

Prescription Monitoring as a Public Health Intervention: A Review of the Literature

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Prescription Monitoring Programs

Historically

- Used government-issued serialized forms (MCPs)
- Applied only to Schedule II medications
- Administered by law enforcement
- Data were not compiled timely
- MCPs associated with decreased prescribing/availability of Schedule II medications
 - “chilling effect,” “stigmatization,” “substitution effect”
 - cost savings
 - evidence of program effectiveness
- No direct evidence of decreased abuse/diversion

Prescription Monitoring Programs

Recently

- Use electronic data transfer systems (EDTs)
- Applies to multiple schedules of medications
 - less chance of “stigmatization” or “substitution effect”
- Administered by health agencies
- Clear statements that these programs are not meant to hinder patient care
- Data are compiled more timely (still not real time)
- Little evidence of effect on legitimate prescribing
- Some indication of decreased diversion
 - reduced investigation time
 - officials’ statements – diversion moves out of state (KY)

Reports on PMPs: Federal Programs

- U.S. General Accounting Office. *Prescription drug monitoring: States can readily identify illegal sales and use of controlled substances* (1992)
- Drug Enforcement Administration – Office of Diversion Control. *Committee report on establishing a state prescription monitoring program* (1995)
- Drug Enforcement Administration/National Alliance for Model State Drug Laws. *Diversion and abuse of prescription drugs: A closer look at state prescription monitoring programs* (2000)
- U.S. General Accounting Office. *Prescription drugs: State monitoring programs provide useful tool to reduce diversion* (2002)
- U.S. General Accounting Office. *Prescription drugs: State monitoring programs may help reduce illegal diversion* (2004)

Reports on PMPs: National Programs

- American Medical Association. *Balancing the response to prescription drug abuse* (1990)
- National Institute on Drug Abuse. *Impact of prescription drug diversion control systems on medical practice and patient care* (1993)
- Alliance of States with Prescription Monitoring Programs. *The goals of prescription monitoring* (1999)

Reports on PMPs: State Programs

- New York State Department of Health. *Benzodiazepines: Additional effects of the triplicate program* (1990)
- Michigan Department of Commerce & Michigan Controlled Substance Advisory Commission. *Michigan triplicate prescription program: Evaluation report* (1993)
- Indiana Board of Pharmacy. *Report of the Indiana Board of Pharmacy to the legislative council concerning the electronic monitoring of controlled substances* (1997)
- Michigan Department of Commerce & Michigan Controlled Substance Advisory Commission. *Michigan official prescription program: Evaluation report* (1997)
- Barret K. *Prescription monitoring program survey: Report of findings for Virginia* (2004)
- Kentucky Cabinet for Health and Family Services – Office of the Inspector General. *Kentucky All Schedule Prescription Electronic Reporting (KASPER): A comprehensive report on Kentucky's prescription monitoring program* (2006)
- Kansas Prescription Drug Monitoring Program Advisory Committee. *Kansas prescription drug monitoring program Advisory Committee: Legislative report* (2009)
- Vermont Department of Health. *Vermont prescription monitoring program: Report to the Legislature on Act 205* (2009)

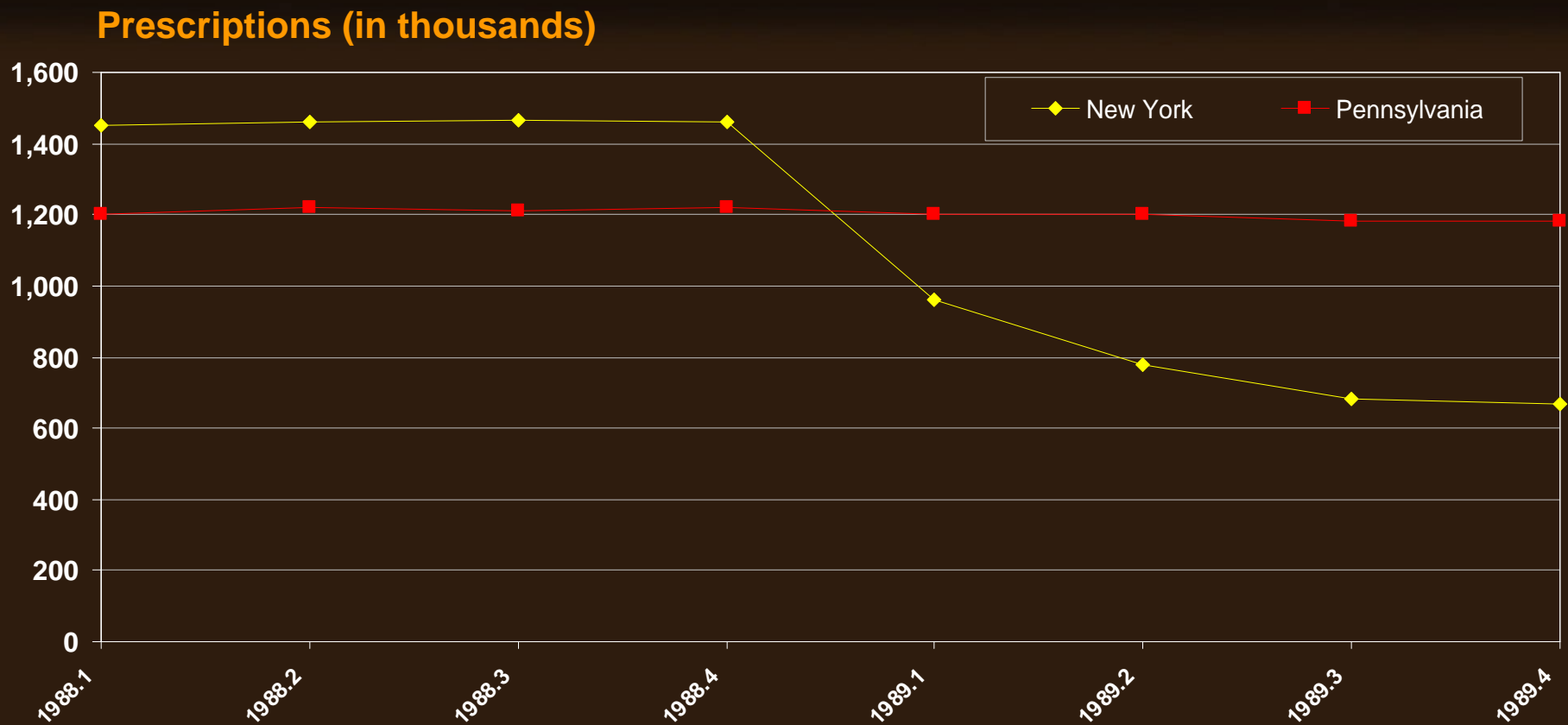
Effects of PMPs: Empirical Publications

- Sigler KA, et al. Effect of a triplicate prescription law on prescribing of Schedule II drugs. *American Journal of Hospital Pharmacy* (1984)
- Reidenberg MM. Effect of the requirement for triplicate prescriptions for benzodiazepines in New York State. *Clinical Pharmacology and Therapeutics* (1991)
- Zullich SG, et al. Impact of triplicate prescription program on psychotropic prescribing patterns in long-term care facilities. *Annals of Pharmacotherapy* (1992)
- Weintraub M, et al. Consequences of the 1989 New York State triplicate benzodiazepine prescribing regulations. *JAMA* (1993)
- Wastila LJ, Bishop C. The influence of multiple copy prescription programs on analgesic utilization. *Journal of Pharmaceutical Care in Pain & Symptom Control* (1996)
- VanHaaren AM, et al. Effect of triplicate prescription policy on benzodiazepine administration in nursing home residents. *Pharmacotherapy* (2001)
- Wagner AK, et al. Effects of state surveillance on new post-hospitalization benzodiazepine use. *International Journal for Quality in Health Care* (2003)
- Simoni-Wastila L, et al. A retrospective data analysis of the impact of the New York triplicate prescription program on benzodiazepine use in medical patients with chronic psychiatric and neurologic disorders. *Clinical Therapeutics* (2004)
- Ross-Degnan D, et al. A controlled study of the effects of state surveillance on indicators of problematic and non-problematic benzodiazepine use in a Medicaid population. *International Journal of Psychiatry in Medicine* (2004)
- Curtis et al. Geographic variation in the prescription of Schedule II opioid analgesics among outpatients in the United States. *HSR: Health Services Research* (2006)

Empirical Publications: First Generation

Authors	States	Methods	Timeframe	Analyses	Results
Sigler et al. (1984)	TX	hospital chart review	6 months/ 6 months	descriptive	decreased Rx, substitution
Reidenberg (1991)	NY vs. PA	IMS data	12 months/ 12 months	descriptive	decreased Rx, <i>na</i>
Weintraub et al. (1991)	NY vs. CA, NC, NJ, US	IMS, Medicaid, & Blue Cross/Blue Shield data	24 months/ 24 months	descriptive	decreased Rx, substitution, decreased Medicaid expenditures
Zulich et al. (1992)	NY	nursing home record review	6 months/ 6 months	risk ratios	decreased Rx, substitution, no change in adverse events (falls, hospitalizations, etc.)

Benzodiazepine prescriptions in NY and PA: 1988-1989



Reidenberg (1991)

Empirical Publications: Second Generation

Authors	States	Methods	Timeframe	Analyses	Results
Wastila & Bishop (1996)	multistate	National Ambulatory Medical Care Survey data	<i>na</i>	multivariate logistic regression (MCPD vs. non-MCPD)	decreased Rx, substitution
Van Haaren et al. (2001)	NY vs. KS, ME, MS, SD	Systematic Assess. of Geriatric Drug Use via Epidemiology (SAGE) data for Medicaid- and Medicare-certified nursing homes	<i>na</i>	multivariate logistic regression	decreased Rx, no substitution
Wagner et al. (2003)	NY vs. NJ	Medicaid data	12 months/ 24 months	segmented time-series regression	decreased Rx, <i>na</i>
Simoni-Wastila et al. (2004)	NY vs. NJ	Medicaid data	12 months/ 24 months	segmented time-series regression	decreased Rx, substitution, decreased pharmacy hopping
Ross-Degnan et al. (2004)	NY vs. NJ	Medicaid data	12 months/ 24 months	segmented time-series regression; multivariate logistic regression	decreased Rx, substitution, decreased pharmacy hopping
Curtis et al. (2006)	multistate	Drug claims data	<i>na</i>	multivariate linear regression	decreased claims; <i>na</i>

Simeone & Holland

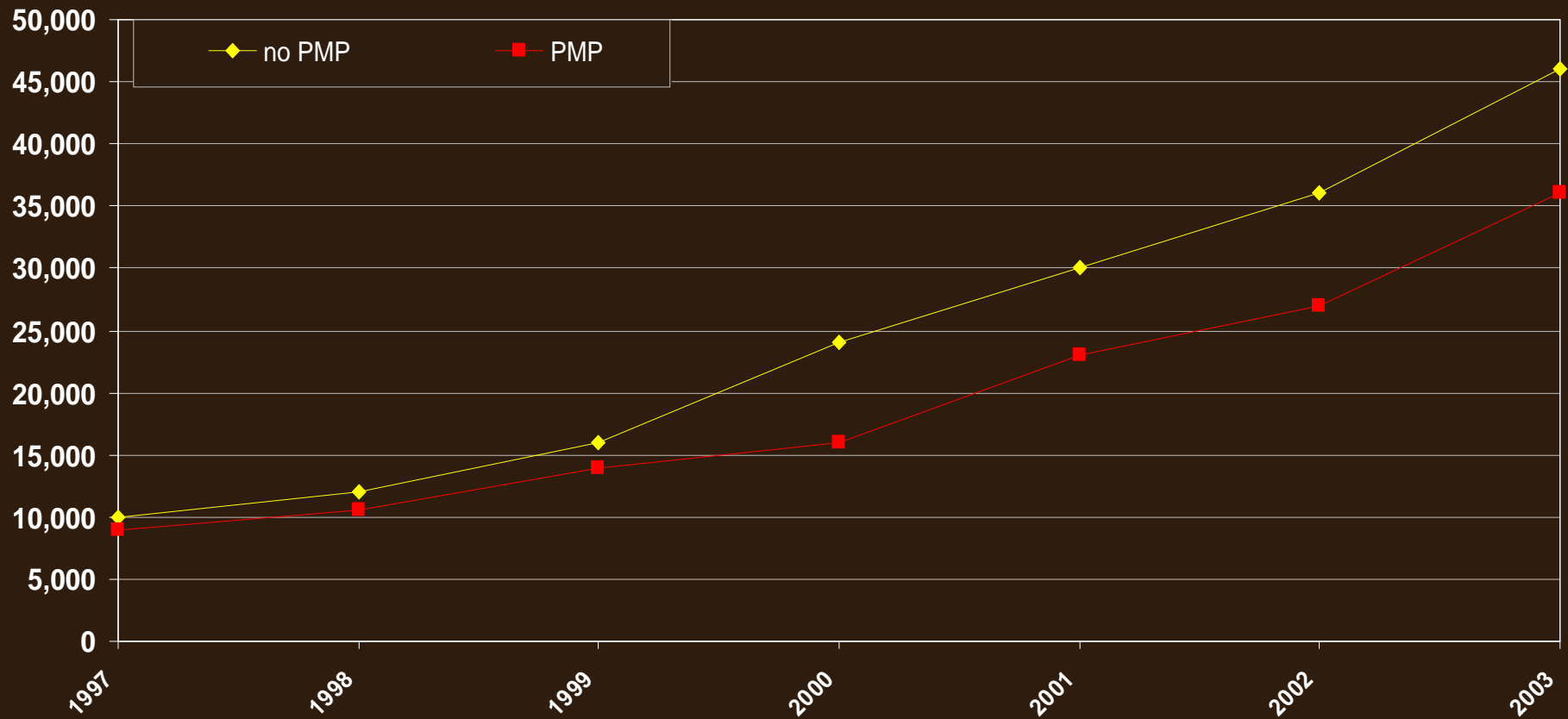
(Simeone Associates, Inc., Sept. 1, 2006)

Effects of PMPs on probability of Rx drug abuse

- Indirect: Controlled substances supply data
 - ARCOS – retail distribution (grams/100,000 pop.)
 - Pain relievers: fentanyl, hydromorphone, meperidine, methadone, morphine, oxycodone
 - Stimulants: amphetamine and methylphenidate
 - Equianalgesic conversion (“composite” variable)
- Direct: Abuse data
 - TEDS – admissions to AOD treatment facilities (~ 70% of known admissions)
 - primary, secondary, and tertiary substances of abuse
 - concordance with ARCOS controlled substances
- Controlling effects of state-level characteristics
- Timeframe: January 1, 1997 to December 31, 2003
- “Proactive PMP” (unsolicited reports) vs. “Reactive PMP” (solicited reports)

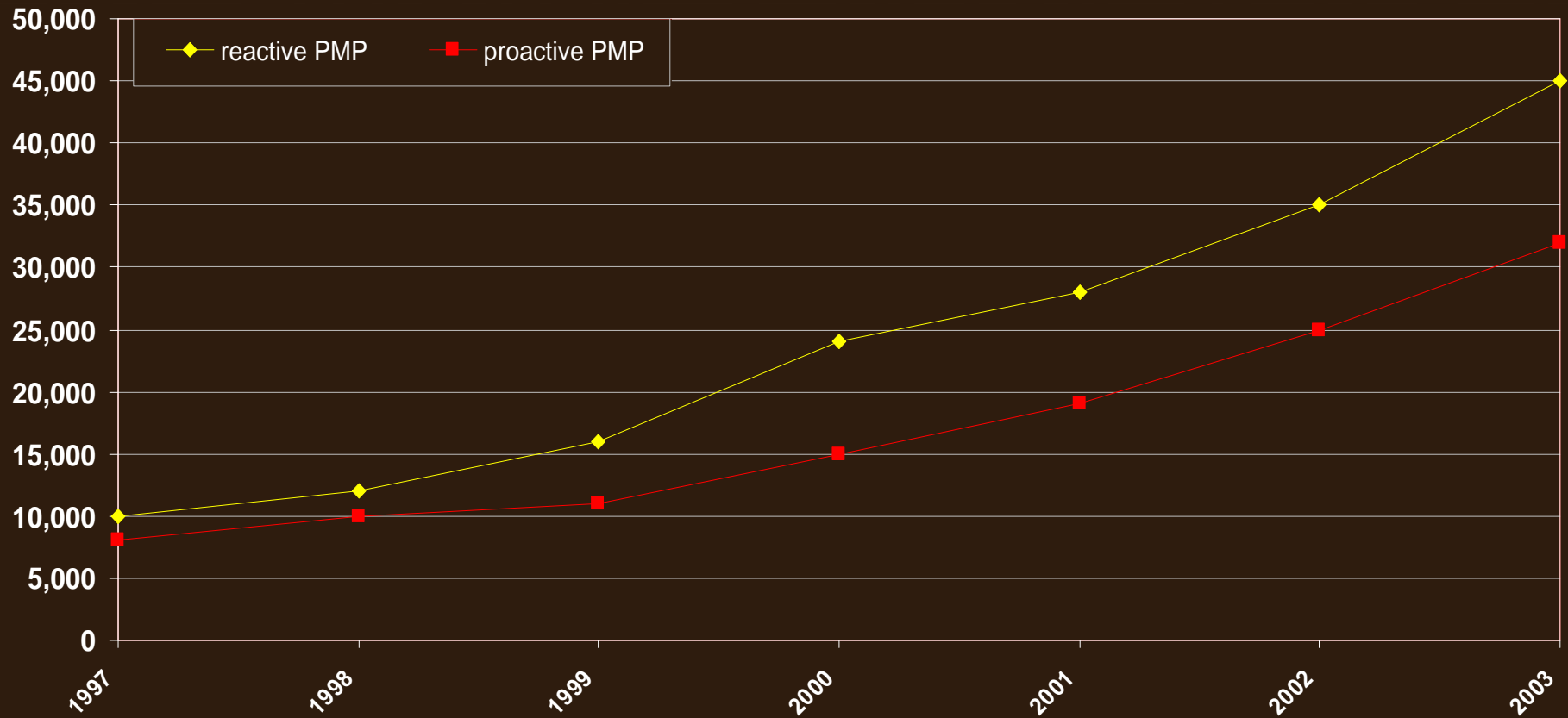
Effects of PMPs on Schedule II opioids: 1997-2003

PR Composite (grams/100,000 pop.)



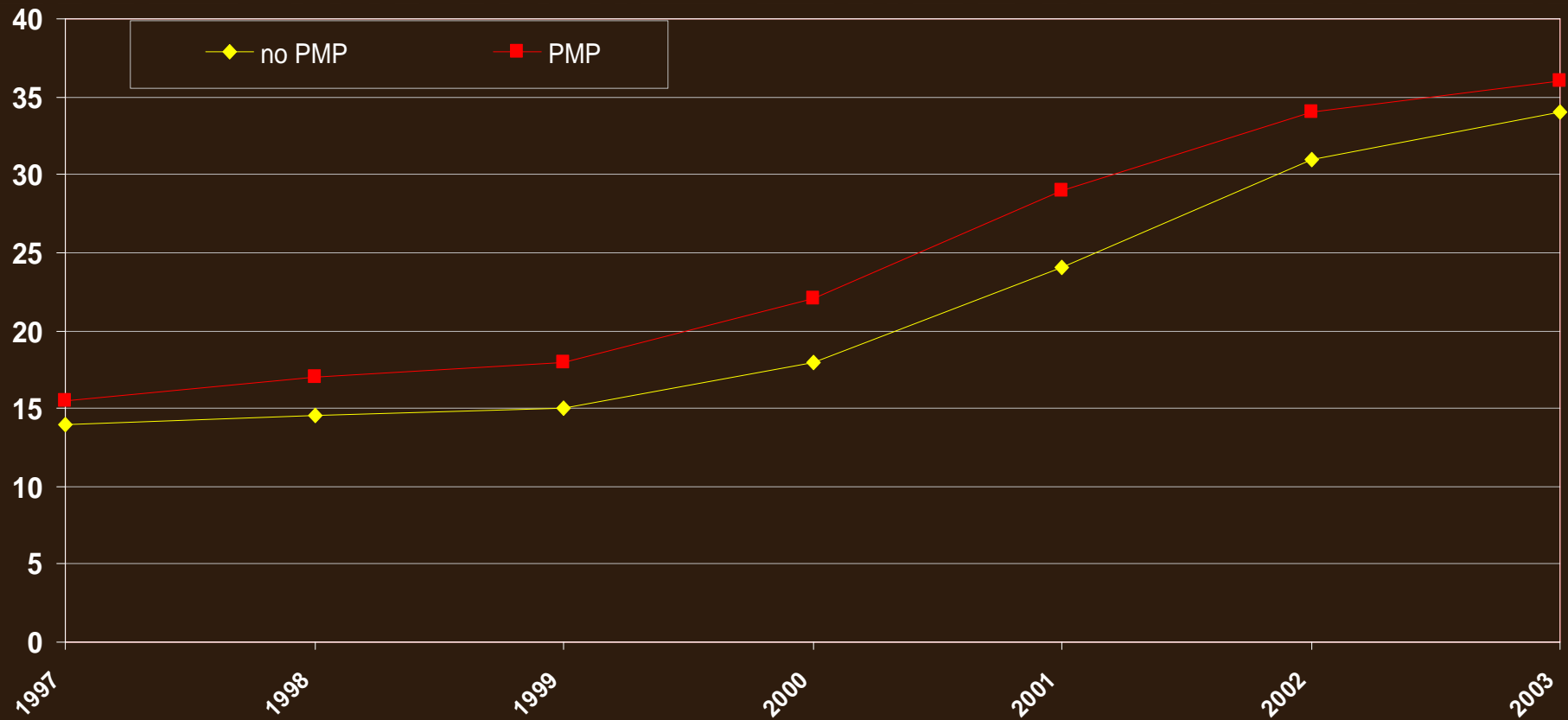
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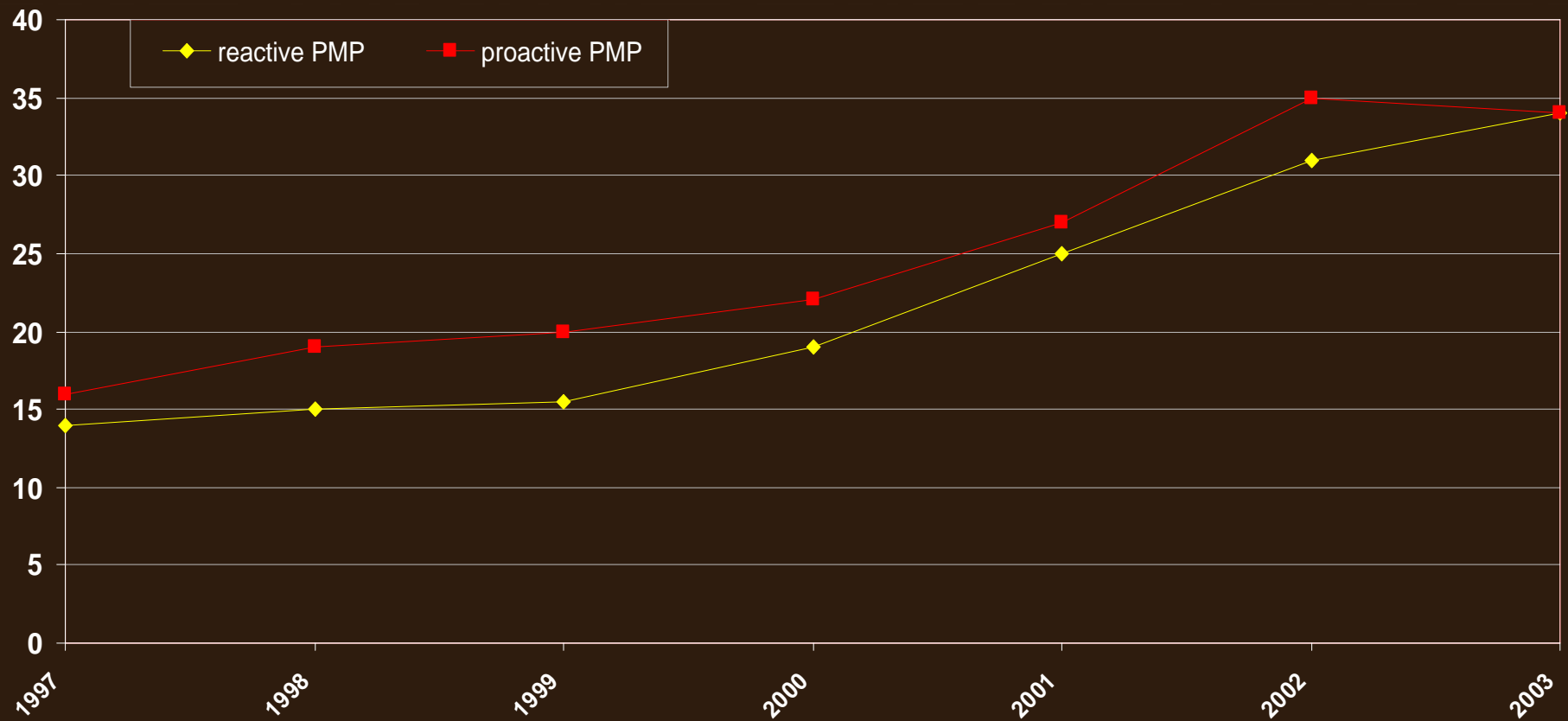
Effects of PMPs on treatment admissions: 1997-2003

PR Admissions (number/100,000 pop.)

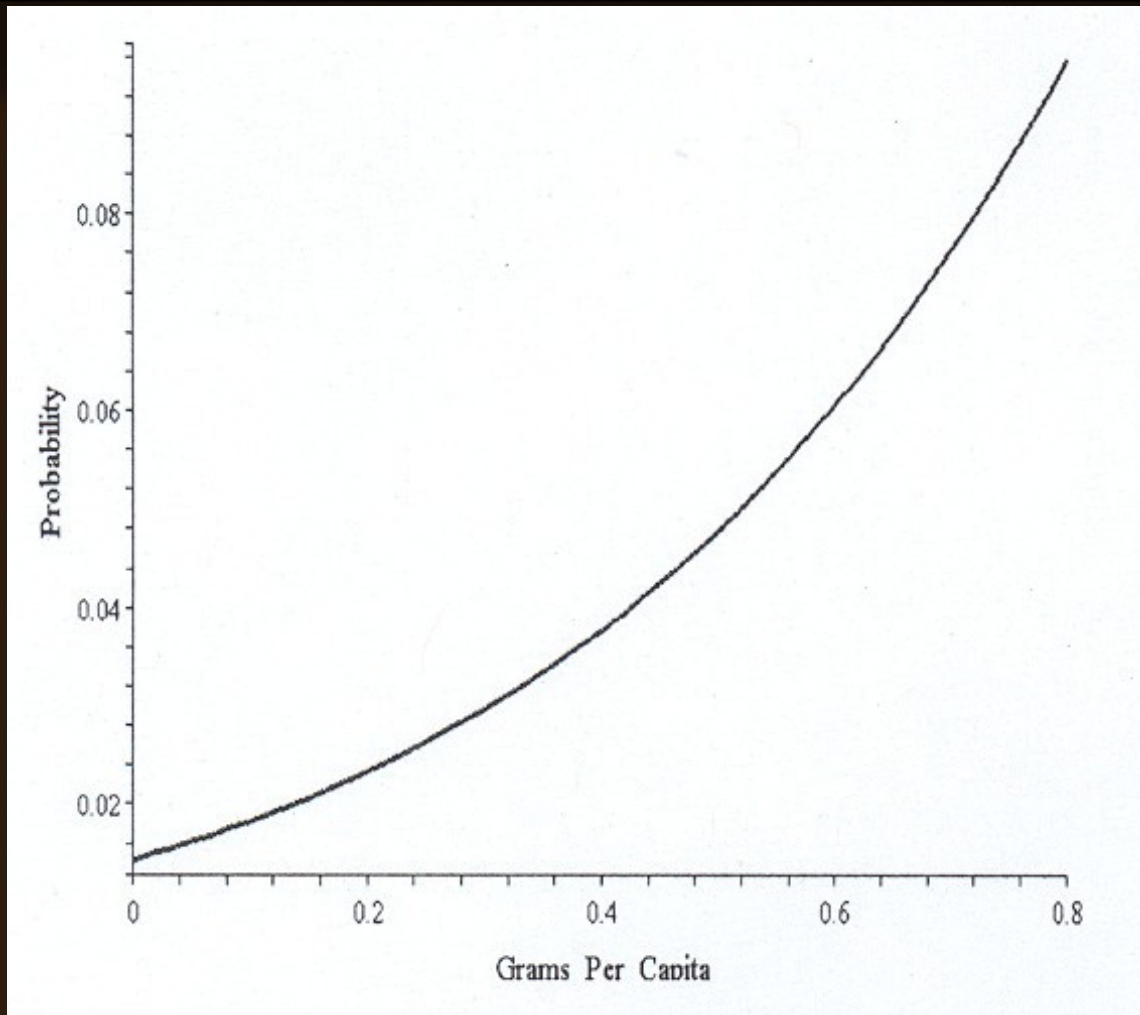


Effects of PMPs on treatment admissions: 1997-2003

PR Admissions (number/100,000 pop.)



PR abuse by PR “composite” supply



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Effects of California' PMP (CURES)

- Worked with the Office of the Attorney General to receive de-identified data
 - 108 months (1/1/99 – 12/31/07) of Schedule II prescription data
 - 36 months (1/1/05-12/31/07) of Schedule III prescription data
 - ~ 60.5 million opioid prescriptions written for 12.5 million patients
- Multivariate methodologies for different timeframes
 - identify prevalence of substitution effect
 - identify prevalence of multiple provider episodes
 - profile multiple provider episodes

Conclusions from Empirical Work

- PMP can be an important mechanism to reduce abuse and diversion of prescription medications
- Immediate and sometimes prolonged reduction in prescribing and availability
 - appropriate vs. inappropriate prescribing
- Identify physician and pharmacy “shoppers”
- Reduce treatment admissions
- Importance of proactive reports
 - ready access to information

Future Efforts

- Increase evaluation of PMPs' impacts (Katz et al., 2008)
- Enhance practitioners' awareness of electronic PMPs
- Enhance real-time capability
- Need for information exchange (IJIS Institute report, 2006)
- Assess utility of Advisory Committees
 - appropriate vs. inappropriate treatment
- Affordability in current economic environment