Evaluating PDMP Effects and Implications within the Trifecta of Critical Stakeholders

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Disclosure Statement

Daniel Hartung, PharmD, MPH

serves on a Scientific Advisory Committee for MedSavvy™, and otherwise has no relevant, real or apparent personal or professional financial relationships with proprietary entities that produce health care goods and services.

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has disclosed no relevant, real or apparent personal or professional financial relationships with proprietary entities that produce health care goods and services.

Overview

- **Systematic Review Findings**
  - PDMP Effects on Opioid Utilization and Outcomes
  - Pharmacists' PDMP Perceptions & Outcomes
  - Implications for Nation, States, providers, and patients
- **Focus Group Feedback**
  - Workflow and training
  - Between-party communication
  - Barriers to care
- **Recommendations and Future Directions**

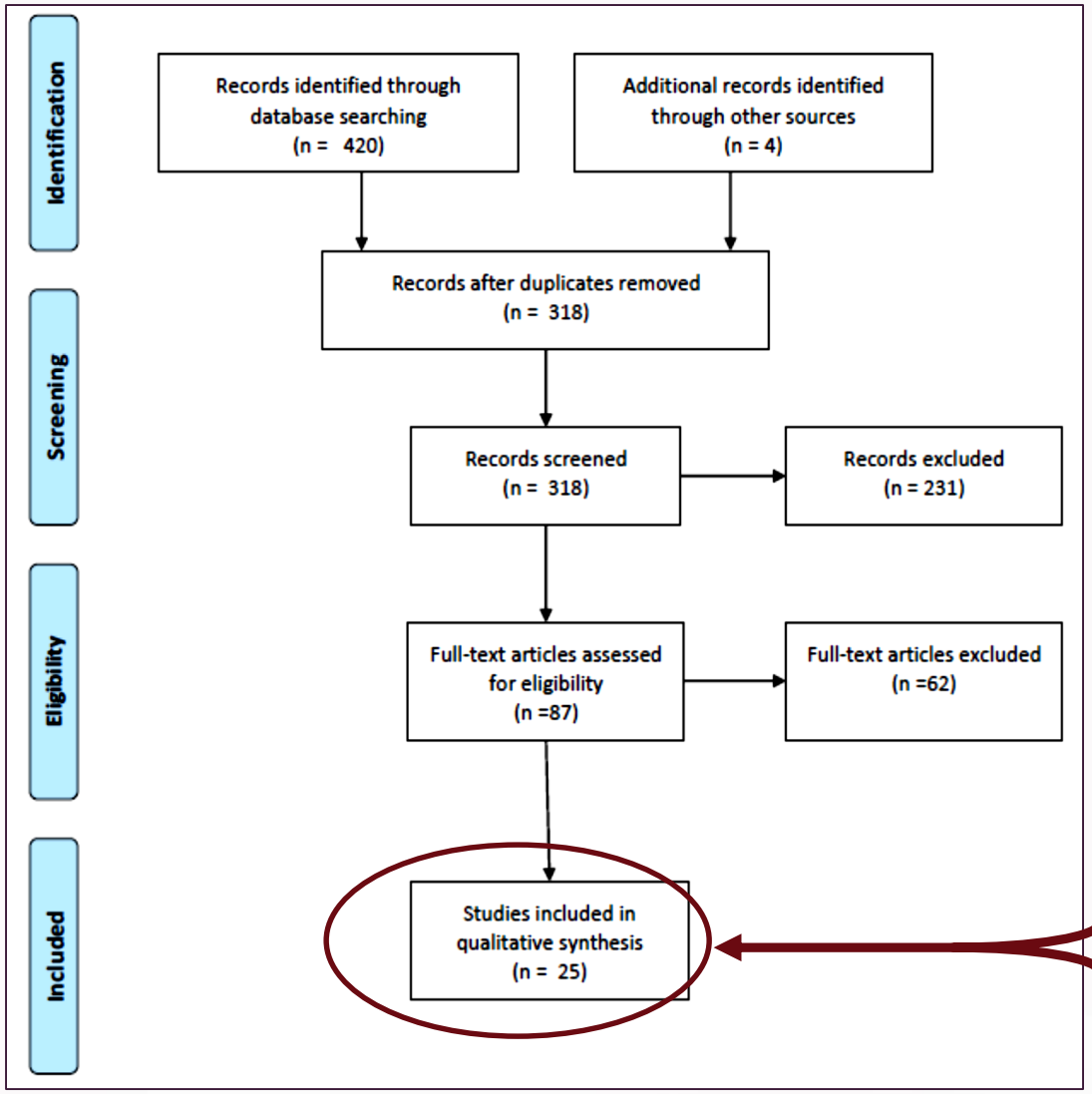
Background on PDMP Effectiveness

- Federal and state agencies strongly advocate PDMPs as a key strategy to combat prescription drug misuse and abuse
  - PDMPs are operational in 49 states and 7 provinces
  - Resources are directed at improving connectivity and integration in clinical practice
- Emerging evidence suggest state PDMP status may be associated with improved prescribing and outcomes
- **Purpose:** To systematically synthesize the evidence quantifying the effect of PDMPs on prescription opioid utilization, high-risk opioid use, and opioid-related harms

PDMP Effects on Opioid Utilization & Outcomes: Methods

- **Protocol registered at PROSPERO (CRD42016024114)**
- **Key Questions**
  1. Do PDMPs impact overall opioid utilization?
  2. Are PDMPs effective at decreasing potentially high-risk R_x opioid use?
  3. Are PDMPs effective at decreasing opioid-related harms?
- **Structured search strategy:** Medline, PsycInfo, Cochrane, Brandeis PDMP Center of Excellence, Google Scholar, etc.
- **Inclusion/Exclusion:** study of PDMP operating in US or Canada that addresses at least one question
- Independent screening and assessment by two investigators for inclusion and quality

PDMP Effects on Opioid Utilization & Outcomes: Results

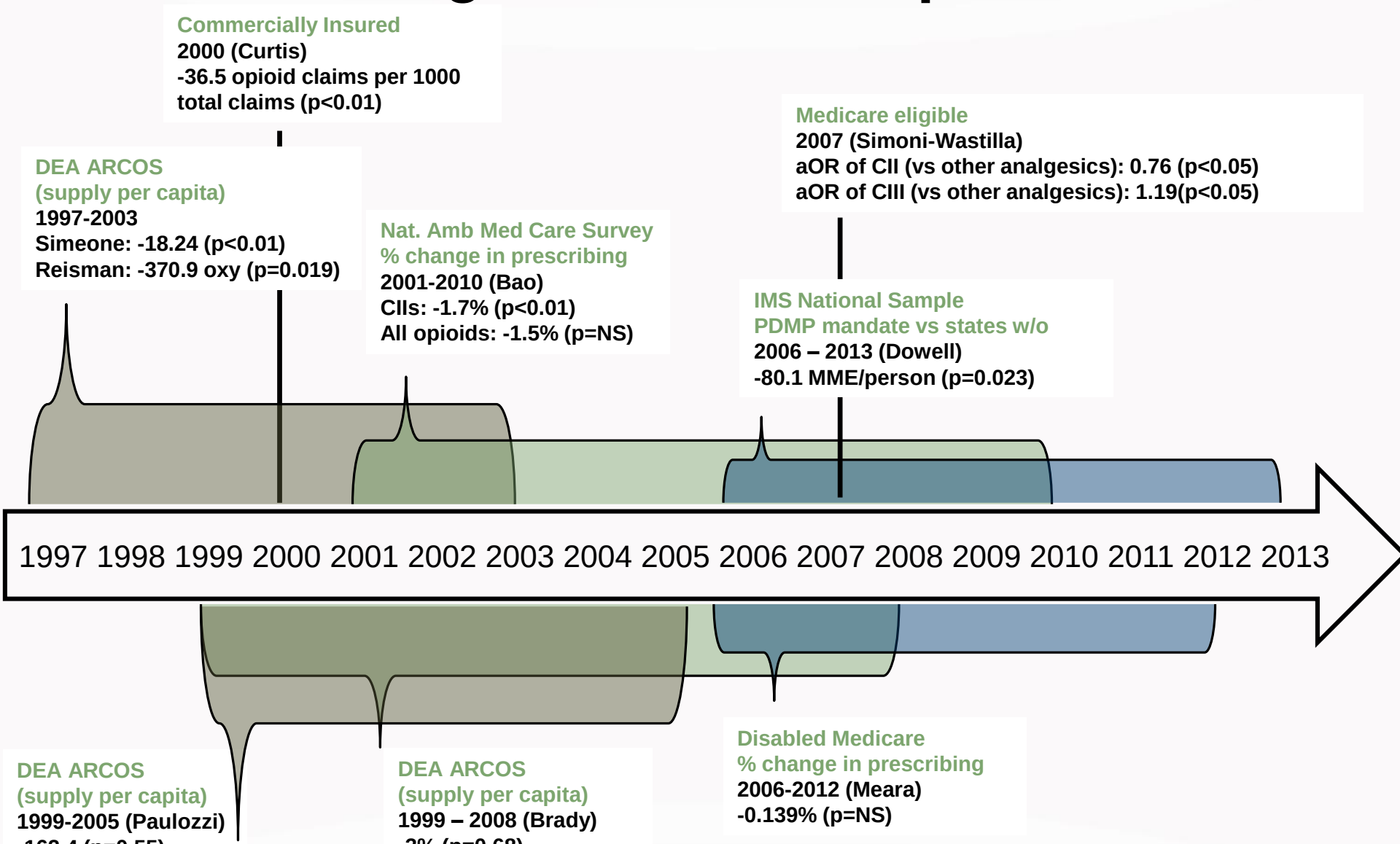


KQ 1: Studies of opioid utilization (n=15)
- 14 in US (1 Canada)
- 9 nation-wide studies
- 5 Specific states

KQ 2: Studies of high risk opioid use (n=6)
- 4 in US (2 Canada)
- 3 state specific
- 1 nation-wide studies

KQ 3: Studies of opioid-related outcomes (n=13)
- 10 nation-wide studies
- 3 state specific

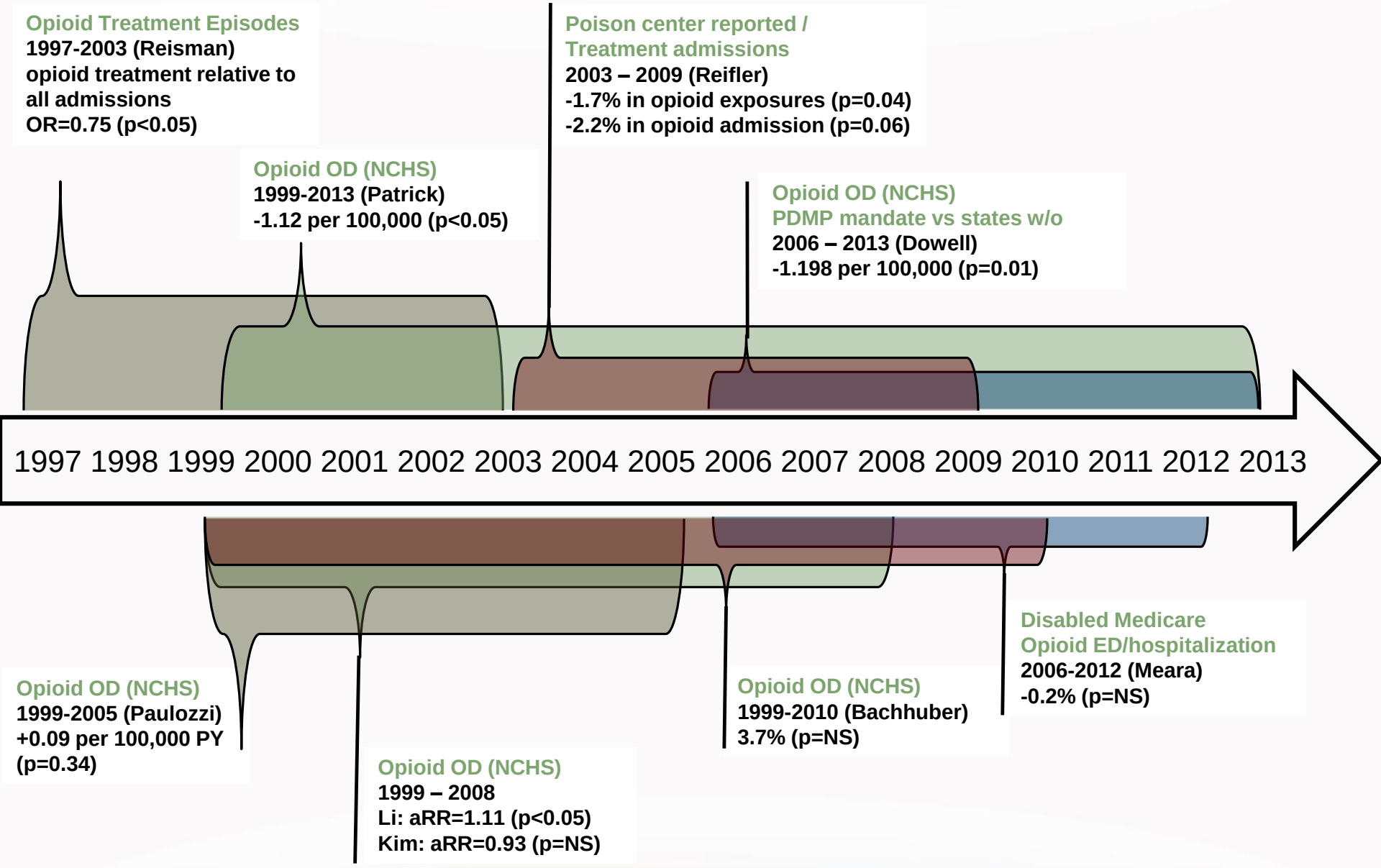
National Ecologic Studies of Opioid Utilization



State-specific Studies of Opioid Utilization Changes

- **North Carolina (Ringwalt) 2009 to 2011**
  - No significant changes in controlled substance or opioid utilization
- **Florida (Rutkow, Chang) 2010 to 2012**
  - Significant reductions in opioid dispensed particularly among highest intensity users relative to control state (Georgia)

National Studies of Opioid-related Outcomes



State-specific Studies of Opioid-Related Outcomes

- **Florida (Delcher, 2003 to 2012)**
  - 0.229 fewer deaths per month for every one PDMP query (p=.002)
- **11 metropolitan areas across 14 states (Maughen, 2004 to 2011)**
  - No significant changes in opioid-related Emergency Department visits

PDMP Effects on High-risk Opioid Use

- **Disabled Medicare beneficiaries 2006 to 2012 (Meara)**
  - No significant effect on chronic opioid use, multiple prescriber use, and opioids > 120 MME
- **Florida**
  - 2010 to 2012 (Rutkow, Chang)
    - Significant declines in mean MME per transaction and days supply, particularly among high intensity prescribers
  - 2009 to 2012 (Surratt)
    - Significant declines in rates of diversion for oxy, morphine, methadone (RADARS new cases of diversion reported)

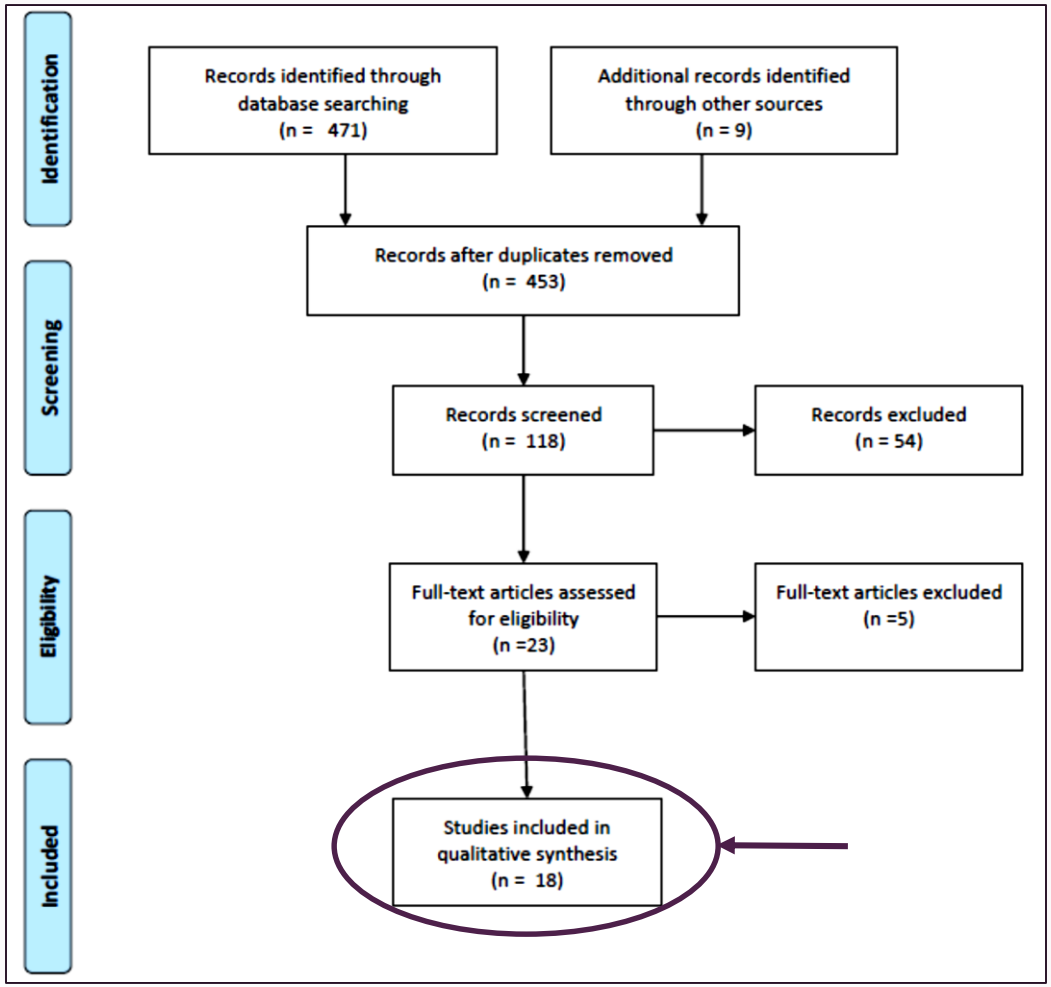
PDMP Effects on Opioid Utilization & Outcomes: Implications

- **National-level:**
  - Mixed evidence of both utilization changes and opioid-related harms
    - Studies using current data suggest a positive effect on both
  - Between- and within-state inconsistencies in use make it difficult to evaluate as a homogenous policy
    - PDMP technology and policy evolution
    - Provider uptake of PDMP has not reached its full potential
  - Continued research to better identify PDMP characteristics associated with positive changes
- **State-level:**
  - Guidelines and training to outline when, why, and how to access the PDMP would enable consistent, effective use
  - Integration into clinical care process (e.g., EHR) to improve user experience

Pharmacist PDMP Perceptions & Outcomes: Methods

- **Protocol registered at PROSPERO (CRD42016039144)**
- **Purpose**
  - This systematic review focuses exclusively on pharmacists' use of the PDMP and the impact of associated attitudes, knowledge, communication, and opioid-related outcomes.
- **Methods**
  - Inclusion criteria:
    1. What are pharmacists' attitudes toward PDMPs?
    2. How knowledgeable are pharmacists in using the PDMP?
    3. What influences pharmacists PDMP registration and utilization?
    4. What effect does pharmacists' PDMP use have on opioid dispensing?
  - Retrieved from Medline, PsycInfo, Brandeis, Google Scholar, etc.
  - Unpublished articles solicited from pharmacy listserv
  - Independent screening by three investigators

PDMP Effects on Opioid Utilization & Outcomes



Pharmacist PDMP Perceptions & Outcomes: Results

Citation	State	Data Source	Timeline	Sample Characteristics
Deyo, Irvine, Hallvik, et al., 2014	OR	PDMP	September 2011-December, 2013	All PDMP Registrants
Fass & Hardigan, 2011	FL	Survey	February-June, 2010	N=911 (18.2% RR)
Fendrich, Hooijer, & Bryan, 2015	WI	Survey	June, 2014	N=48 (29.6% RR)
Fleming, Phan, Ferries, & Hatfield, 2015	TX	Pre-post Survey	February, 2013	N=24
Fleming, Barner, Brown, et al., 2014a	TX	Survey	September, 2011	N=261 (26.2% RR)
Fleming, Barner, Brown, et al., 2014b	TX	Survey	September, 2011	N=261 (26.2% RR)
Fleming, Chandwani, Barner, et al., 2013	Multi	Survey	January-March, 2011	N=15 (45.5% RR)
Gavaza, Fleming, & Barner, 2014	VA	Survey	2014	N=97 (16.2% RR)
Green, Mann, Bowman, et al., 2013	MA & RI	Survey	2012	N=294 (198 in CT, 96 in RI; 10% RR)
Norwood & Wright, 2015	IN	Survey	2012	N=1,582 (15% RR)
Norwood & Wright, 2016	IN	Survey	2012	N=1,582 (15% RR)
Piper, Desrosiers, Lipovsky, et al., 2016	ME	Survey	2014-2015	N=275 (21.8% RR)
Rittenhouse, Wei, Robertson, & Ryan, 2015	AK	Survey	February-March, 2014	N=631 (41.7% RR)
Ulbrich, Dula, Green, et al., 2010	OH	Survey	November-December, 2008	N=1,434 (25% RR)
Wixson, Blumenschein, Goodin, et al., 2015	KY	Survey	2009	N=563 (27.9% RR)

Pharmacist PDMP Perceptions & Outcomes: Results

Attitudes

- Overall favorable opinion
- PDMP is an effective tool to reduce abuse, diversion, and doctor shopping
- Positive attitudes significantly related to intention to use PDMP
- Perceptions of effectiveness and appropriateness in pharmacy related to utilization
- "Health Provider Orientation" vs "Law Enforcement Orientation"
- Relatively easy to use, despite logistical barriers

Knowledge

- Lack of education on purpose and utility of PDMP in pharmacy practice
- Knowledge / Perceived Control significantly related to intention to use PDMP
- Provision of PDMP education increases registration and utilization rates
- PDMP registrants significantly better at identifying medications
- Pharmacists more educated in PDMP less likely to stigmatize
- Pharmacists more confident in PDMP and opioids more likely to counsel patients

Pharmacist PDMP Perceptions & Outcomes: Results

Utilization

- Base decisions on whether to query/follow-up largely on 'professional judgment'
- Reasons for not registering: lack of internet access and/or unsure how to enroll
- Barriers to use: insufficient time (approximately 50%) and liability concerns (10%)
- Pharmacists query significantly more often if PDMP is not under law enforcement
- Frequency of utilization largely influenced by concerns about drug abuse in community
- Query most when patient paying cash, irregularities in prescription, or early refill request
- Policies and peer recommendations are driving forces in registration and querying

Outcomes

- Regular, frequent use is related to reductions in dispensing of controlled substances
- Reductions in dispensing and increases in education provision attributed to PDMP use
- PDMP users are more likely to refer at-risk patients to their provider or to treatment

Pharmacist PDMP Perceptions & Outcomes

- **Implications**
  - **National-level:**
    - Pharmacists generally understand the purpose and utility of PDMPs and see value in them
  - **Practice-level:**
    - PDMP education enhances registration and utilization rates, and increases understanding of role
    - Chain-initiated policies can drive state-level registration rates in pharmacy
    - Logistical “barriers” can be addressed through training
  - **Patient-level:**
    - Pharmacist training for and frequent use of PDMPs may reduce patient stigmatization and increase likelihood of education and referral

PDMP Focus Groups

- **Purpose:**
  - To support the development of a toolkit for community pharmacists, focus groups were held to learn more about:
    - Pharmacists' PDMP- and opioid-related experiences
    - Prescribers' PDMP- and opioid-related experiences
    - Opioid patients' experiences with pharmacists and prescribers
- **Sample:**
  - Pharmacists: 2 groups of 7-12 (N=19; M_{age}=39.0; 58% female)
  - Prescribers: 1 group of 9 (M_{age}=47.9; 75% female)
  - Patients: 3 groups of 4-8 (N=18; M_{age}=60.1; 71% female)
- **Analysis Method:**
  - Immersion-crystallization

Nearly all prescribers and pharmacists reported receiving no formal training for using the PDMP

I did not receive any training for how to use the PDMP. I was given the link to the Oregon and Washington PDMP and then I worked through the log-in procedures myself. I guessed as to how to use the site, and it was fairly easy to understand. *(Provider 5)*

The branch manager who trained me is only a delegate with no medical background. Once I got registered and was able to login to the PDMPs, a lot of the training was just playing around with the system. *(Pharmacist 2)*

Prescribers and pharmacists relied heavily on personal judgment for when to use the PDMP

For ongoing chronic opiate script from new patient: I require a review of their past records to verify their story. I check the PDMP to make sure they do not have either lots of scripts or lots of providers. And also to corroborate their story of past fills. *(Prescriber 1)*

I do not use PDMP besides checking fill history and making sure the patient is under a certain dose for pain meds across all providers (e.g. hydrocodone <120mg, morphine < 90mg, etc) and if not, then I would discuss the possibility of tapering with the providers. It's hard to use PDMP more frequently than that due to lack of pharmacist time. *(Pharmacist 8)*

At my location, we have no specific guidelines. There are other locations that I understand are being made to run PDMP for every control substance. Here, I use my own pharmacist judgment. *(Pharmacist 10)*

Prescribers and pharmacists noted multiple technical and logistical barriers to using the PDMP

Having to remember a password and website and the time it takes to get into the system. Not having someone in my clinic delegated to look the reports up for me. I think just time is the biggest barrier. *(Provider 5)*

I wish there were fewer steps in getting the information I want, or if it could be embedded in Epic. *(Provider 3)*

The biggest drawback is the lag time in being input. For example, if a patient hits multiple urgent cares and pharmacies in the same weekend we aren't able to identify the situation. *(Pharmacist 2)*

Main drawback is that the data generated can sometimes be confusing or deceiving on the screen, and the printouts are also in a very small font and not that easy to read. *(Pharmacist 6)*

There was a notable imbalance in the collaborative process between pharmacists and prescribers

We will contact a prescriber if we notice particular patterns of doctor hopping, multiple MD /Pharmacy being used. […] When we contact the prescriber we tell them our concerns (and they have access to the same system we use so I am always surprised when they seem so shocked to hear our message). *(Pharmacist 10)*

I haven't done this often [consulted a pharmacist with concerns about a patient's PDMP report]. I believe they have called me after looking at PDMP or prescribing history to inform me of a concern. *(Prescriber 1)*

I actually haven't run into this situation [consulted a pharmacist with concerns about a patient's PDMP report]. I usually address concerns directly with the patient. I haven't thought to include the pharmacist in the discussion. *(Prescriber 3)*

There was a notable imbalance in the collaborative process between pharmacists and prescribers

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I have… about a patient… ng at PDMP… *ber 1)*

I actua… with concerns… oncerns directly with the pa… aven't thought to include the pharmacist in the discussion. *(Prescriber 3)*

I think coordination of information between all of them… I don't have a firm belief that all the pharmacies and the doctors really talk to each other. Um, in fact I know for a fact that's the case. Not all doctors talk to each other. *(Patient 11)*

Some prescribers and pharmacists favored transparency while others opted to keep the PDMP a secret

I am very clear and up front. Explain to the patient what I find troublesome. Be it multiple pharmacies or doctors. Let them know exactly why I think there might be issues. Most patients respond to honest conversations. *(Pharmacist 4)*

I don't reveal to the patients that I have used the PDMP. Not because I want to hide the fact that I have used it, but because it hasn't come up naturally. I just say, I see that you have received X number of prescriptions from X number of doctors over the last year. *(Prescriber 5)*

Patients perceived barriers to care as being largely a result of opioid-related stigma and logistical constraints (e.g., time, money)

I went to a dentist because I had a swollen gland, and he told me he would not write me any prescriptions for pain medication, and I go "I wasn't like this until you touched me. You will fix me. I don't need drugs, I just need somebody to fix me" and then I went to the hospital, to the emergency room, and they thought I was a drug seeker also. You know it's not like I had insurance […] so I was paying out of pocket $500 to go to the emergency room for what? For three pills? I didn't want three pills. I just wanted a shot so my sciatic nerve would stop hurting. So it was… yes, I've been treated like a drug seeker before. *(Patient 11)*

Patients recognized a lack of training, especially in prescribers' knowledge regarding pain and opioids

And I think in training and teaching, physicians are falling far short on several fronts. They don't know about chronic pain. And they're really not aware of what they're prescribing. *(Patient 11)*

Because they don't… doctors don't understand the pain they do one of two things. They don't hear you. It just hits them and they go one of two ways: ignore it or overprescribe. And they need to be more absorbent. Highly informed. And if not that, then it needs to be added to their learning regimen. *(Patient 7)*

The chronic pain class I teach, I would love for it to become mandatory for doctors, because you never know what pain is until you experience it for yourself. *(Patient 9)*

Tying It All Together – Key Themes

1. **The PDMP can be an effective tool**
   - User attitudes are generally positive
   - Studies are mixed but beginning to suggest positive impacts on opioid use and outcomes
2. **Barriers to PDMP use remain**
   - Time, logistic, and technical issues
   - Lack of training for prescribers and pharmacists
3. **Cross-stakeholder communication is poor**
   - Negative impact on patients
     - Perceived stigmatization
     - Delayed access to pain care/management
     - Mistrust of healthcare system

Recommendations and Future Directions

- **Policy**
  - Consistent policies for PDMP use at practice- and state-levels
  - Mandated-use policies may require training and delegates
- **Training**
  - Should include relevance of PDMP to pharmacists' role
  - Should include acknowledgement of barriers and workarounds
  - Should include communication strategies for patients and providers
- **Research**
  - Interventions to enhance PDMP use by prescribers and pharmacists
  - Evaluations on impact of PDMP training and utilization on patient outcomes

Recommendations and Future Directions

Please visit our talk tomorrow:

"Meeting the Educational Needs of Pharmacists to Confront the Opioid Epidemic"

Daniel Hartung, MPH, PharmD & Nicole O'Kane, PharmD

Wednesday April 19, 10:45a-12:00p

Thank You!

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