

## Abstract

**Background:** The non-medical use of prescription opioid misuse is a significant health problem in the United States. Prescription drug monitoring programs (PDMPs) are intended to reduce the incidence of drug diversion activities.

**Objective:** Describe the existing literature on the impact of PDMPs on opioid-related outcomes

**Methods:** Peer-reviewed primary literature on PDMPs from 2000-2017 were identified. Data from included literature was synthesized and divided into three distinct opioid-related domains.

**Results:** Results were inconclusive whether PDMPs provided any benefit in any of the three opioid-related domains studied.

**Conclusions:** As PDMP implementation continues to expand, there needs to be continued focus on specific PDMP characteristics to determine what is most effective at reducing opioid-related outcomes.



## Background

- Pain is the most commonly cited reason that Americans utilize the healthcare system.<sup>1</sup>
- The rise in utilization of opioids is accompanied by an upsurge in drug diversion activities.<sup>2</sup>
- PDMPs serve to function as easily-accessible electronic databases that collect prescribing and dispensing data of controlled substances.
- As of 2017, there are 50 states and Washington D.C that have operational PDMPs. Missouri remains the only state without a state-wide operational PDMP.<sup>3</sup>

## Methods



- Articles were divided into 3 distinct domains: (1) opioid prescribing behavior, (2) patient behavior, and (3) opioid-related health outcomes.

## Results

**Figure 1. Evidence of PDMP impact on opioid prescribing behavior**

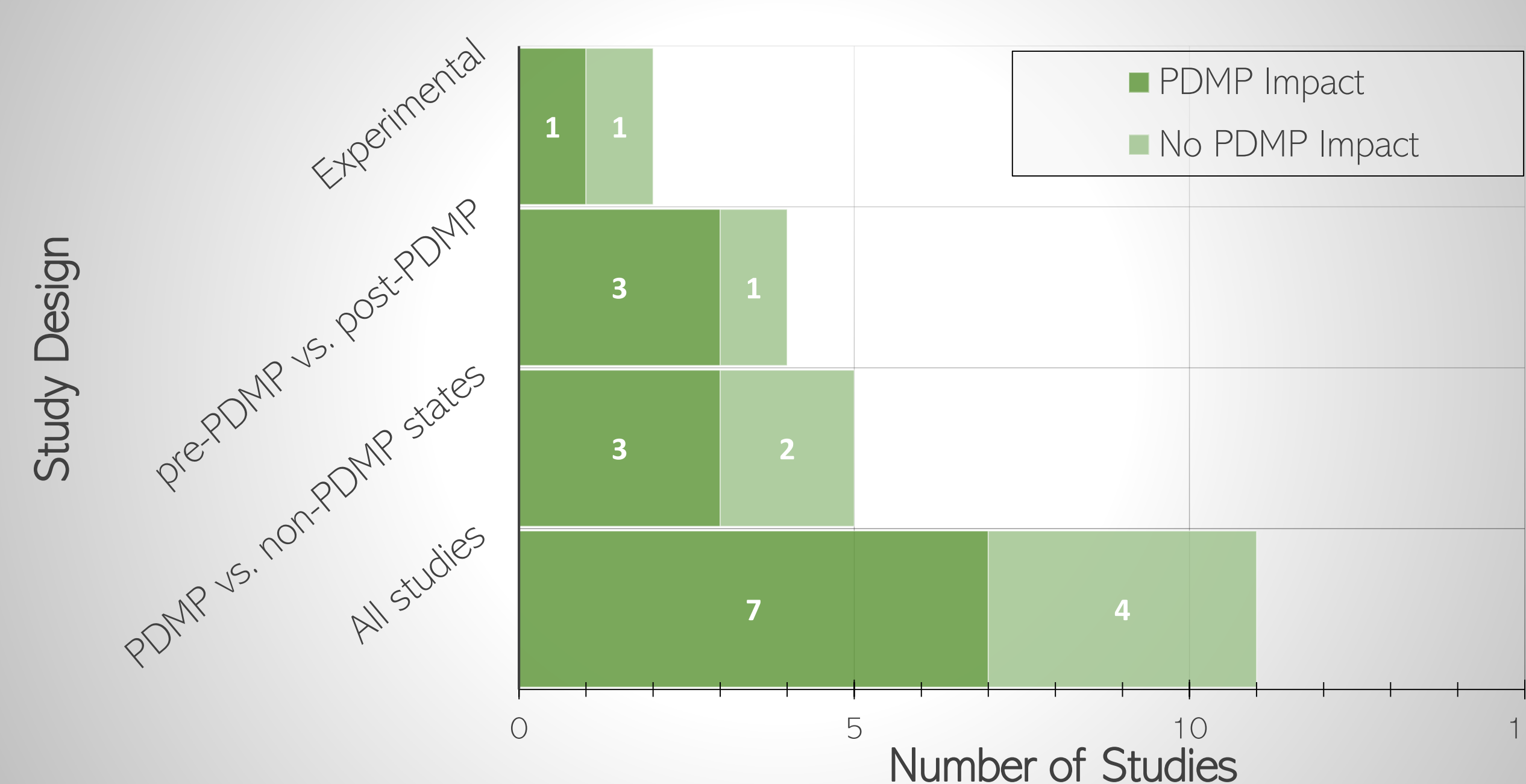


Figure 1. Of the 11 articles found, only seven articles demonstrated statistically significant benefit of PDMPs on opioid prescribing behavior. A majority of the studies performed a direct comparison of PDMP states to non-PDMP states. Common primary measure outcomes include total opioid volumes and the number of opioid prescriptions.

**Figure 2. Evidence of PDMP impact on patient behavior**

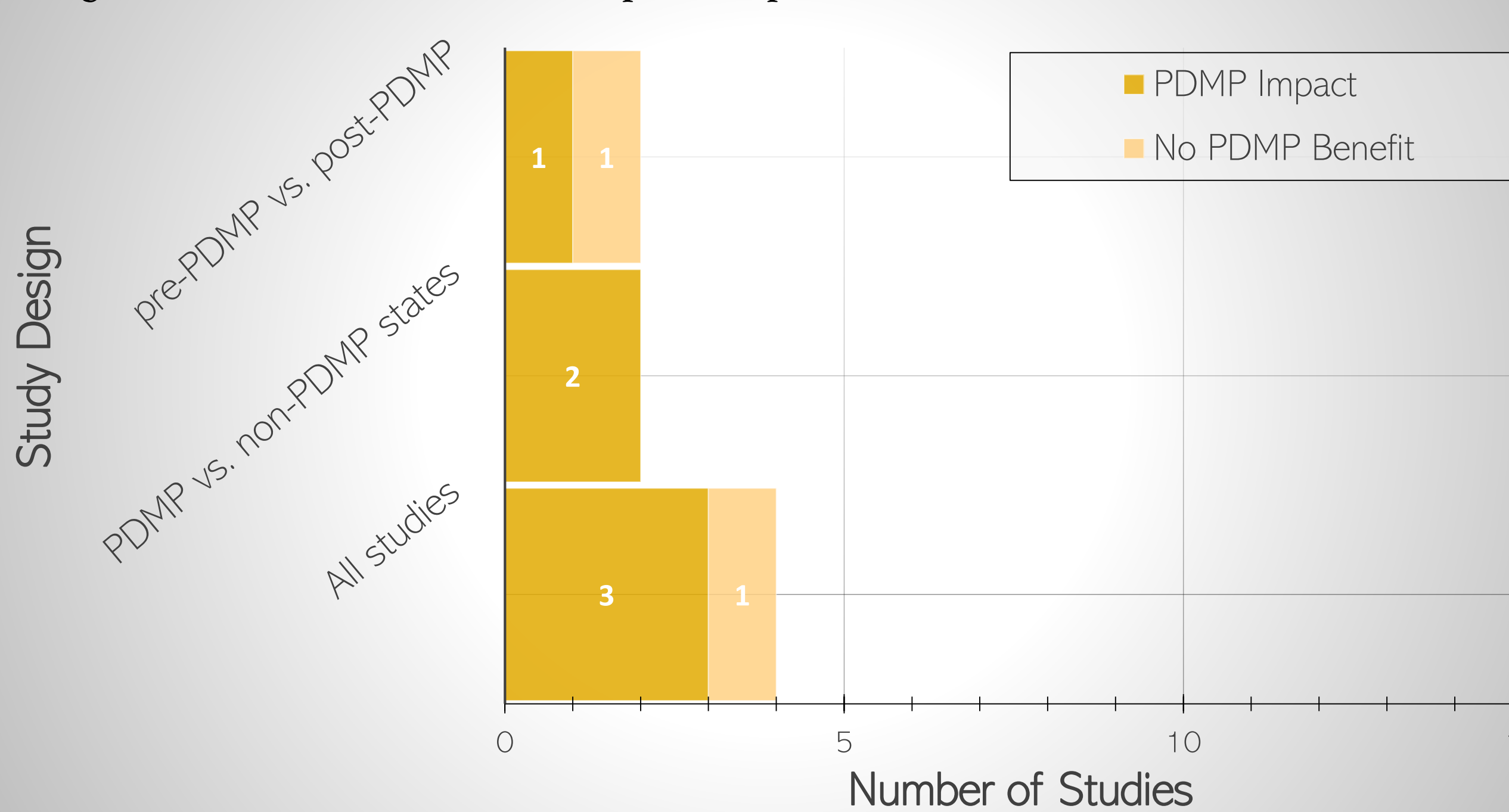


Figure 2. Of the three domains studied, only four studies were identified that evaluated the effect of PDMPs on patient behavior. Of the four articles found, three articles demonstrated statistically significant benefit of PDMPs on opioid prescribing behavior. Each study used a different primary measure outcome to evaluate changes in patient behavior.

**Figure 3. Evidence of PDMP impact on opioid health outcomes**

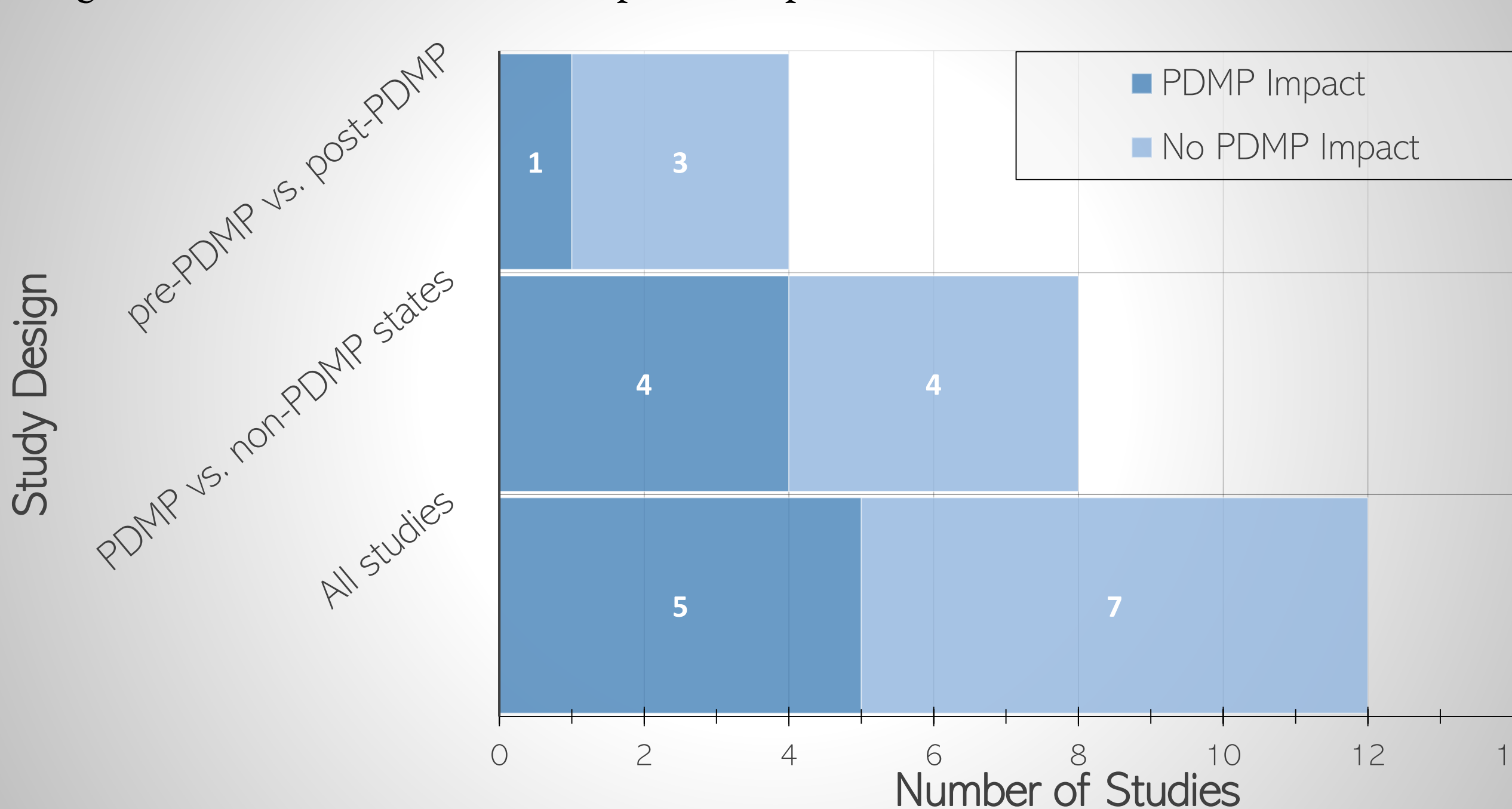
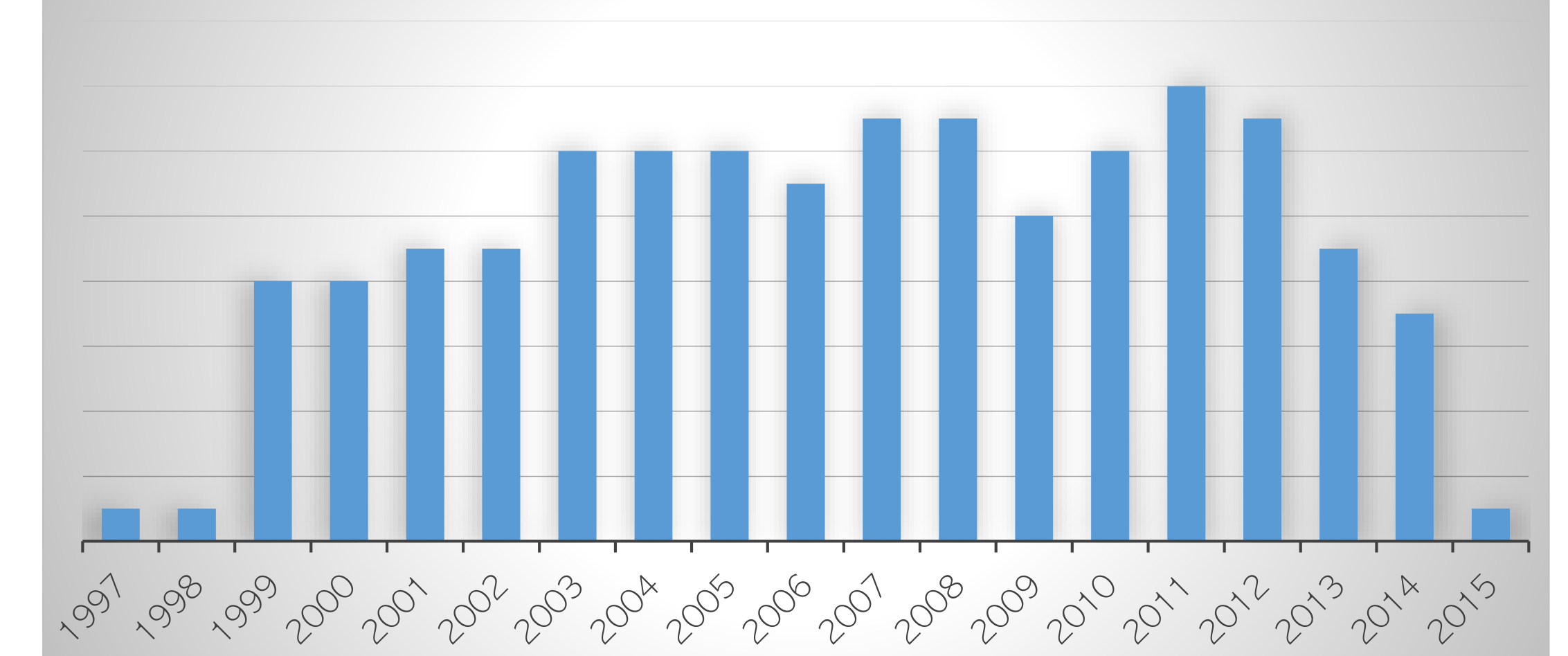


Figure 3. Of the 12 articles found, five articles demonstrated statistically significant benefit of PDMPs on opioid-related health outcomes. A majority of the studies performed a direct comparison of PDMP states to non-PDMP states. Primary measure outcomes predominantly involved opioid-related mortality rates.

## Literature Characteristics

**Figure 4. Years covered in included research.**



**Figure 5. Data sources used in included research**

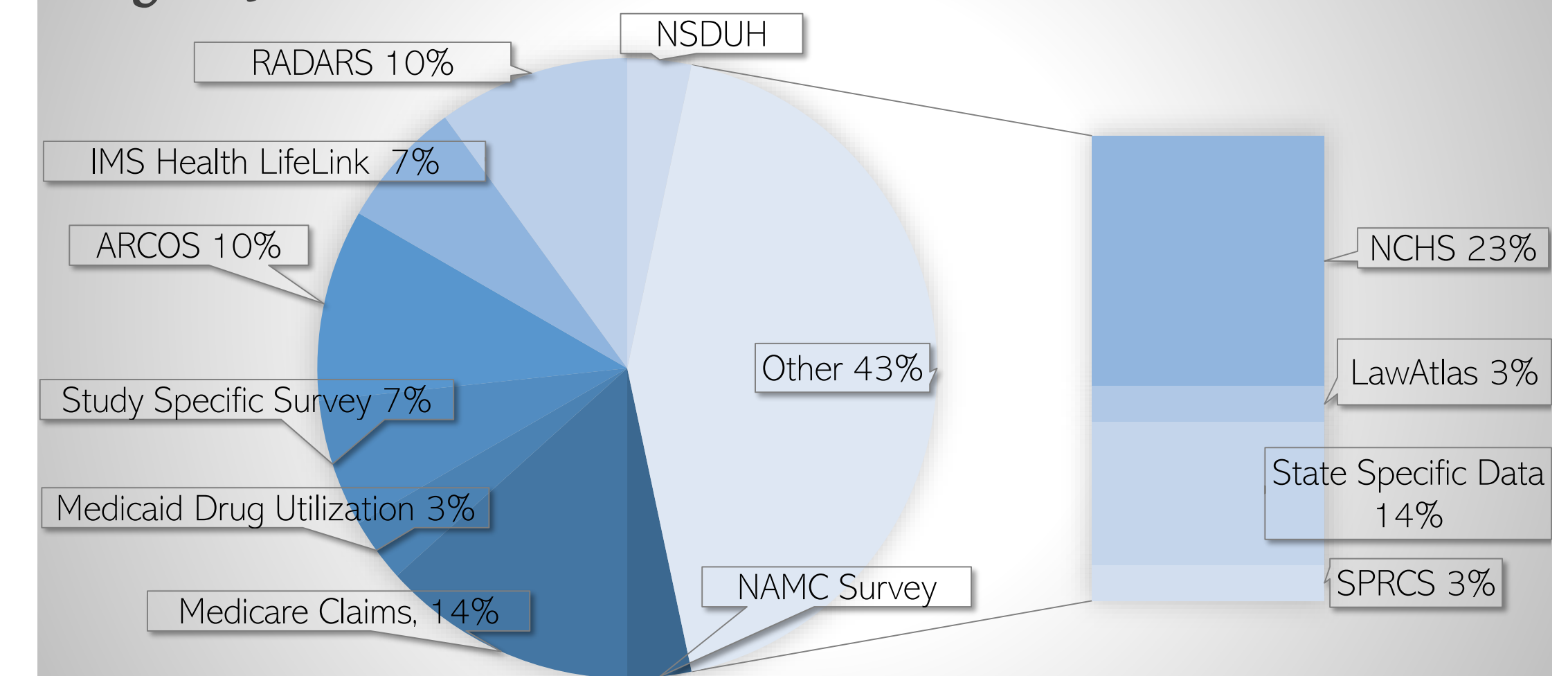


Figure 5. *ARCOS* Automation of Reports and Consolidated Orders System; *NAMCS* National Ambulatory Medical Care Survey; *NCHS* National Center for Health statistics; *NSDUH* National Survey of Drug Use and Health; *RADARS* Research Abuse, Diversion, and Addiction-Related Surveillance; *SPRCS* Statewide Planning and Research Cooperative System

## Conclusions

- Differences in **outcome measurements**, **study design** (across-state versus within-state comparisons), **data sources**, **exposures**, and **statistical approaches** lead to mixed conclusions about the impact of PDMPs on opioid-related outcomes and make direct comparison of results between studies difficult.
- PDMPs are similar in basic elements, but many characteristics of these programs vary from state to state. Inconsistencies between PDMP characteristics among states can provide valuable insight on specific features that are more effective at impacting opioid behavior.

## References

1. National Institute of Health. NIH fact sheets: pain management. *NIH Research Portfolio Online Reporting Tools* 2013.
  2. Clark T, Eadie J, Kreiner P, Strickler G. *Prescription Drug Monitoring Programs: An Assessment of the Evidence for Best Practices*. Washington, DC: The Pew Charitable Trusts; 2012.
  3. Prescription Drug Monitoring Program Training and Technical Assistance Center. PDMP Program Status. Accessed November 24, 2018.
- Photo Credit: Centers for Disease Control and Prevention. *Opioid Overdose*. 2017. Available at: <https://www.cdc.gov/drugoverdose/images/pdmp/PDMPgraphic.jpg>. Accessed 10 Nov 2018.

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