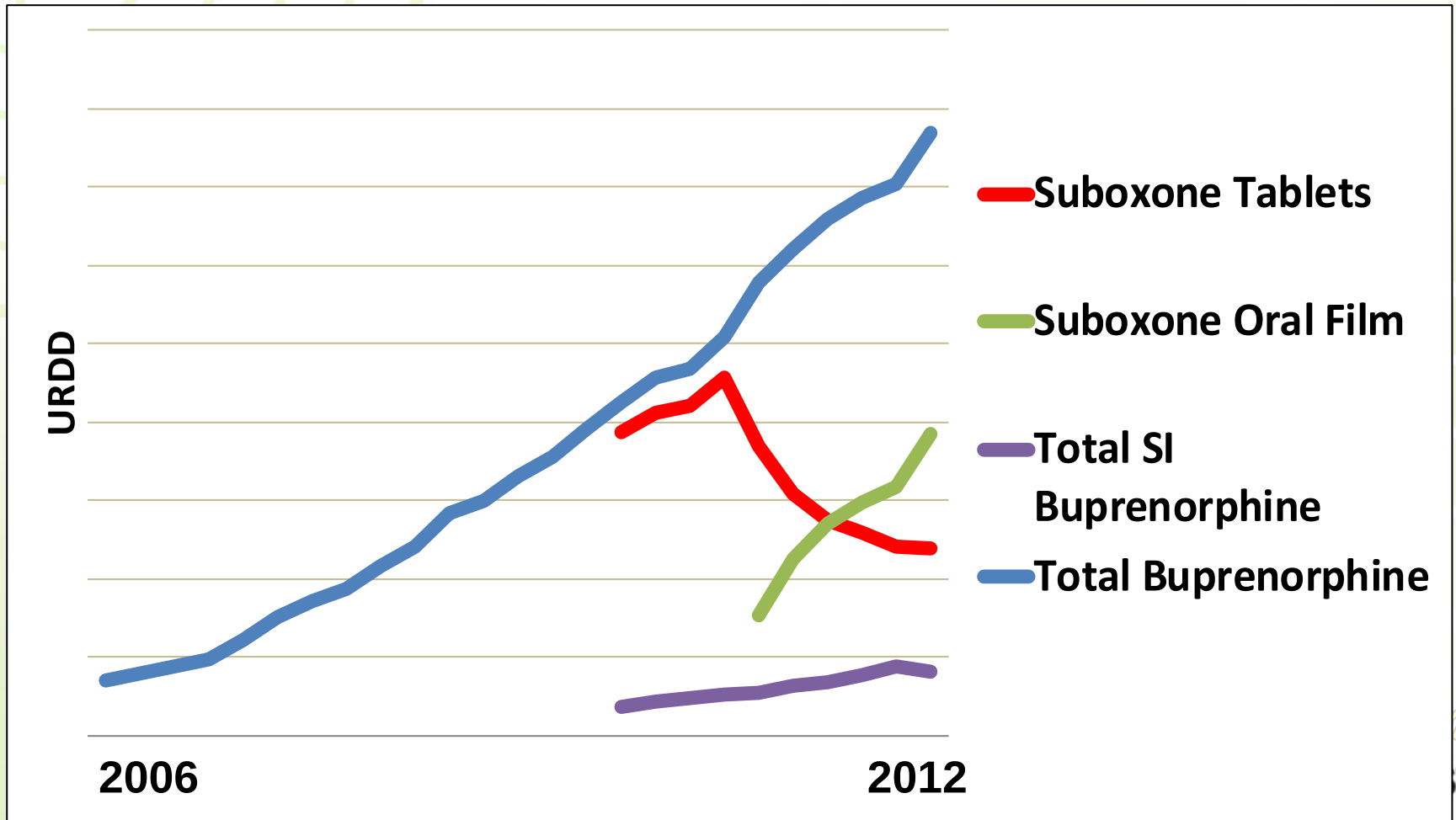


Number of Total Methadone and Buprenorphine Cases,
RADARS System Drug Diversion Program, 2002 - 2011



Availability of Buprenorphine has Expanded

Unique Recipient of Dispensed Drug (URDD)

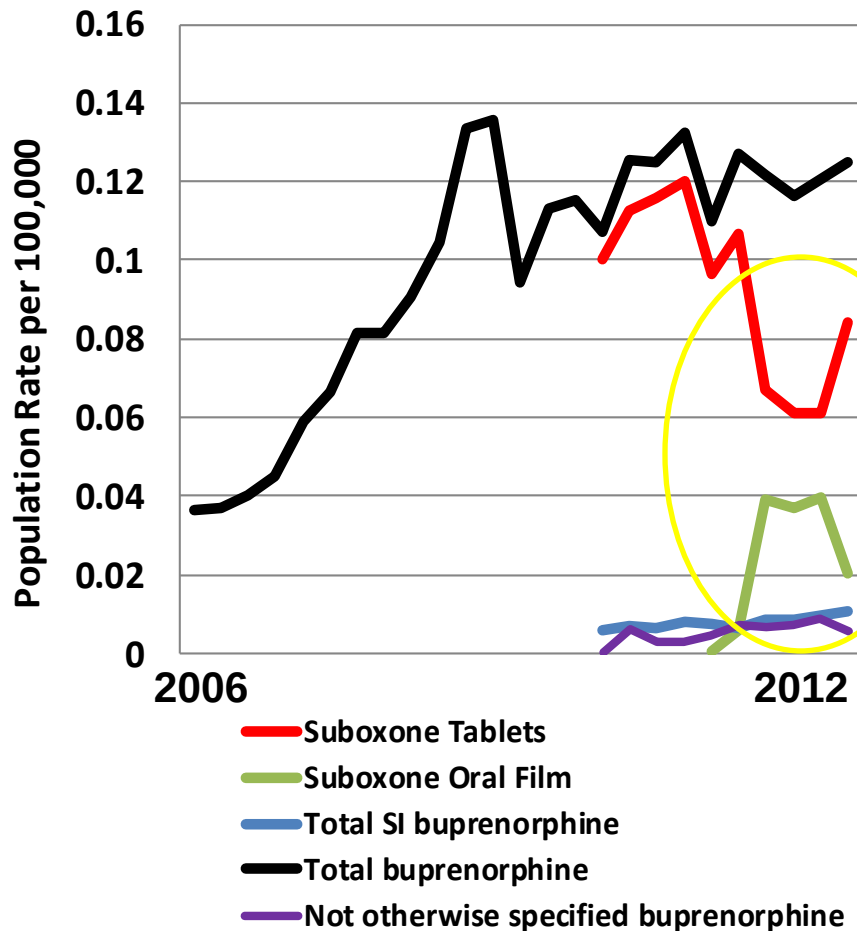


Buprenorphine Rates

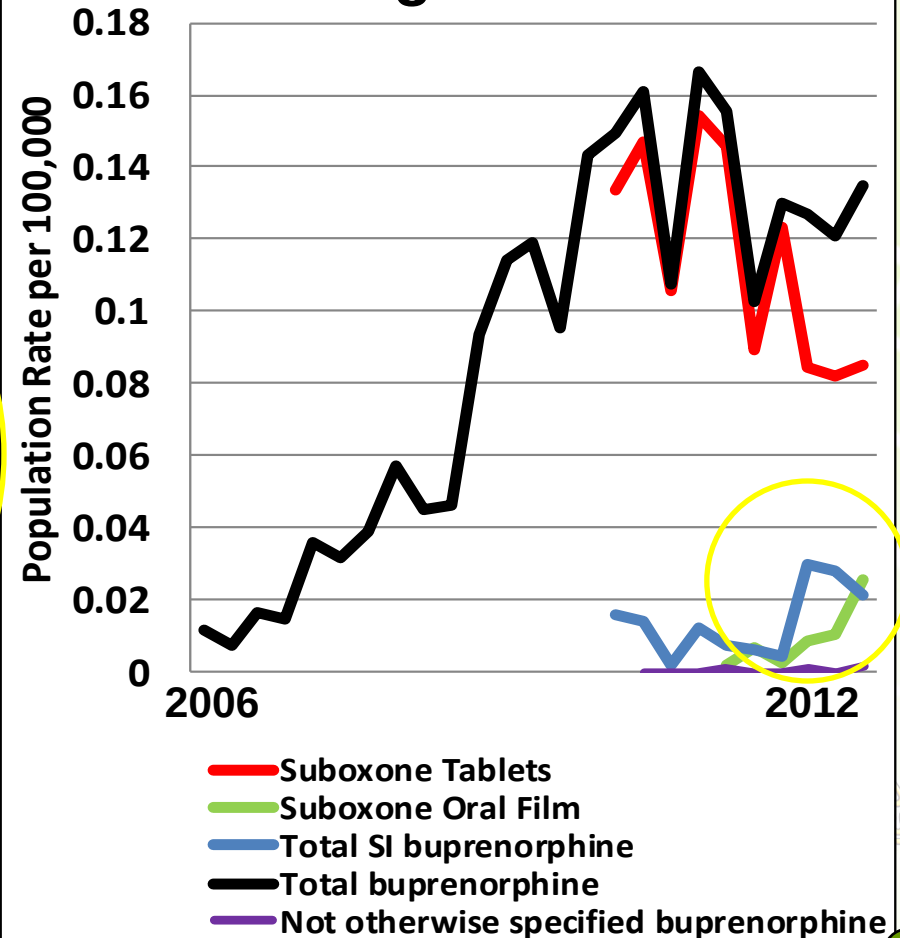
Poison Center, Drug Diversion Programs

Population Rate (2006 – 2012)

Poison Center

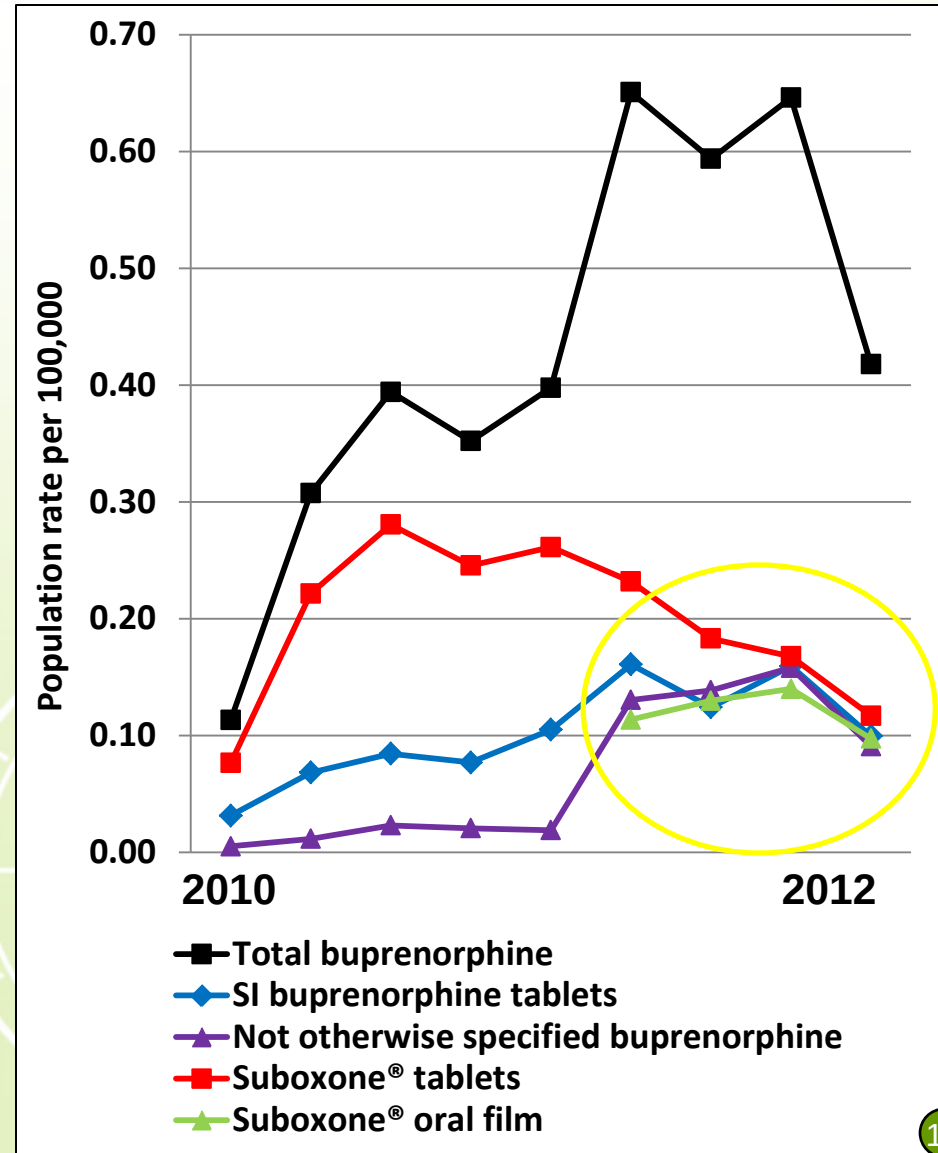
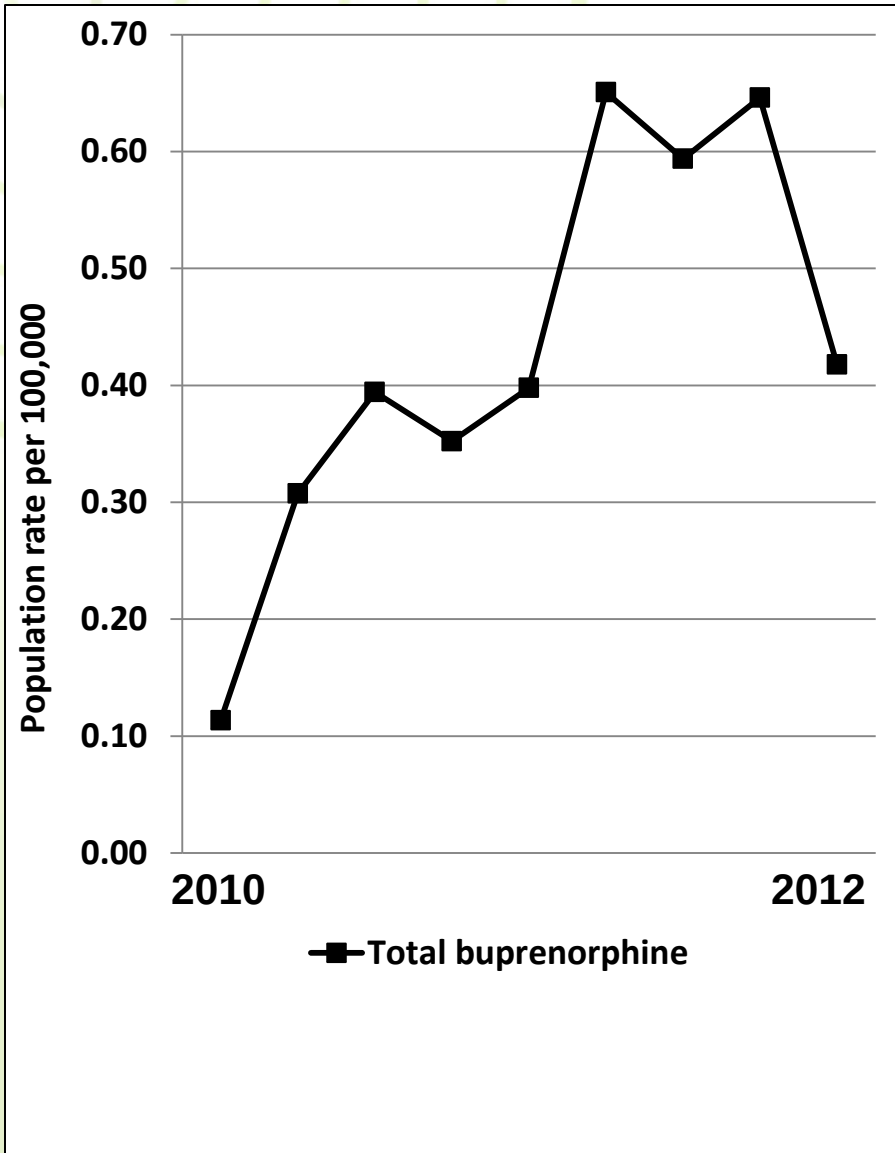


Drug Diversion



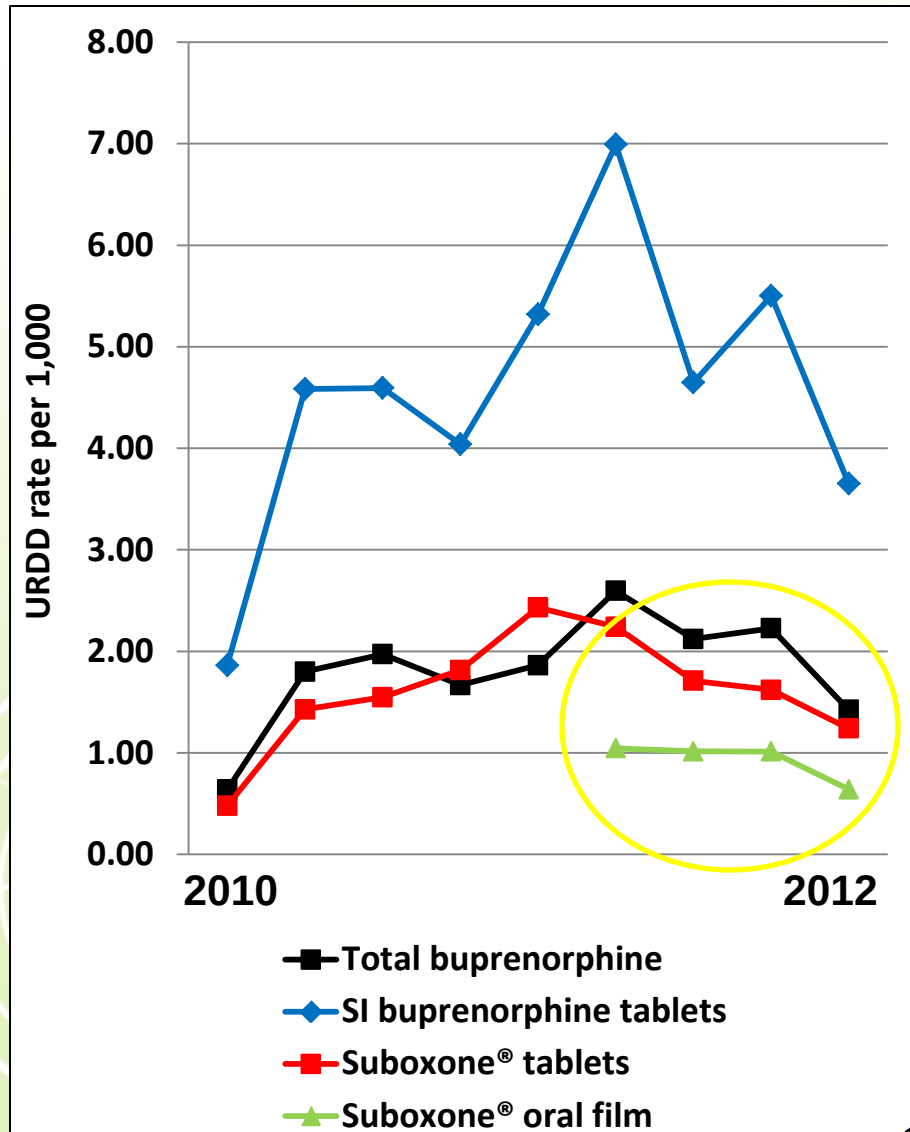
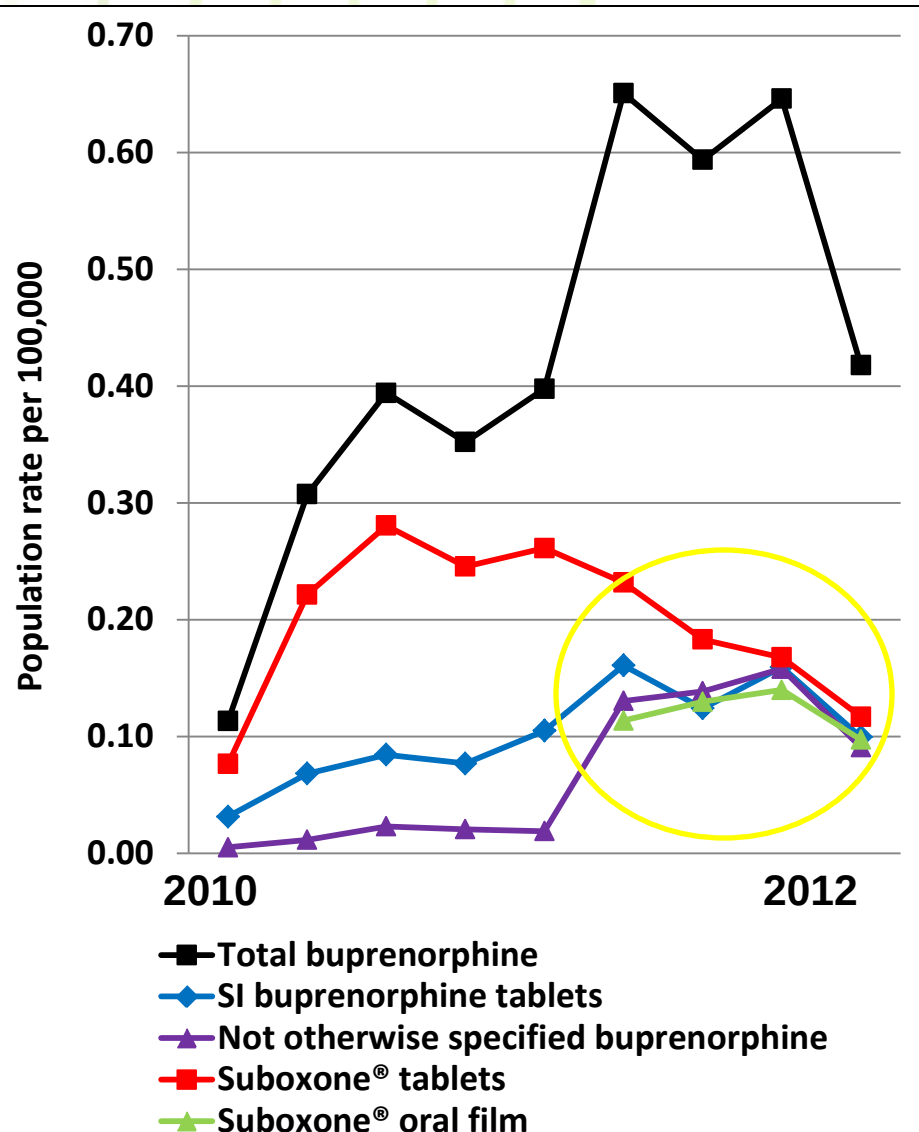
Opioid Treatment Program

Population Rate 2010 Q1 - 2012 Q1



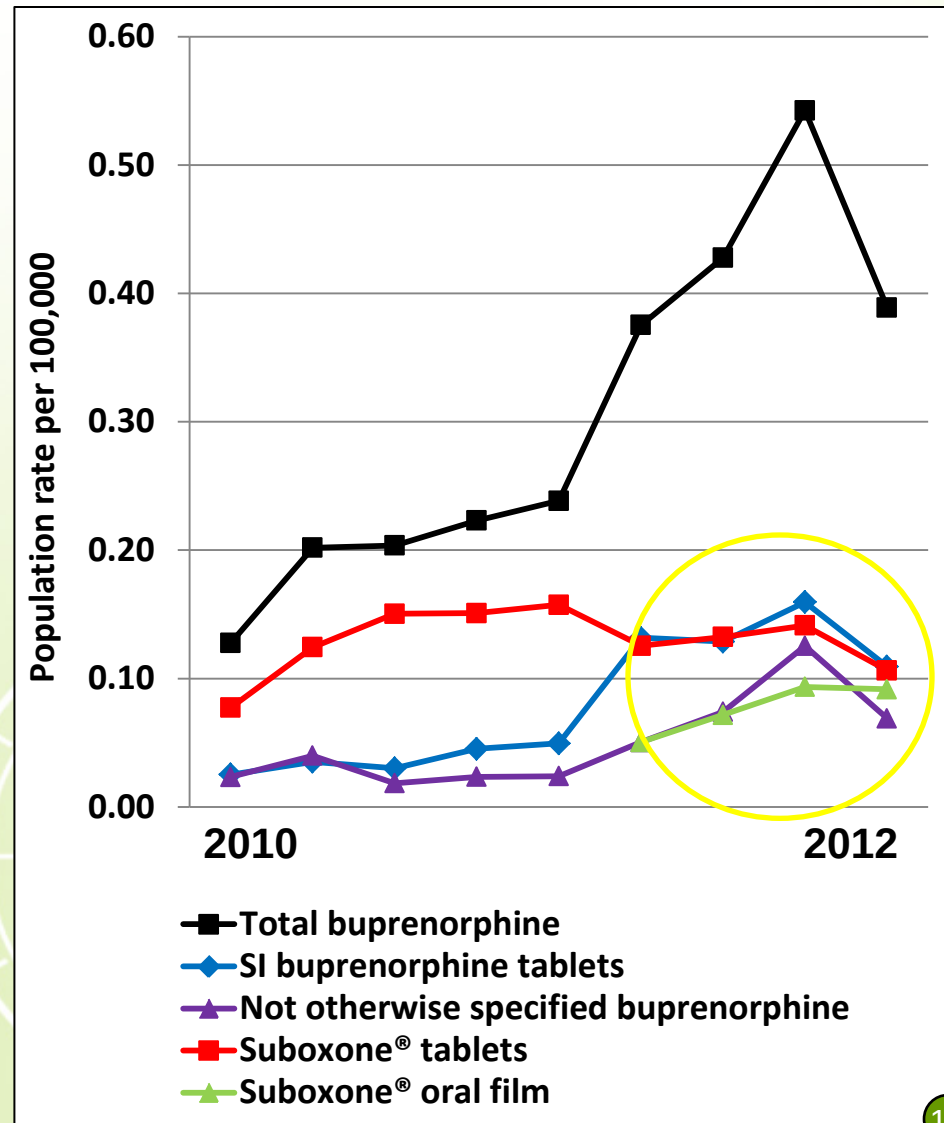
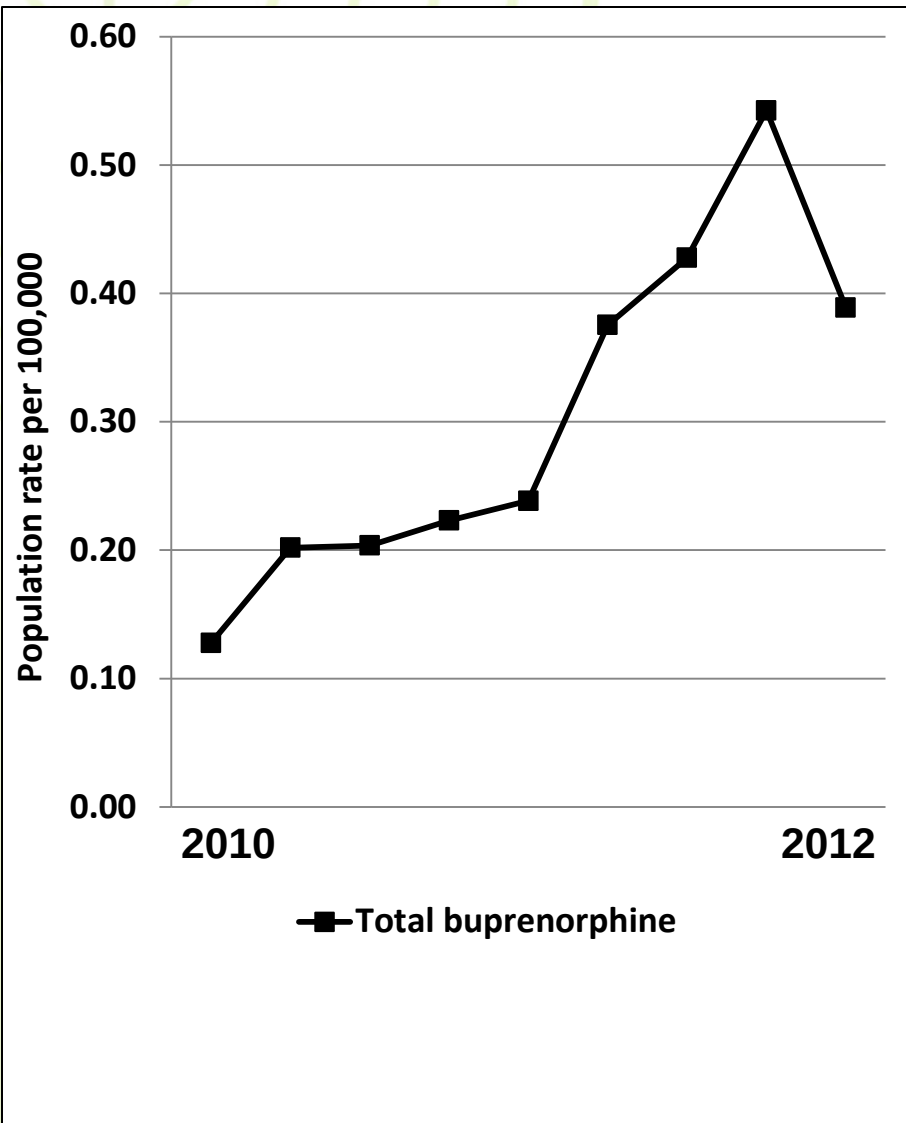
Opioid Treatment Program

Population v. URDD Rate 2010 Q1 - 2012 Q1



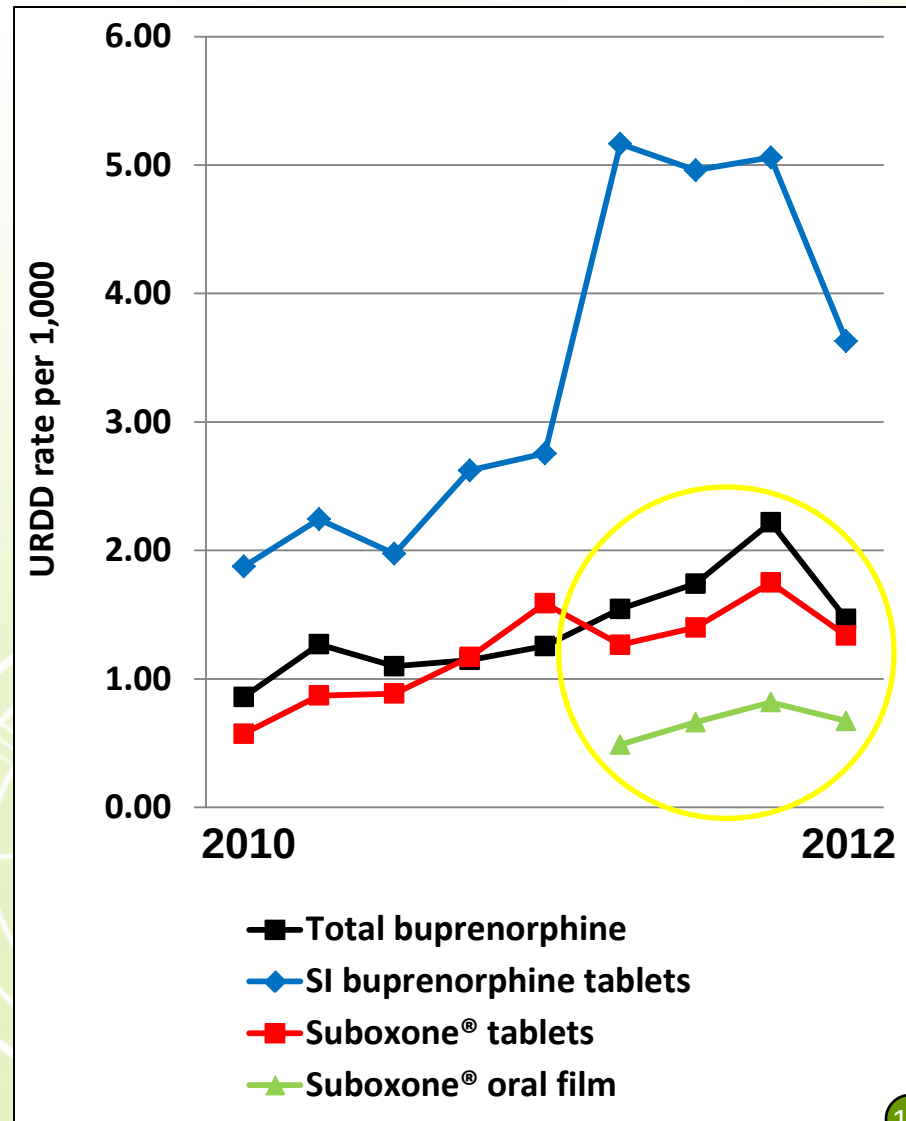
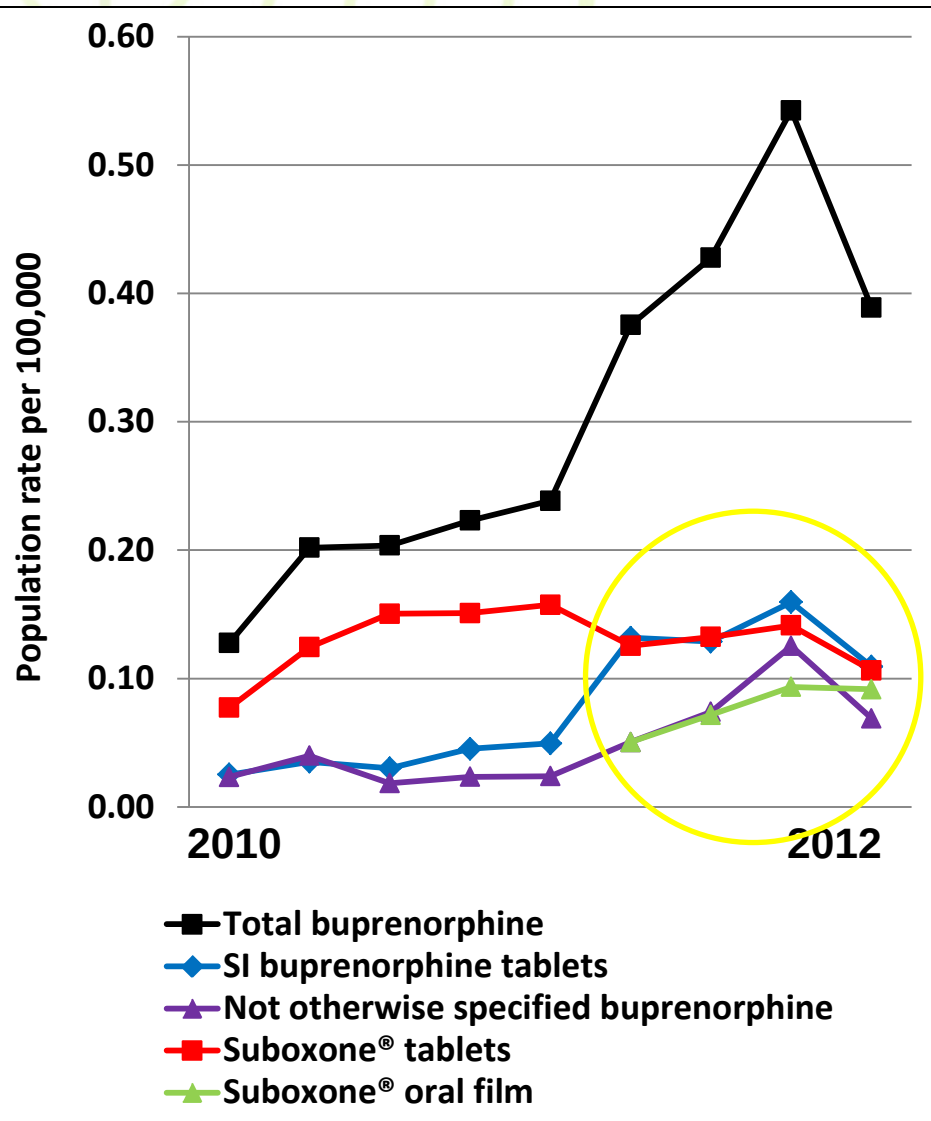
Survey Key Informants' Patients

Population Rate, 2010 Q1 - 2012 Q1



Survey Key Informants' Patients

Population v. URDD Rate, 2010 Q1 - 2012 Q1

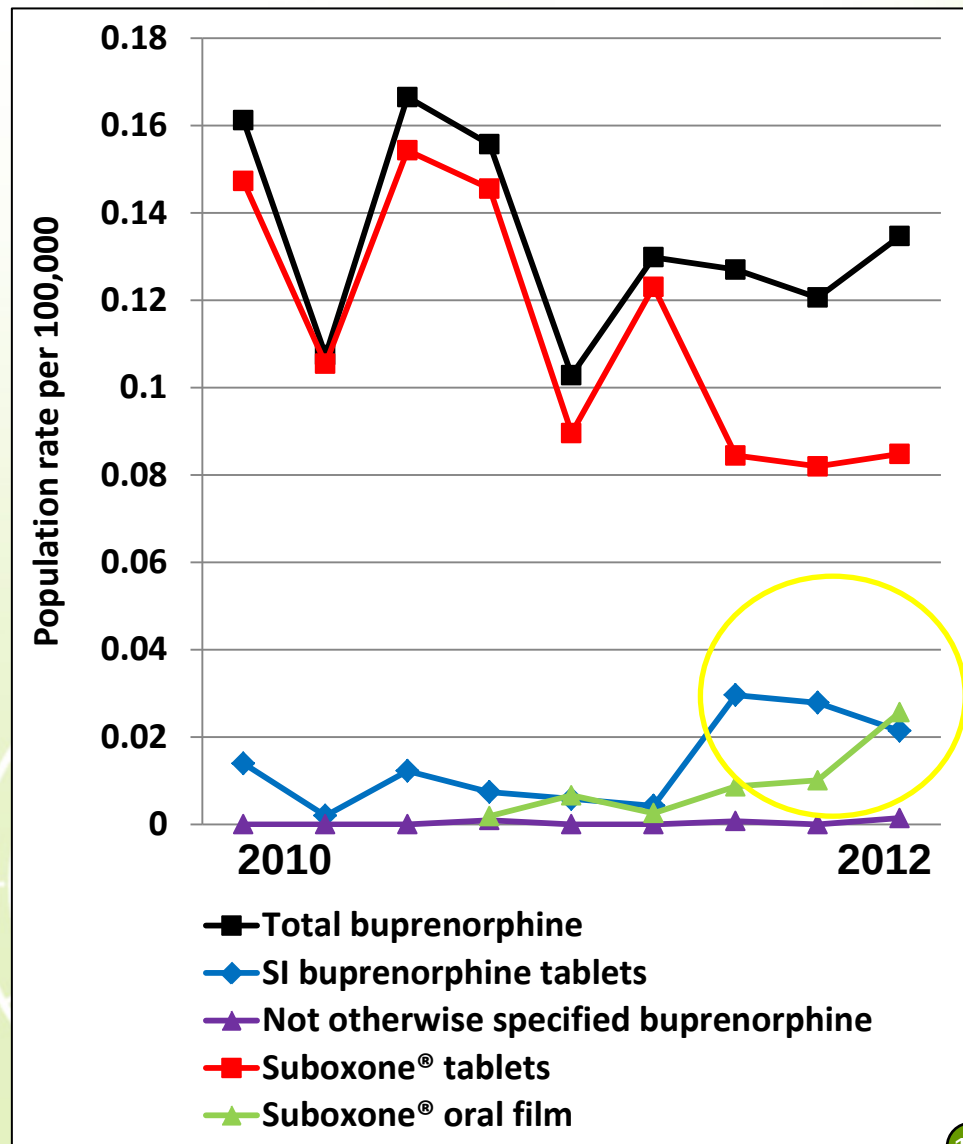
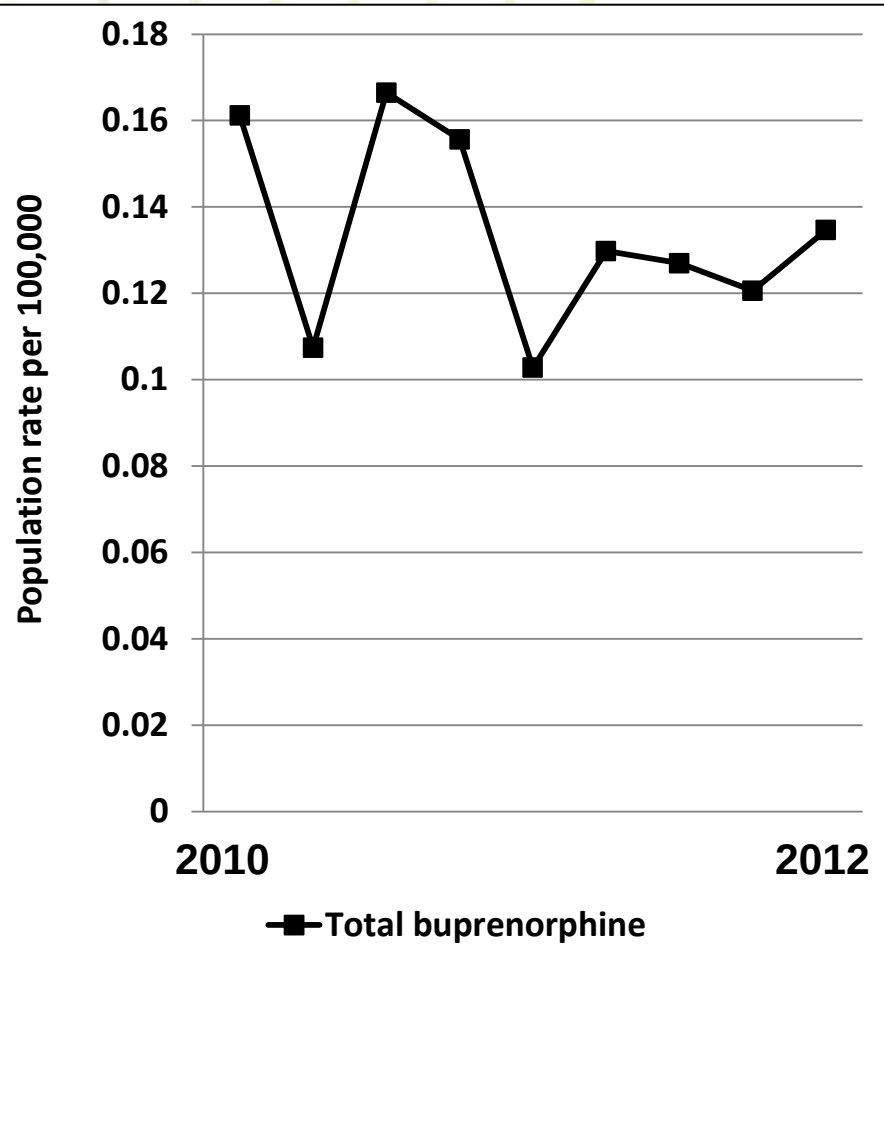


RADARS[®] System

Drug Diversion Program & Buprenorphine Street Price

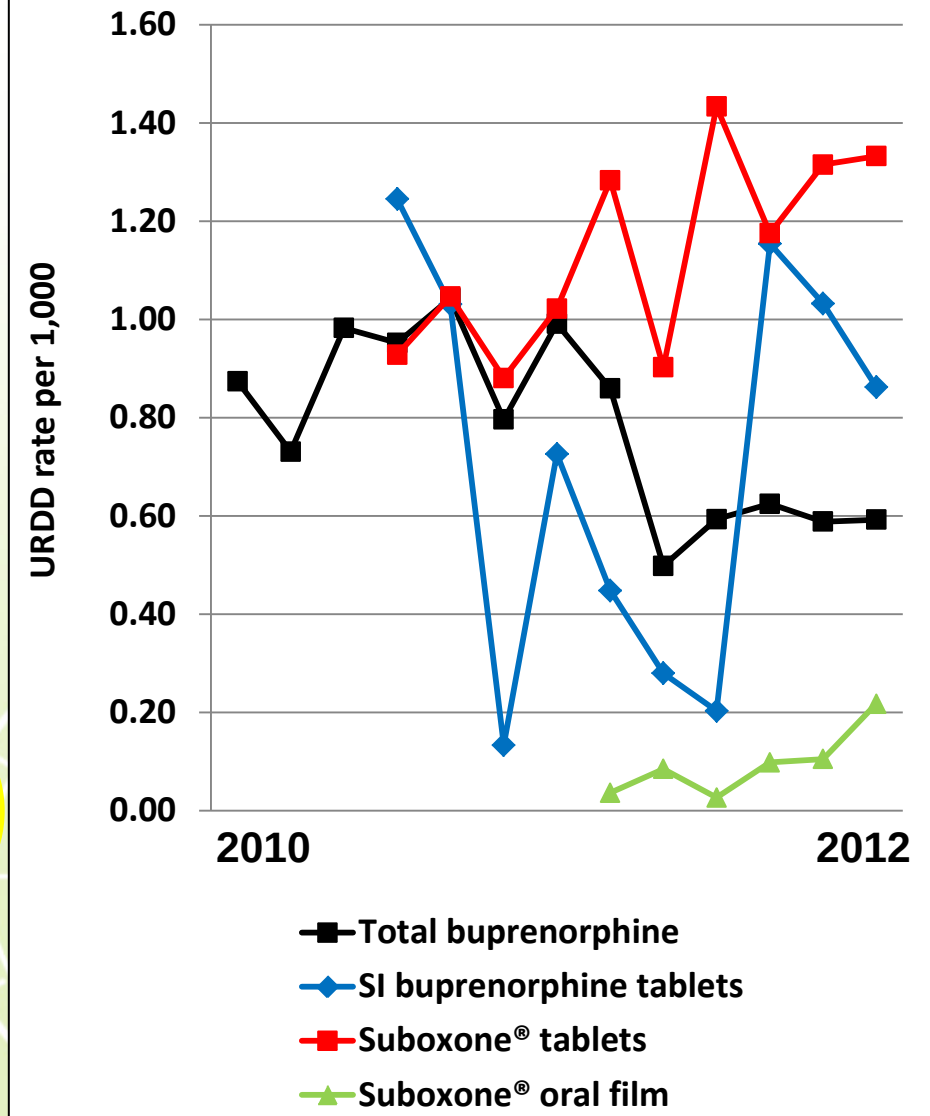
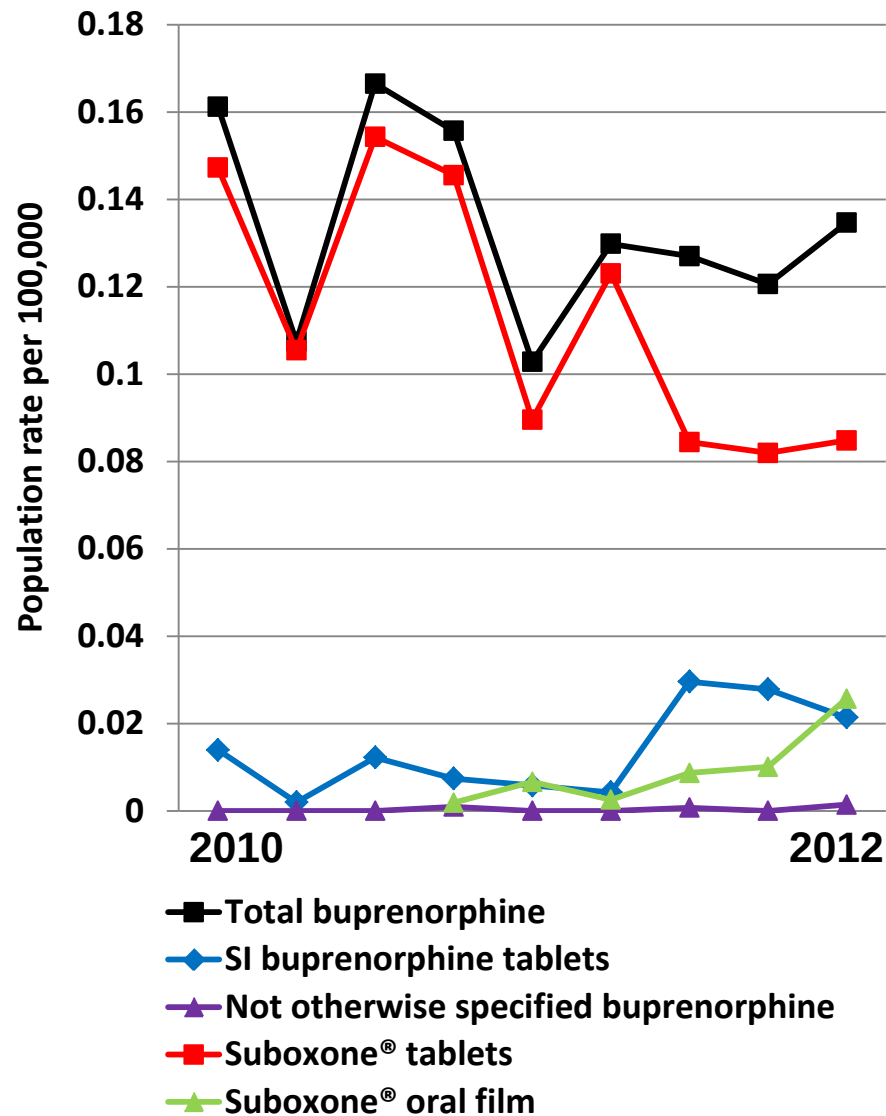
Drug Diversion

Population Rate, 2010 Q1 - 2012 Q1

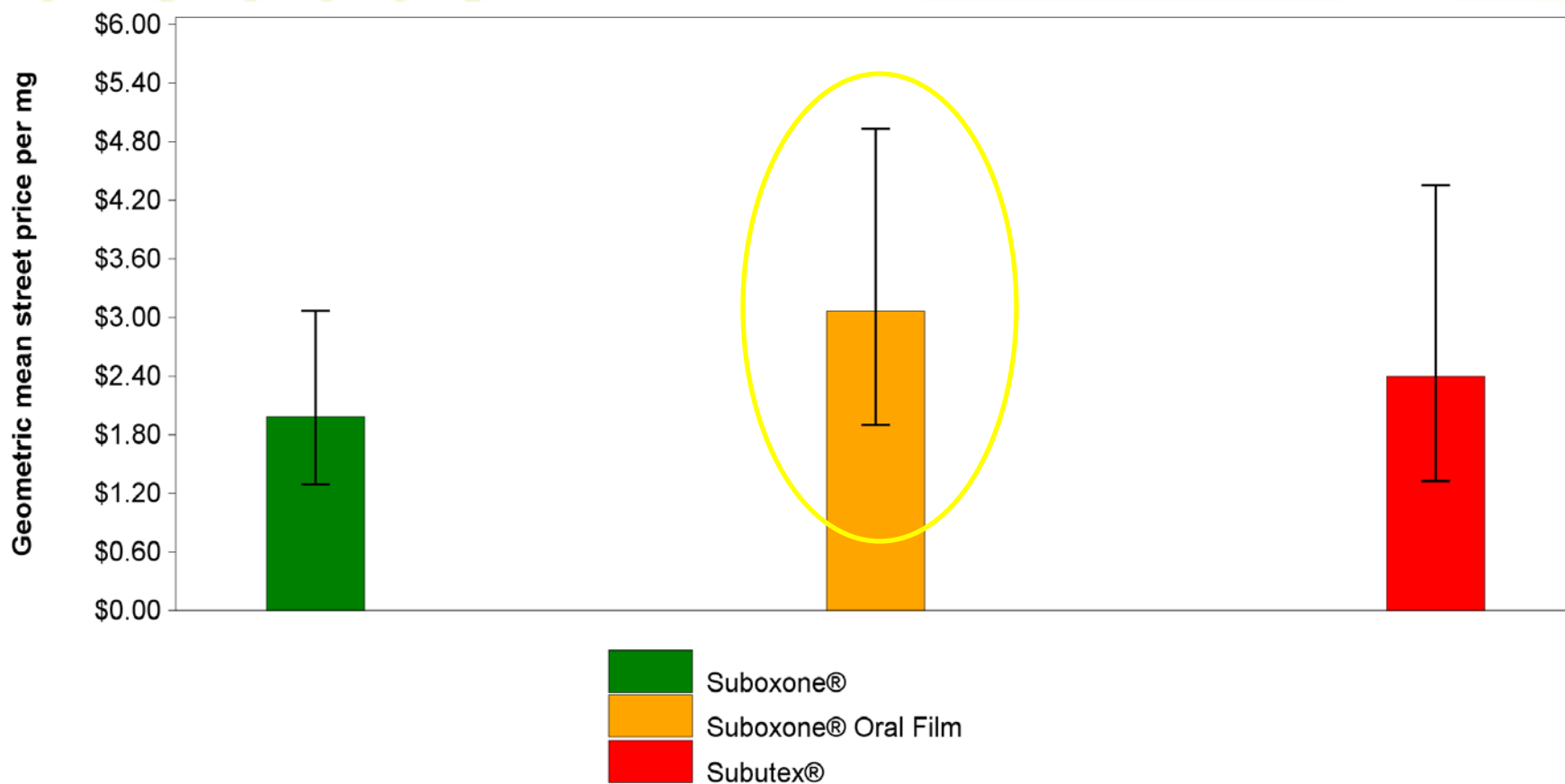


Drug Diversion

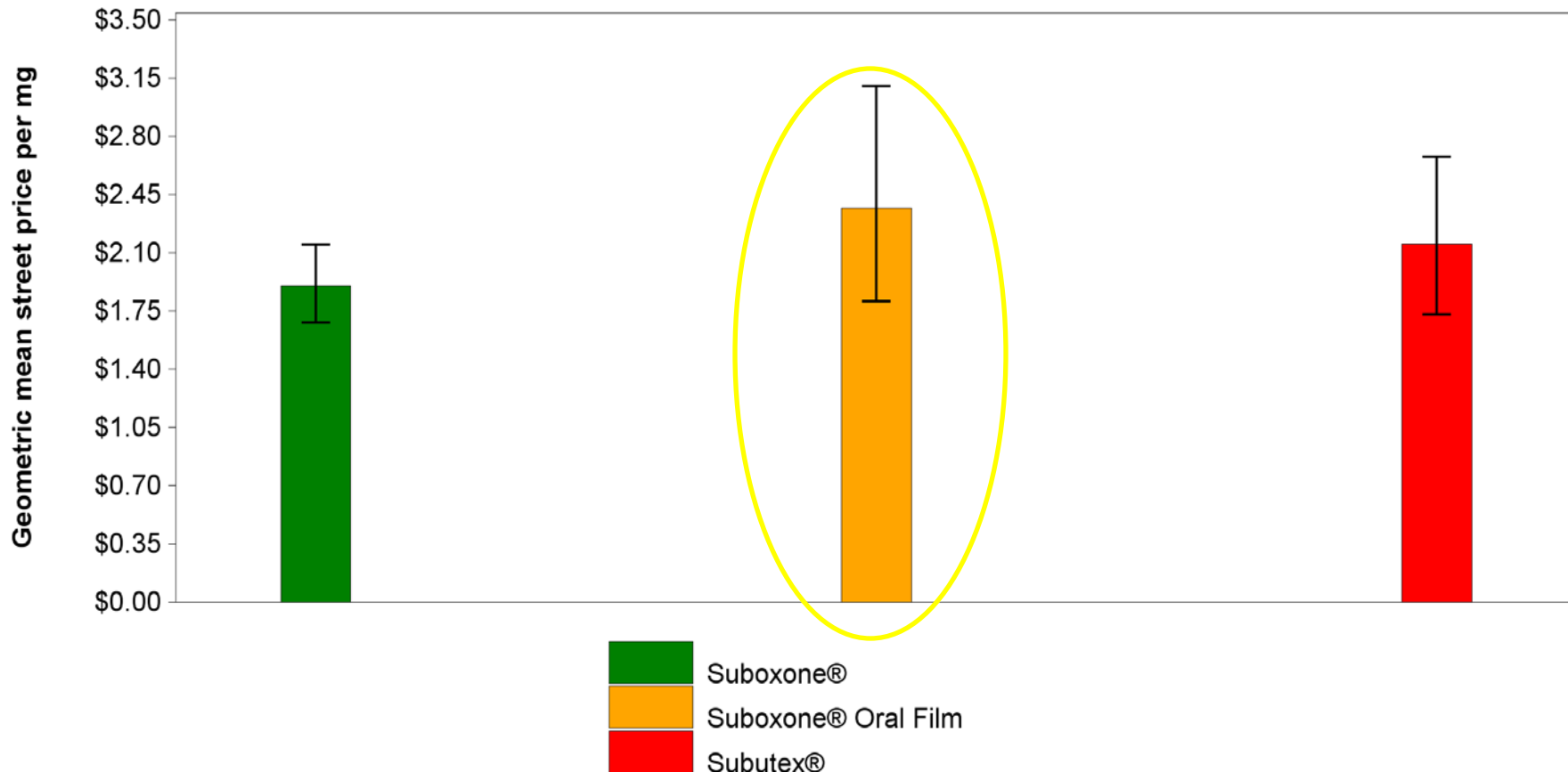
Population v. URDD Rate, 2010 Q1 - 2012 Q1



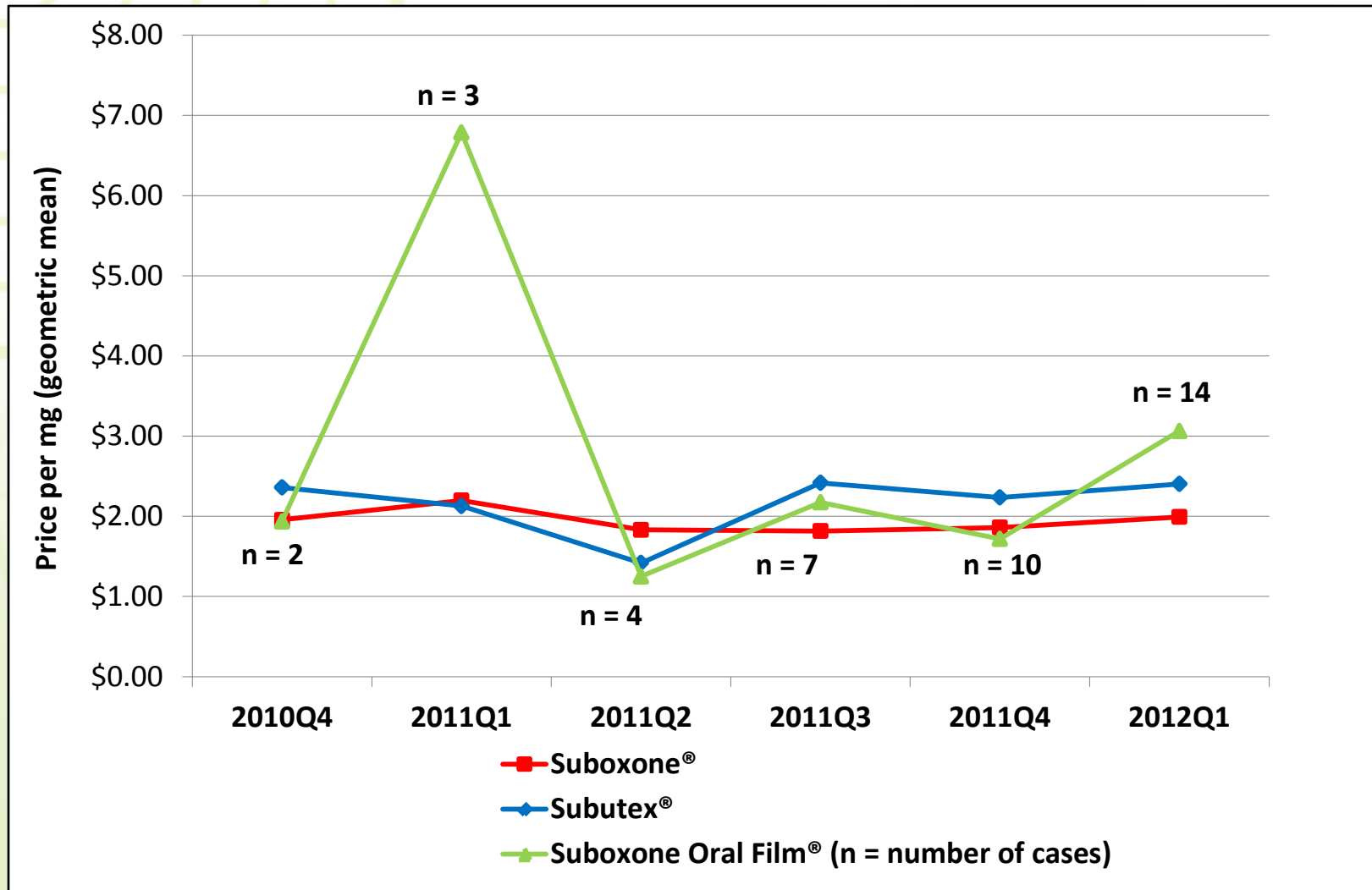
Drug Diversion SPQ – Price Per mg (2012 Q1)



Drug Diversion SPQ – Price Per mg (2010 Q1 - 2012 Q1)



Drug Diversion SPQ – Price per mg (Geometric Mean - 2010 Q4 - 2012 Q1)



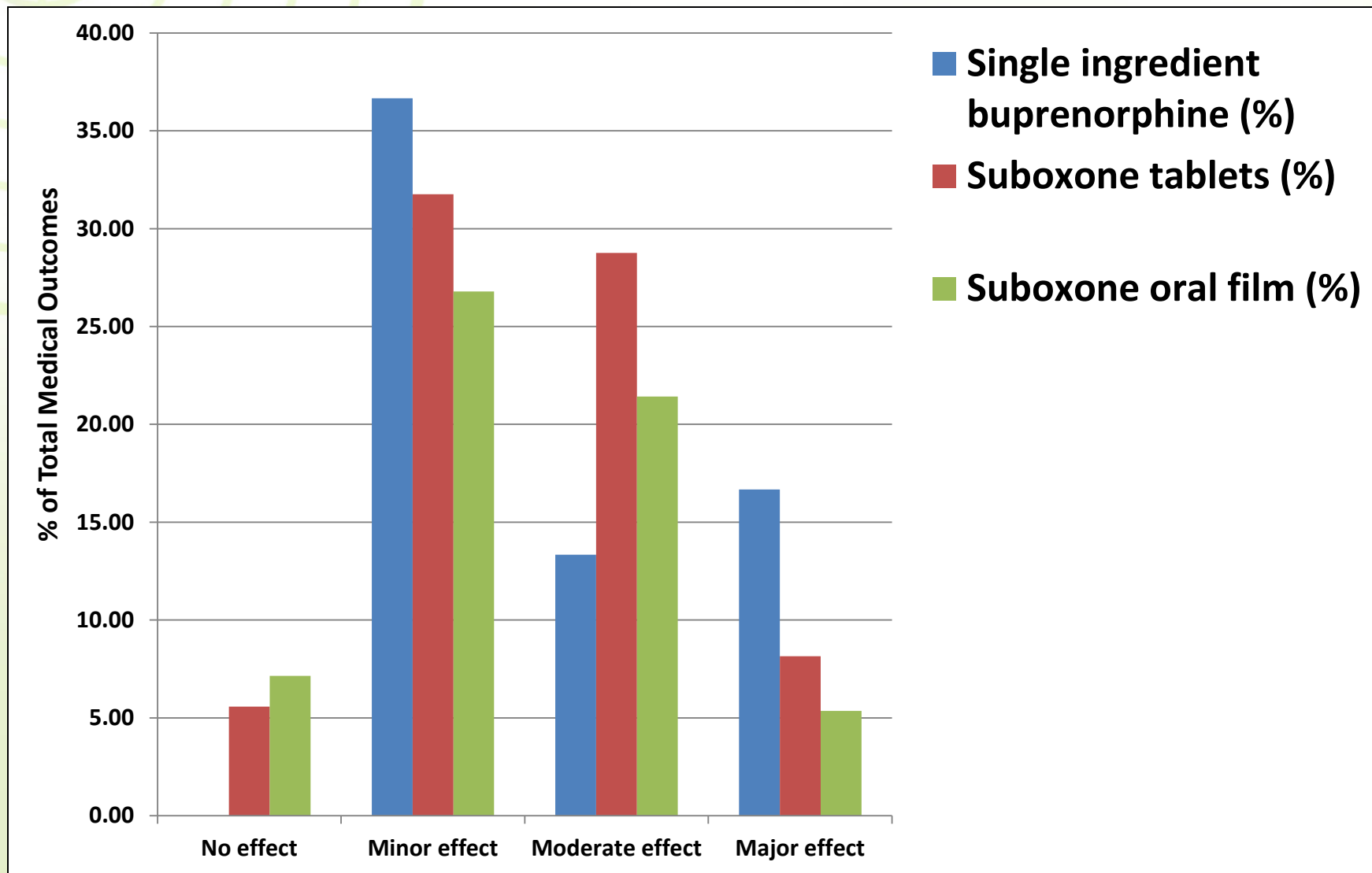
RADARS® System

Poison Center Program –

Intentional Exposure Reasons and

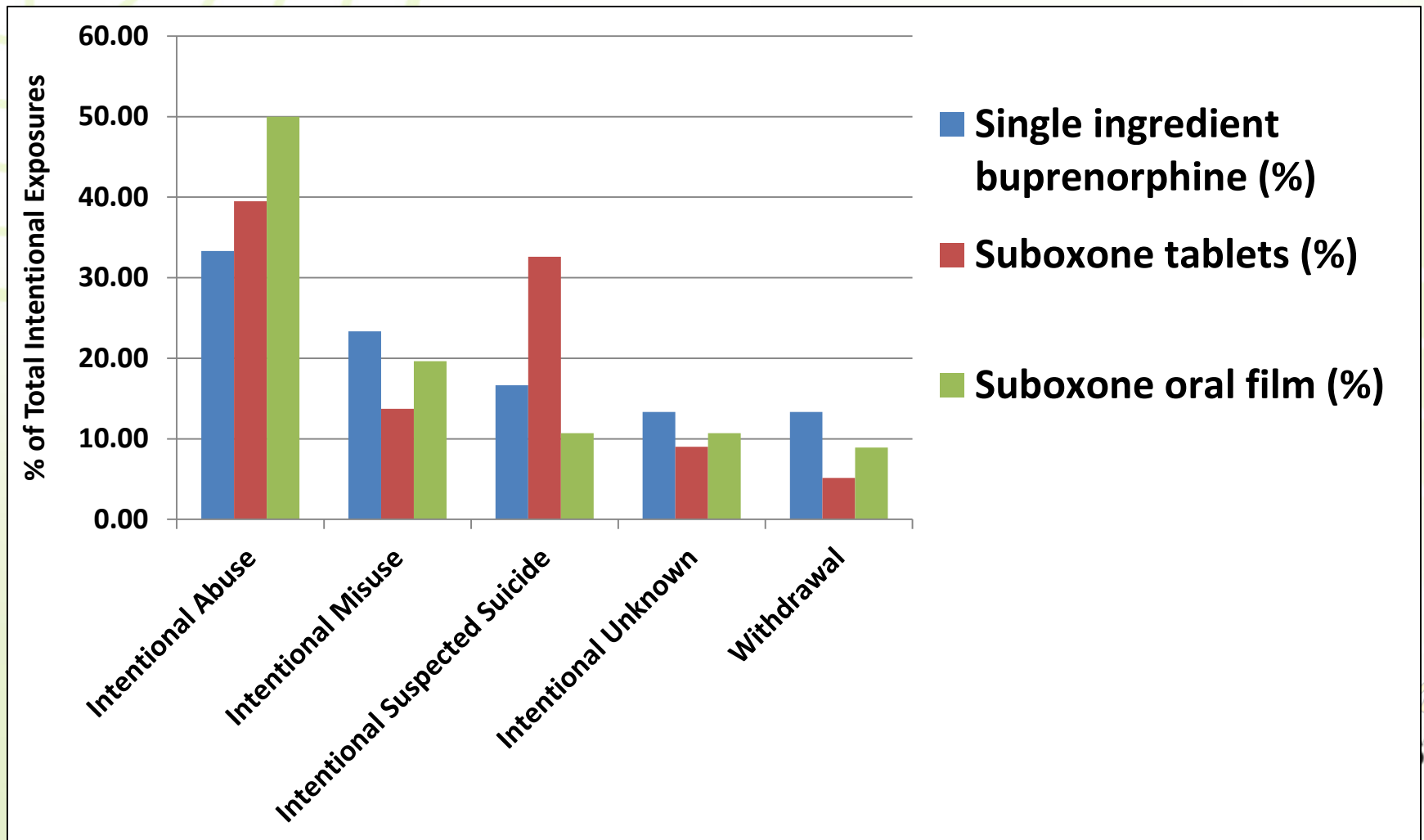
Medical Outcomes in Population

Poison Center Program Medical Outcomes (2012 Q1)



Poison Center Program

Intentional Exposure Reasons (2012 Q1)

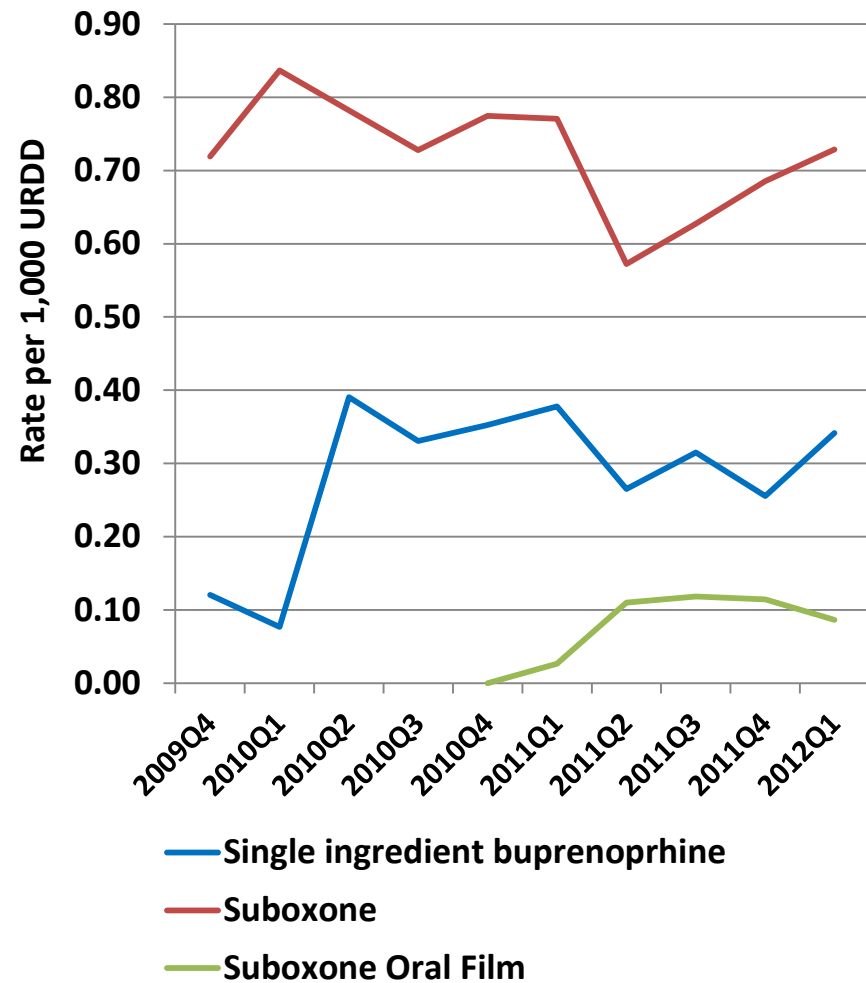
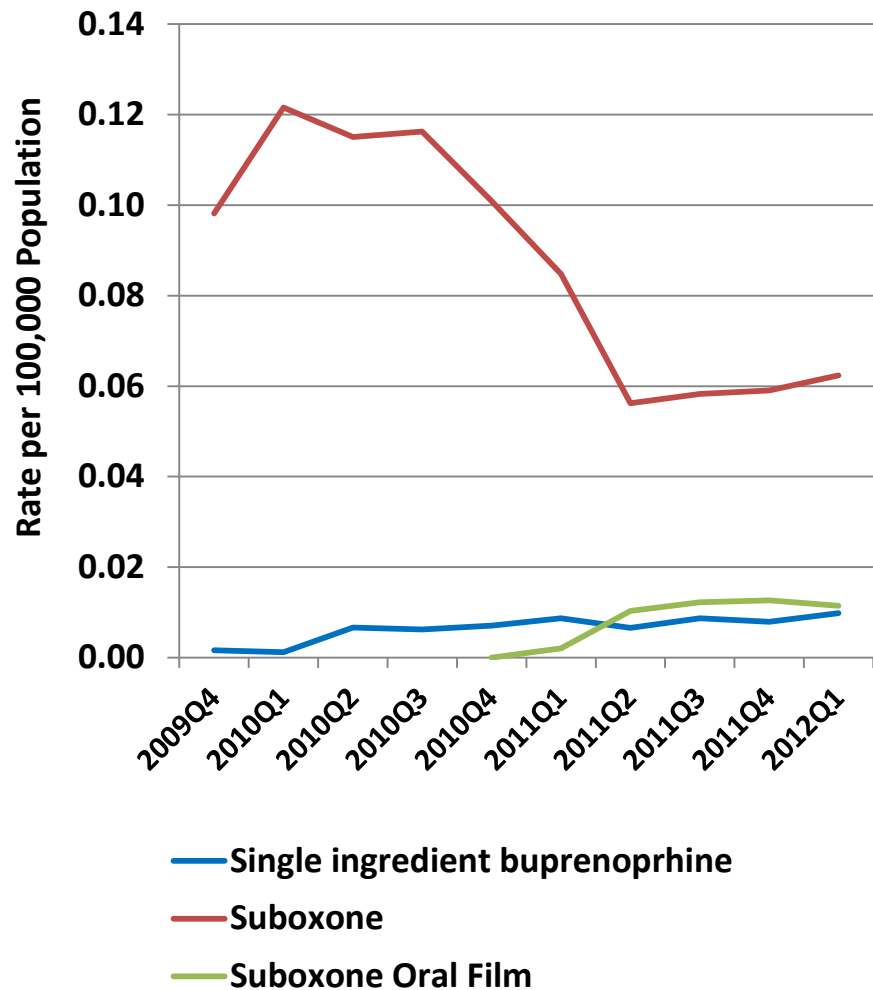


RADARS® System

Poison Center Program – Exposure Rates and Medical Outcomes in Adolescents

Poison Center Program

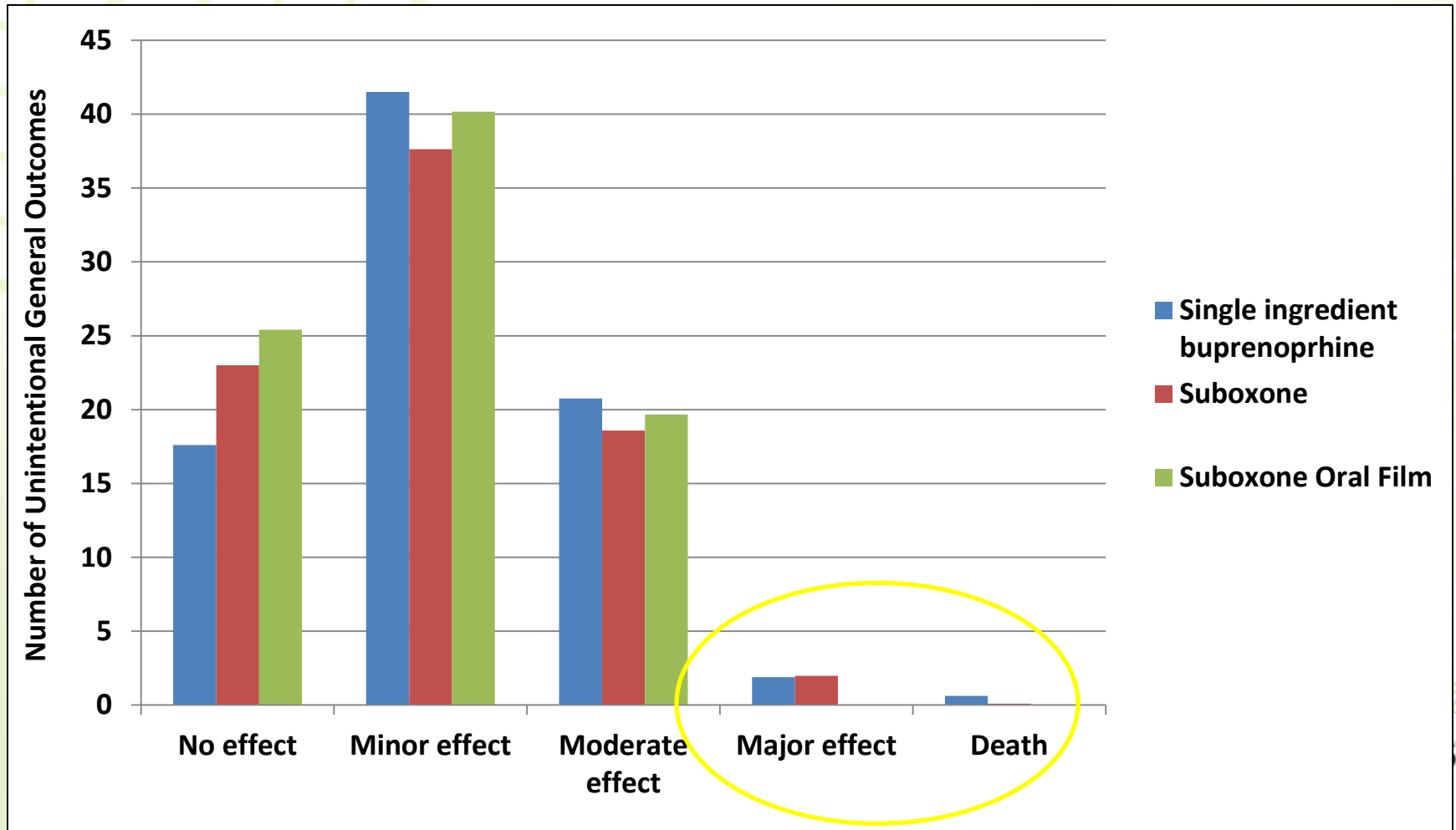
Unintentional General, Population and URDD Rates Children 0-12 Years (2009 Q4 – 2012Q1)



Poison Center Program

Unintentional General, Medical Outcome

Children 0-12 Years (2009 Q4 – 2012Q1)



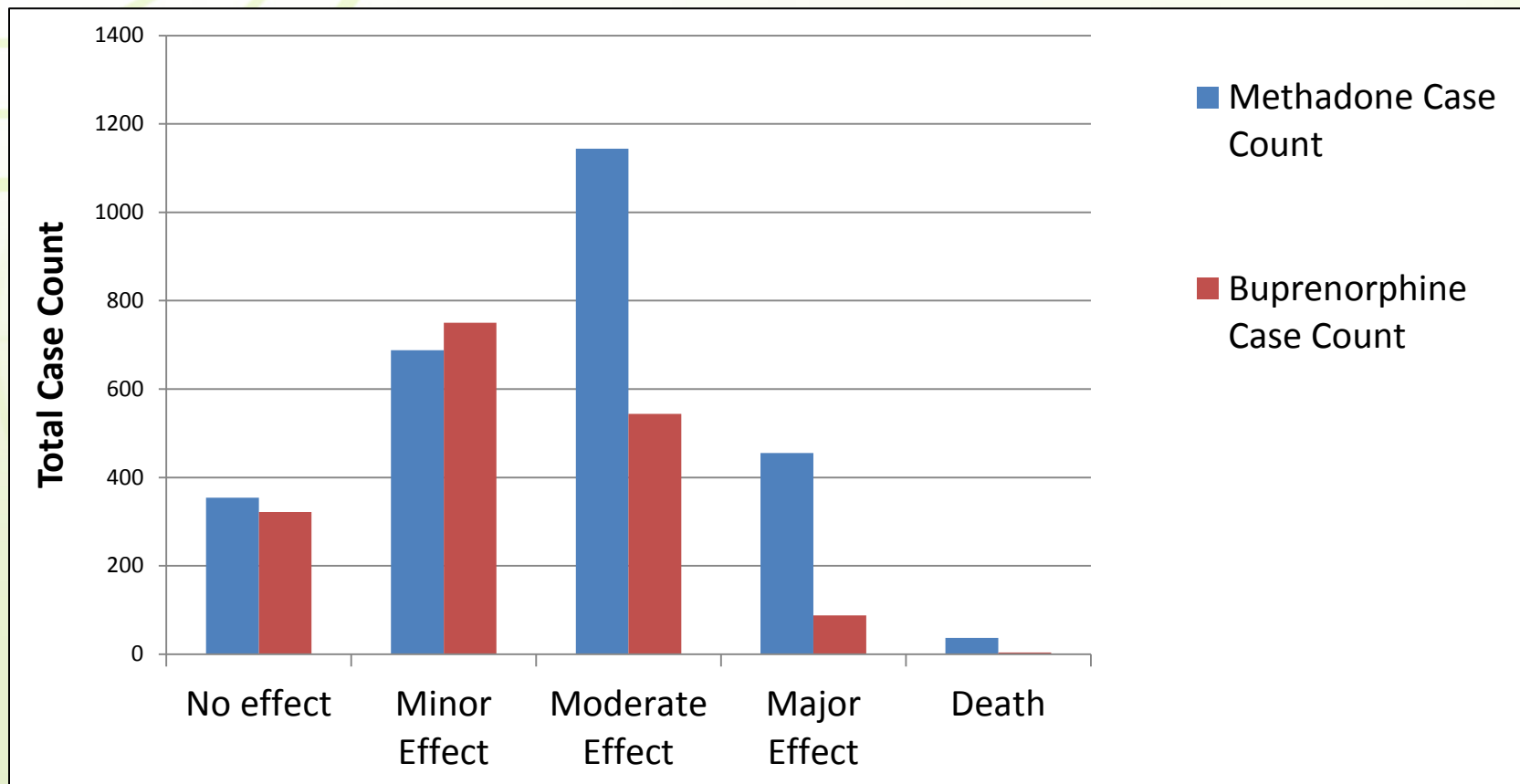
RADARS® System
Poison Center Program –
Medical Outcomes
Methadone v. Buprenorphine

Poison Center Program

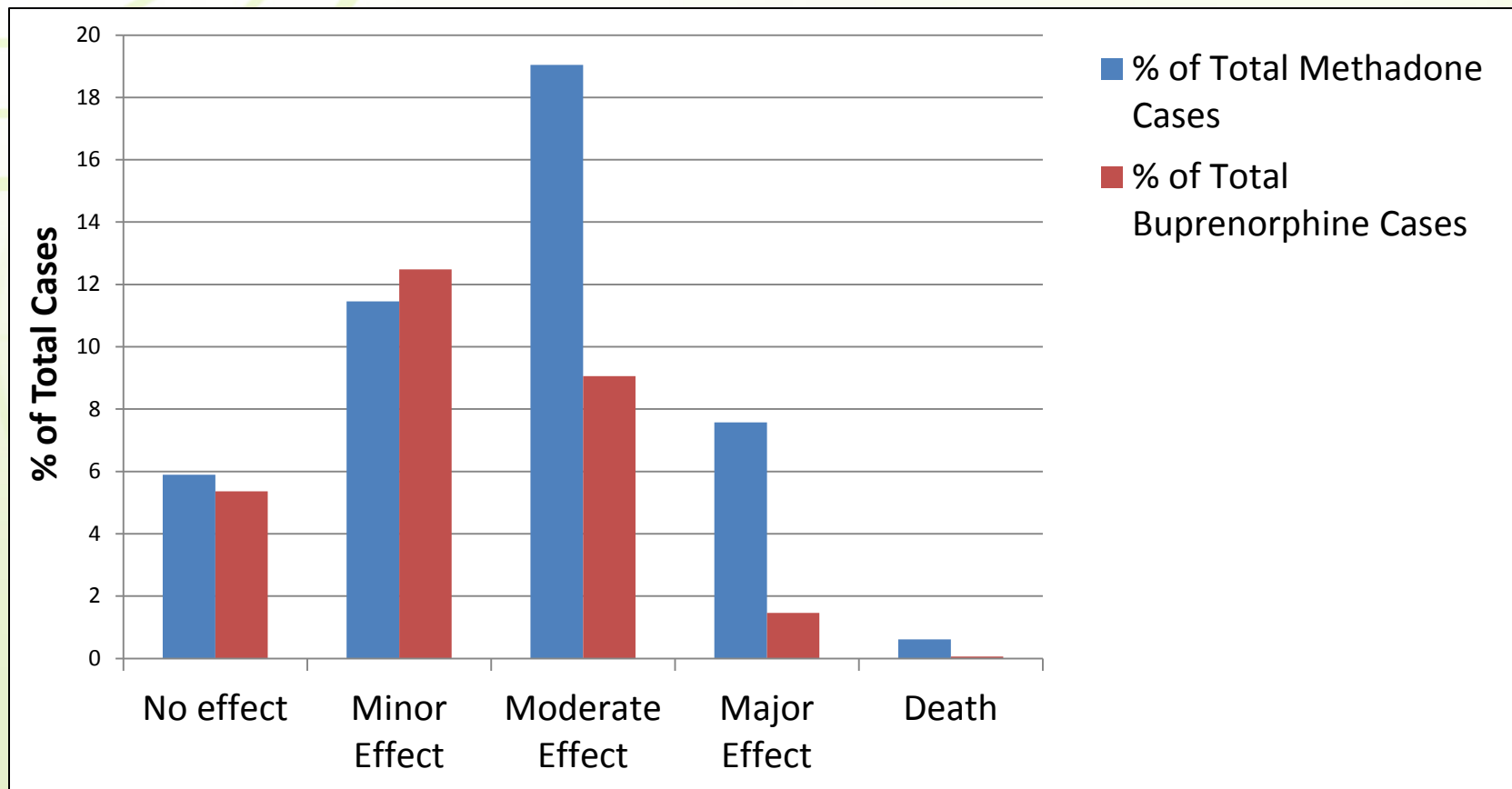
Medical Outcomes

Methadone v. Buprenorphine

2011 Q2 – 2012 Q1



Poison Center Program Medical Outcomes Methadone v. Buprenorphine 2011 Q2 – 2012 Q1



Conclusions

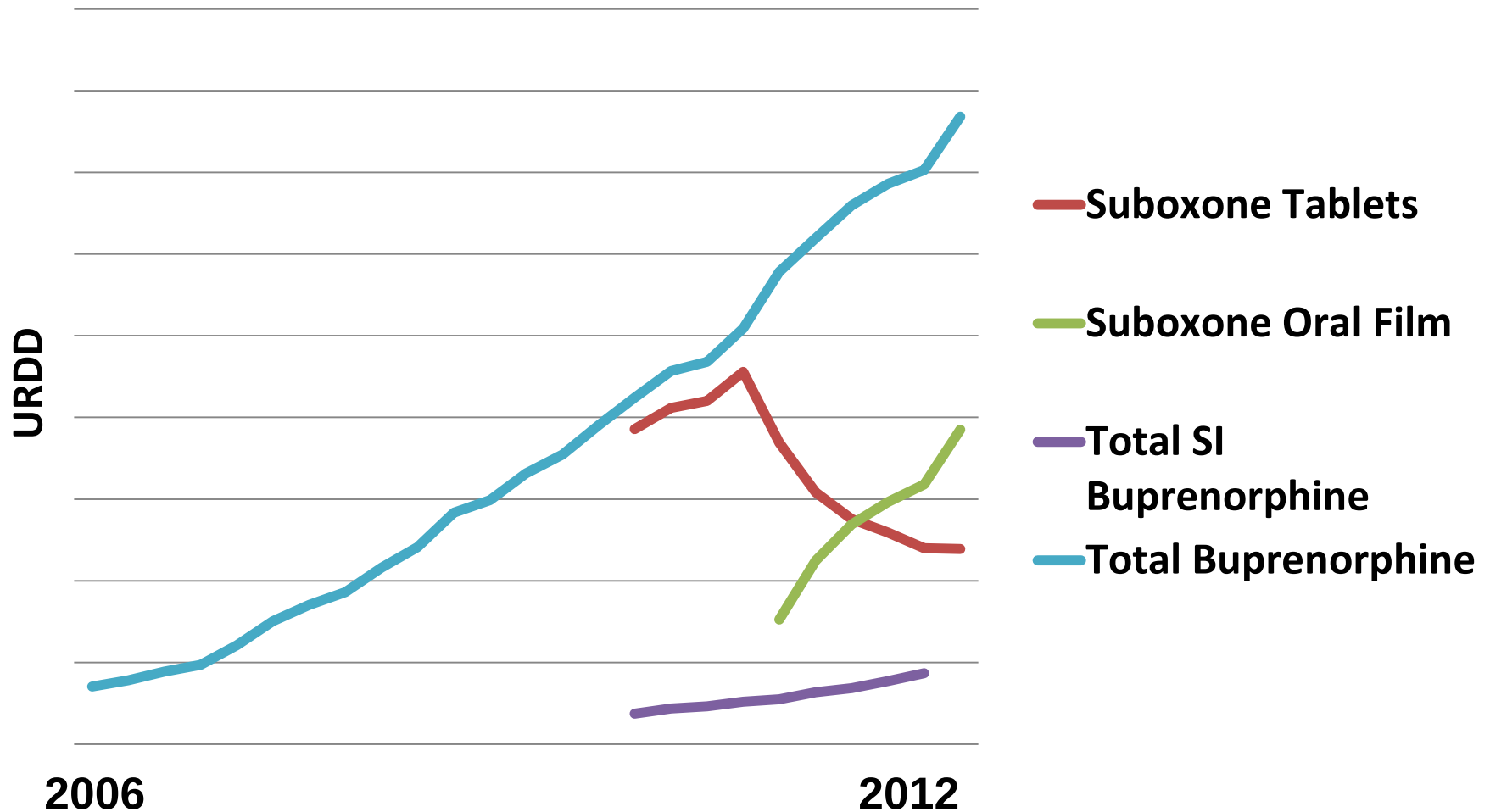
- Has availability of buprenorphine expanded?
 - Dramatic increase in people filling a prescription (URDD)
 - Marked increase of misuse and abuse in all systems
 - Street price is higher than other opioids
 - Single ingredient is on the rise, highest in OTP and SKIP
- Is Suboxone an abuse deterrent formulation?
 - Yes, endorsements are falling and lower than SI
- Misuse and abuse of buprenorphine in high risk populations (OTP and SKIP)
 - Total endorsements rising quickly
 - Single ingredient is generally preferred

RADARS[®] System

California Buprenorphine Rates Compared to National Rates

Buprenorphine Availability in California

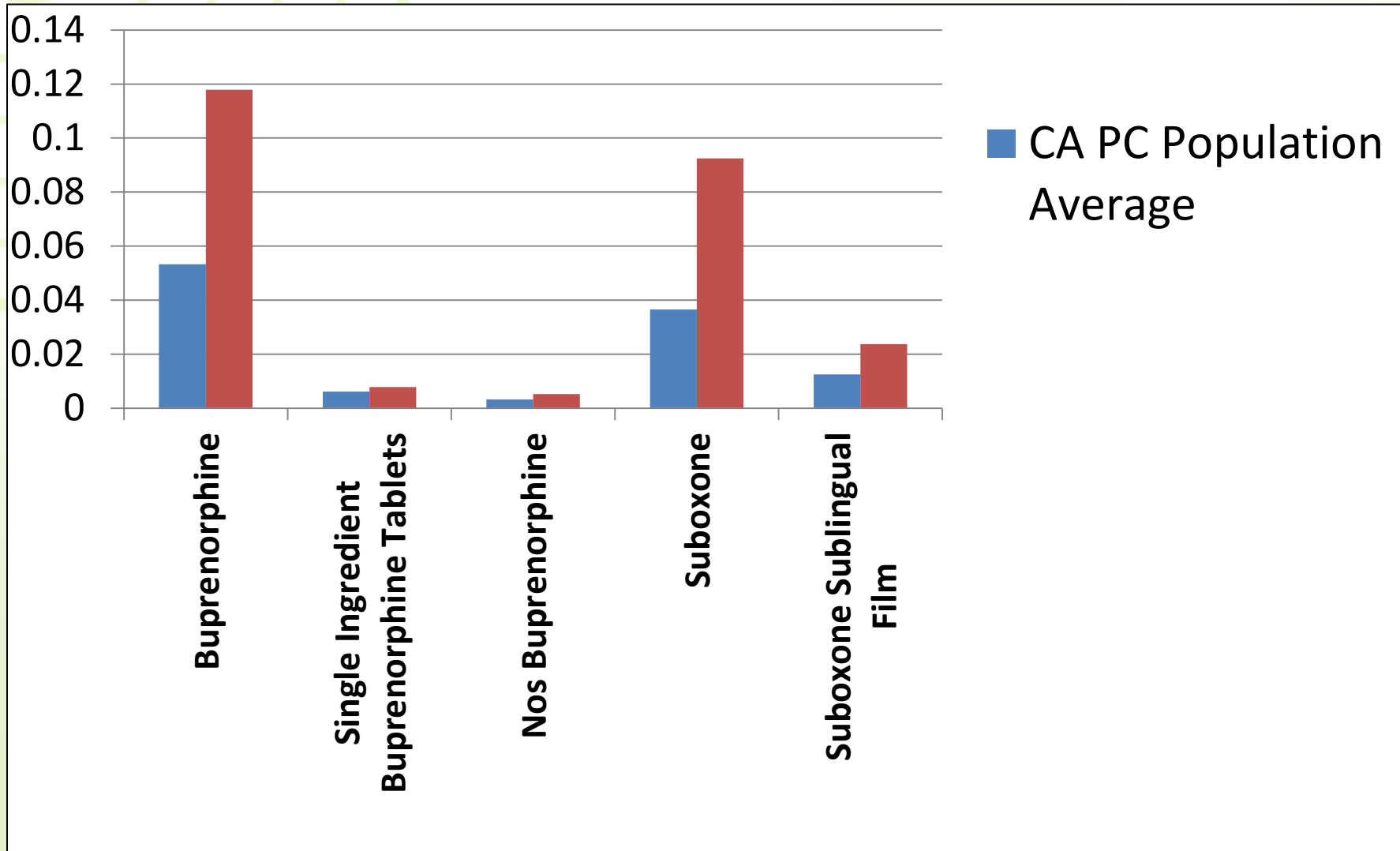
Unique Recipient of Dispensed Drug (URDD)



Poison Center Program

Average Population Rate per 100,000

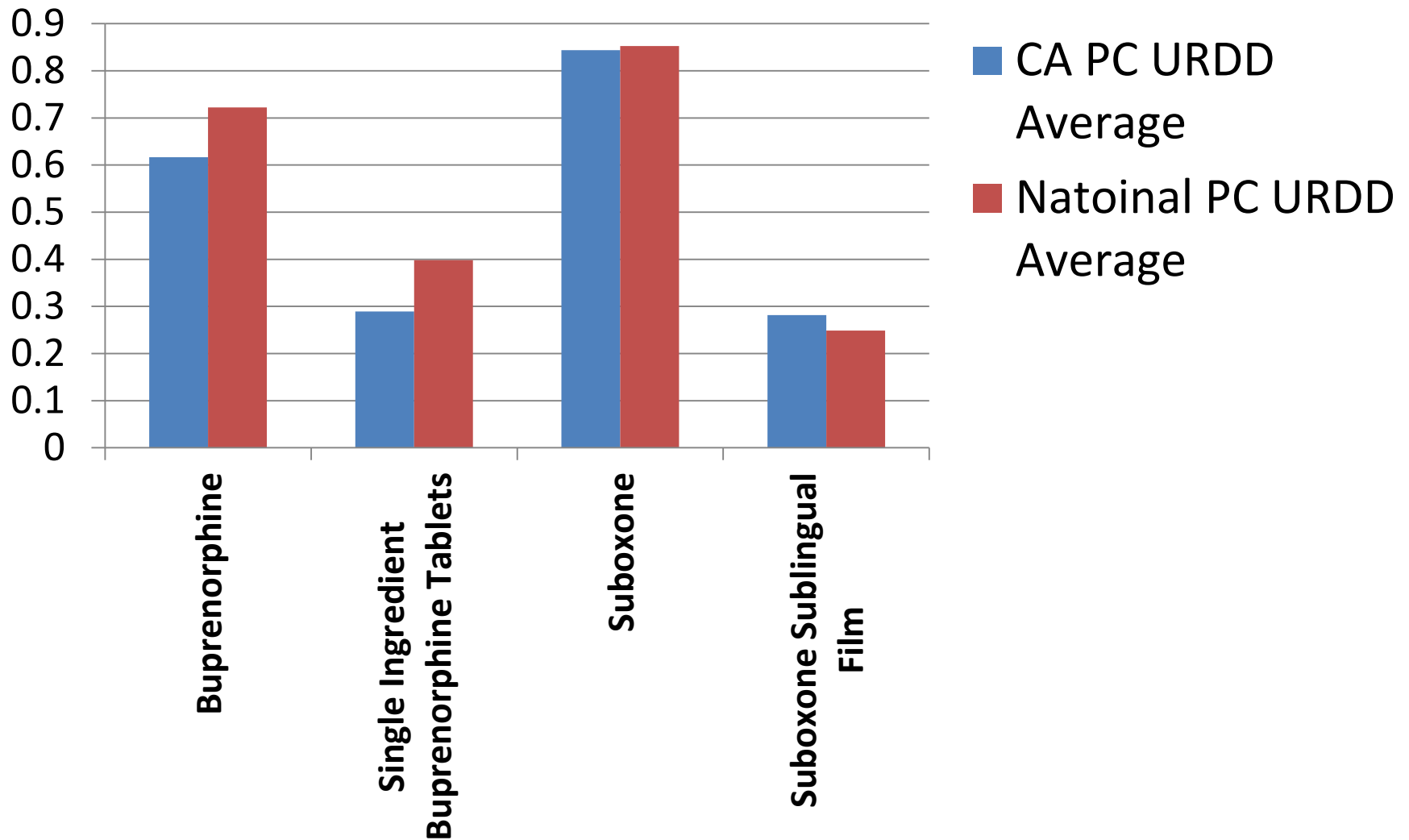
2009 Q1 - 2012 Q1



Poison Center Program

Average URDD Rate per 1,000

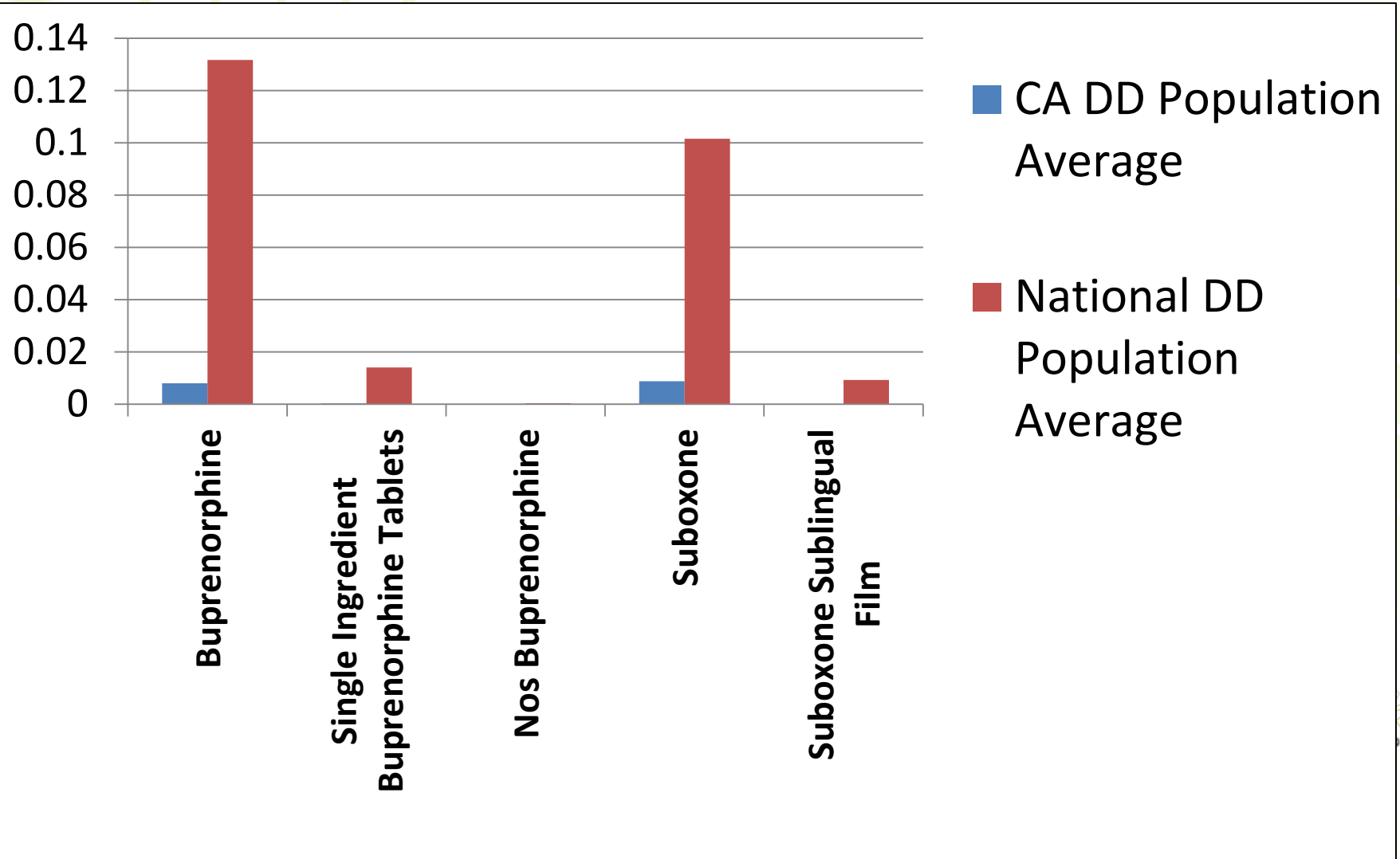
2009 Q1 - 2012 Q1



Drug Diversion Program

Average Population Rate per 100,000

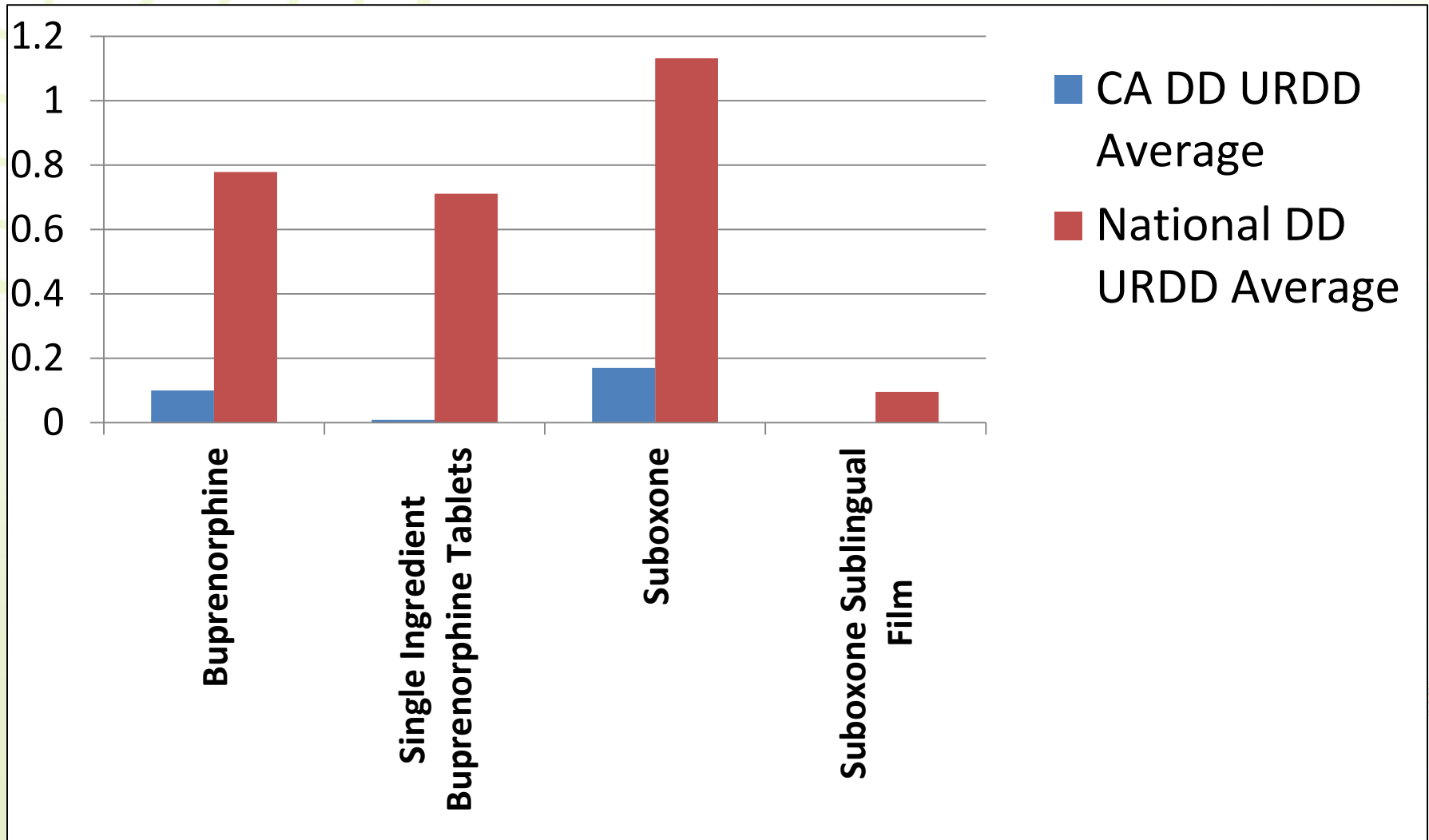
2009 Q1 - 2012 Q1



Drug Diversion Program

Average URDD Rate per 1,000

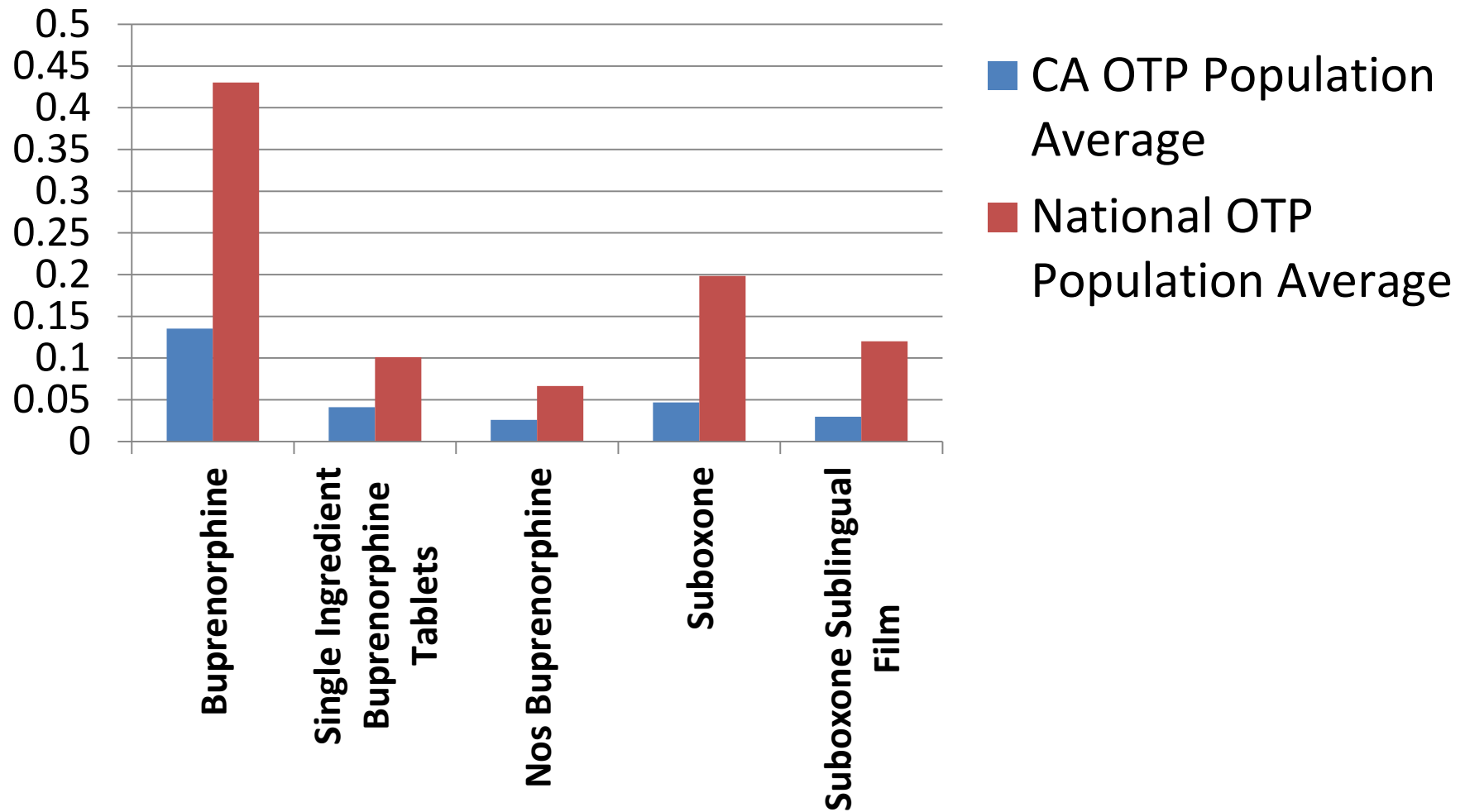
2009 Q1 - 2012 Q1



Opioid Treatment Program

Average Population Rate per 100,000

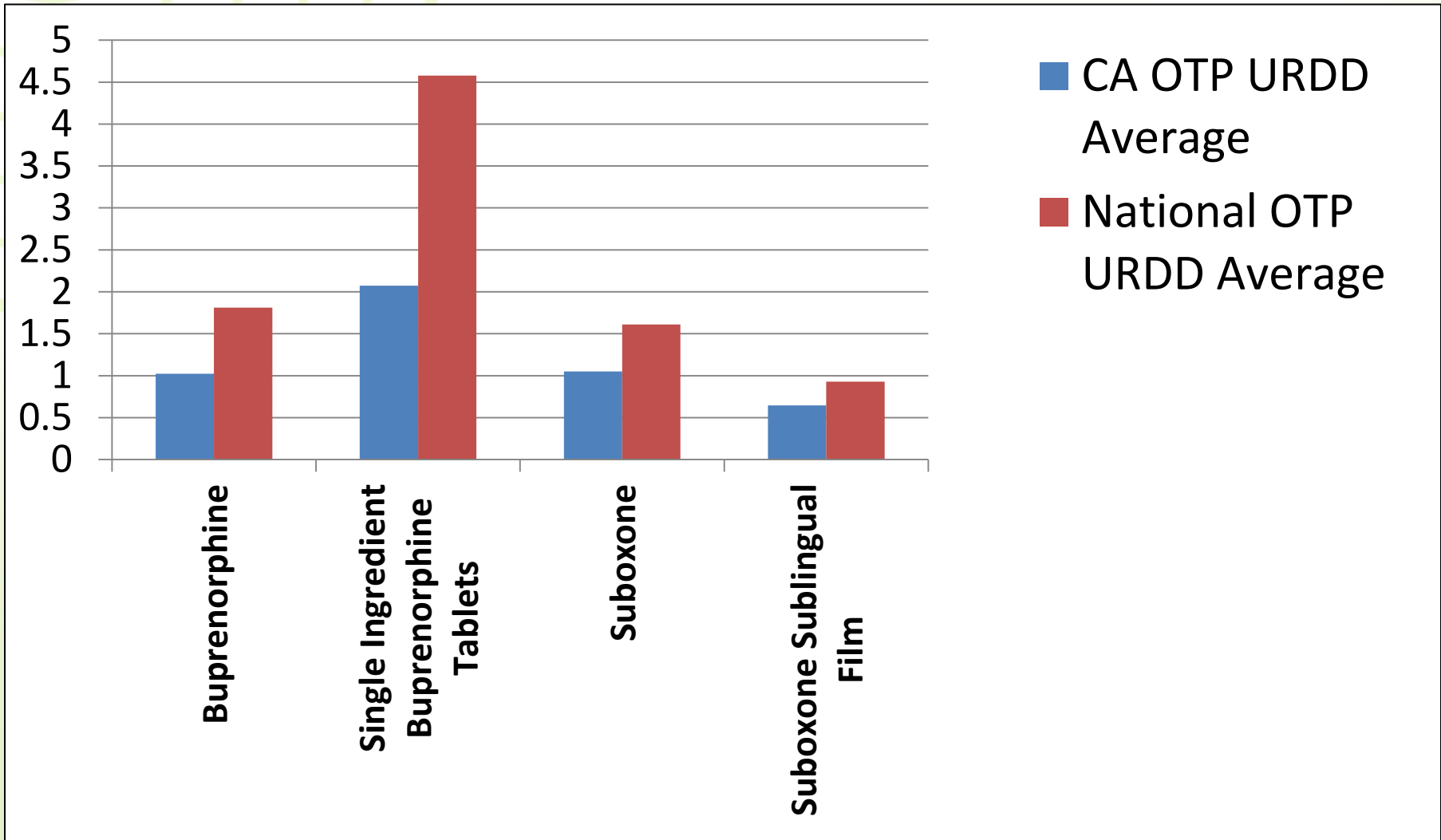
2010 Q1 - 2012 Q1



Opioid Treatment Program

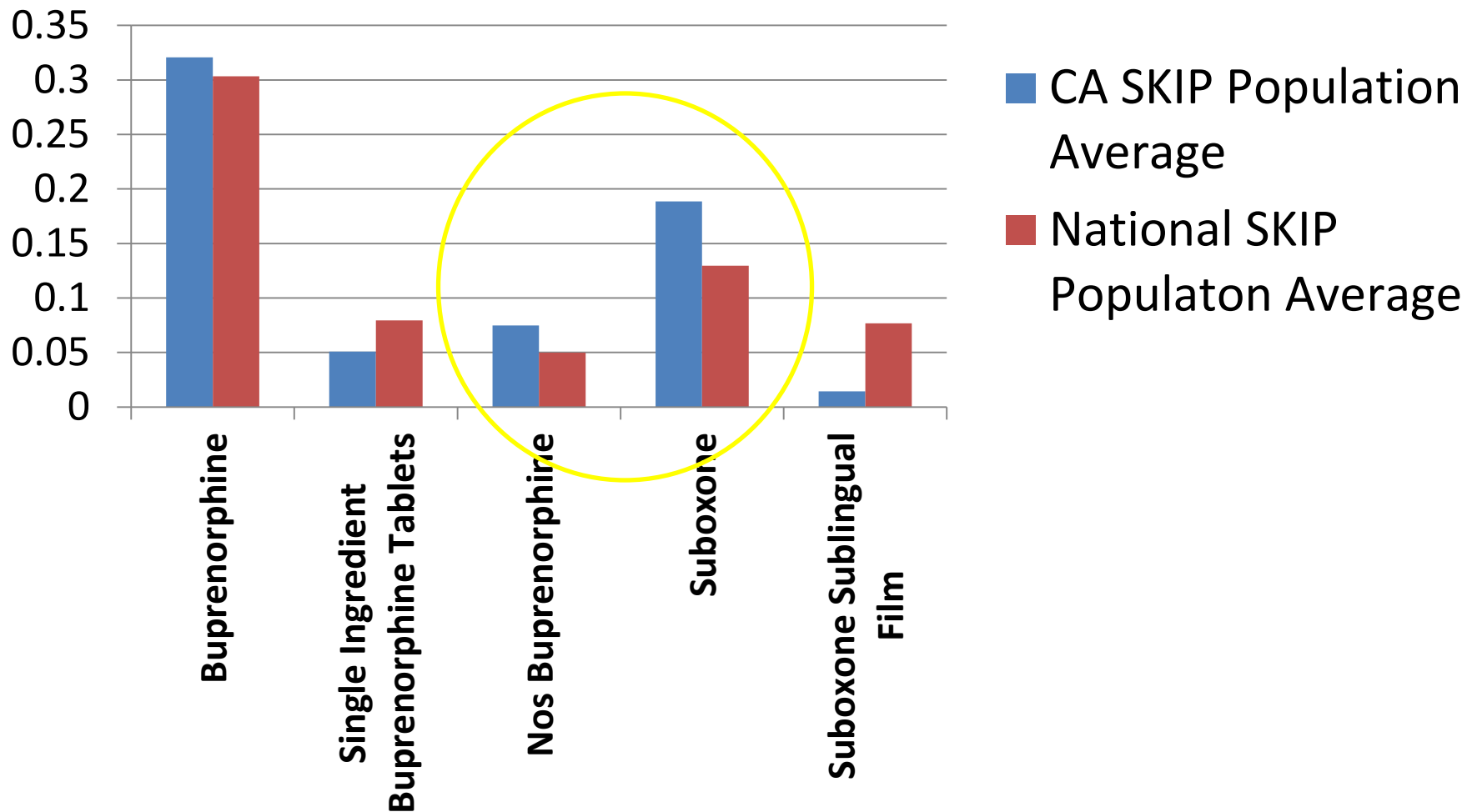
Average URDD Rate per 1,000

2010 Q1 - 2012 Q1



SKIP Program

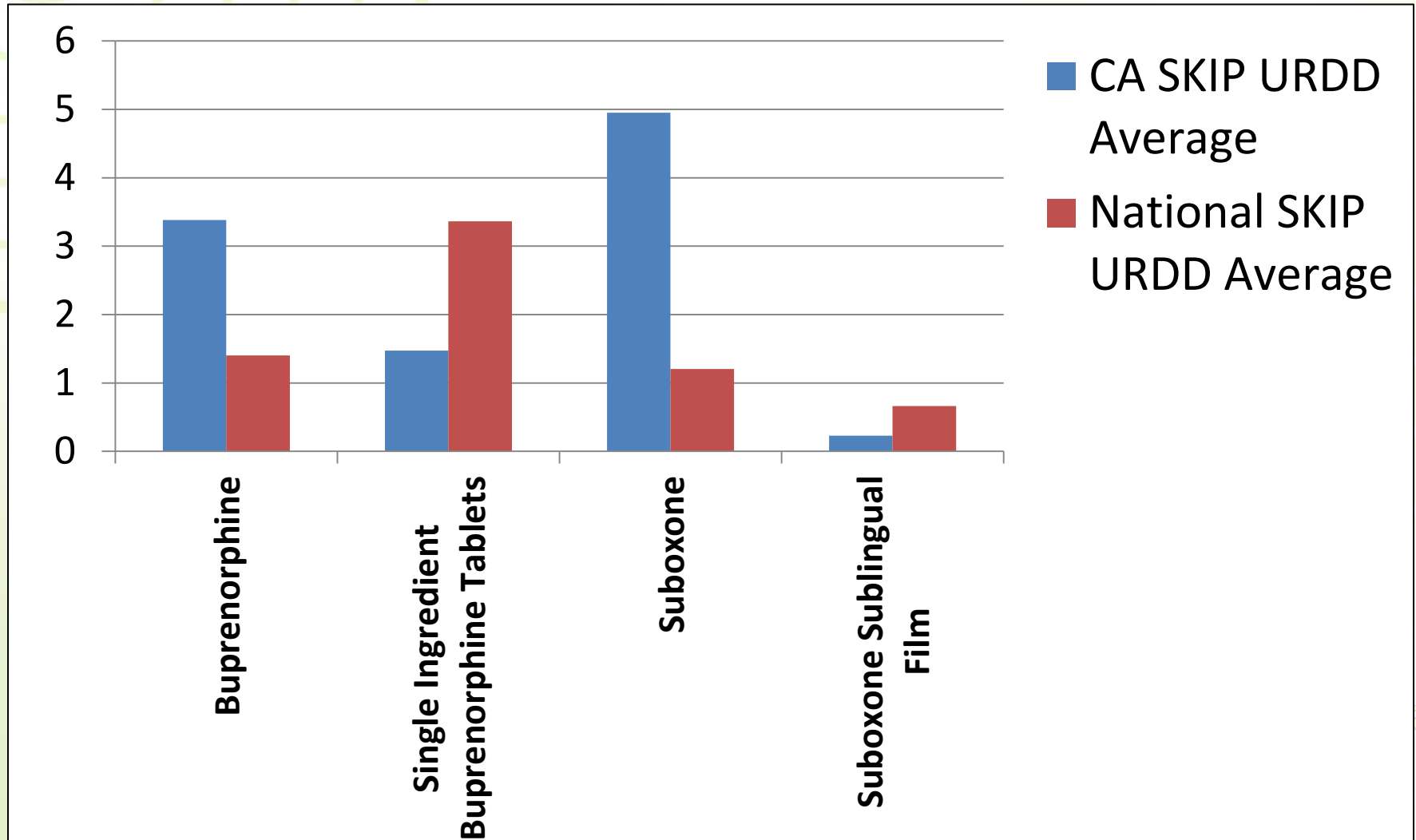
Average Population Rate per 100,000 2010 Q1 - 2012 Q1



SKIP Program

Average URDD Rate per 1,000

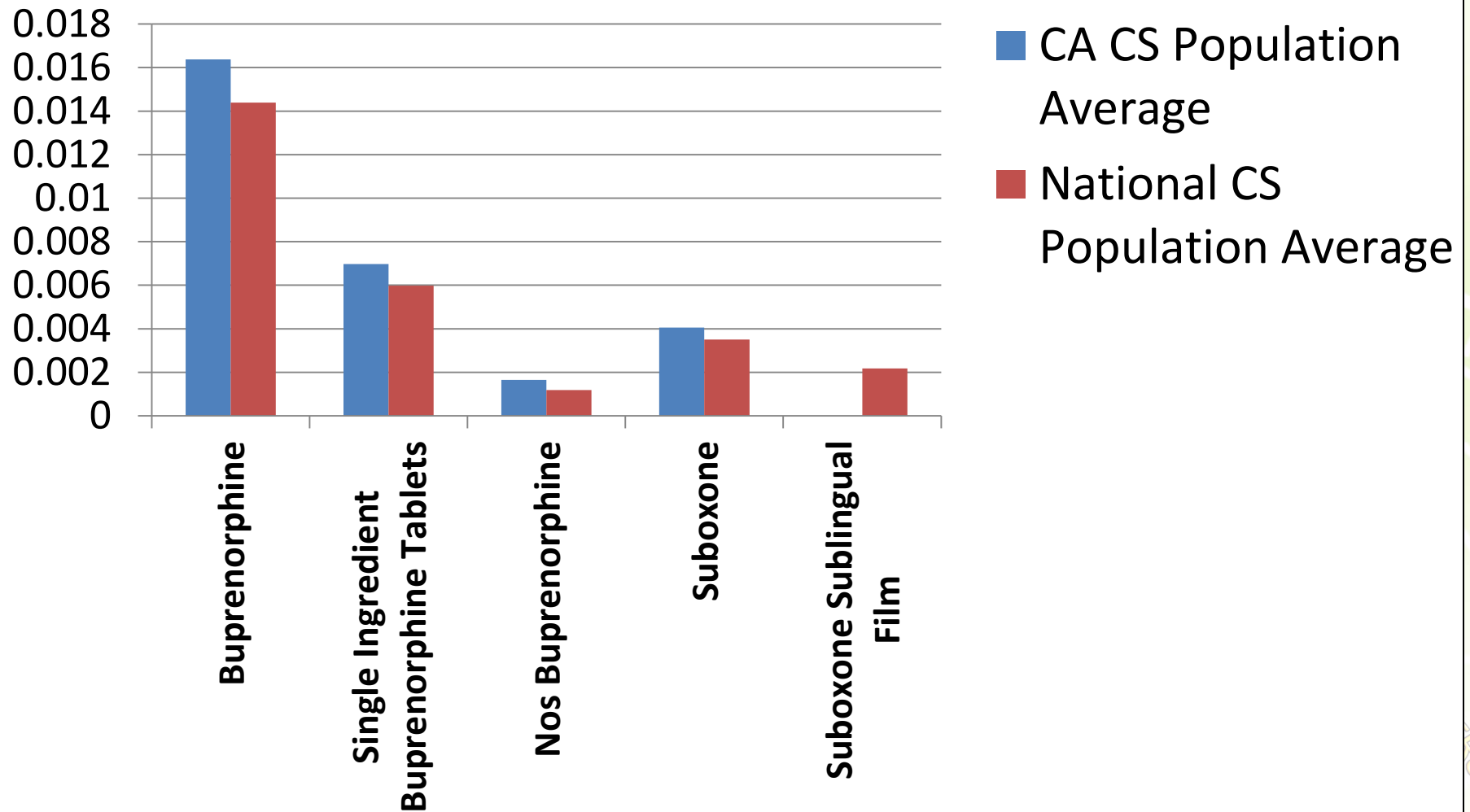
2010 Q1 - 2012 Q1



College Survey Program

Average Population Rate per 100,000

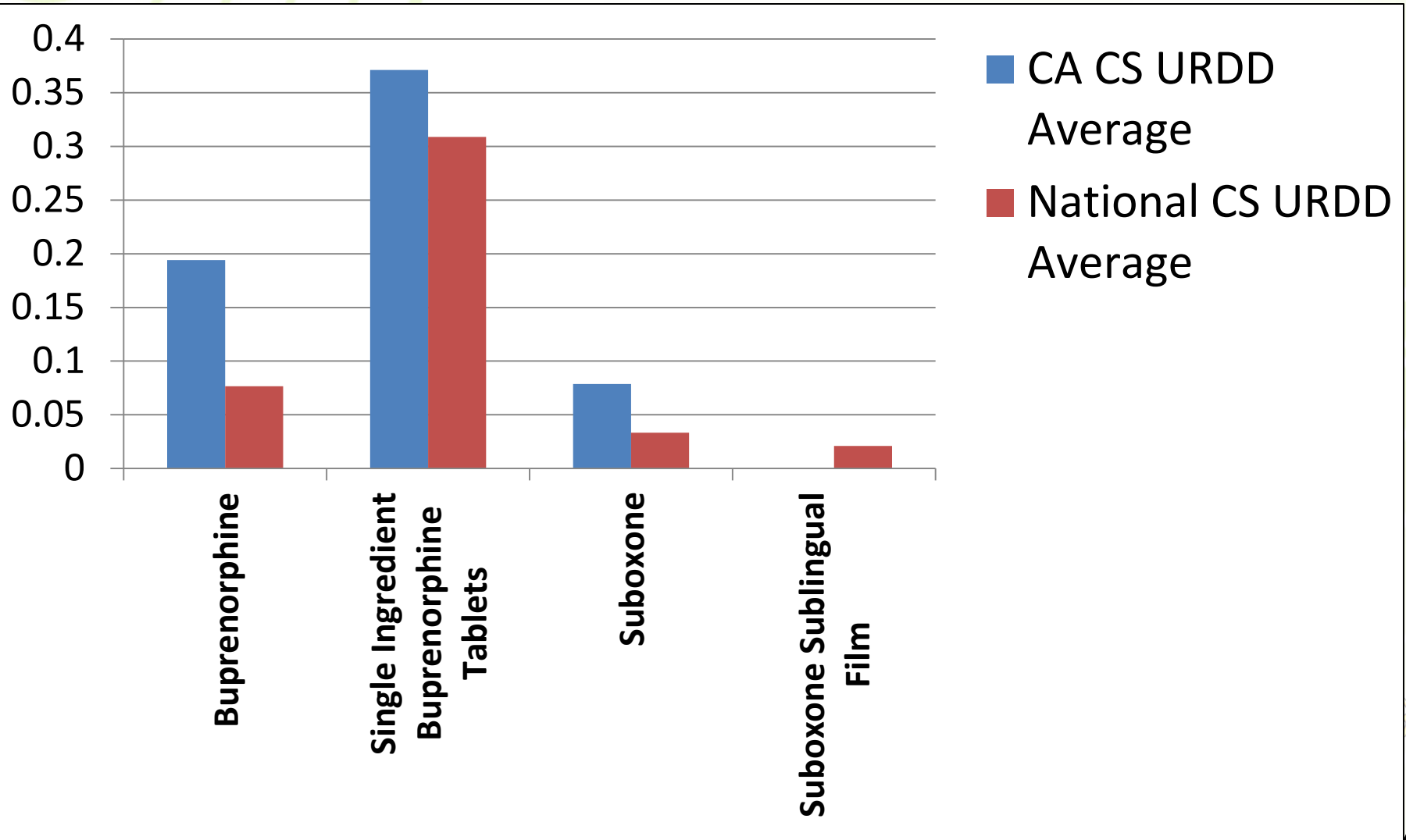
2009 Q1 - 2012 Q1



College Survey Program

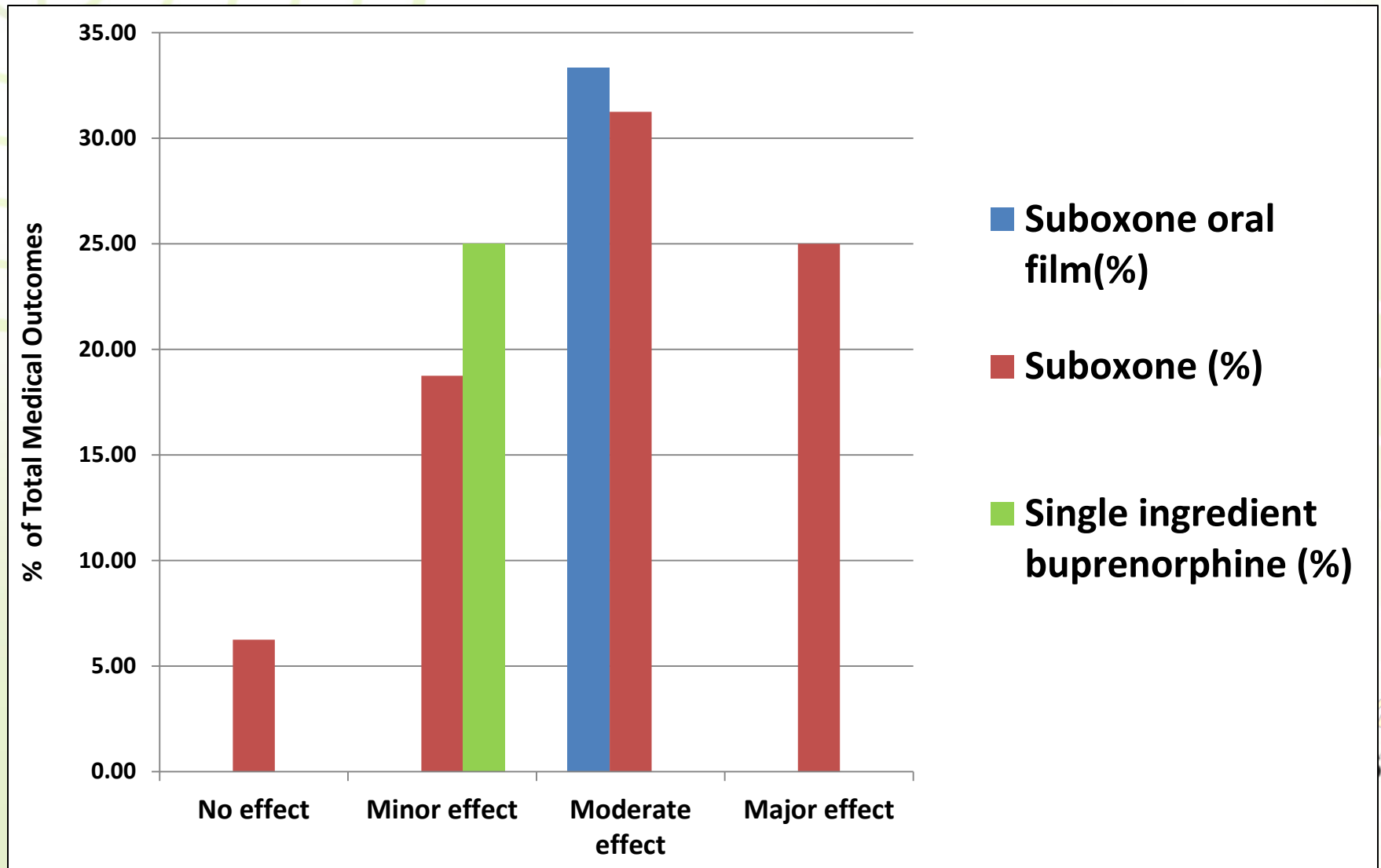
Average URDD Rate per 1,000

2009 Q1 - 2012 Q1



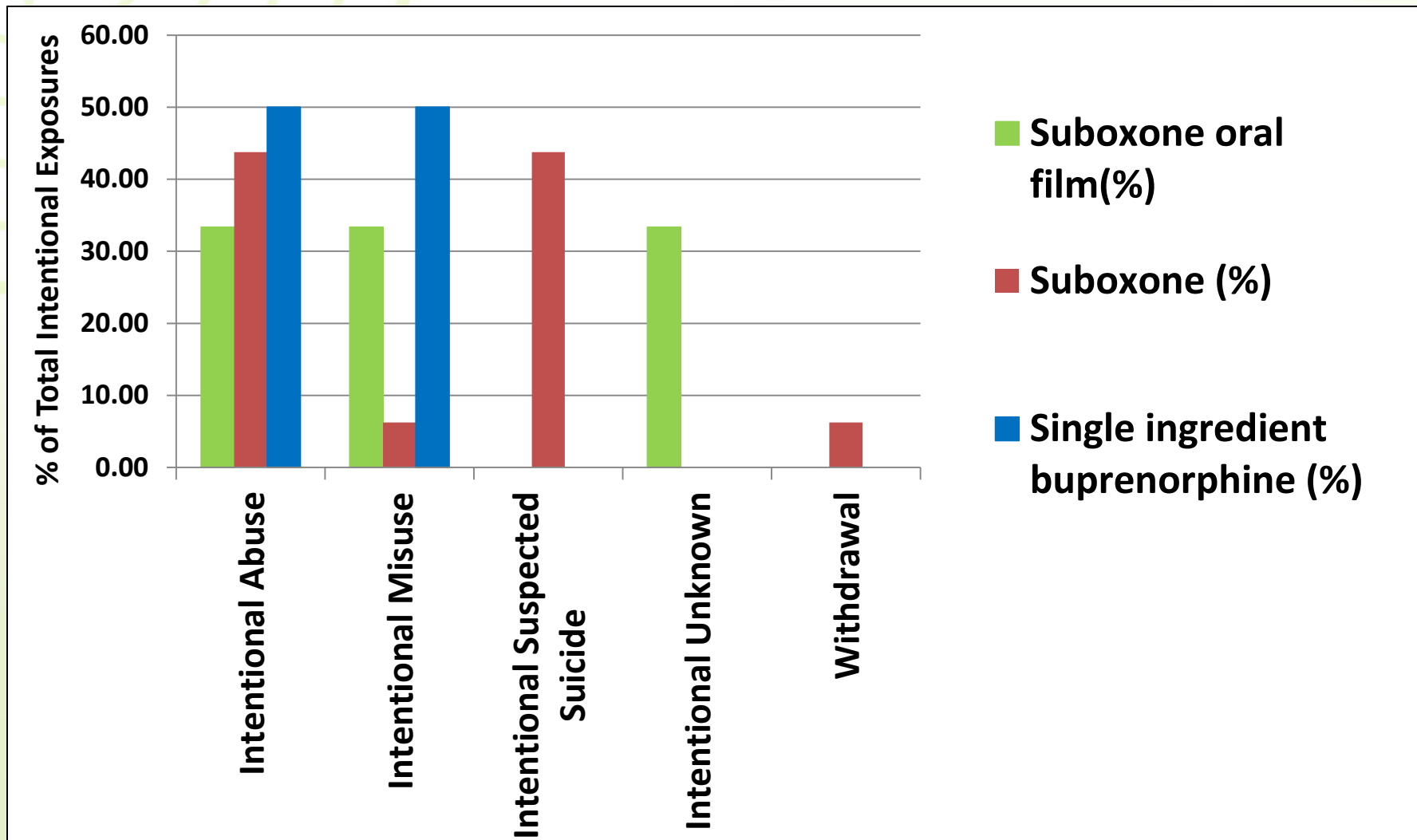
RADARS® System Poison Center Program – Intentional Exposure Reasons and Medical Outcomes in California Population

Poison Center Program Medical Outcomes in California (2012 Q1)



Poison Center Program

Intentional Exposure Reasons in California (2012 Q1)



Conclusions

- Availability of buprenorphine has expanded in California
 - URDD trends match National trends
- Misuse and abuse of buprenorphine in high risk populations (SKIP)
 - Total endorsements for California are higher than National average for both Population and URDD rates
 - Suboxone and not-otherwise-specified buprenorphine are most frequently endorsed
- Misuse and abuse of buprenorphine in college students
 - Single ingredient most frequently endorsed and above National average

RADARS System Other Abuse/Tamper Deterrent Formulations

Reformulated OxyContin



**OxyContin
OC**

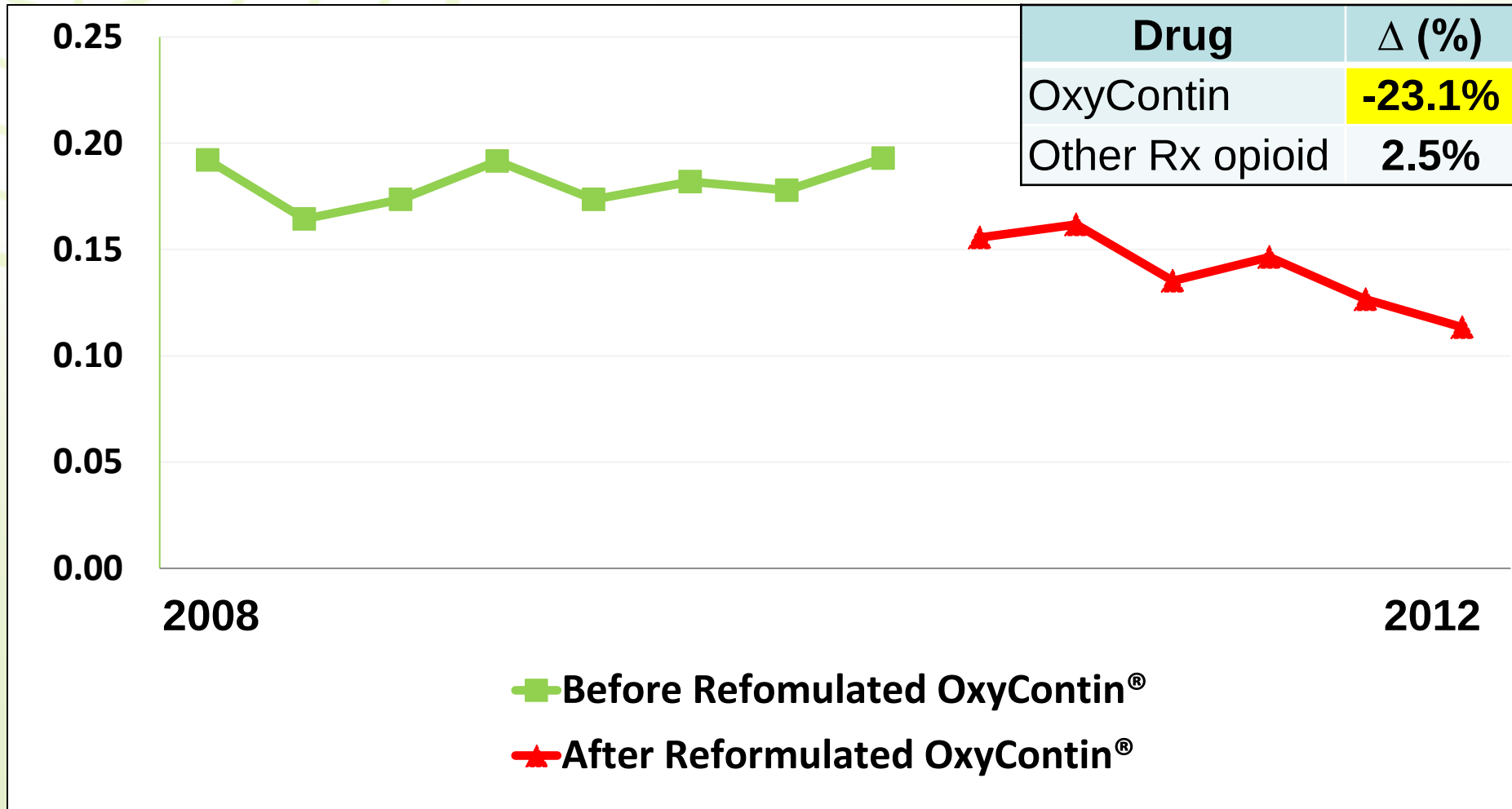


**OxyContin
OP**

Poison Center Intentional Exposures

Population rate for OxyContin

2008 Q4 - 2012 Q1

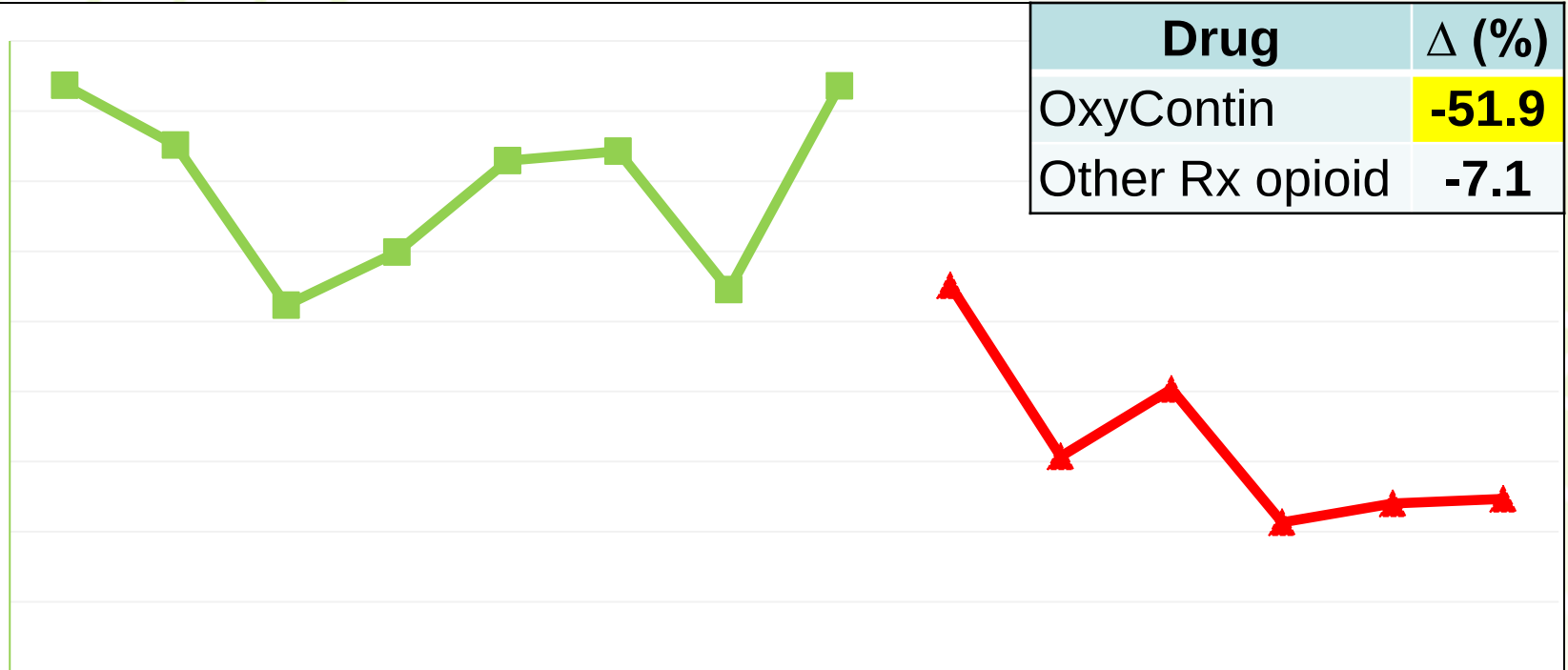


Drug Diversion Program

Population Rate for OxyContin

2008 Q4 - 2011 Q4

0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00



2008

2012

■ Before Reformulated OxyContin®

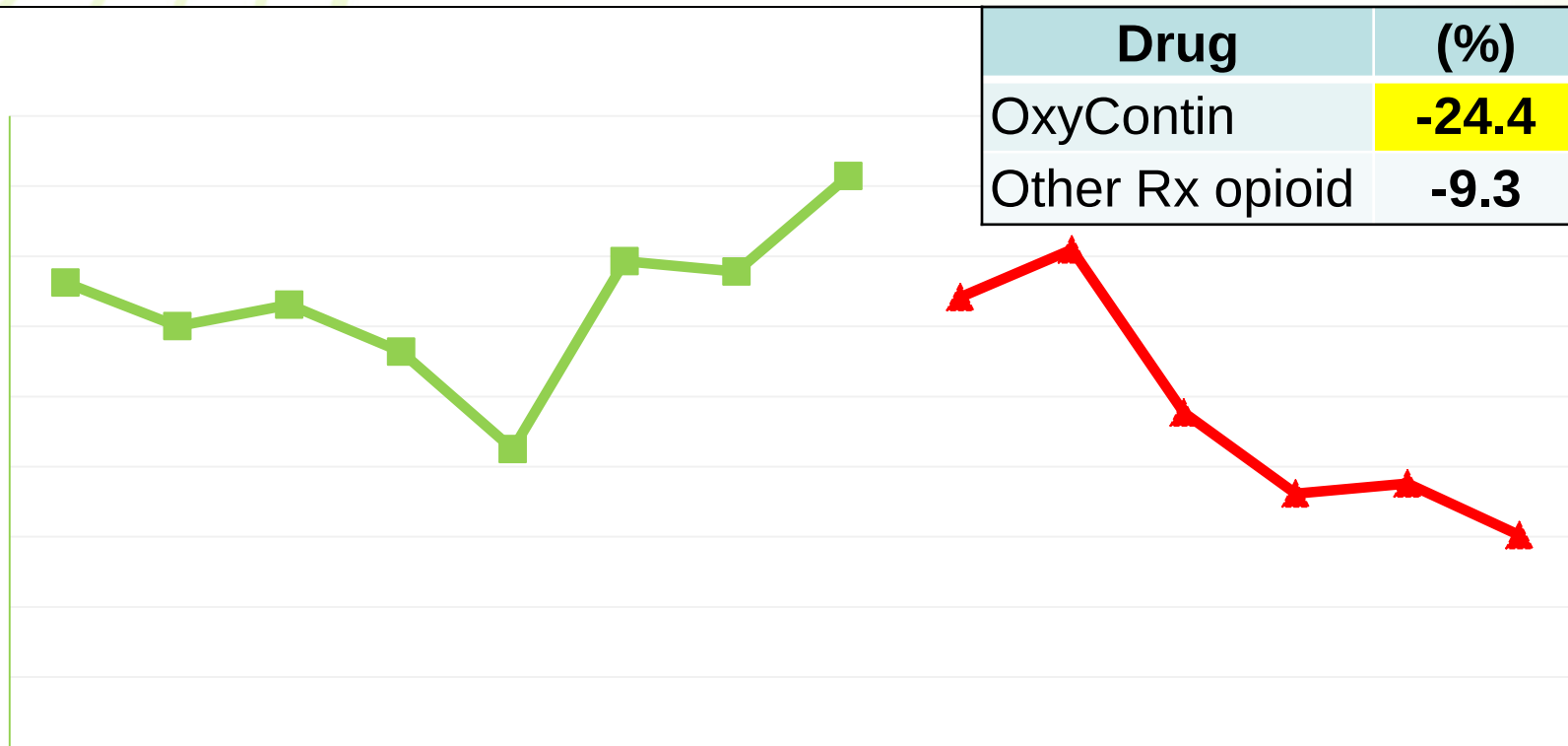
▲ After Reformulated OxyContin®

Opioid Treatment Program

Population rate for OxyContin

2008 Q4 - 2011 Q4

0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00



2008

2012

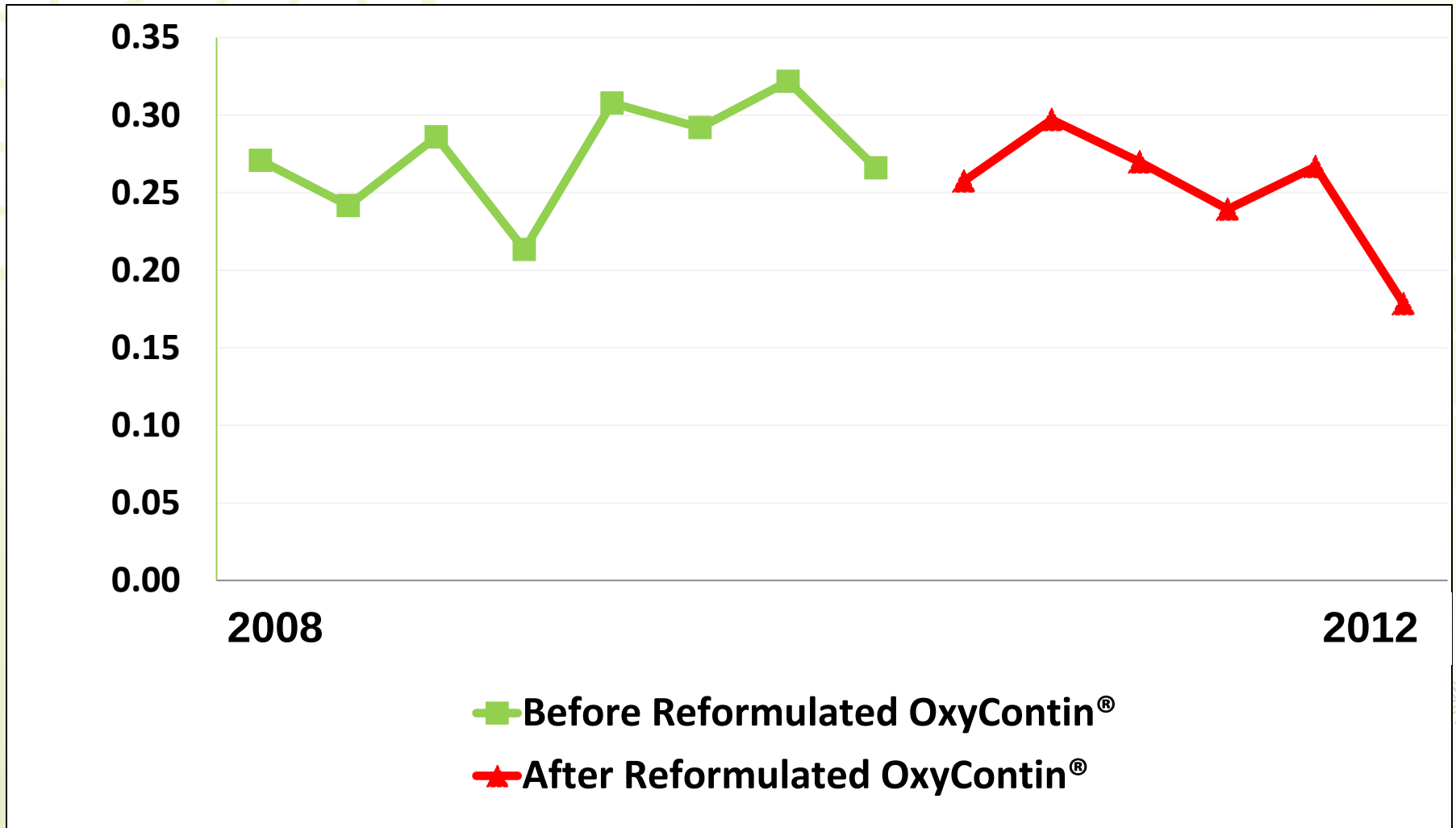
■ Before Reformulated OxyContin®

★ After Reformulated OxyContin®

Survey of Key Informants Patients (SKIP)

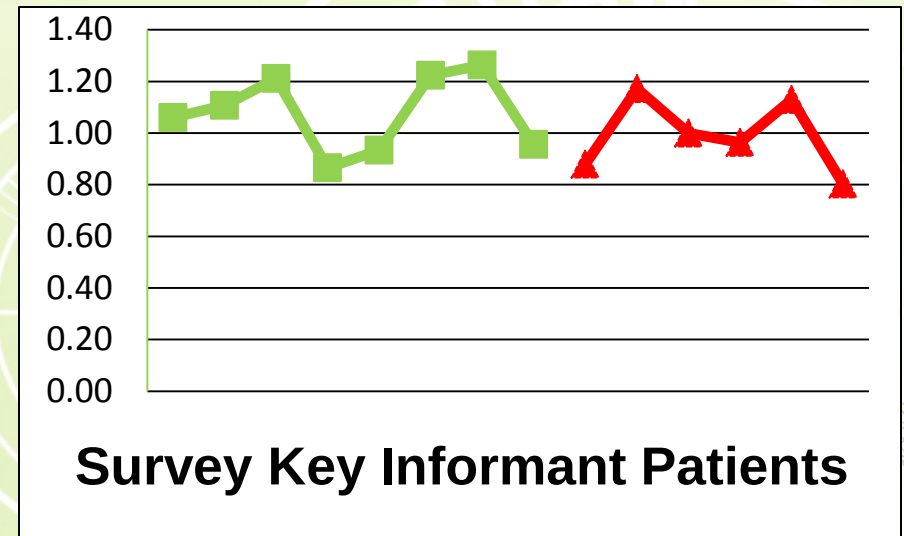
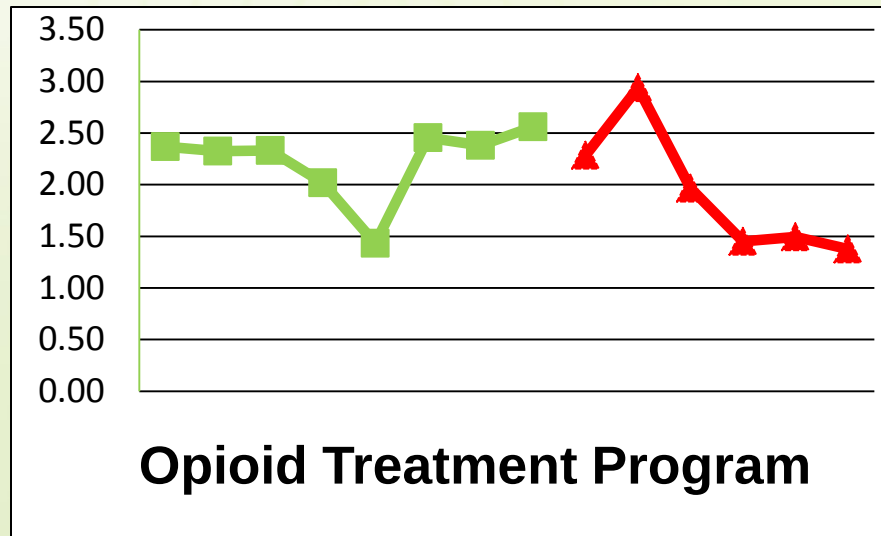
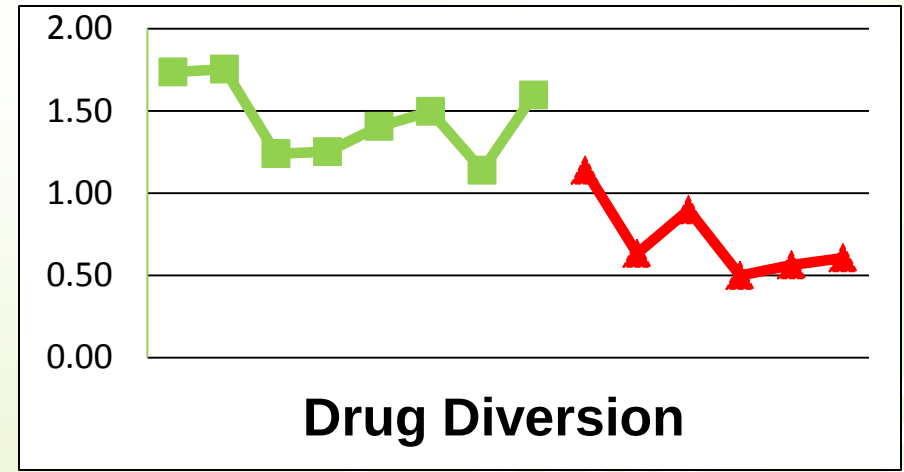
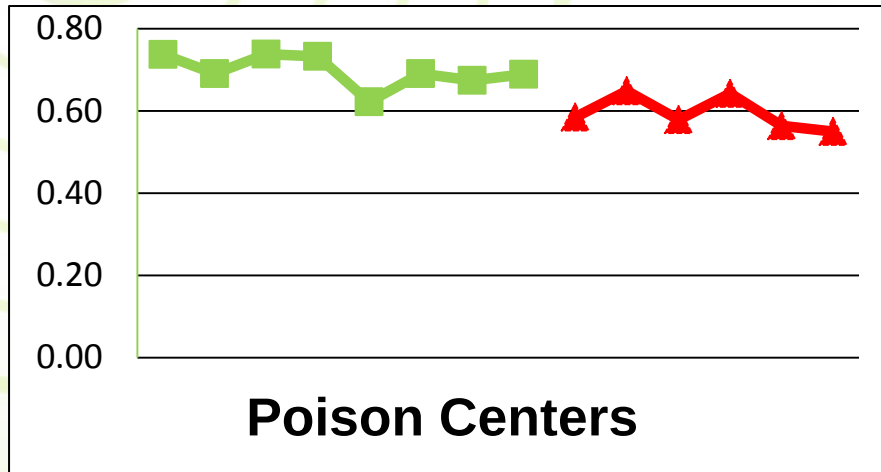
Population rate for OxyContin

2008 Q4 - 2011 Q4



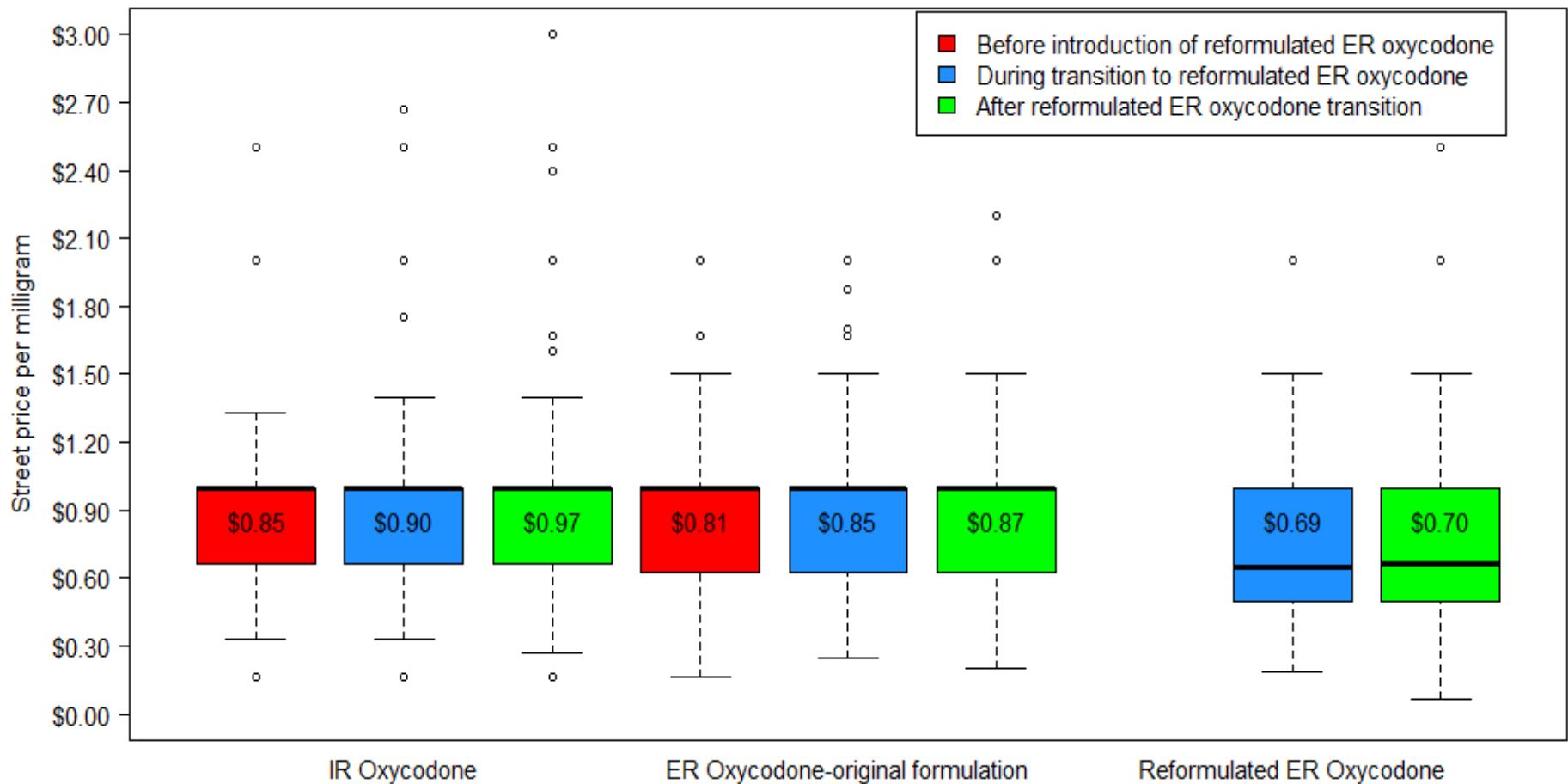
OxyContin URDD Rates

All Programs



Street Price Quotient

Oxycontin[®] Reformulation Analysis



Reformulated OxyContin

Conclusions

- Data support that reformulated OxyContin is tamper and abuse deterrent
 - Total PC cases, PC abuse cases, DD cases and street price have decreased greatly
 - OxyContin rates decreased at a much higher percentage than other opioids over the same time period
 - Decrease in both Population and URDD rates indicates that both decreased availability and decreased desirability may be involved.
- New formulation is still abused
 - OTP, SKIP show minimal effect

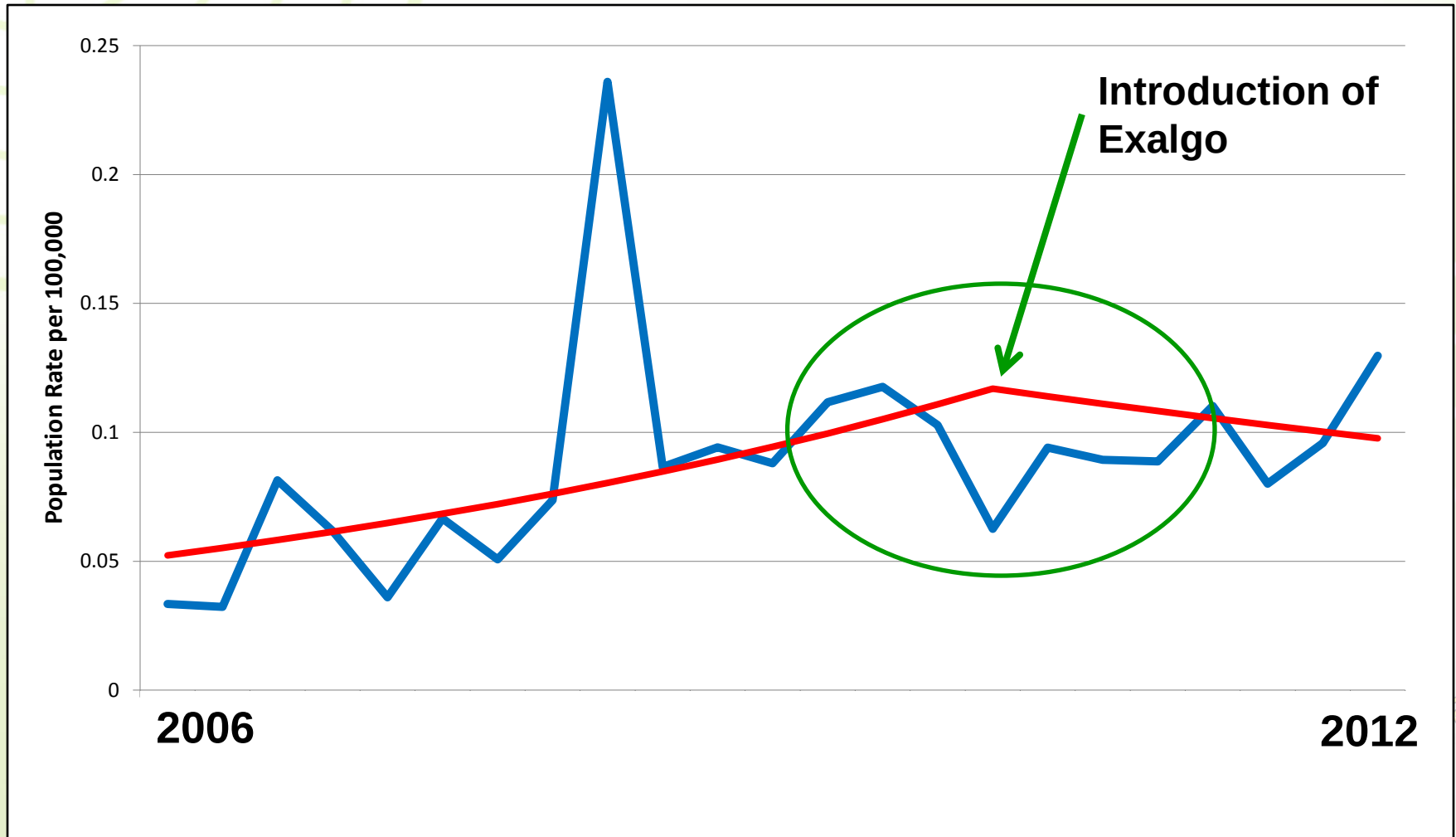
Hydromorphone: Exalgo Introduction



Drug Diversion Program

Population Rate for Hydromorphone

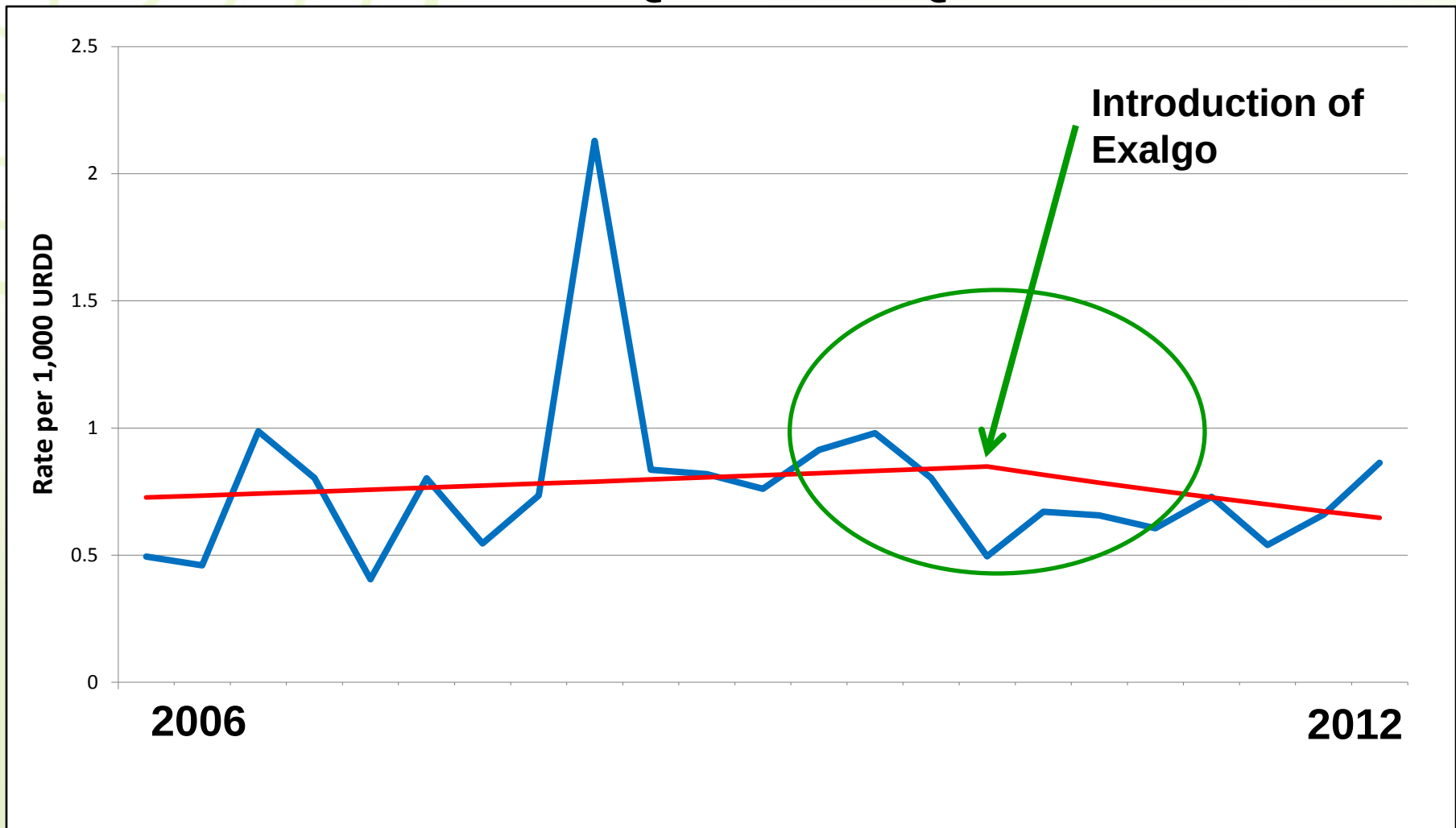
2006 Q3 - 2012 Q1



Drug Diversion Program

URDD Rate for Hydromorphone

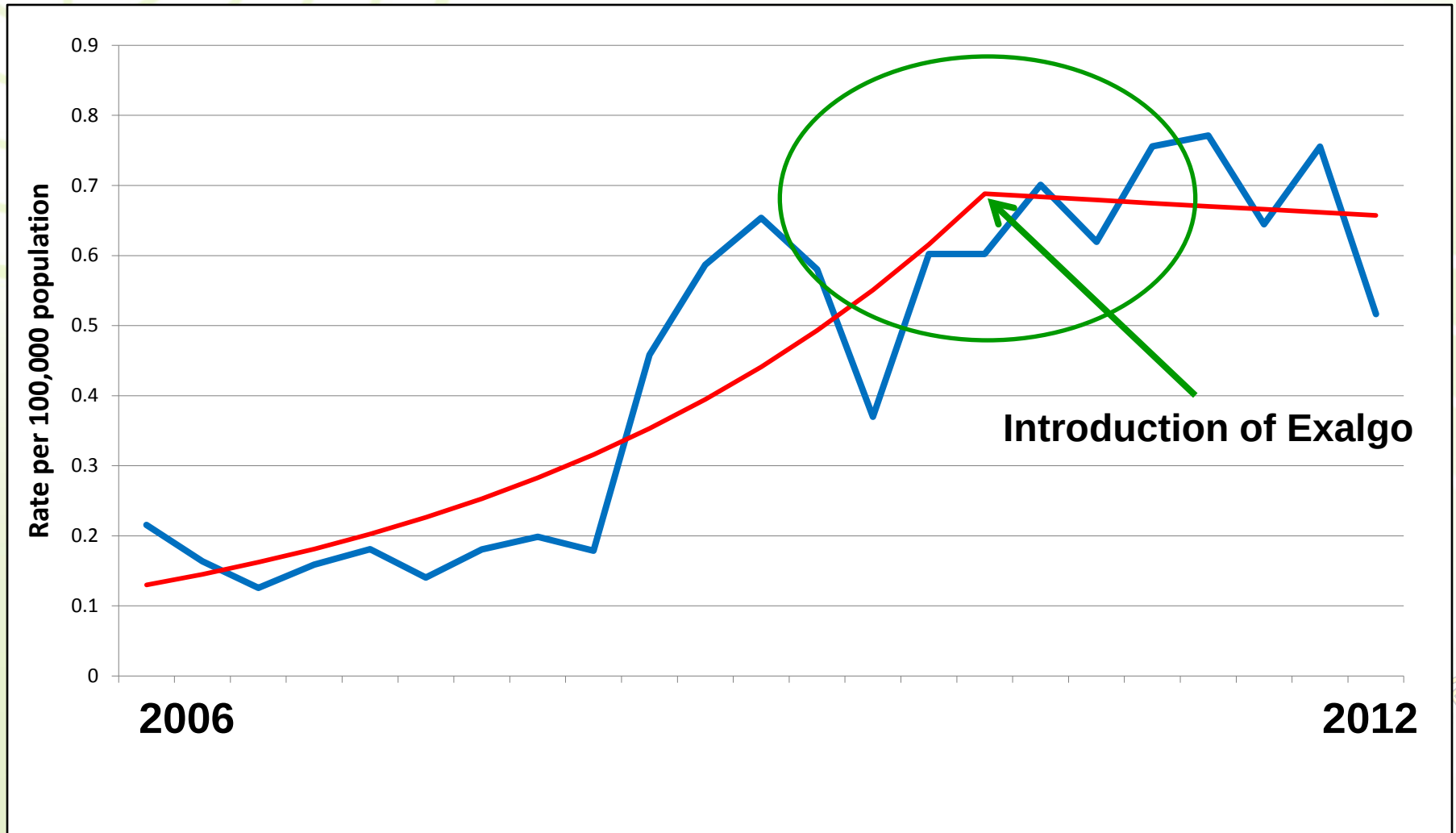
2006 Q3 - 2012 Q1



Opioid Treatment Program

Population Rate for Hydromorphone

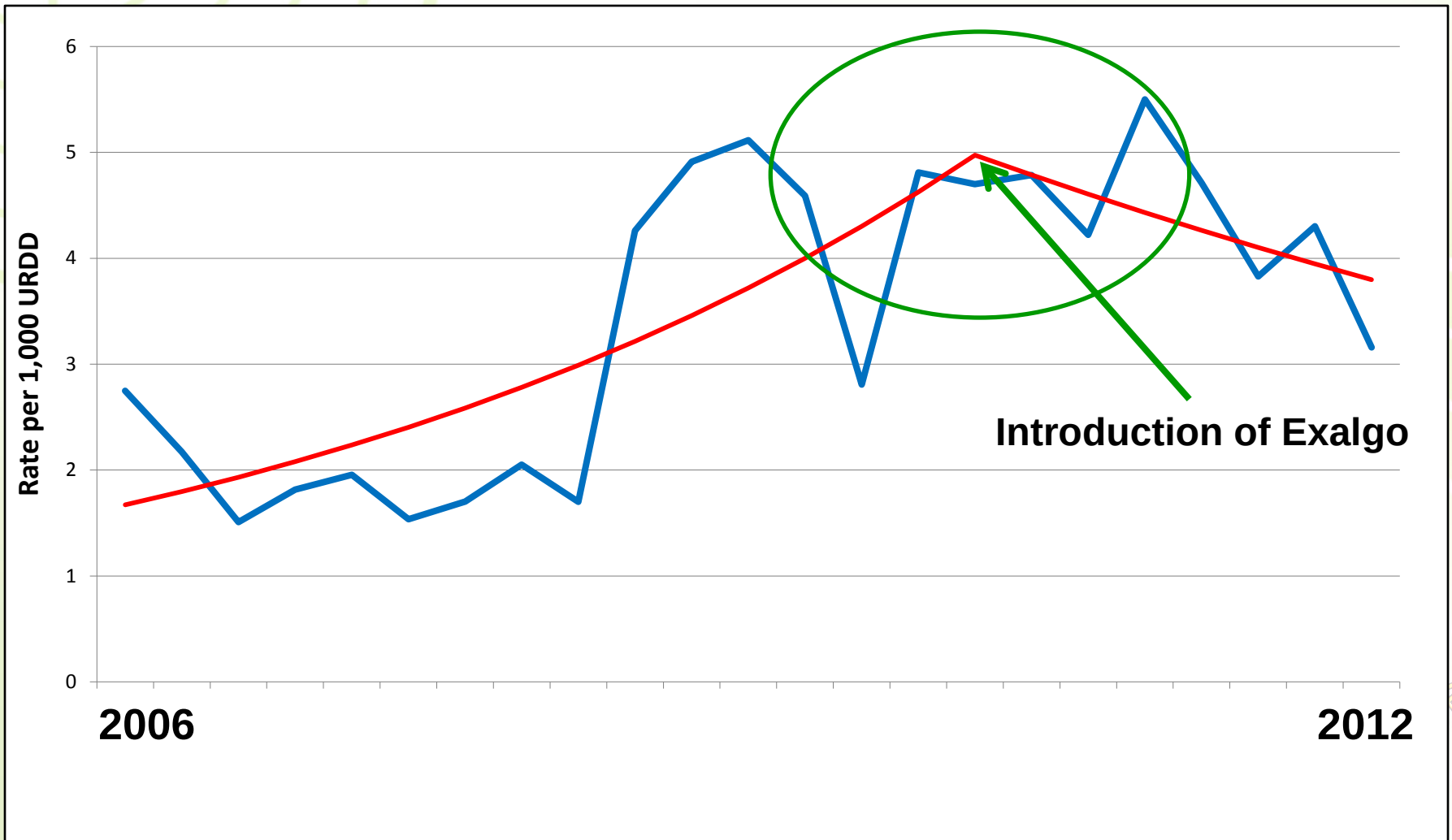
2006 Q3 - 2012 Q1



Opioid Treatment Program

URDD Rate for Hydromorphone

2006 Q3 - 2012 Q1



Exalgo / Hydromorphone Conclusions

- Hydromorphone misuse abuse and diversion rates per population and URDD have been increasing over time
- Release of Exalgo in March 2010 corresponded with changes in these trends
 - Post-Exalgo release trends declining or remaining stable
 - Trends in abuse among high risk populations (OTP) were statistically significant after release
- Further study of overall changes in trend patterns continue in RADARS System



Thank You!