Postmarketing Surveillance of Prescription Drug Abuse

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Richard C. Dart, MD, PhD
Director, Rocky Mountain Poison and Drug Center,
Denver, Colorado
Professor, University of Colorado School of Medicine
RADARS® System Description

• Focus on surveillance of abuse, misuse and diversion
• Mosaic approach to detecting abuse, misuse and diversion
• RADARS® System is a department of the Denver Health and Hospital Authority (DHHA), the public safety net hospital for Denver, Colorado
• The system is funded by subscriptions from several pharmaceutical companies.
• All data are owned and held exclusively by DHHA.
• Restrictions placed on subscriber’s use of data
Issues in Pharmacovigilance of Opioid Analgesics

• Established drugs with well known safety profiles
  — Exception: Misuse, Abuse, Diversion and Addiction

• Abuser ≠ patient
  — Some start as patients, other do not

• Occult phenomenon
  — Cannot be overemphasized

• Product specificity
  — Many patients seem to prefer particular products

• Geography
  — Preferences seem to vary in different regions.

• Availability
  — Drug can’t be abused if not available

• Time
  — Changes in abuse may be common
RADARS System Design Response

• Occult phenomenon
  – Measure when person is exposed or anonymous

• Product specificity
  – Include identification to specific product level including dosage size if possible.

• Geography
  – Localize case to 3 digit Zip Code

• Availability
  – Concept of Unique Recipient of Dispensed Drug (URDD)

• Time
  – Data reported quarterly, 3 months after end of quarter.
RADARS System Mosaic

Entering Treatment
- OTP
  - 73 programs
  - 33 states
  - M Parrino, A Rosenblum

Entering Treatment
- SKIP
  - 125 practices
  - 50 states
  - T Cicero

Acute Events from Abuse
- 53 Poison Centers
  - 46 States
  - R Dart

Drug Transactions
- Criminal Justice
  - 280 investigator
  - 50 states
  - H Suratt, S Kurtz

New Initiates
- 2000 college students
  - 50 States
  - 3x each year
  - R Dart

Illicit Market Price
- StreetRx.com
- Users/Buyers Crowdsourcing
  - 50 states
  - N Dasgupta
RADARS System Coverage Maps

Poison Centers

Drug Diversion

College Survey

Treatment Programs
RADARS® System Process
Product Availability

Numerators compiled by each program each quarter

Drug Diversion  Poison Center  OTP  SKIP  College Survey

POPULATION RATE = \frac{\text{Counts by System}}{\text{US Population}}

- Disease burden on whole population
- Does not account for drug availability

UNIQUE RECIPIENTS OF DISPENSED DRUG (URDD) RATE

- Number of unique people filling prescription for drug (refills excluded)
Importance of Availability
Survey of Key Informant Patients
Past 30 Day Endorsements, 2009-2012

Population Rate

- Methadone high, but decreasing
- Bup-Single Ingredient Increasing slightly
- Bup-Naloxone Combination Increasing Flat
- Bup-Naloxone Film Strip Increasing slightly
- Methadone Slight Decrease
- Bup-Single Ingredient Increasing Dramatically
- Bup-Naloxone Combination Increasing
- Bup-Naloxone Film Strip low, flat
Importance of Product Specificity

The RADARS® System Poison Center Program
Unintentional exposure rates of children aged 0 - 5 years to
Suboxone tablets and oral film per 1,000 URDD
4th Quarter 2009 through 4th quarter 2011

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Poison Center Program
Contacts Involving Intentional Abuse
OxyContin®, Opana® ER, Other Opioids

ORF = OxyContin ADF, CRF = Opana ER ADF
Intentional Abuse: An exposure resulting from intentional improper or incorrect use of a substance where the victim was likely attempting to gain a high, euphoric effect or some other psychotropic effect.
Poison Center Program
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Poison Center Program
Contacts Involving Intentional Abuse
OxyContin® Tablet Size

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Non-oral Routes of OxyContin Abuse
Poison Center Intentional Abuse

OxyContin

![Graph showing rates of non-oral and oral routes of OxyContin abuse over years. The graph compares pre and post ADF periods, with a decline in use post ADF.]
Opioid Evaluation

**Poison Center:**
- ADFs 30% - 68% decrease in abuse rate.
  - Effect is increasing overtime
- Non-oral rates of abuse are decreased
- No change in rate for other opioids

**Drug Diversion**
- ADFs: 30%-60% decrease in diversion rates
- No change in abuse cases for other opioids

**StreetRx**
- ADF version value 27% - 38% less in the black market

**Treatment Programs**
- ADFs: rates decreased 0% to 20%
- No change in rate for other opioids

**College Survey**
- No difference in rates
- Very low abuse before and after ADF introduction
Example of Validation
Comparison of StreetRx, RADARS System Drug Diversion and Silk Road

Dasgupta, Suratt, et al, JMIR in press
Quality Assurance Program

- All RADARS System documents revision controlled by Quality Assurance Department
- SOPs utilized for both internal and external operations for all programs
- Electronic drug taxonomy matrix with auto-locked survey questionnaire formatting
- DHHA hosted Sequel databases with administrator oversight and audit trail version control
- DCF process and audit reports with 90 resolution plans for findings and observations
- DHHA quality audit team that performs on-site program audits
Additional Considerations

• Do we care about all abusers equally?
• Does abuse or addiction have a spectrum of severity?
• Two populations of abusers, which overlap
  – Are new abusers different than relapsing addicts?
• Concurrent substances
  – Benzodiazepines, stimulants
• Other confounders or risk factors
  – Is pain a modifier?
The End
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