RADARS® System

“Methadone Study”

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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

Last 3 Months (%)

Opioid

Hydromorphone
Methadone
Hydromorphone
Morphine
Oxycodone
Oxymorphone
Tramadol
Unknown

18%
Methadone Overview

RADARS® System
Abuse/Misuse/Diversion Rates per 1,000 URDD

Drug Diversion

Key Informant

Opioid Treatment Program

Poison Center
Methadone: Top 5 Hot Spots

Per 100,000 Population

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

Per 1,000 Persons filling a Prescription
Methadone Mortality Data

RADARS® System
RADARS System

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

Proportion of Methadone Deaths

Age Group (years)

0-5
6-12
13-19
20-29
30-39
40-49
50+
unknown
Death Rates per 1,000 URDD Reported to RADARS Poison Centers

Rate per 1,000 URDD

Quarter/Year

Buprenorphine
Fentanyl
Hydrocodone
Hydromorphone
Methadone
Morphine
Oxycodone
Tramadol
Reported Source of Methadone
Methadone Deaths, 2003 – 2006

Proportion of Methadone Deaths

- Own Medication
- Friend/Family Member
- Bought
- Stole
- Unknown
Methadone Formulations

Methadone Deaths, 2003 – 2006

Proportion of Methadone Deaths

- Tablet
- Liquid
- Wafer
- Unknown

Unknown formulation is the highest proportion of methadone deaths.
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

<table>
<thead>
<tr>
<th>Opioid abuse among MMTP enrollees, by primary drug of choice</th>
<th>Prescription opioid ($n = 2174$) (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ever</td>
</tr>
<tr>
<td>Heroin</td>
<td>33</td>
</tr>
<tr>
<td>Prescription opioids</td>
<td>100</td>
</tr>
<tr>
<td>Oxycodone, any formulation</td>
<td>89</td>
</tr>
<tr>
<td>CR-Oxycodone (e.g., OxyContin®)</td>
<td>89</td>
</tr>
<tr>
<td>IR-Oxycodone (e.g., Percocet®)</td>
<td>81</td>
</tr>
<tr>
<td>Hydrocodone (e.g., Vicodin®)</td>
<td>88</td>
</tr>
<tr>
<td>Methadone</td>
<td>58</td>
</tr>
<tr>
<td>Morphine</td>
<td>59</td>
</tr>
<tr>
<td>Hydromorphone (e.g., Dilaudid®)</td>
<td>37</td>
</tr>
<tr>
<td>Fentanyl</td>
<td>30</td>
</tr>
<tr>
<td>Buprenorphine</td>
<td>5</td>
</tr>
<tr>
<td>Ever injected primary drug</td>
<td>33</td>
</tr>
</tbody>
</table>

## Opioid Rx Pediatric Exposures

### RADARS Poison Centers 2003 - 2006

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Bup (n=176)</th>
<th>HC (n=6,003)</th>
<th>Methadone (n=415)</th>
<th>Oxycodone (n=2,036)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age Mean (SD)</td>
<td>2.1 (0.9)</td>
<td>2.3 (1.2)</td>
<td>2.0 (1.1)</td>
<td>2.1 (1.1)</td>
</tr>
<tr>
<td>Male N (%)*</td>
<td>99 (56.3)</td>
<td>3,232 (53.9)</td>
<td>232 (56.7)</td>
<td>1,081 (53.5)</td>
</tr>
<tr>
<td>Site N (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Own Home</td>
<td>169 (96.0)</td>
<td>5,581 (93.0)</td>
<td>372 (89.6)</td>
<td>1,821 (89.4)</td>
</tr>
<tr>
<td>Other Home</td>
<td>3 (1.7)</td>
<td>335 (5.6)</td>
<td>27 (6.5)</td>
<td>155 (7.6)</td>
</tr>
<tr>
<td>Route N (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ingestion</td>
<td>175 (99.4)</td>
<td>5,993 (99.8)</td>
<td>408 (98.1)</td>
<td>2,020 (99.1)</td>
</tr>
<tr>
<td>Age (mo)</td>
<td>M/F</td>
<td>Form</td>
<td>Other drugs available</td>
<td>Circumstances</td>
</tr>
<tr>
<td>---------</td>
<td>-----</td>
<td>-----------</td>
<td>-----------------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>9</td>
<td>M</td>
<td>Tablet</td>
<td>None</td>
<td>Patient found “not breathing”. Mother treated with methadone.</td>
</tr>
<tr>
<td>20</td>
<td>M</td>
<td>Liquid</td>
<td>Amitryptiline Anticonvulsant Benzodiazepine</td>
<td>Patient arrived with vital signs. EKG without TCA effect. Urine screen positive for opiates. Bilateral cerebellar infarcts and hemorrhages found.</td>
</tr>
</tbody>
</table>
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
Proportion of Methadone Total Exposures Associated with Death

Proportion

Quarter/Year


0.040
0.035
0.030
0.025
0.020
0.015
0.010
0.005
0.000

Buprenorphine
Fentanyl
Hydromorphone
Hydrocodone
Methadone
Morphine
Oxycodone
Tramadol
Primary Source of Prescription Drug Diversion

Doctor Shopping: 39.4%
Rx Theft or Forgery: 35.0%
Residential Burglary: 5.9%
Physician "Pill Mills": 3.4%
Insurance Fraud: 2.0%
Internet: 3.0%
Pharmacy Theft: 1.5%
Smuggling: 1.5%
In-Transit Losses: 1.0%
Theft of Institutional Drug Supplies: 2.0%
All Others: 5.4%
Primary Source of Prescription Opioids

- Opioid Treatment Programs
- College Survey

Bar chart showing sources of prescription opioids:
- Doctor's Prescription
- Friend/Relative
- Dealer
- Internet
- Other