

Prescription Behavior Surveillance Using PDMP Data

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Warning Bands - Top & Bottom with security features.

Consecutive Numbering

Thermo-chromic Ink

Void Pantograph with chemical protection

Microprinting

THE FACE OF THIS DOCUMENT HAS A COLORED BACKGROUND ON WHITE PAPER.

PHYSICIANS MEDICAL GROUP
A. Bill Coleman, M.D.

Patient Name

Address Phone No. () Age Gender

Rx

INITIAL QUANTITY
☐ 1 - 24
☐ 25 - 49
☐ 50 - 74
☐ 75 - 100
☐ 101 - 150
☐ 151 & over

☐ No Refills
or
of Refills: _____

REFILL QUANTITY:
☐ DO NOT SUBSTITUTE

Prescription is void if more than one controlled substance prescription is written per blank.

A. Bill Coleman, MD
(xxx) xxx-xxxx
12345 First Street
Anytown, XX xxxxx

DEA No. XX 0000000 CA Lic. No. X-00000

DATE

THE ORIGINAL DOCUMENT HAS A REFLECTIVE WATERMARK ON THE BACK. HOLD AT AN ANGLE TO VIEW.

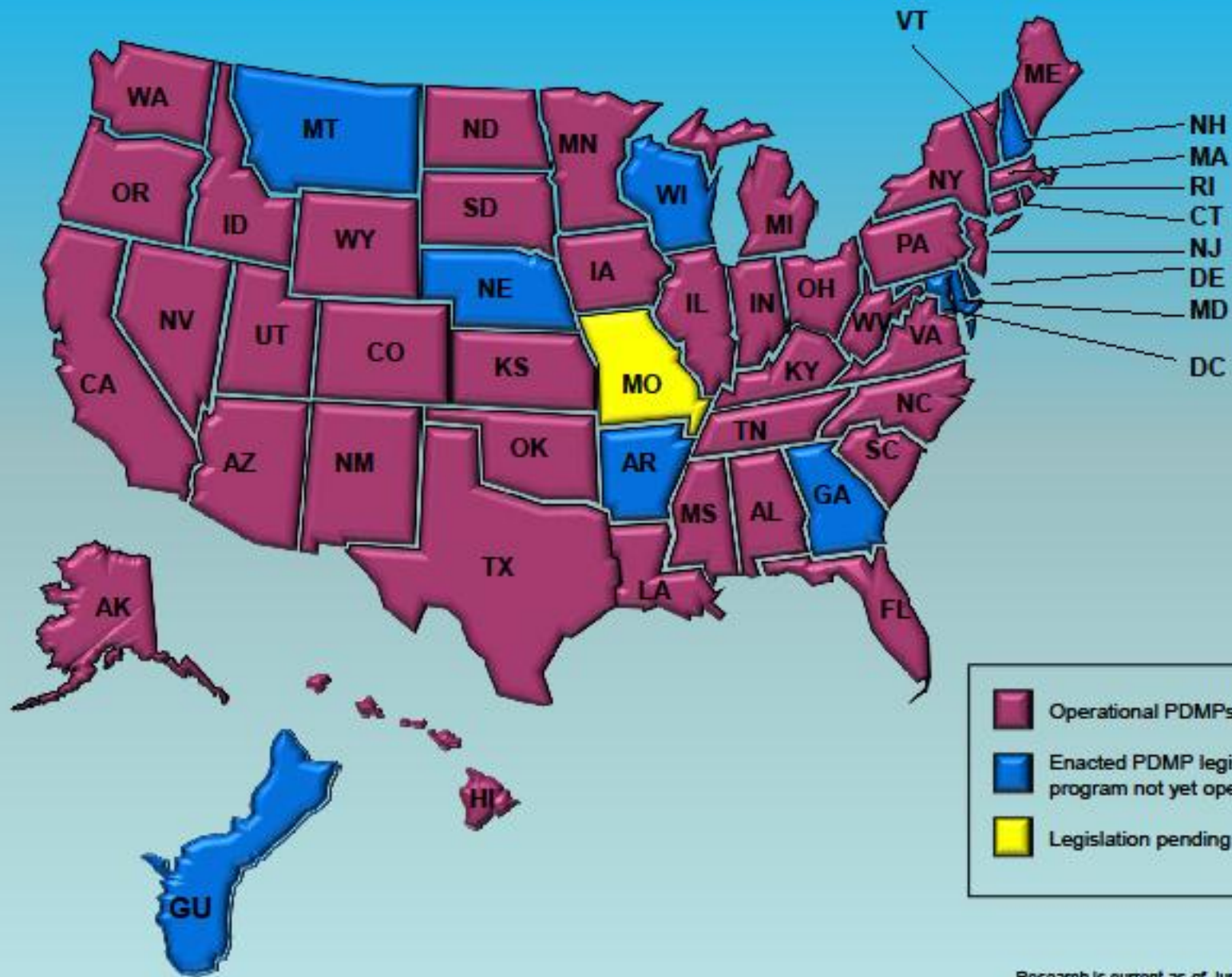


CSTE Webinar
July 31, 2012

Outline of the Talk

- Background on Prescription Drug Monitoring Programs (PDMPs or PMPs)
- PDMPs as surveillance tools
- Standard PDMP data elements
- Descriptive measures to characterize populations
- Risk measures for populations or individuals

Status of Prescription Drug Monitoring Programs (PDMPs)



Research is current as of June 13, 2012

Information on Your State PDMP

- See the states page at the *Alliance of States with PMPs* website:
 - <http://www.pmpalliance.org/content/state-profiles>
- Find there your state's PMP parent agency, frequency of data collection, schedules monitored, access restrictions, and other information

PDMP Data Use on the Federal Level

- Using support from CDC's Injury Center and FDA, the Bureau of Justice Assistance funded the PMP Center of Excellence at Brandeis University to establish an independent, de-identified, longitudinal PDMP database with data from selected states legally able to share their data for research purposes.

PDMP Attributes As a Surveillance System

- Simplicity: single data source, few data elements, drug code (NDC) is complicated
- Flexibility: limited fields
- Data quality: insurance and system error checks
- Acceptability: mandatory
- Sensitivity: high, required by law
- Predictive value positive: metrics untested
- Representativeness: population-based
- Timeliness: days to weeks
- Stability: in most cases operating for years
- Cost: support inadequate for most PDMPs

See: Lee et al, eds., Principles and Practice of Public Health Surveillance, 3rd edition, 2010.

Model Act 2010 Revision

Data Elements for PDMPs

Prescription	Number, Date issued by prescriber, Date filled, New or refill, Number of refills, State-issued serial number (optional)
Drug	NDC code for drug, Quantity dispensed, Days' supply dispensed
Patient	Identification number, Name, Address, Date of birth, Sex, Source of payment, Name of person who receives prescription if other than patient
Prescriber	Identification number
Dispenser	Identification number

Descriptive Measures: Prescription Counts

- Specific compound, formulation
- Drug class
 - Opioids, benzodiazepines, stimulants, etc.
 - All extended-release formulations of opioids
 - Class within a schedule, eg, Schedule II opioids
- Daily dosage of an opioid prescription

Descriptive Measures: Denominators

- Person, eg, rx per 100,000 people (most common)
- Patient, eg, rx per 100,000 patients
- Prescriber, e.g., mean daily dose/prescriber
- Pharmacy, e.g., rx/pharmacy

Time period is specified: e.g., in 2012, in past quarter

Descriptive Measures: “By” Variables

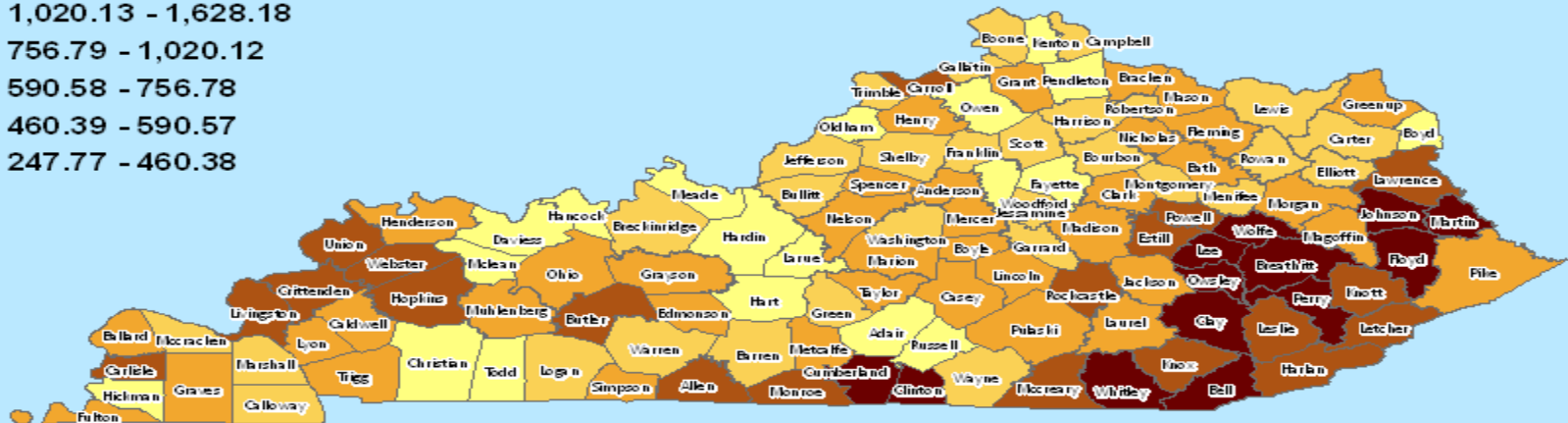
- Patient sex, age group
- Patient/prescriber/pharmacy by county or zip code
- Month, year (prescribed or dispensed)
- Prescriber specialty (requires linkage based on prescriber number)
- Source of payment (where collected)
- Patient type, e.g, opioid-naive

Kentucky All Schedule Prescription Electronic Reporting System (KASPER)

Controlled Substances Usage Per 1000 by Patients Address

Per 1000 by Patient Address

Quarter 1 (Jan 01 - Mar 31) 2012



0 15 30 60 90 120 150 Miles



Risk Measures: Daily Dose

- Daily dosage for opioids
 - Converted to morphine milligram equivalents (MME)
 - Handling of overlapping prescriptions: add?
 - Continuous but usually categorized, e.g.,
 - High, e.g., >100 MME/day
 - Going beyond specific dosing guidelines
 - e.g., more than 30 mg of methadone per day for an opioid-naïve person
 - Or quantified by measures of central tendency: mean or median dose
 - SAS coding to do MME conversions available from CDC
- Benzodiazepine dosage
 - Can be converted to valium equivalents
 - Almost never done

Risk Measures: Prescription Timing

- Overlapping prescriptions of the same type
 - Opioid overlap, e.g., 7+ days is common
 - Issue of maintenance and “breakthrough pain” prescriptions prescribed to overlap
- Rapid dosage escalation
 - 50%+ increase in mean MME/month twice consecutively during one year (White 2009 definition)

Risk Measures: Prescription Drug Combinations

- Opioids overlapping with benzodiazepines or muscle relaxants or both
- Regional specialties:
 - Florida: oxycodone and alprazolam (a benzodiazepine)
 - Texas: “Holy Trinity” of hydrocodone, alprazolam, and carisoprodol (a muscle relaxant)

Risk Measures: Distance

- Large distances
 - Patient residence to prescriber office compared with nearest prescriber
 - Patient residence to pharmacy compared with nearest pharmacy
 - Out-of-state prescription filled in-state
 - Non state-resident using state pharmacy
- Requires availability of patient residence, linkage to data on prescriber and pharmacy address, and GIS mapping.

Risk Measures: Multiples

- Multiple prescriptions from same class
- Multiple classes of scheduled drugs
- Multiple prescribers or pharmacies or both

Measures of “Shopping” or “Multiple Provider Episodes”

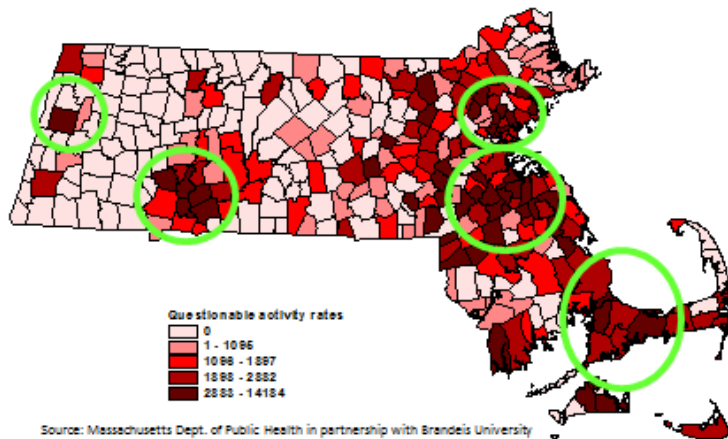
Author (year)	Drug	No. of Prescribers	No. of Pharmacies	Rx Overlap	Time Period
Hall (2008)	Any CS	5+	NA	NA	1 yr
Peirce (2012)	Any CS	4+ NA	NA 4+	NA NA	6 mo 6 mo
Ohio DOH (2010)	Opioid	Avg of 5+	NA	NA	Over 3 yrs
Gilson (2010, 2012)	“Same medication”	2+	2+	NA	30 d
Katz (2010)	Any CSII	4+	4+	NA	1 yr
Cepeda (2012)	Opioid	2+	3+	1+ day	18 mo
BJA criteria	CSII-IV	5+	5+	NA	3 mo.

Use of PMP Data by MA Department of Public Health

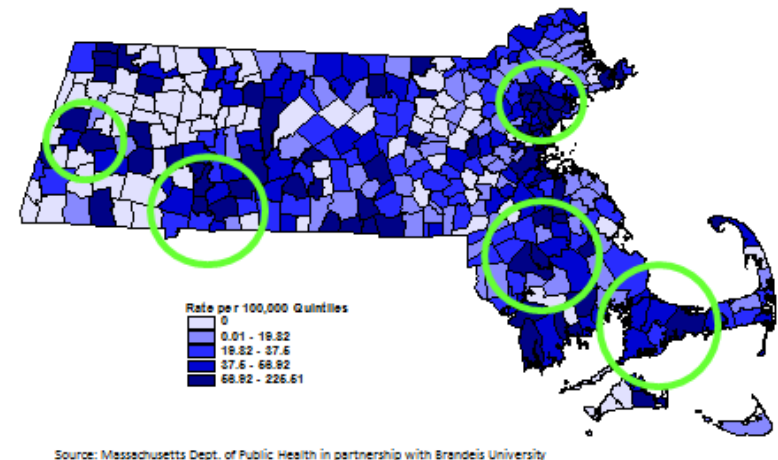
**“Shopping” as a portion of
all prescriptions**

Overdoses in ED Data

2005 Prescriptions Associated with Questionable Activity
(Rates per 100,000 Prescriptions) by Pharmacy Town



2005 Opioid-related Overdoses
Rate per 100,000 by Town



Slide provided courtesy of Peter Kreiner, PMP Center of Excellence at Brandeis. Doctor shopping, the questionable activity, was defined as 4+ prescribers and 4+ pharmacies for CSII in six months.

Patient vs. Provider Metrics?

- Top 1% of prescribers based on number of prescriptions might account for 33% of the morphine equivalents (MME) in your state.(1)
- Top 1% of patients might account for 40% of MME.(2)
- However, there might be 100 patients in the PMP for every prescriber, so it takes roughly 100 times more effort to address the same fraction of problematic prescriptions.
- For interventions, provider case-finding is preferred based on efficiency.

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Thank You

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The findings and conclusions in this report are those of the author and do not necessarily represent the views of the Centers for Disease Control and Prevention.