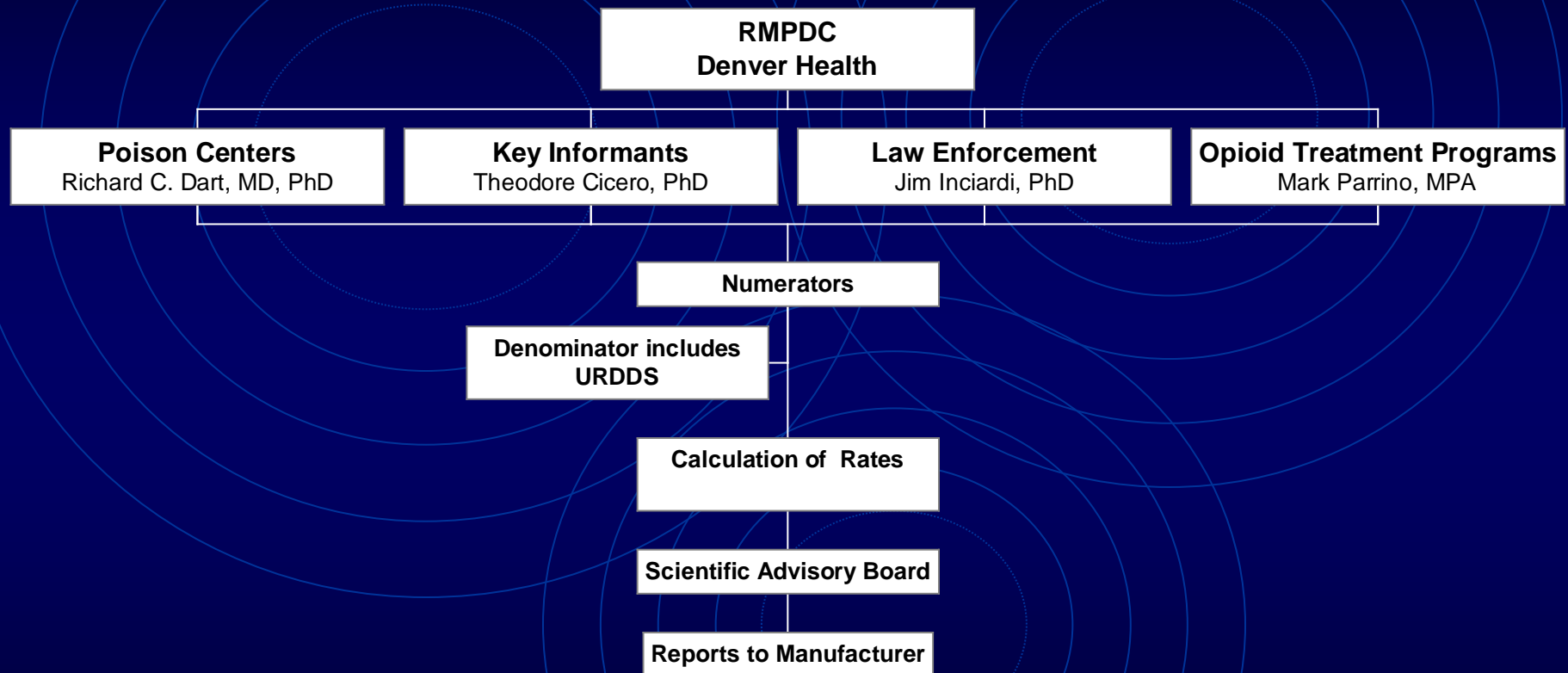




# RADARS<sup>®</sup> System “Methadone Study”

Richard C. Dart, MD, PhD  
Director, RADARS<sup>®</sup> System, Denver Health  
Professor, University of Colorado School of  
Medicine

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



- 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 evidence of drug abuse activity.

# 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

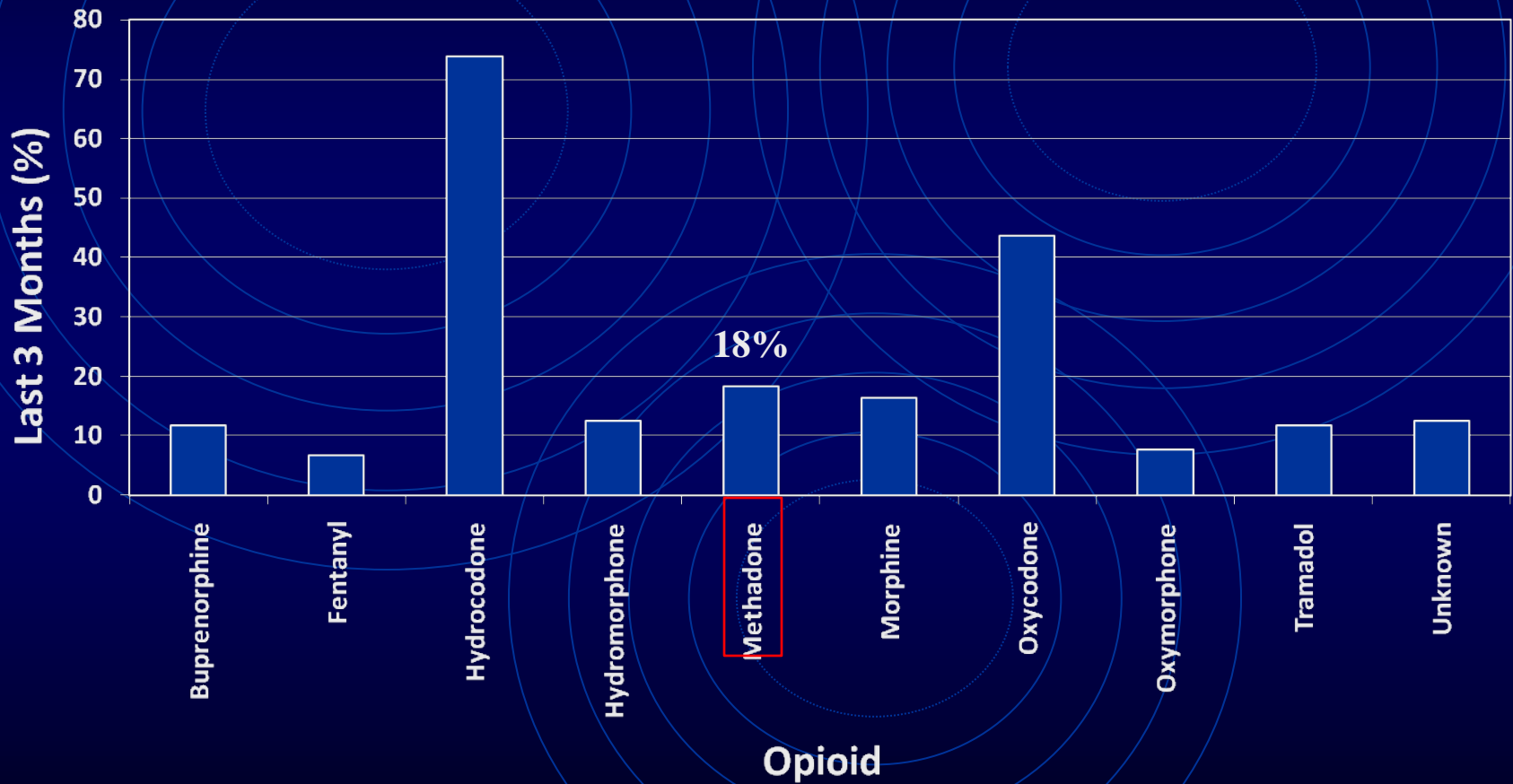
- Drug Diversion
- Criminal justice perspective

## Opioid Treatment Programs

- Dependent or addicted patients
- Patient's perspective

# RADARS System College Survey

## Abuse or Misuse by Endorsers of Abuse





# Methadone Overview

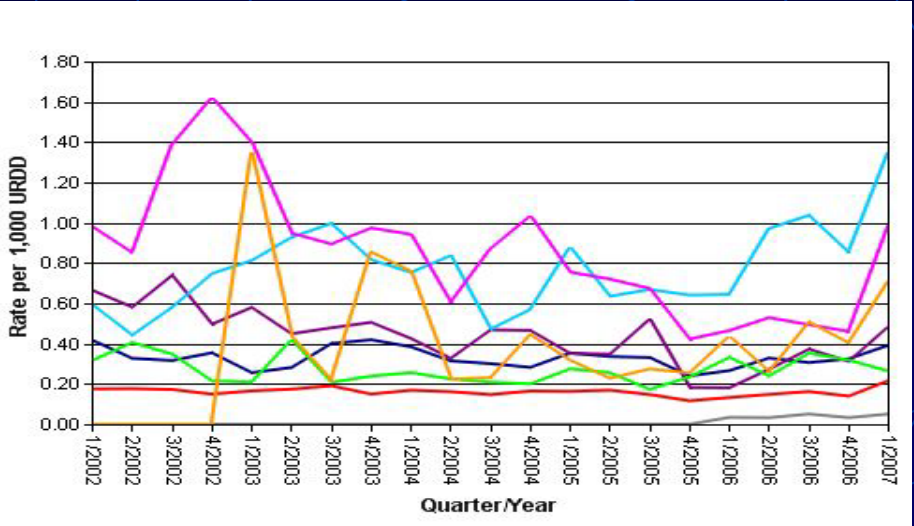
RADARS<sup>®</sup> System

# Abuse/Misuse/Diversion Rates

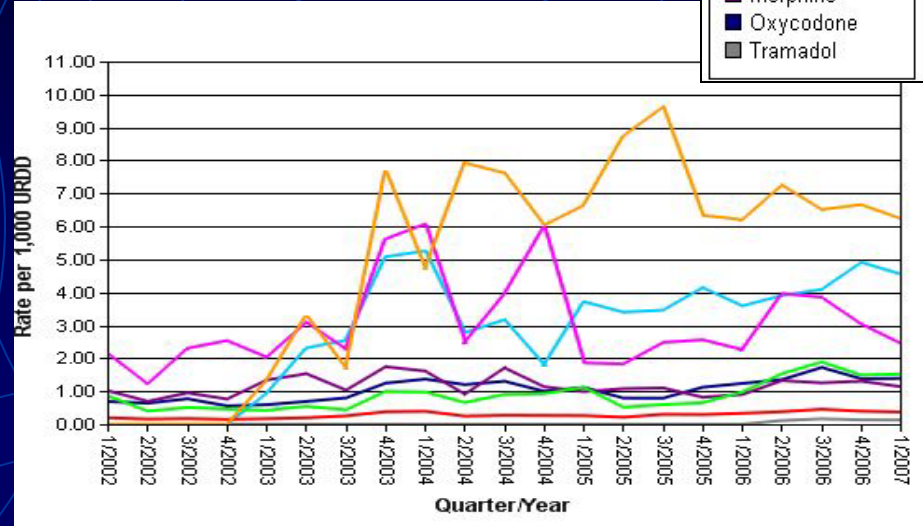
per 1,000 URDD

- Buprenorphine
- Fentanyl
- Hydrocodone
- Hydromorphone
- Methadone
- Morphine
- Oxycodone
- Tramadol

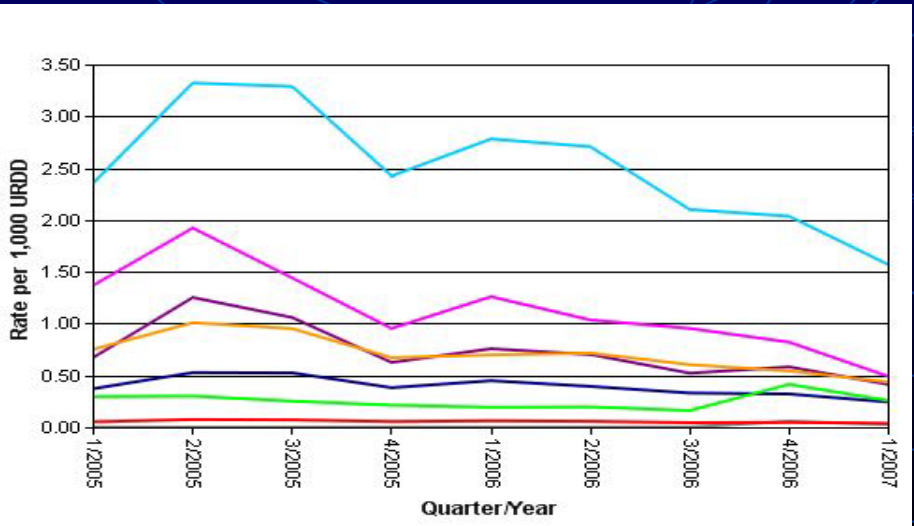
## Drug Diversion



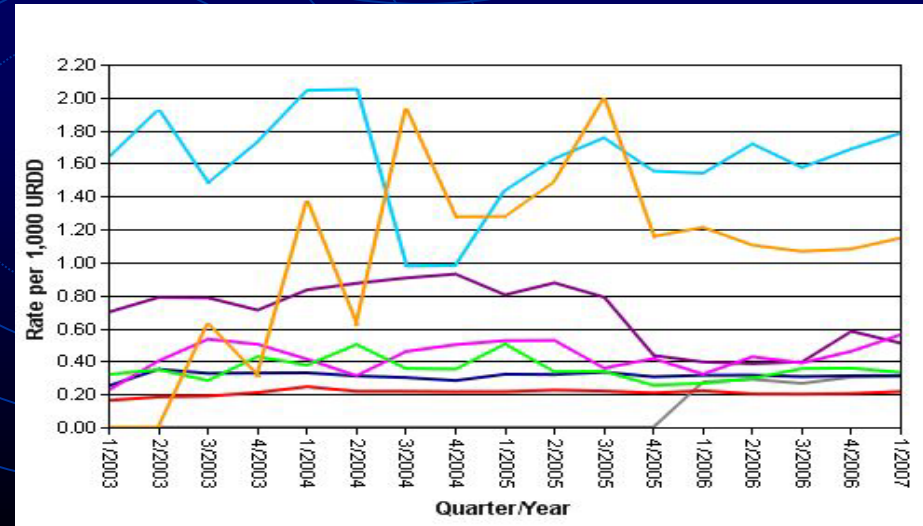
## Key Informant



## Opioid Treatment Program



## Poison Center





# Methadone: Top 5 Hot Spots

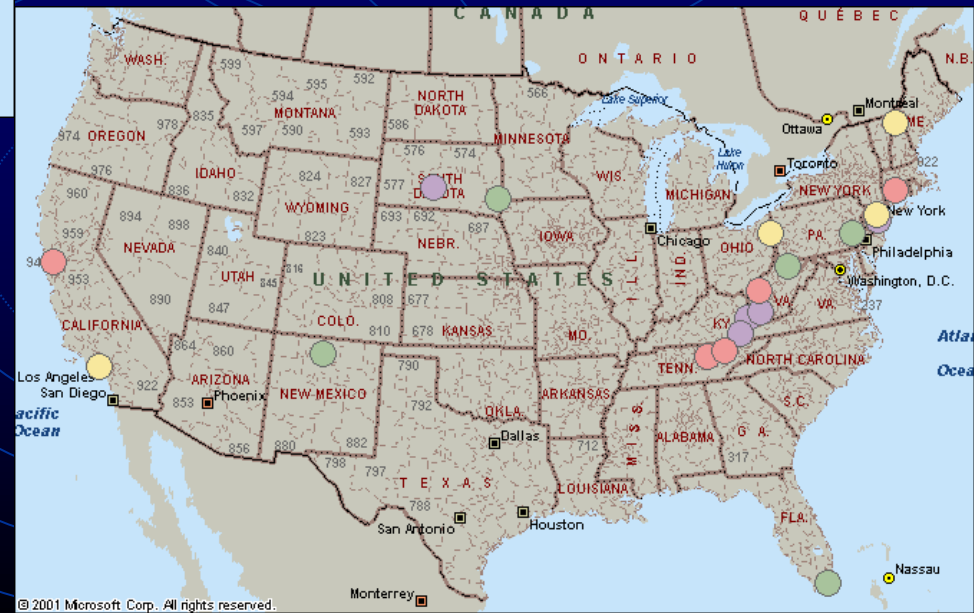
Per 100,000



## System

- Methadone Clinics
- Drug Diversion
- Key Informants
- Poison Centers

Per 1,000 Persons filling a Prescription





# Methadone Mortality Data

RADARS<sup>®</sup> System

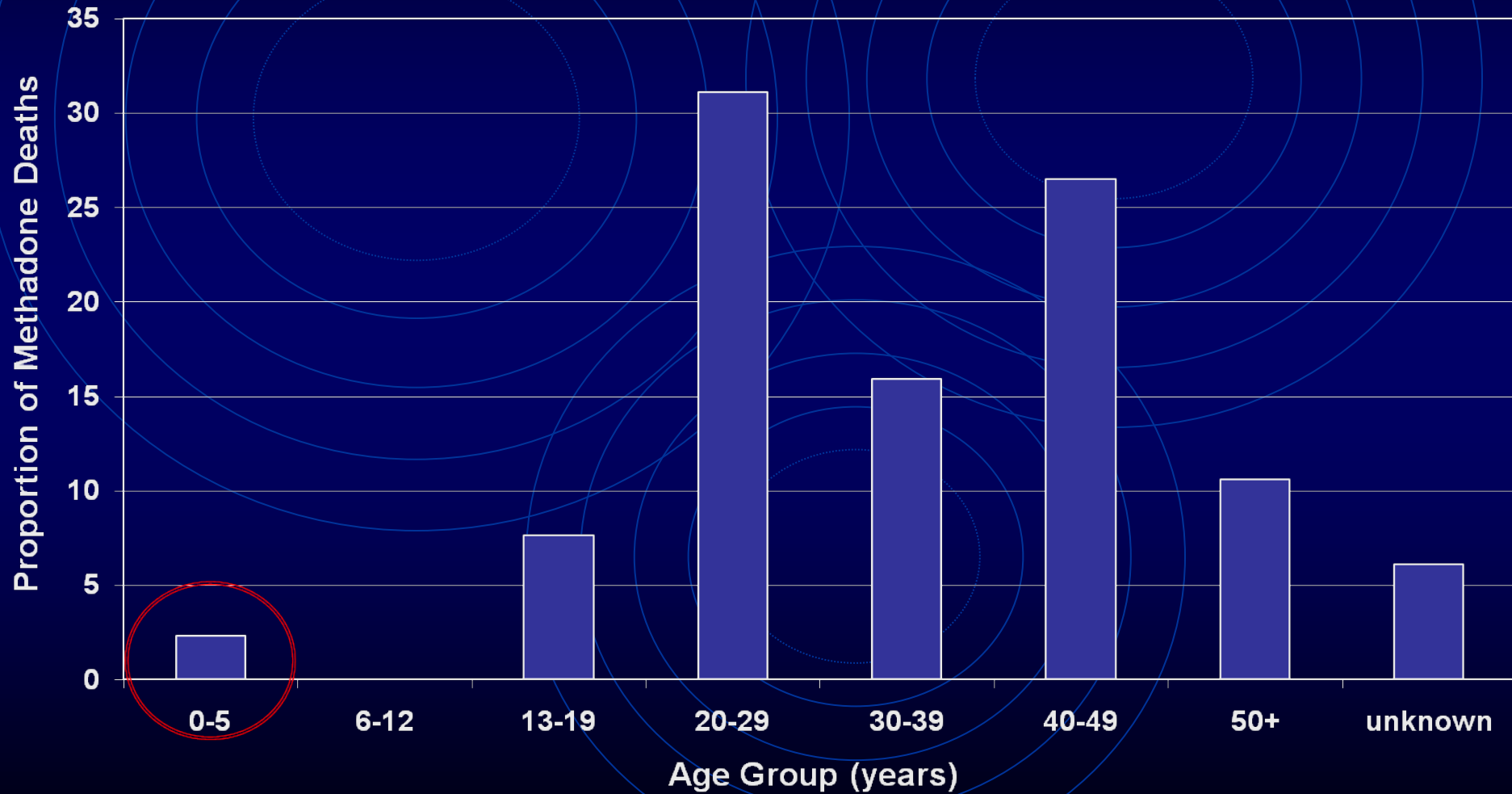


# RADARS System

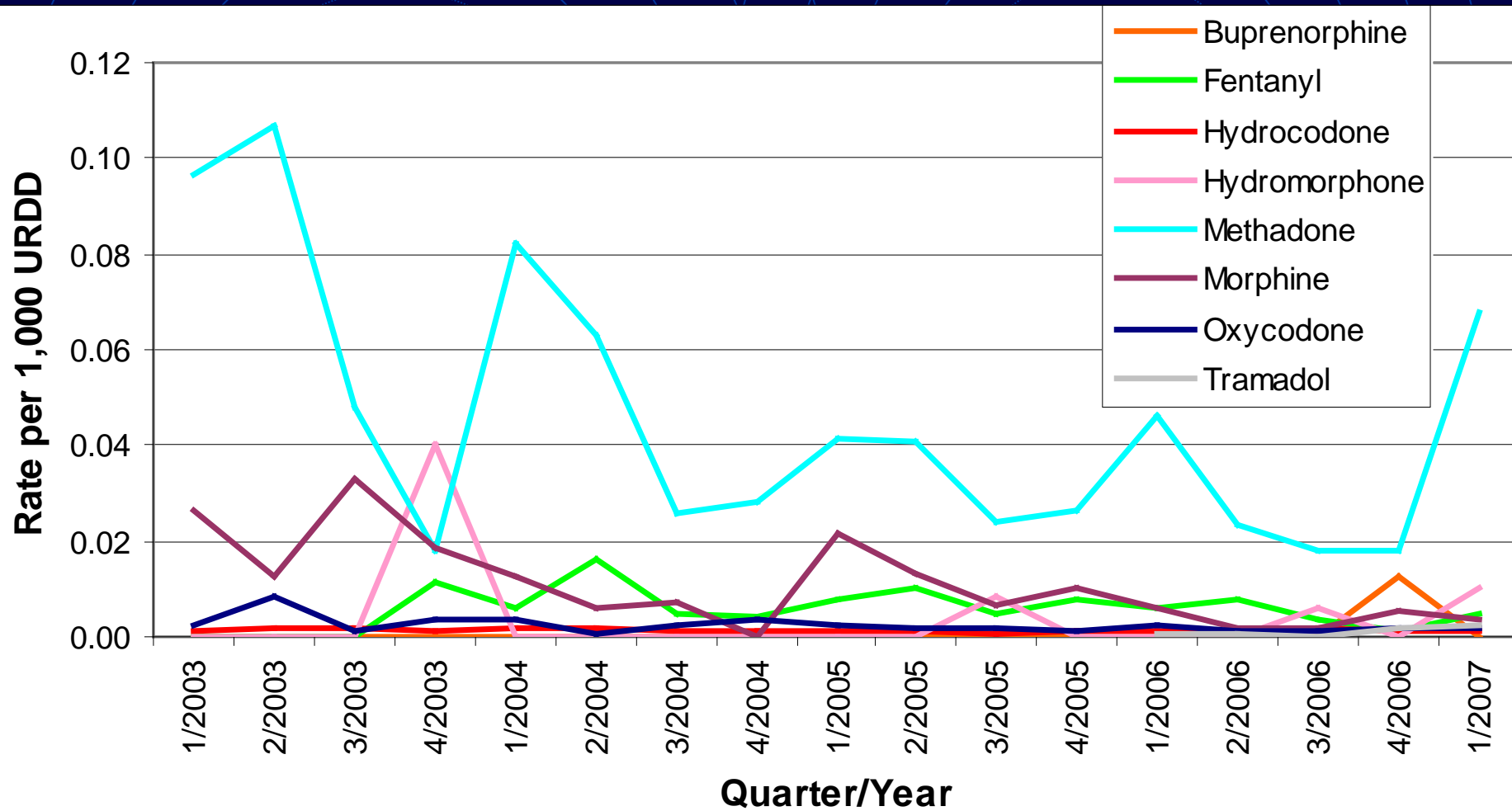
- Poison center “associated medical outcome”
- Data collected from 2003 – 2006
  - 11 of 60 US centers (18%) in 1<sup>st</sup> quarter 2003
  - 43 of 60 US centers (72%) in 4<sup>th</sup> quarter 2006
- 132 deaths associated with methadone exposures

# Methadone Deaths by Age Group

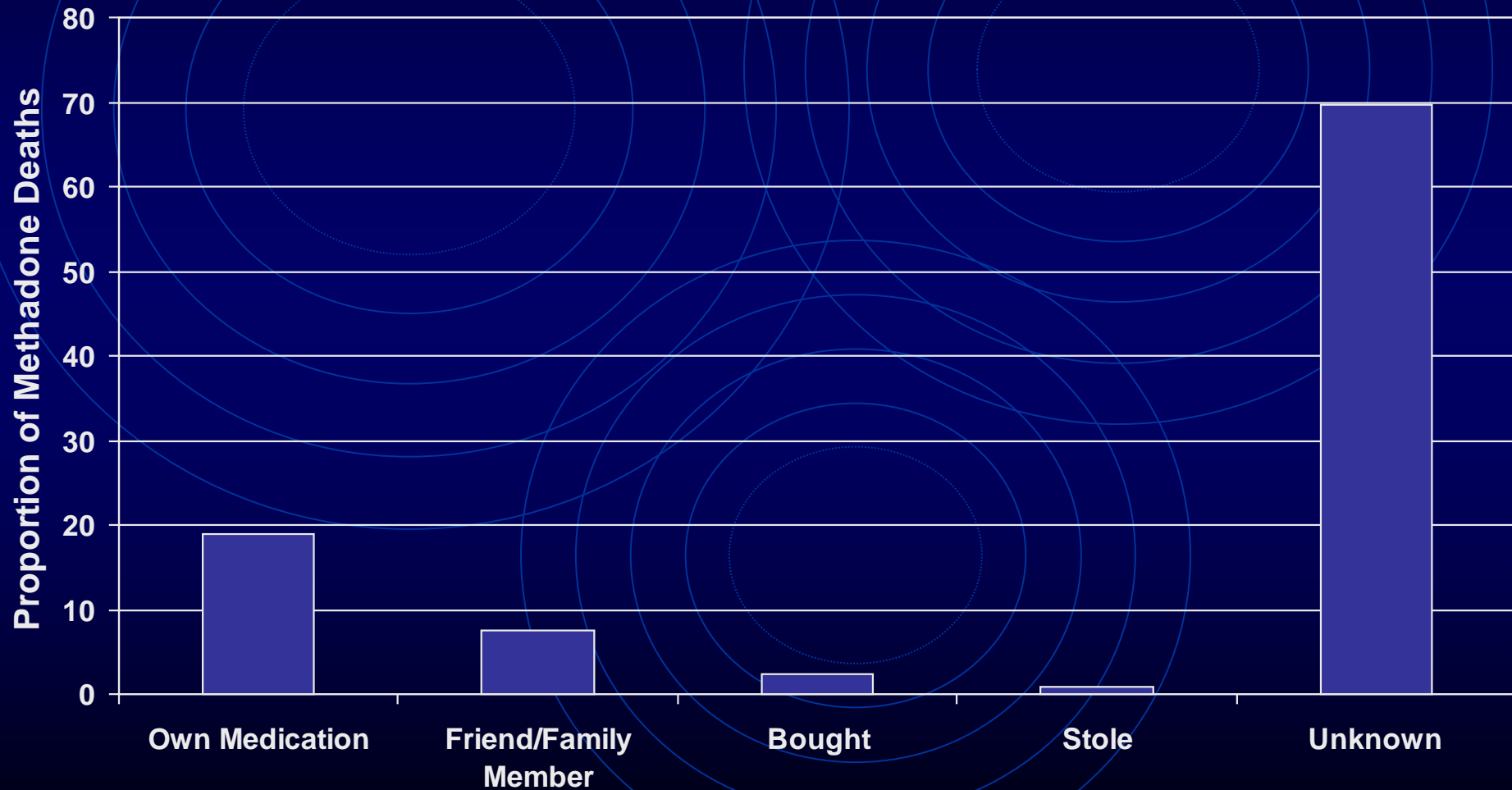
2003 – 2006



# Death Rates per 1,000 URDD Reported to RADARS Poison Centers

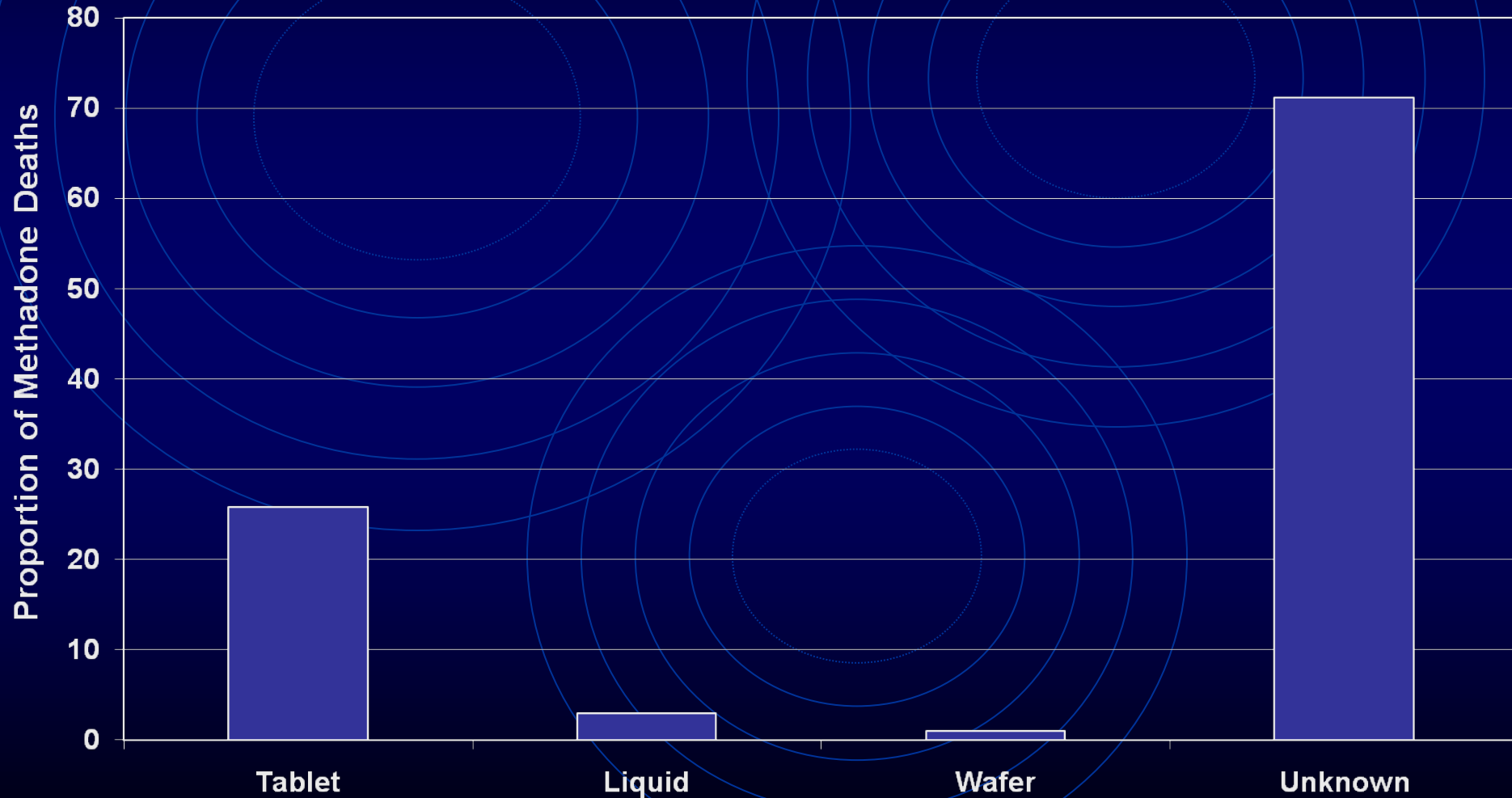


# Reported Source of Methadone Methadone Deaths, 2003 – 2006



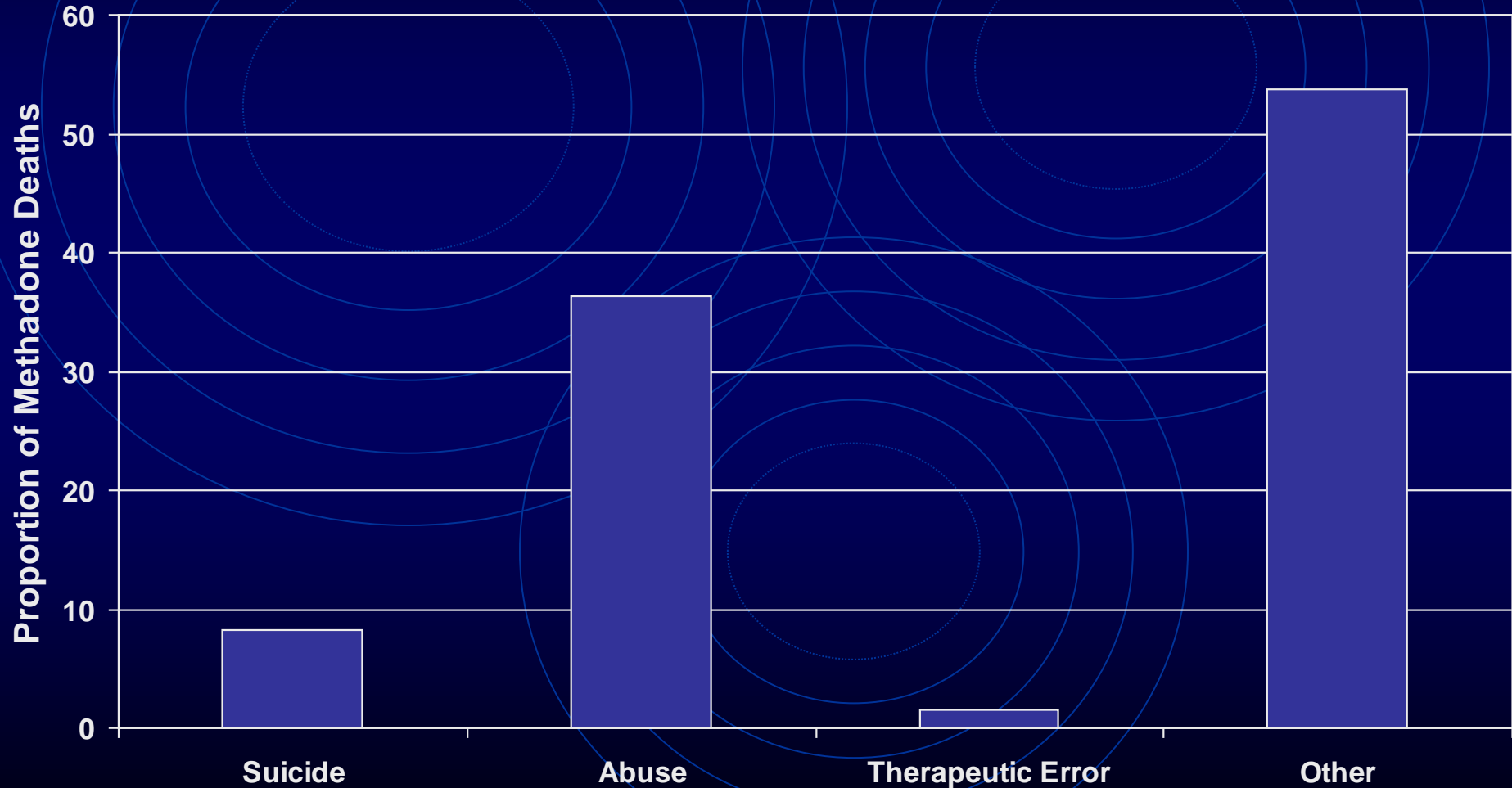
# Methadone Formulations

## Methadone Deaths, 2003 – 2006



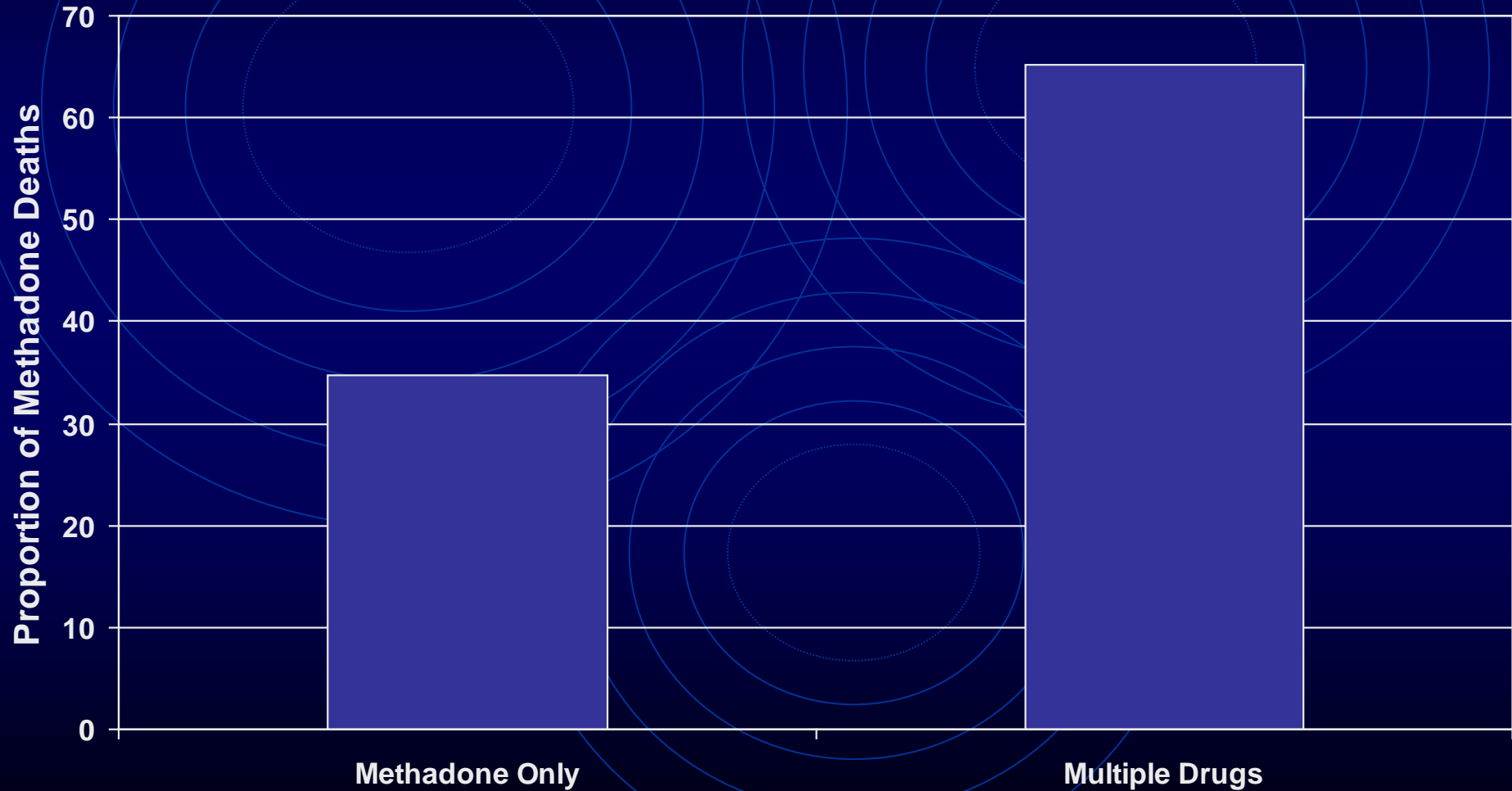
# Exposure Reason

## Methadone Deaths, 2003 – 2006



# Involvement of Multiple Drugs

## Methadone Deaths, 2003 – 2006





# Methadone Death Details

## Example

- DR Calling 21 YO Male Partying ( etoh - methadone)  
- Got ride home 3 AM (Sunday)
- Girlfriend fell asleep 6 AM - girl woke up 1 PM - time frame between 1 PM - 4:30 PM-vague ? frothy & blue
- CPR - medics's arrived on scene (4:30 PM) blue no pulse- intubated gave atropine- Epi brought back rhythm - PH 6.76 CO2-85 O2-76
- UDS - ETOH negative 16 hrs later ( REC machinery may not have been set low enough to detect at time point- or may....

# Who Abuses Methadone?

Table 1  
Opioid abuse among MMTP enrollees, by primary drug of choice

	Prescription opioid ( <i>n</i> = 2174) (%)	
	Ever	Past 30 days
Heroin	33	13
Prescription opioids	100	99
Oxycodone, any formulation	89	79
CR-Oxycodone (e.g., OxyContin <sup>®</sup> )	89	71
IR-Oxycodone (e.g., Percocet <sup>®</sup> )	81	59
Hydrocodone (e.g., Vicodin <sup>®</sup> )	88	67
Methadone	58	40
Morphine	59	29
Hydromorphone (e.g., Dilaudid <sup>®</sup> )	37	16
Fentanyl	30	9
Buprenorphine	5	1
Ever injected primary drug	33	<i>n/a</i>

# Opioid Rx Pediatric Exposures

## RADARS Poison Centers 2003 - 2006

<i>Characteristic</i>	<i>Bup</i> ( <i>n=176</i> )	<i>HC</i> ( <i>n=6,003</i> )	<i>Methadone</i> ( <i>n=415</i> )	<i>Oxycodone</i> ( <i>n=2,036</i> )
Age Mean (SD)	2.1 (0.9)	2.3 (1.2)	2.0 (1.1)	2.1 (1.1)
Male N (%)*	99 (56.3)	3,232 (53.9)	232 (56.7)	1,081 (53.5)
Site N (%)				
Own Home	169 (96.0)	5,581 (93.0)	372 (89.6)	1,821 (89.4)
Other Home	3 (1.7)	335 (5.6)	27 (6.5)	155 (7.6)
Route N (%)				
Ingestion	175 (99.4)	5,993 (99.8)	408 (98.1)	2,020 (99.1)

# Methadone Pediatric Deaths

<b>Age (mo)</b>	<b>M/F</b>	<b>Form</b>	<b>Other drugs available</b>	<b>Circumstances</b>
<b>9</b>	<b>M</b>	<b>Tablet</b>	<b>None</b>	<b>Patient found “not breathing”. Mother treated with methadone.</b>
<b>20</b>	<b>M</b>	<b>Liquid</b>	<b>Amitryptiline Anticonvulsan Benzodiazepin</b>	<b>Patient arrived with vital signs. EKG without TCA effect. Urine screen positive for opiates. Bilateral cerebellar infarcts and hemorrhages found.</b>

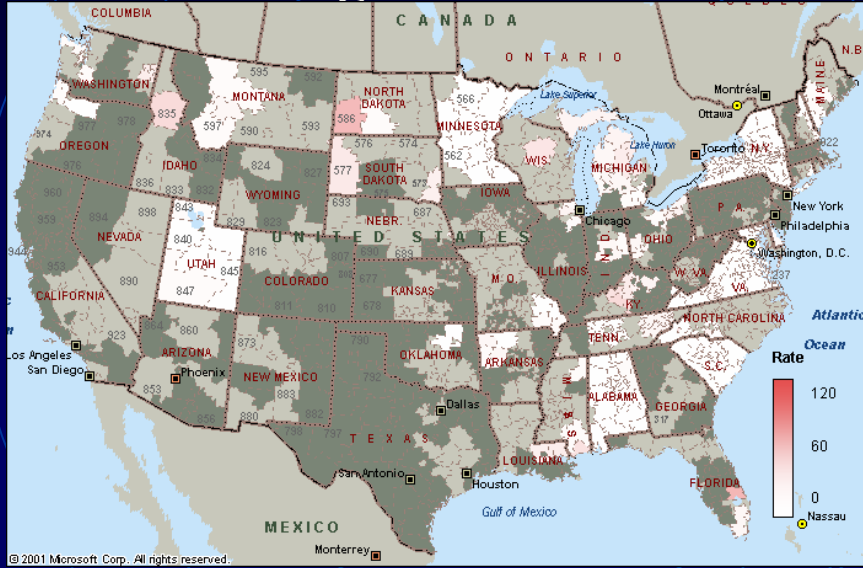
# Summary

- Methadone death do not appear to be rising
- Liquid and wafer preparations are involved, but are unusual.
- There is evidence of abuse in many cases.
- Age groups 0-5 yrs and all adults involved

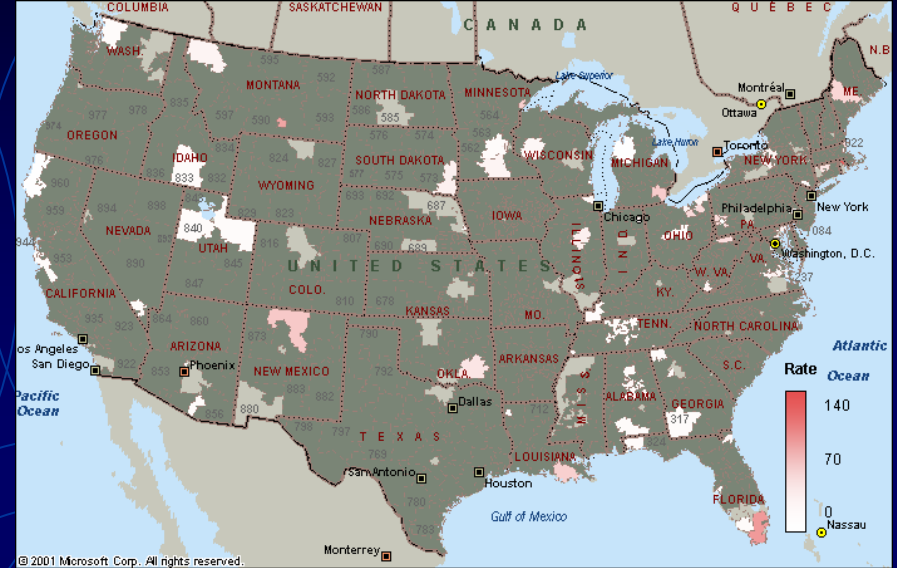
# Methadone Rates per 1,000 URDD

1<sup>st</sup> Quarter 2007

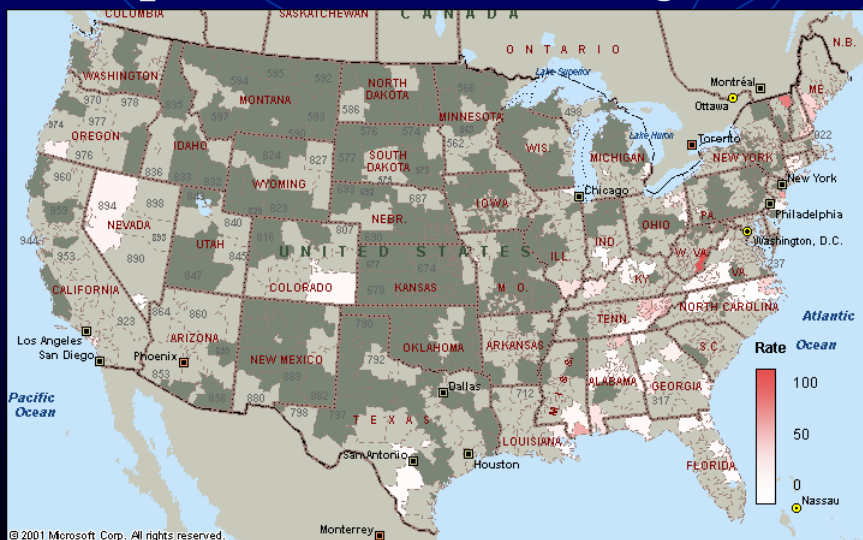
Drug Diversion



Key Informant



Opioid Treatment Program

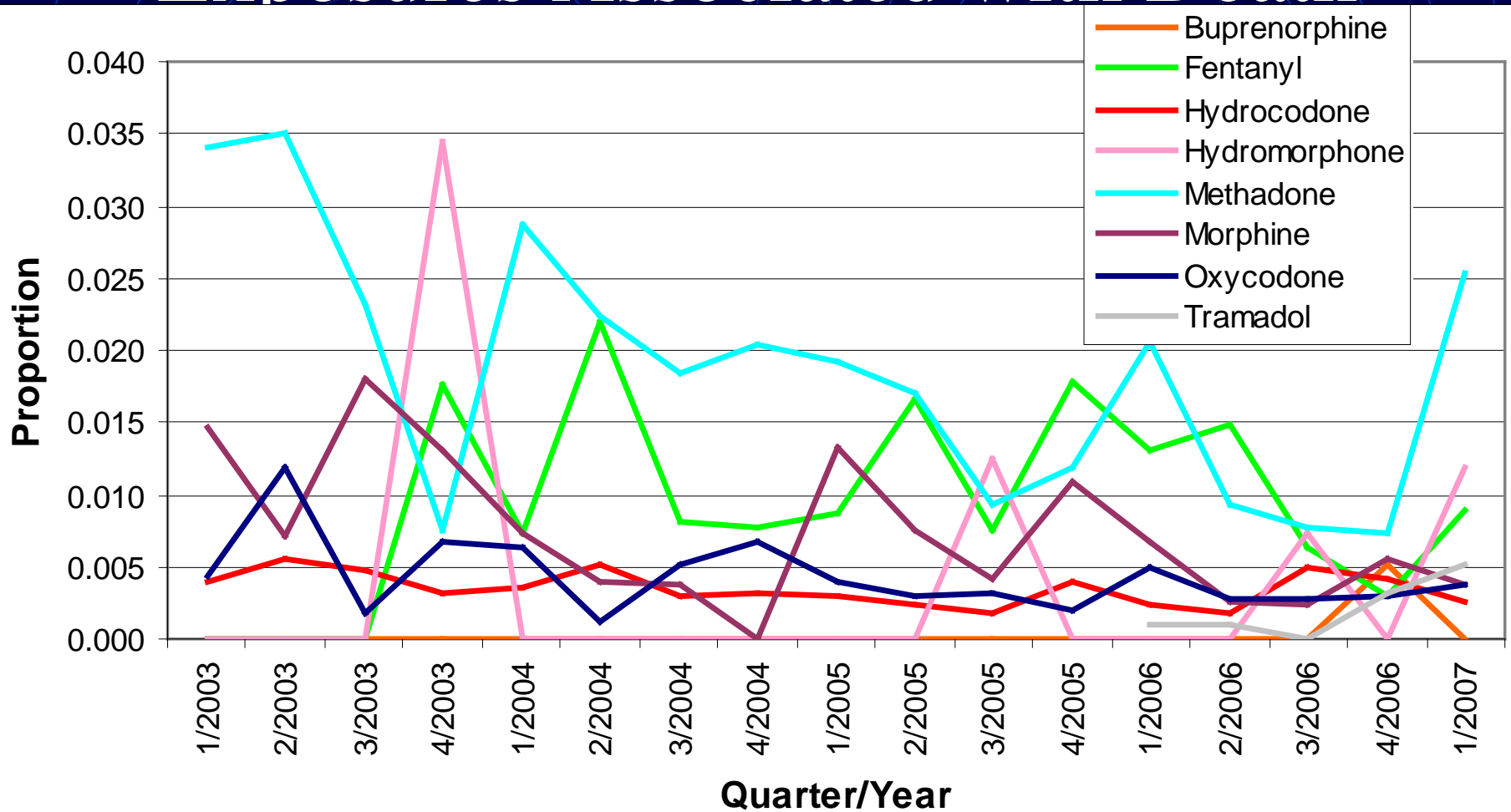


Poison Center



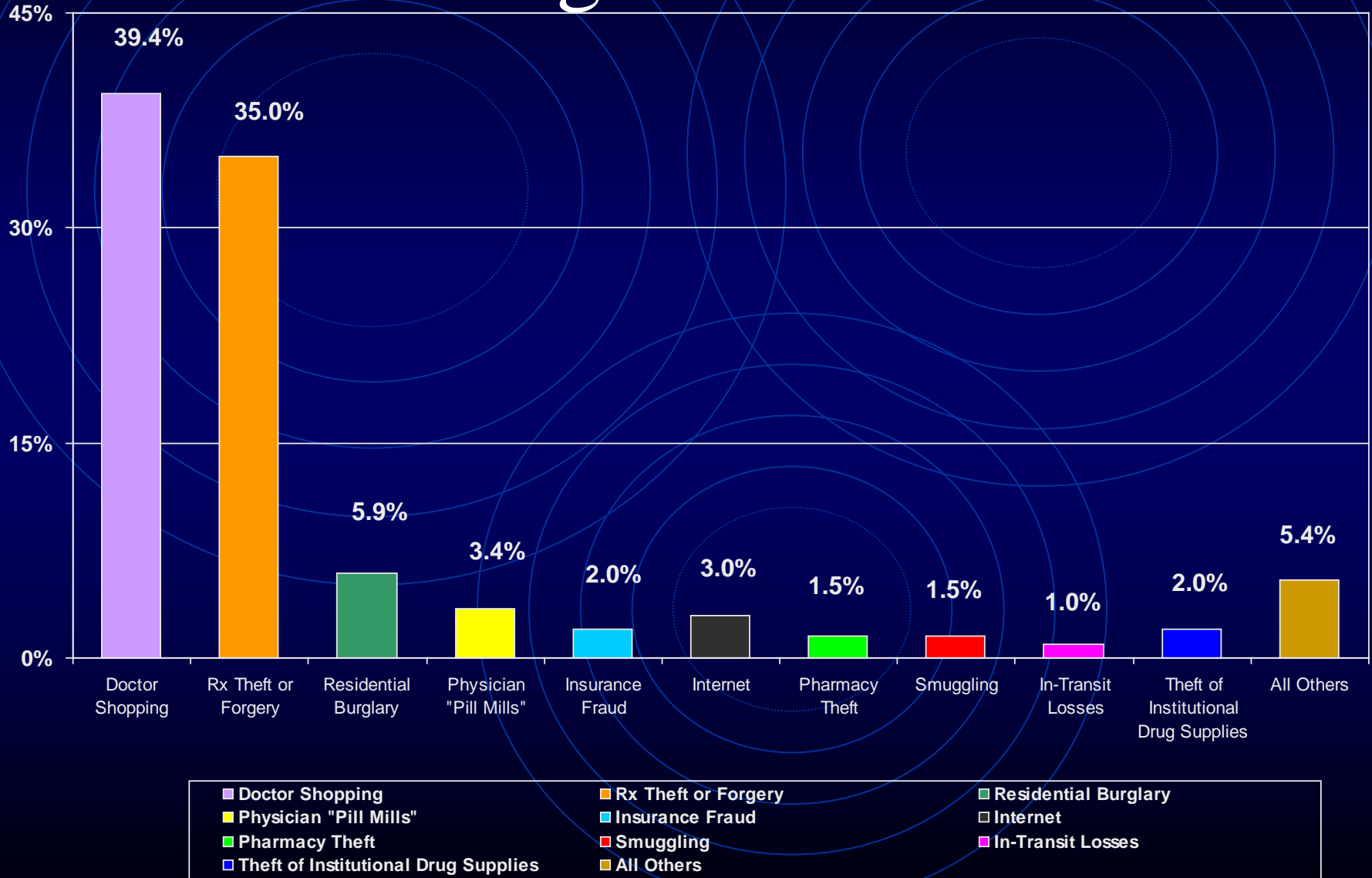


# Proportion of Methadone Total Exposures Associated with Death





# Primary Source of Prescription Drug Diversion



# Primary Source of Prescription Opioids

