Key Data Gaps for Understanding Trends in Prescription Opioid Analgesic Abuse and Diversion Among Chronic Pain Patients and Nonmedical Users

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Key Data Gaps for Understanding Trends in Prescription Opioid Analgesic Abuse and Diversion Among Chronic Pain Patients and Nonmedical Users

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Abstract
Population dynamics of medical and nonmedical prescription opioid usage and adverse outcomes were modeled. Critical parameter values were determined by their amount of influence on model behavior. Results suggest that closing these data gaps would help researchers to better identify ways to reduce the risk of adverse outcomes.

Introduction
Increased use, misuse, and abuse of prescription opioid analgesics reflects a complex interaction of:
- Access to the medications,
- Use characteristics, and
- Public policies to control chronic pain medications. A high-level system dynamics model was created to interlink data on initiation, prevalence, and outcomes related to prescription opioid pain medications.

Aims
1. Comprehensively review available data on medical use, misuse, abuse, diversion and nonmedical use of prescription opioids
2. Identify data needed to specify model parameters and create a well-supported dynamic model

Methods
a) Create dynamic model
b) Comb peer-reviewed literature, published databases and presentations for parameter data
c) Test sensitivity of model to parameter values
d) Identify key parameters with insufficient data support

Results
Critical data deficits:
- Impact of perceived risk on prescribing behavior
- Impact of tamper-resistance on user behavior
Other deficits:
- Impact of education on prescribing behavior
- Overdose mortality rates
- Percent of chronic pain sufferers that receive opioid treatment
- Percent of prescriptions forged

Note: Font sizes in figure indicate degree of impact

Discussion
Despite plentiful data, significant gaps remain. Changes in the wording of some NSDUH questions and the coding used in DAWN could help to close these gaps. The distinction between medical abuse and non-medical use could be clarified by linking prescription data and overdose incident data at the case level.

Conclusion
Closing the indicated data gaps will help researchers create models to:
- Explain system-level trends and dynamics
- Help determine the effectiveness of risk evaluation and mitigation strategies
- Identify policies likely to reduce negative outcomes without compromising pain treatment

DATA NEEDED
- Perceived Risk
  How does it influence prescribing?
- Education
  Effects on Prescribers
- Tamper Resistance
  How strongly does it influence misuse and abuse?
- Overdose Mortality Rates
  For Nonmedical Users and Medical Users who Abuse or are Dependent

DATA AVAILABLE AND USED
- Addiction Rate
  For Prescription Pain Relievers
- Illicit Use Frequency
  Among Users who Abuse or are Dependent
- Illicit Drug Use
  National Percentages
- Abuse Initiation
  Of Prescription Pain Relievers for those Aged 12+
- Trends
  In Opioid Prescribing
- Characteristics
  of Prescription Opioid Users and Nonmedical Users
- Predictors
  Of Dependence and Abuse
- Typical Daily Dose
  For Specific Opioids
- Opioid Mentions
  in Emergency Department Visits
- Onset of Chronic Pain
  Reported by those who Abuse Opioids
- Illicit Sources
  Percentage who Get Prescription Opioids from Friends or Family

DATA AVAILABLE
- Perceived Risk
- Education
- Tamper Resistance
- Overdose Mortality Rates
- Addiction Rate
- Illicit Use Frequency
- Illicit Drug Use
- Abuse Initiation
- Trends
- Characteristics
- Predictors
- Typical Daily Dose
- Opioid Mentions
- Onset of Chronic Pain
- Illicit Sources

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References