STRATEGIES TO REDUCE PRESCRIPTION OPIOID MISUSE IN THE USA

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US Prescription Opioid Misuse: The Facts

More Americans die every year from drug overdose than motor vehicle accidents

http://wonder.cdc.gov

In 2010:

- motor vehicle traffic deaths 33,687
- poisoning deaths 42,917
  - drug poisoning deaths 38,329
  - opioid overdose deaths 16,651 (43%)
Surveillance of Prescription Drug Misuse: US RADARS® System

• Researched Abuse, Diverted and Addiction-Related Surveillance (RADARS) System

• Conducting prescription drug abuse, misuse and diversion surveillance in the United States since 2001

• Provide common ground for Industry, Regulatory Agencies, Academics and Clinicians
United States RADAR® System Mosaic Approach

- College Survey CS-US
- Early Experimenters
- Opioid Tx Program OTP-US
- Patients in Treatment
- Drug Diversion DD-US
- Criminal Justice/Law Enforcement
- Poison Center PC-US
- Acute Events
- Survey of Key Informant Pts SKIP-US
- Patients in Treatment
- Street Price SRx-US
- Users/Buyers
Strategies Employed

- Abuse Deterrent formulations
- Prescription Drug Monitoring Programs
- Risk Evaluation & Mitigation Plans
- Community Based Interventions

Others: Pill Mills, Law Enforcement, Prevention, Education, Harm Reduction
Strategy: Abuse Deterrent Formulations

- **Physical/Chemical barriers** – prevent chewing, crushing, cutting, grating, or grinding. Resist extraction of the opioid using common solvents like water, alcohol, or other organic solvents.

- **Agonist/Antagonist combinations** – opioid antagonist added to interfere with, reduce, or defeat the euphoria associated with abuse. The antagonist can be sequestered and released only upon manipulation of the product.

- **Aversion** – Substances combined to produce unpleasant effect if dosage form is manipulated prior to ingestion or a higher dosage than directed is used.

- **Delivery System** (including depot injectable formulations and implants) – drug release designs or method of drug delivery that offers resistance to abuse.

- **Prodrug** – lacks opioid activity until transformed in the gastrointestinal tract can be unattractive for intravenous injection or intranasal routes of abuse.
Poison Center Intentional Exposures, Population Rate
OxyContin®, Opana® ER, Other Opioids
Poison Center Intentional Abuse, Population Rate
OxyContin®, Opana® ER, Other Opioids

![Graphs showing rate of abuse over time for OxyContin®, Opana® ER, and Other Opioids.](Image)
Poison Center Intentional Exposures, URDD Rate
OxyContin®, Opana® ER, Other Opioids
Poison Center Intentional Abuse, URDD Rate
OxyContin®, Opana® ER, Other Opioids

Graphs showing the rate per 1,000 URDD for OxyContin®, Opana® ER, and Other Opioids over different years and quarters.
Treatment Programs, URDD Rate
OxyContin®, Opana® ER, Other Opioids

OxyContin®

Rate per 1,000 URDD

Year/Quarter

Pre ORF | Pre CRF | Post ORF | Post CRF

Pre CRF | Post ORF | Post CRF

Opana® ER

Other Opioids

Rate per 1,000 URDD

Year/Quarter

Pre ORF | Pre CRF | Post ORF | Post CRF
Drug Diversion, URDD Rate
OxyContin®, Opana® ER, Other Opioids
Strategy: Abuse Deterrent Formulations

Effective in reducing non-oral abuse of 
**specific** product
Reduction of inappropriately prescribing
Less desirable for misuse
Retains pain medication efficacy

Little/no impact on oral misuse
Does not prevent physical 
dependence or addiction to active ingredient
Not required on all prescription opioids = limited effect
Risk of defeating ADF technology
Strategy: Prescription Drug Monitoring Programs

Statewide electronic databases of prescriptions dispensed for controlled substances (i.e., prescription drugs of abuse that are subject to stricter government regulation)

Large variation between programs (data architecture, ownership, use, compliance)
Strategy: Prescription Drug Monitoring Programs

Used by

- **prescribers** to check individual patient’s history with controlled substances during medical management to support access and legitimate medical use
- **pharmacy boards** to monitor prescriber behavior
- **pharmaceutical companies** to monitor inappropriate prescriber behavior and target interventions
- **law enforcement** to target efforts in combatting diversion
- **researchers** to study emerging trends and impact of interventions
- **regulatory agencies** to inform public health initiatives
PDMPs Operational in 43 States

Source: National Association of Model State Drug Laws
Last updated 9/11/2012; accessed 9/15/2012
Strategy: Prescription Drug Monitoring Programs

• 2012 review article summarized all peer-reviewed research published between 2001 and 2011 (11 articles; not all addressed effectiveness).
  • Concluded that PDMPs reduce “doctor shopping,” change prescribing behavior, and reduce prescription drug abuse.

• RADARS System Study – Published 2012
Key Findings:

- PC intentional exposures increased 1.9% per quarter w/o PMP, 0.2% w/PDMP (p=0.036)
- Treatment increased 4.9% per quarter w/o PMP, 2.6% w/PDMP (p=0.058)
Strategy: Abuse Deterrent Formulations

Effective in reducing abuse
Combats “doctor shopping”
Changes prescribing behavior
Rate of increase slower in states w/PDMP

State-based variation; no interstate integration (yet)
Not all PDMPs cover hydrocodone, codeine, and tramadol
Cannot account for all sources of supply
Require prescriber to submit a query
Strategy: Risk Evaluation & Mitigation Strategy

- Risk Evaluation and Mitigation Strategies (REMS)
  - Product specific, shared or class-wide
  - Purpose to implement actions that prevent and mitigate risk of a particular drug
  - Actions may include:
    - Medication guide for patients – risks and prevention (i.e. accidental exposures in children)
    - Call center for patients and providers
    - Provider training and certification BEFORE they are able to prescribe the drug
    - Limitations on how many patients or prescriptions each provider may have
    - Patient registries
    - Monitoring of REMs activities
Pediatric Accidental Exposures

The RADARS® System Poison Center Program
Unitentional exposure rates of children aged 0-5 years to
Buprenorphine/naloxone tablets and oral film per 1,000 URDD
4th quarter 2009 through 1st quarter 2012

Data available at:
Strategy: Community Based Interventions

Operation UNITE

• “Unlawful Narcotics Investigations, Treatment and Education”
• Three-pronged intervention
  • Education
  • Enforcement
  • Treatment
Rise in Abuse Less in Targeted Region

The RADARS® System Poison Center Program
Intentional Abuse Population Rates – All Opioids 2nd Quarter 2006 to 4th Quarter 2011, Percent Change from Baseline
Strategy: Community Based Interventions

- Effective in reducing rate of incline in abuse in targeted area
- Target interventions developed for specific issues in specific areas
- Smaller population usually means more homogenous population reducing confounders

- Limited impact by geographic region
- Sustainability
- Can be expensive for little return
- Require community engagement
REVIEW OF OPIOID AND STIMULANT TRENDS IN THE UNITED STATES

Have we reached the plateau?
Overall Opioid Abuse Trends in United States
Population Rates, 2002-2012

Population Rate
Availability Rate (URDD)
Poison Center Program – Abuse Exposures
Population Rate – All Opioids
2009 Q1 through 2013 Q2
The RADARS® System Opioids

Poison Center Program – Abuse Exp - Pop Rate by Drug
2009 Q1 through 2013 Q2

Rate per 100,000 population

Year Quarter

Oxycodone
Fentanyl
Hydrocodone
Hydromorphone
Morphine
Oxymorphone
Buprenorphine
Tramadol
Tapentadol
Poison Center Program – Abuse Exposures
URDD Rate – All Opioids
2009 Q1 through 2013 Q2
The RADARS® System Opioids

Poison Center Program – Abuse Exp - URDD Rate by Drug
2009 Q1 through 2013 Q2
The RADARS® System

Treatment Programs – URDD Rate – All Opioids
2009 Q1 through 2013 Q2
The RADARS® System Opioids

Treatment Programs— URDD Rate by Drug
2009 Q1 through 2013 Q2
The RADARS® System Opioids

Drug Diversion Program – URDD Rate by Drug
2009 Q1 through 2013 Q2

- Oxycodone
- Fentanyl
- Hydrocodone
- Hydromorphone
- Morphine
- Oxymorphone
- Methadone
- Buprenorphine
- Tramadol
- Tapentadol
What the Future Holds

• Pharmaceutical innovations
  • Active ingredients and abuse deterrent platforms

• Regulatory strategies
  • Integration of Prescription Drug Monitoring Programs
  • Guidance on requirements for labeling of abuse deterrent formulations (incentives for companies to develop technology)
  • Requirement of additional post market studies (observational and clinical trials)

• Measuring impact
  • Multimodal (“mosaic”) approach

• Global Movement
Letter to the Editors

Prescription opioid abuse in the UK

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Figure 1

Drug-related deaths by selected drugs reported in England, Wales and Scotland, 2001–2011. Note that heroin and morphine are reported as one category in the data from England, Wales and Scotland; given that the focus of this analysis is on prescription opioids, that category was not included in this analysis. – methadone in England and Wales; – tramadol in England and Wales; – other opiates in England and Wales; – England and Wales total opioid-related deaths (excluding heroin/ morphine); – methadone in Scotland; and – tramadol in Scotland.
Boys found with pills such as tramadol, ministry figures show

Mohammed N Al Khan

DUBAI // Boys as young as 12 have been found illegally using prescription drugs including tramadol, Ministry of Interior statistics show. Last year 131 cases of drug use in boys under the age of 18 were reported, including one aged 13. That was down from 2011 when 153 boys were found, including one aged 12 and five aged 13.

None of the cases involved girls. "These numbers reflect cases that have come to the attention of the ministry," said Col Abdul Rahman Al Owais, deputy director general of the ministry's anti-narcotics directorate. "They don't take into account recurring offenders. That said, it shows how prevalent this problem is in the country."

He was addressing the fourth annual International Security Education conference yesterday.

Boris Znamenski, programme manager officer for the UN Office on Drugs and Crime, told the conference education was the key to preventing drug use.

"Punishment does not give the best results," Mr Znamenski said. "More police on the street will not result in less drugs. If the demand is there, you will have supply."

Drugs, continued on 6 →
RADARS® System Europe
Mosaic Approach

- Internet Survey Europe (IS-EU & IS-CA)
- General Population
- Global Toxicosurveillance Network Europe (GTNet-EU & PC-CA)
- Acute Events
- Street Price Europe (SRx-EU & SRx-CA)
- Users/Buyers
- Webmonitoring Europe (WM-EU & WM-CA)
- Posts To the Internet
- European Opioid Treatment Patient Survey (EUROPAD)
- Patients in Treatment