

The background features a dark blue field with several sets of concentric, light blue circles. A thin yellow rectangular border is centered on the page, enclosing the main text.

# RADARS<sup>®</sup> SYSTEM

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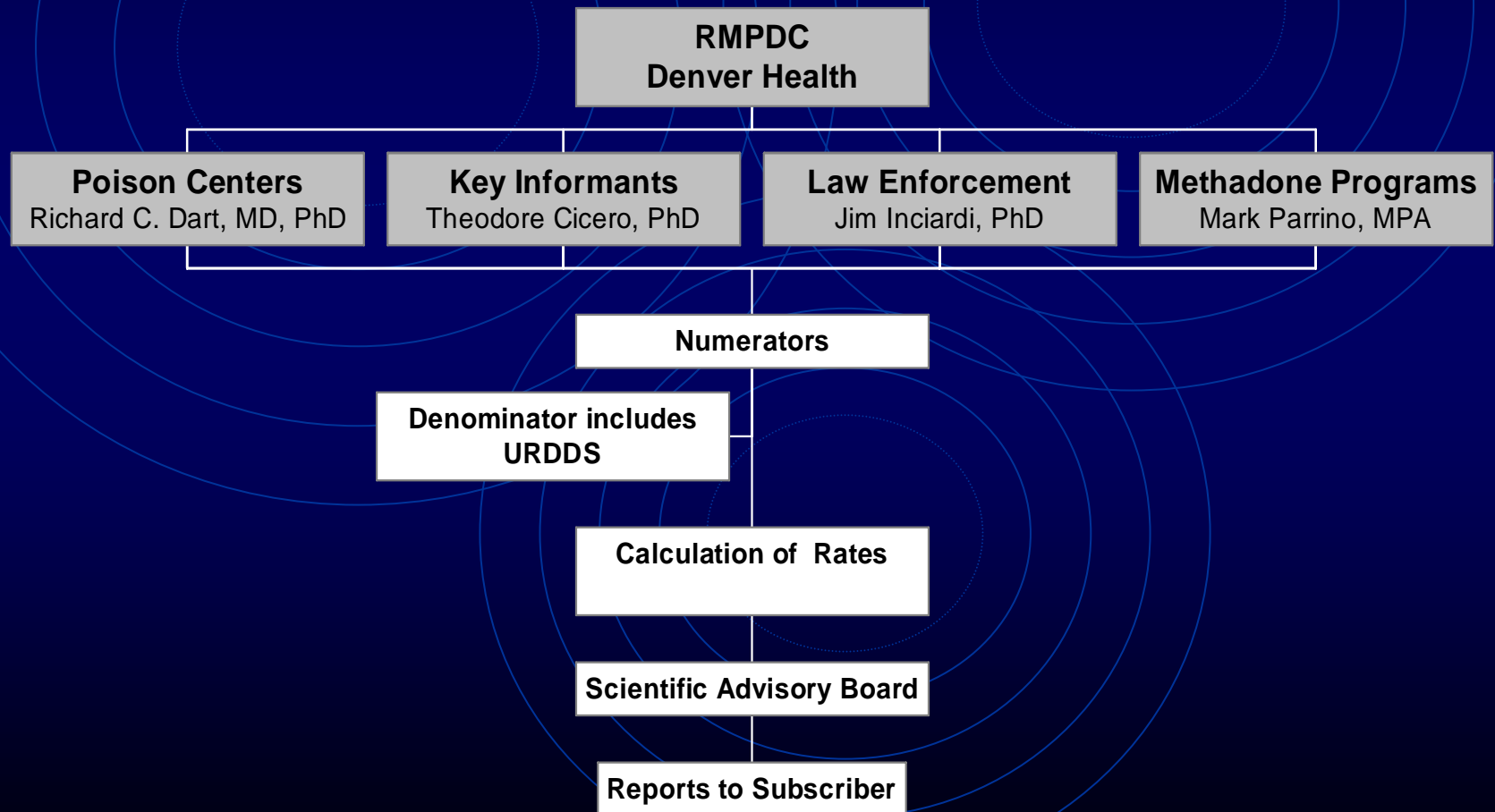
## Goals of the RADARS System:

- Sentinel events involving the misuse, abuse and diversion of prescription drugs nationwide
- Measure rates of misuse, abuse and diversion of prescription drugs
- Provide experienced and expert analysis and interpretation of the data

# History of the System

- Created in 2002 by Purdue Pharma
- 2004 – Expanded to 4 signal systems
- January 1, 2006 transferred to Denver Health Authority

# Organization of the RADARS<sup>®</sup> System



# Signal Systems

- Drug Diversion – James Inciardi, PhD
  - Experienced NIDA investigator, War on Drugs
  - All 50 states, Puerto Rico, U.S. Virgin Islands. Includes rural, suburban, urban
- Key Informant - Theodore Cicero, PhD
  - Key informant - clinician, epidemiologist, treatment counselor, other observer knowledgeable about new and emerging drug problems
  - Criteria needed for a case of drug abuse: (One)
    - Use to get high or substitute for other DOA
    - Use to treat opioid withdrawal

# Signal Systems

- American Association for the Treatment of Opioid Dependence – Mark Parrino, MPH
  - 75 treatment programs, rural areas
  - All patients admitted are asked to complete a one-page anonymous survey
  - Opioid use (past month, lifetime age of first use)
  - Primary opioid of abuse, source of opioid drug
- Poison Centers
  - Spontaneous reporting
  - 100% coverage in service area
  - Skilled staff (RNs, PharmD), nationally certified
  - Product specific, standardized data collection, QC

# Four Views on Prescription Drug Abuse

## Poison Centers

- Acute incident - calling for care advice
- All ages and geographic regions

## Key Informants

- Dependent or addicted patients
- Health care provider perspective

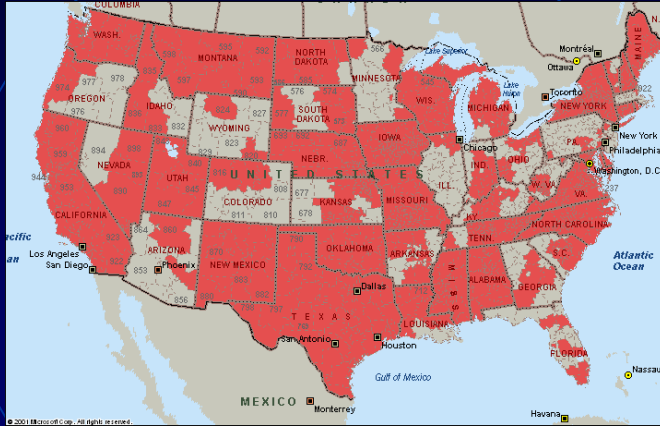
## Law Enforcement

- Drug Diversion
- Criminal justice perspective

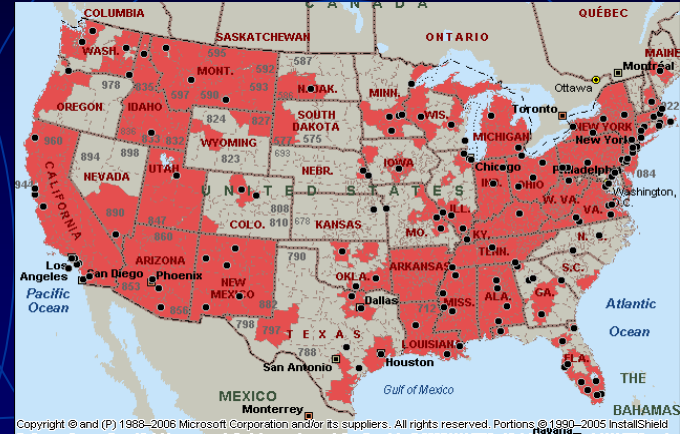
## Opioid Treatment Programs

- Dependent or addicted patients
- Patient's perspective

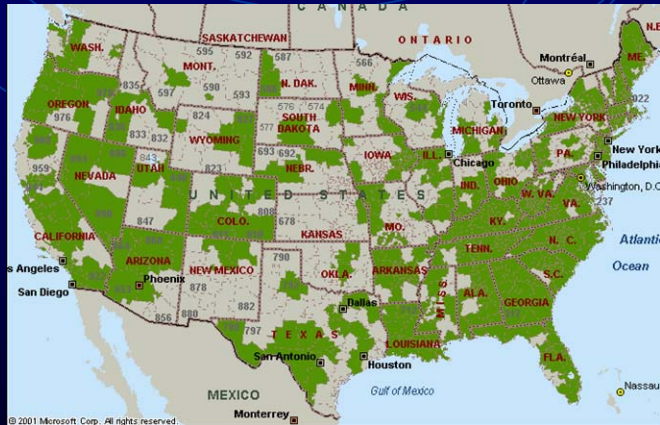
# RADARS System Coverage Areas



Drug Diversion



Key Informant



AATOD



Poison Centers



# Tale of Two Denominators


- Populations
  - Tried and true
  - Doesn't account for drug availability
- Unique recipients of dispensed drug (URDD)
  - Number of people filling a prescription for specific drug
  - Accounts for availability of drug in community

# After the Data Collection: Scientific Advisory Board

- Edgar H. Adams, ScD, Covance
- John Burke, President Pharmaceutical Diversion Education, Inc
- Theodore J. Cicero, PhD, Professor, Washington University
- Richard C. Dart, MD, PhD, Director, RMPDC; Professor, UCHSC
- Danna C. Droz, RPh, JD, President, PMP Director, Ohio
- James A. Inciardi, PhD, Professor, Center for Drug & Alcohol Studies, University of Delaware Research Center
- Herbert D. Kleber, MD, Professor of Psychiatry, Columbia
- Alvaro Munoz, PhD, Professor, Johns Hopkins University
- Mark W. Parrino, MPA, President, AATOD
- Sid Schnoll, MD, PhD, Pinney Associates
- Edward C. Senay, MD, Professor Emeritus, University of Chicago
- George E. Woody, MD, Professor, University of Pennsylvania

# Summary of the System

- RADARS System Data
  - Multiple perspectives
  - Rapid
  - Geographically specific
  - Address rural nature of Rx opioid abuse
  - Non abuser victims
- Inform subscribers → FDA

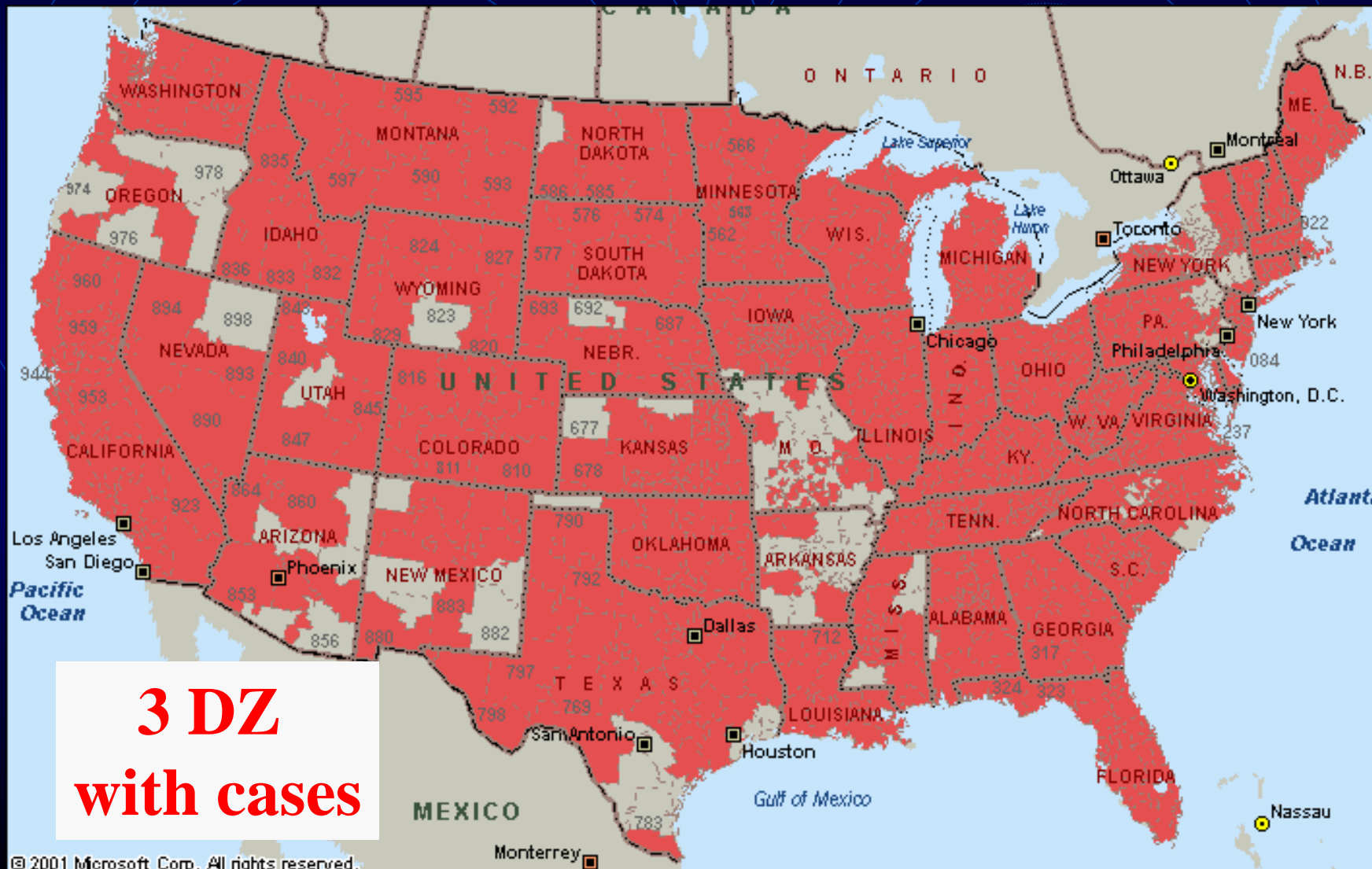


**2006**

# The Extent of Prescription Drug Abuse

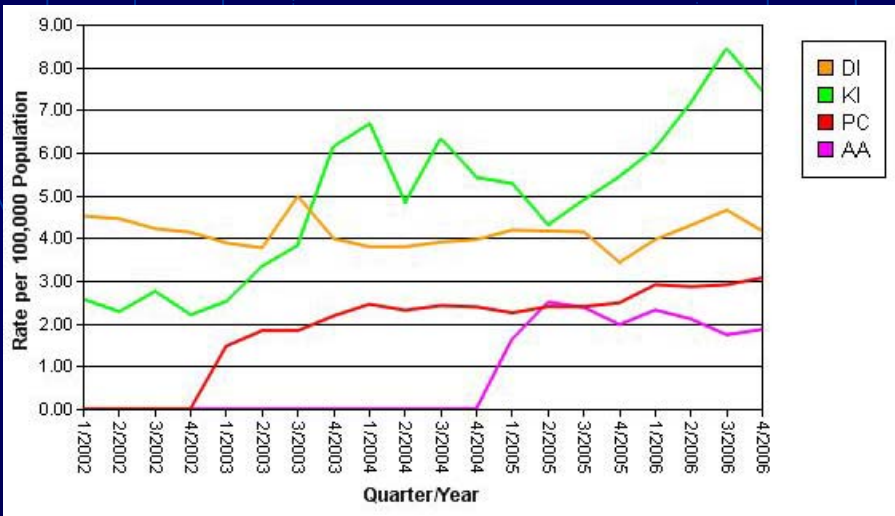
- The RADARS System has at least one system active in 854 of the 930 3 digit zip codes in the United States.
- 792 of 854 (93%) had at least one case.

# RADARS System 2006 US Coverage

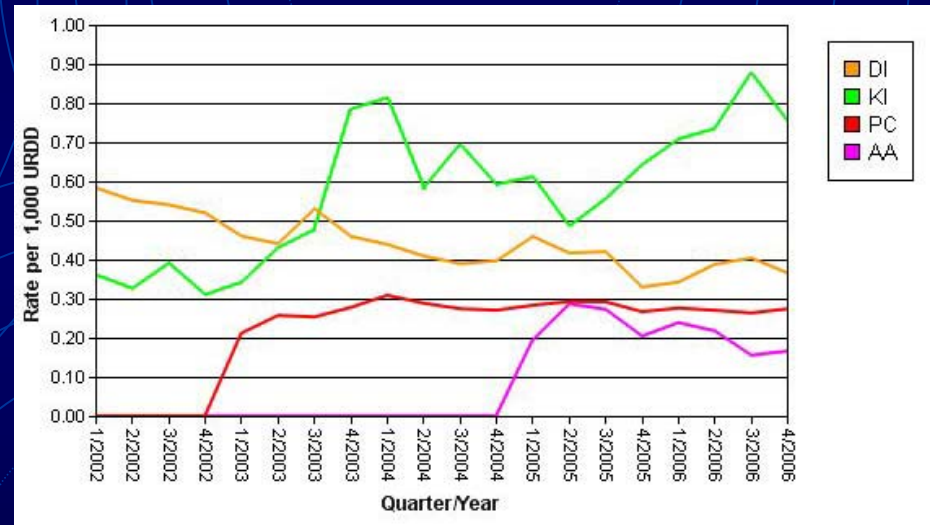


**3 DZ  
with cases**

# 2006 RADARS System National Annualized Rates



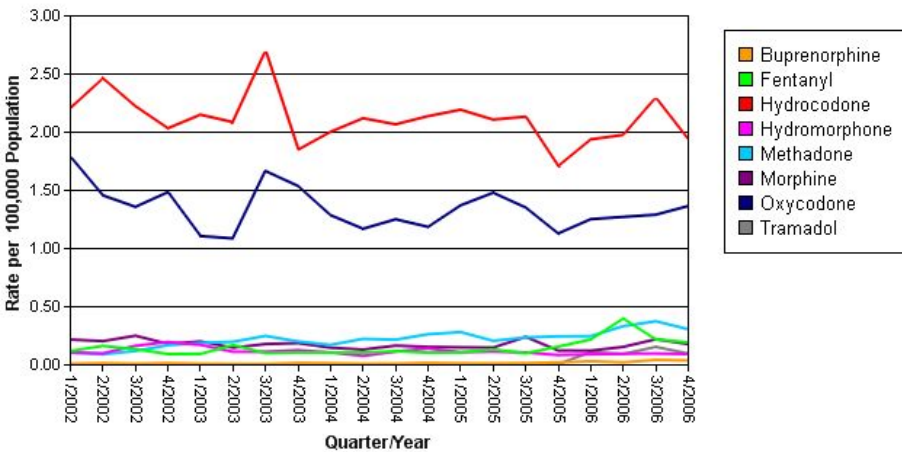
Rate per 100,000 population



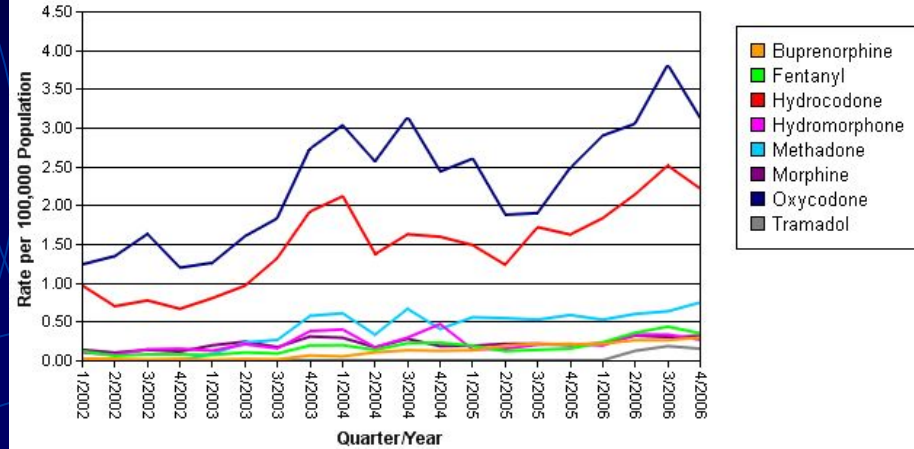
Rate per 1000 URDDs

# Rates per 100,000 Population

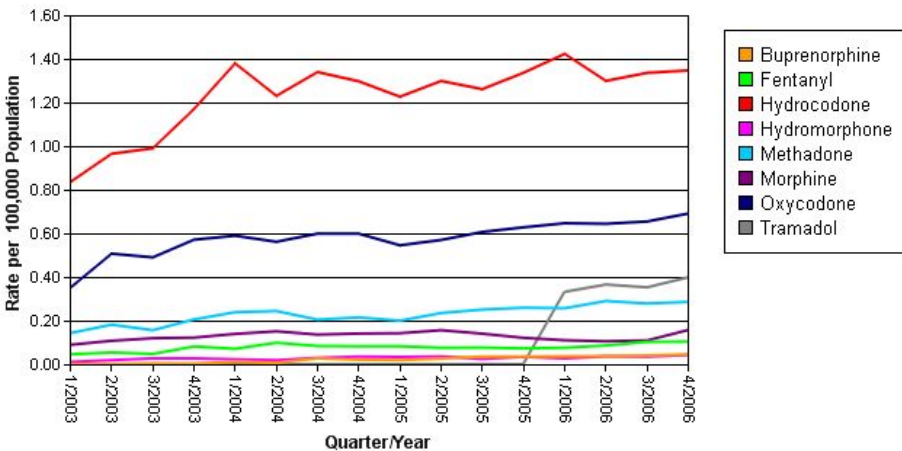
## Drug Diversion



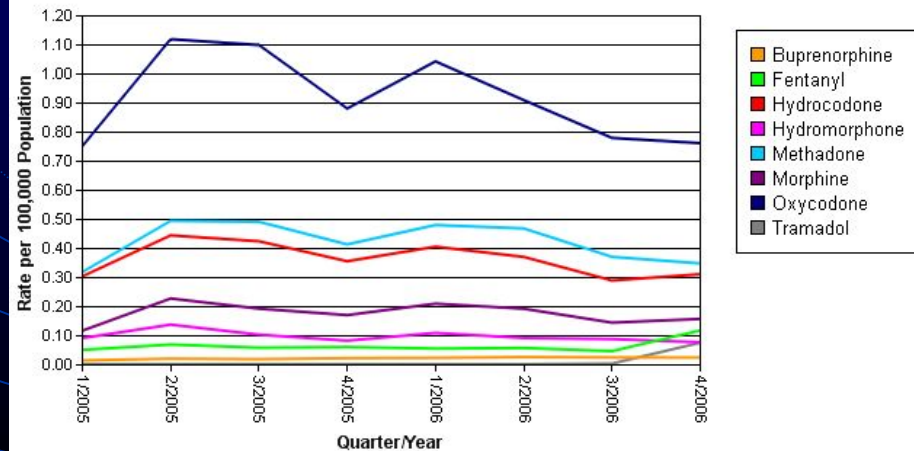
## Key Informant



## Poison Centers



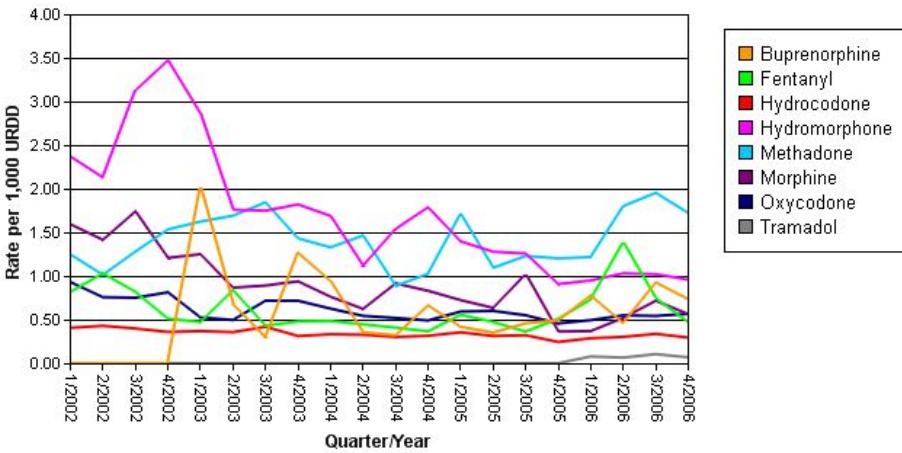
## AATOD



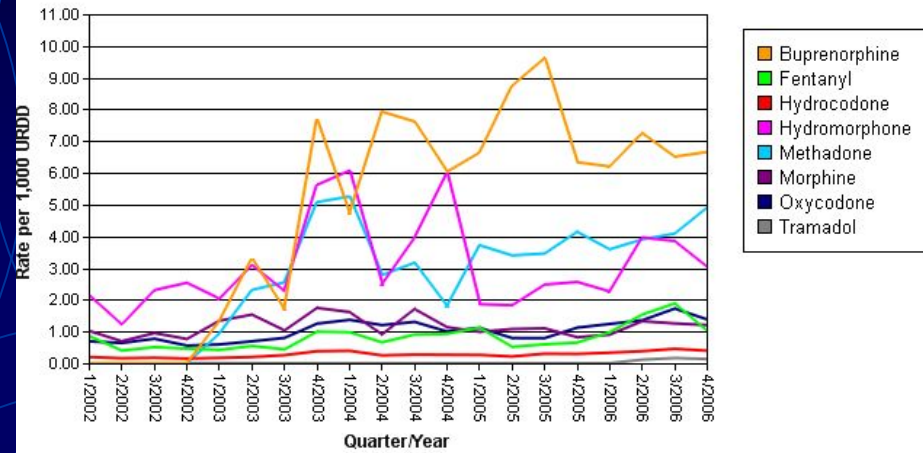


# Rates per 1,000 URDD

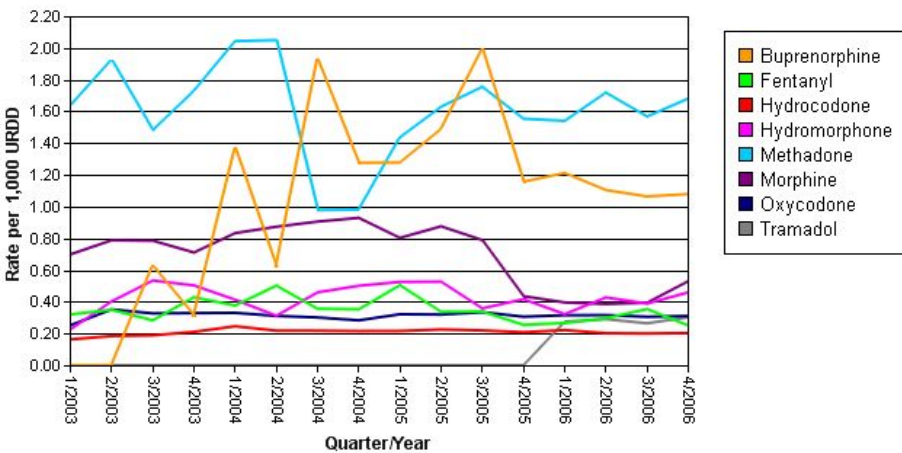
## Drug Diversion



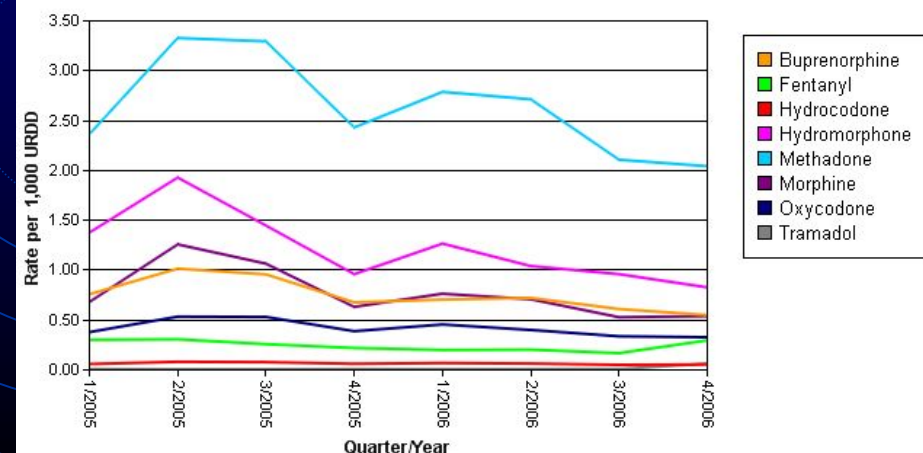
## Key Informant



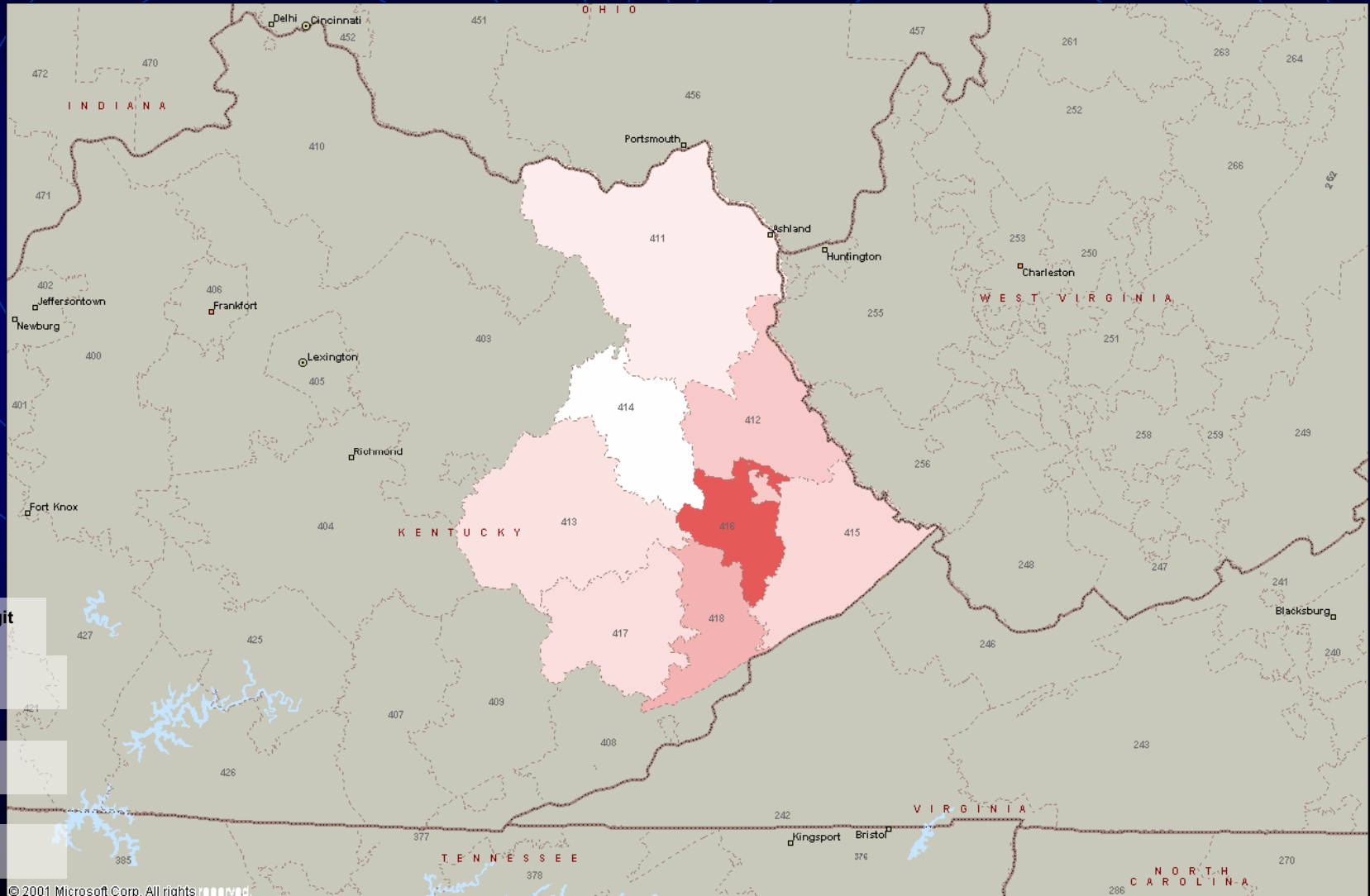
## Poison Centers



## Methadone Clinics



# 2<sup>nd</sup> Quarter 2004, Hydrocodone Rates per 100,000 Population



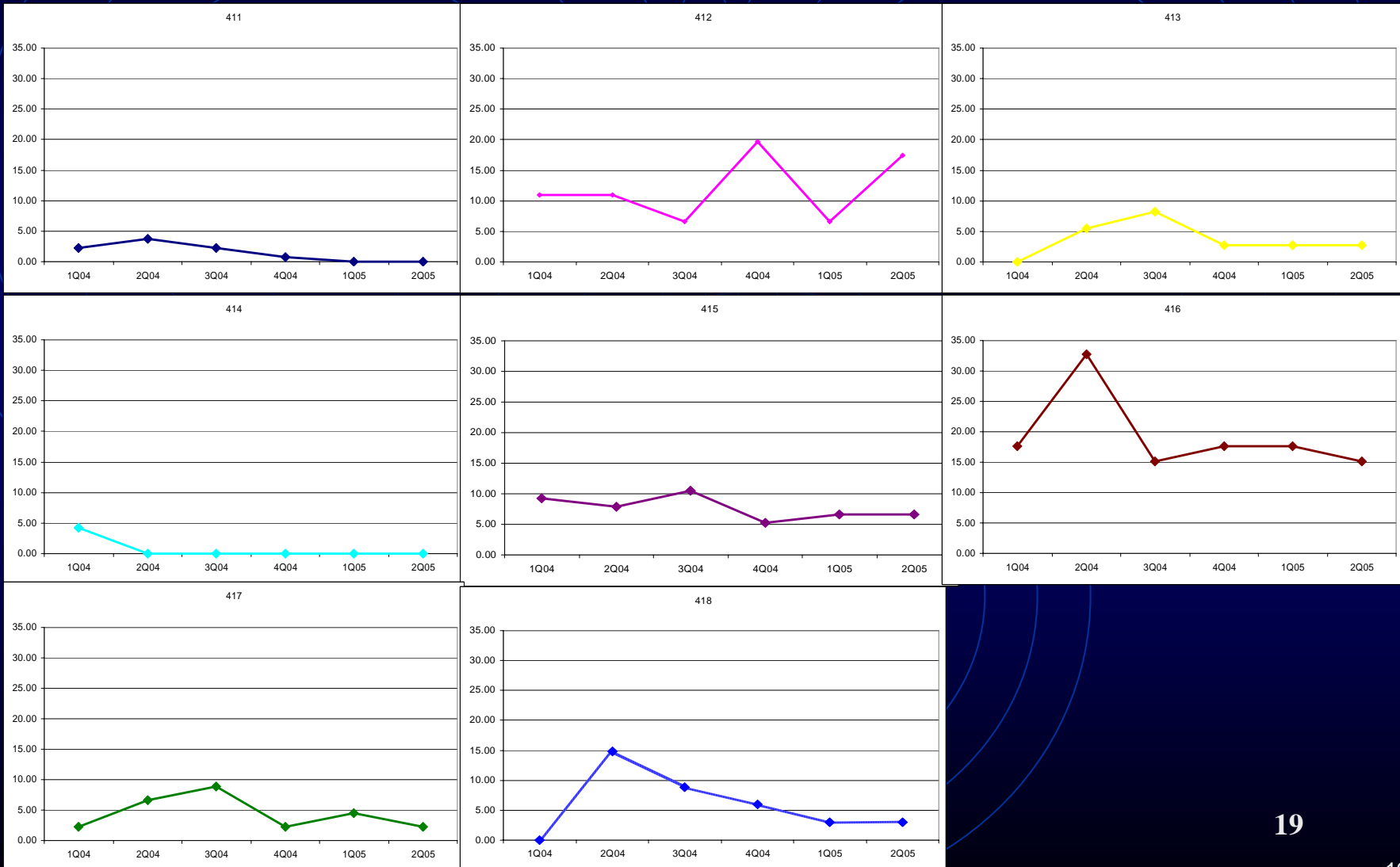
Rates per 3 Digit ZIP Code

35

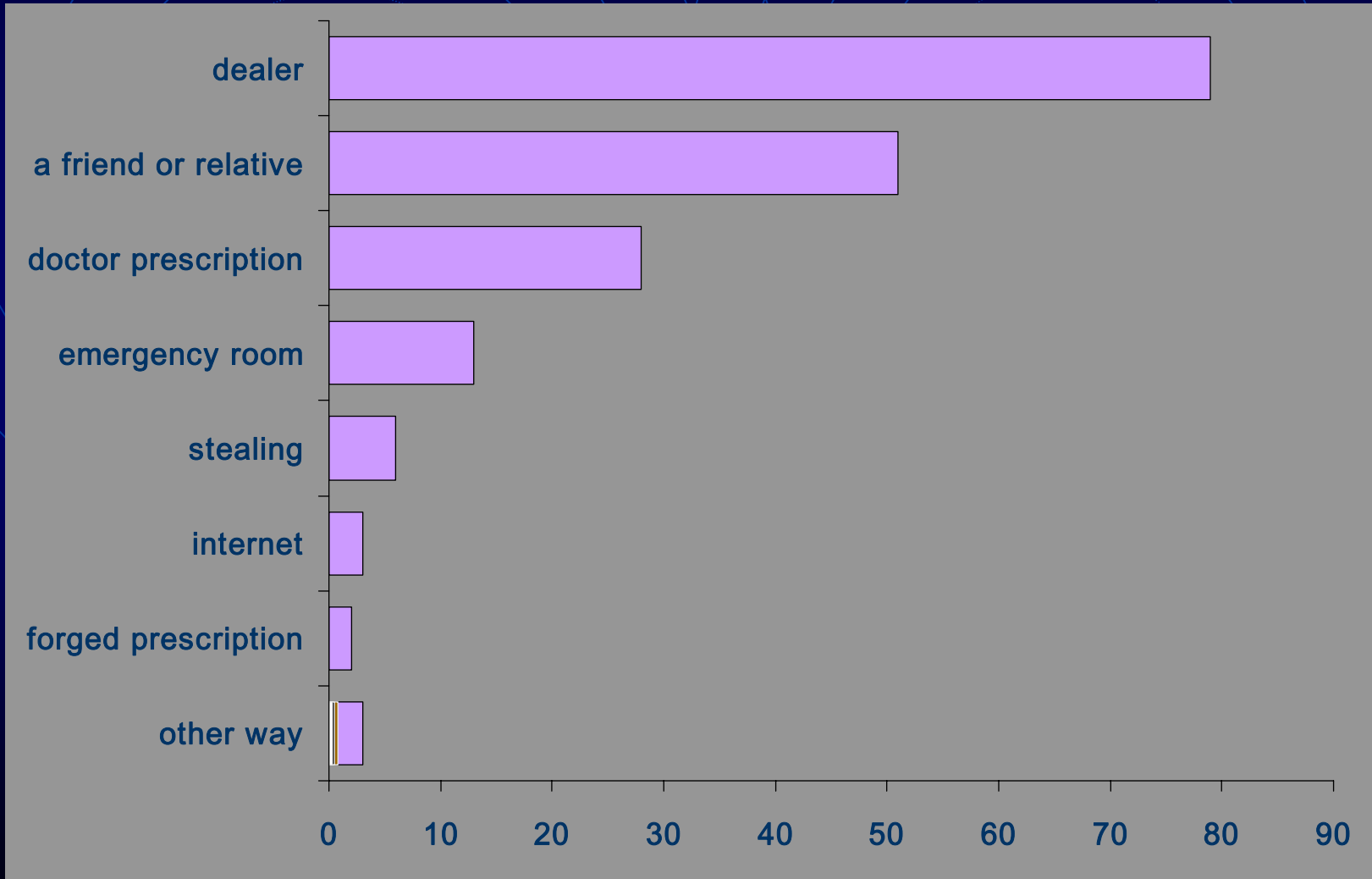
18

0

# Western Kentucky Hydrocodone Rates by Population and 3 Digit Zip Code

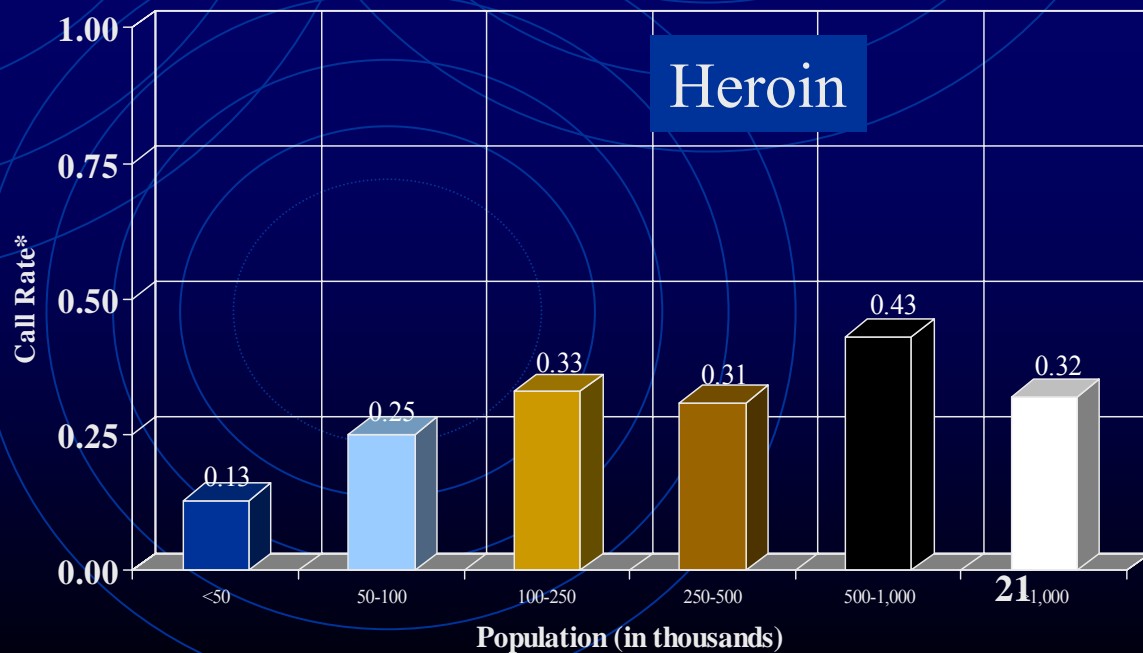
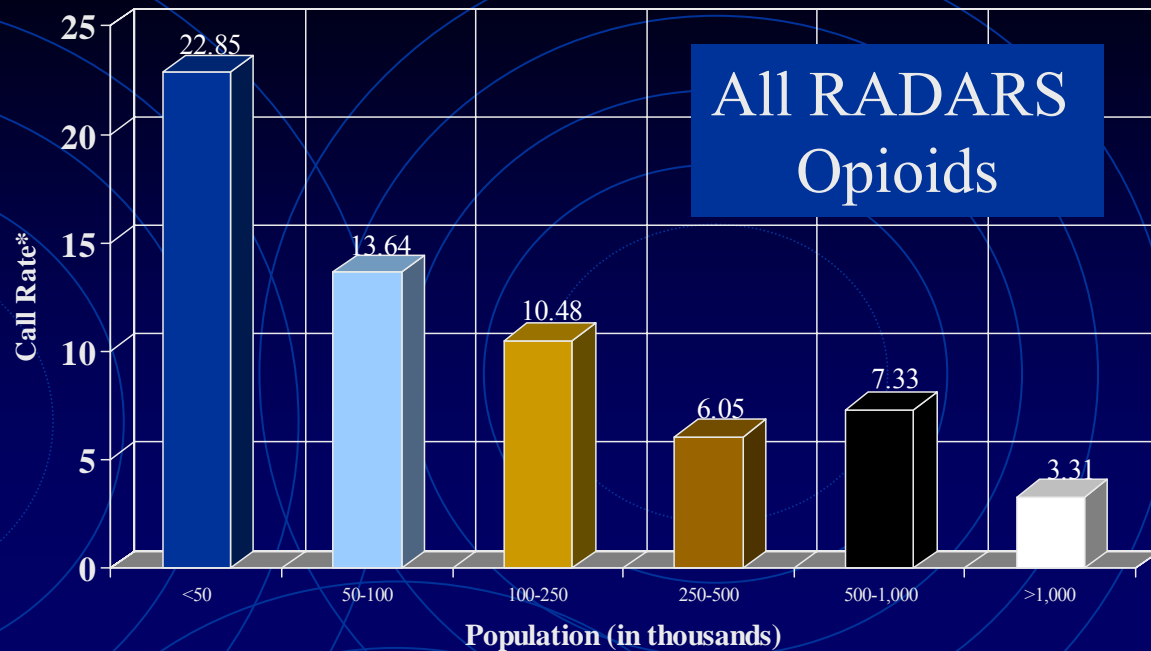


# Source of primary opioid among primary opioid abusers (%)



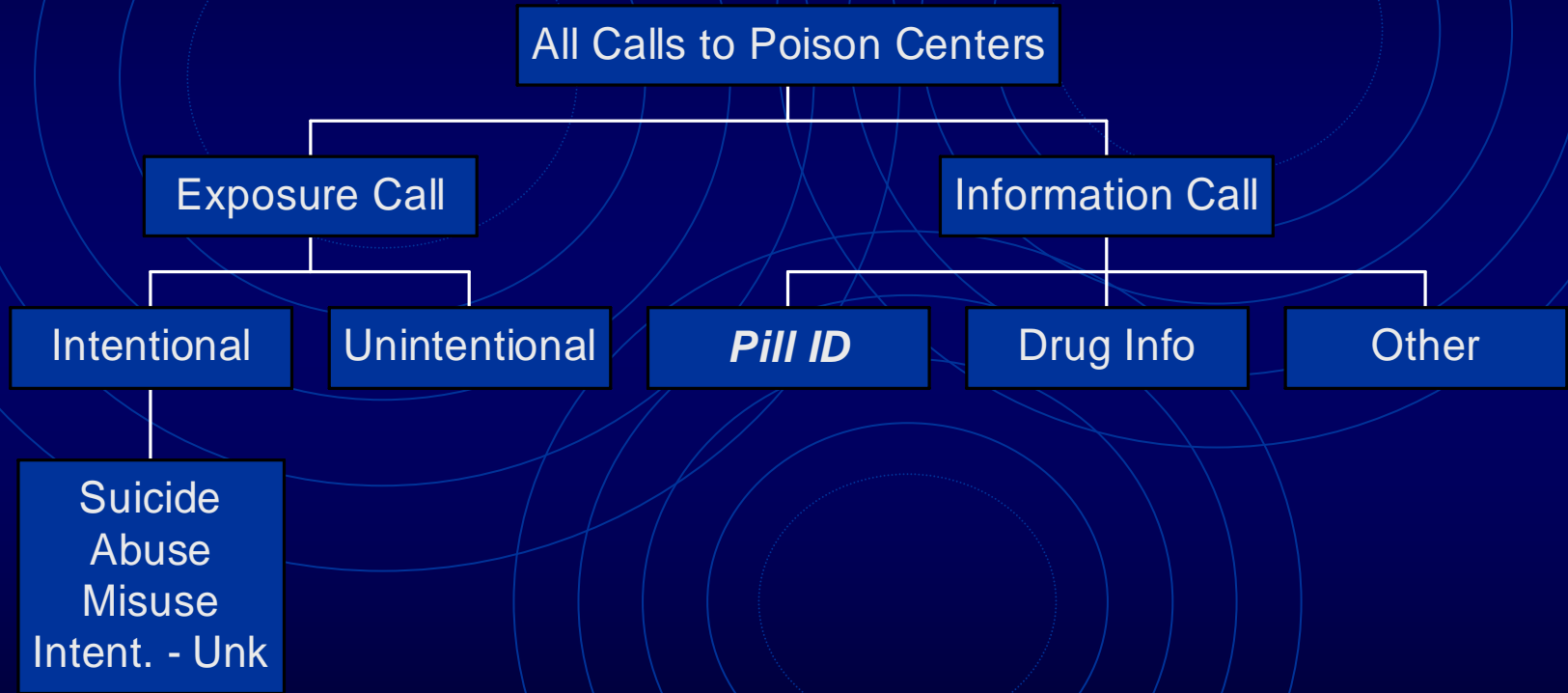
# Urban vs. Rural

# Rx vs. Heroin

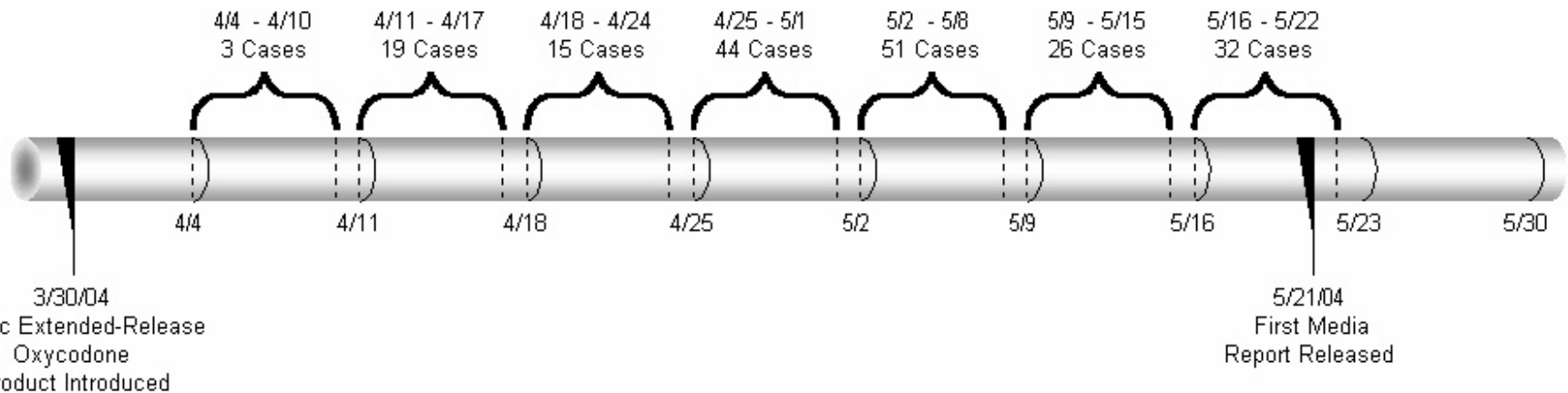


\*Intentional Exposures per 100,000 population served by 3 digit zip code

# The Power of Pill Identification



# Timeline of Detection by Poison Centers



**Generic extended-release oxycodone product was release March 31, 2004.**

**Poison centers began receiving pill IDs regarding this product beginning April 07, 2004.**

# Young Children

- PC data: December 29, 2002 – July 2, 2006
  - 11 to 40 centers (of 60 US centers)
  - Population served: 59 million to 176 million
- Pediatric (0 – 5 years old) exposure mentions to:
  - Buprenorphine
  - Fentanyl
  - Hydrocodone
  - Hydromorphone
  - Methadone
  - Morphine
  - Oxycodone



# Results

- 9,241 pediatric exposures
- Mean age:  $2.3 \pm 1.2$  years, 54% male
- Site: home (92%), Route: ingestion (99%)
- Buprenorphine significantly more likely to be associated with an effect ( $p < 0.001$ )
- Deaths after hydrocodone, methadone, oxycodone
- Methadone significantly more likely to be associated with death or major effect

# Results: Pediatric Exposure Rates

Opioid	Population Rate	URDD Rate
Buprenorphine	0.1	0.5*
Fentanyl	0.09	0.03*
Hydrocodone	4.6*	0.06
Hydromorphone	0.05*	0.06*
Methadone	0.3	0.2
Morphine	0.3	0.1
Oxycodone	1.6*	0.06
<b>TOTAL</b>	<b>7.1</b>	<b>0.06</b>

\* Significantly different from all other exposure rates (p<0.01)

# Discussion

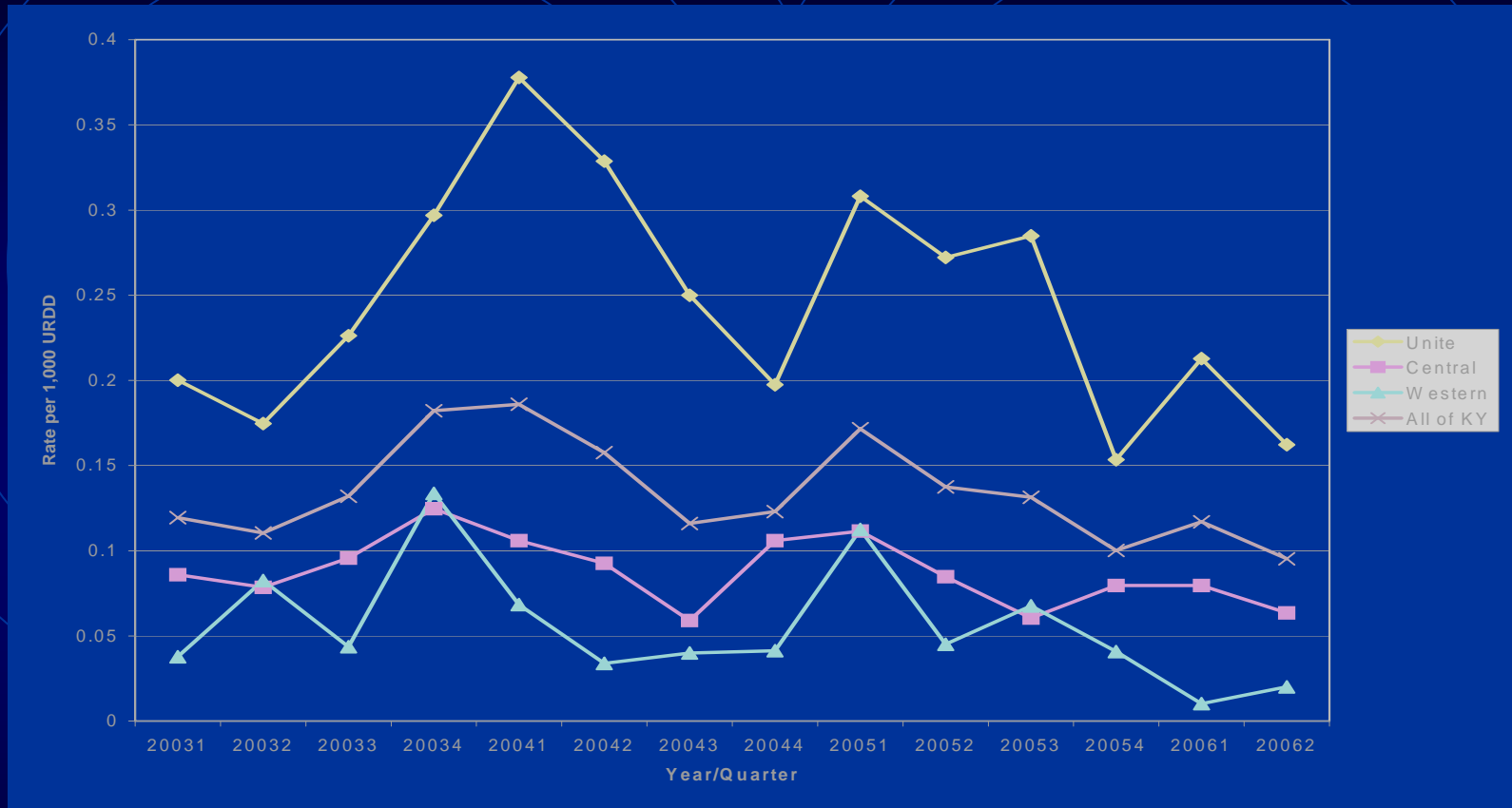
- Thousands of children are exposed to prescription opioids each year
- As availability in home increases, number of exposures increases
- For each Rx dispensed, buprenorphine is the most likely to end up in hands of a child
- Only deaths associated with methadone, hydrocodone and oxycodone
- Poison prevention strategy often tries to simply delay child (blister packaging)
- This is inadequate when “one pill can kill”

# Operation UNITE

- Unlawful Narcotics Investigations, Treatment and Education



# A + W Rates per 1,000 URDD



	Entire Slope (p*)	Slope Before 20043 (p*)	Slope 20043 and After (p*)	Difference Before/After (p**)
Unite	0.00 (>0.05)	<b>0.04 (&lt;0.05)</b>	-0.01 (>0.05)	<b>-0.05 (0.005)</b>
Central	0.00 (>0.05)	0.00 (>0.05)	0.00 (>0.05)	-0.007 (>0.05)
Western	0.00 (>0.05)	0.00 (>0.05)	-0.01 (>0.05)	-0.007 (>0.05)
All KY	0.00 (>0.05)	0.01 (0.05)	0.00 (>0.05)	<b>-0.02 (0.019)</b>

# Conclusions

- No community is immune.
  - Prescription drug abuse is widespread, affecting nearly all areas of the United States.
- The level of abuse is high and still increasing in some areas, although it may be flattening out.
- No one drug seems to be responsible. Our data indicate that users typically take advantage of multiple opioids.