Effects of Opioid-Control Policies in Florida and Washington

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Target Audience

This memo is written for the *Director of the State Prescription Drug Monitoring Program (PDMP)*, a policy leader responsible for overseeing controlled-substance prescribing. The reader has a strong policy background but limited technical training in coding or statistical methods.

Executive Summary

State policymakers continue to confront a central challenge in opioid regulation: identifying which policy levers meaningfully change prescribing behavior and reduce overdose harm. This analysis evaluates two contrasting state-level interventions—Florida's 2010 enforcement-focused pain-clinic crackdown and Washington's 2012 guideline-based prescribing policy—to assess how different regulatory approaches affect opioid availability and mortality. Using county-level opioid shipment data and overdose mortality records, we apply pre–post comparisons and difference-in-differences methods to isolate the causal effects of each policy relative to comparable control states.

The results demonstrate a clear and consequential divergence. Florida's enforcement-oriented intervention produced a sharp and sustained decline in prescription opioid shipments, followed by a modest but statistically meaningful reduction in overdose mortality. These effects suggest that targeting high-risk distribution channels through enforceable oversight can rapidly disrupt excessive opioid supply and generate early public health benefits. In contrast, Washington's guideline-only approach—while clinically grounded—did not meaningfully alter prescribing behavior or mortality trends. Opioid shipments remained largely unchanged, and overdose deaths followed patterns similar to those observed in control states, indicating that voluntary guidance alone was insufficient to shift entrenched provider practices.

Taken together, these findings offer a decisive policy lesson for Prescription Drug Monitoring Program leadership. While clinical guidelines may support best practices, enforceable oversight mechanisms are far

more effective in changing behavior at scale. For states seeking measurable reductions in opioid availability and harm, regulatory strategies that incorporate clear requirements, monitoring, and accountability should be prioritized over advisory-only frameworks. This evidence provides a strong empirical foundation for directing future PDMP resources toward enforcement-capable interventions most likely to deliver meaningful public health impact.

Motivation for This Analysis

The opioid epidemic continues to evolve, but inappropriate prescribing remains a critical upstream driver of overdose risk.

Florida and Washington present two natural experiments in regulatory strategy. Florida faced widespread high-volume prescribing and unregulated pain clinics, prompting a 2010 enforcement crackdown focused on shutting down high-risk distribution channels. Washington faced a more clinical, less criminal landscape, and responded in 2012 by strengthening documentation and consultation guidelines without enforcement mechanisms.

Decisions to Consider Moving Forward

The analysis reveals a clear and actionable pattern: **enforcement-based policies reduce opioid supply, while guideline-only approaches do not**. Taken together, the findings from Florida and Washington point to several decisions that now warrant careful consideration by Prescription Drug Monitoring Program (PDMP) leadership.

1. **Should the state adopt enforceable oversight rather than relying primarily on clinical guidelines?**

   Florida's experience indicates that enforcement mechanisms are necessary to meaningfully change prescribing behavior at scale, whereas advisory guidance alone is unlikely to produce measurable reductions in opioid availability.

2. **Does the PDMP currently have sufficient enforcement capacity to support stronger oversight?**

   This includes assessing whether existing monitoring, reporting, investigative, and compliance tools are adequate to support enforceable requirements and accountability mechanisms.

3. **How should PDMP resources be prioritized going forward?**

   A strategic decision is needed on whether future investments should focus on strengthening enforcement

infrastructure or continue emphasizing voluntary clinical guidance.

Key takeaway: Taken together, these findings offer a decisive policy lesson for PDMP leadership. While clinical guidelines may support best practices, **enforceable oversight mechanisms are far more effective in changing prescribing behavior at scale**. For states seeking measurable reductions in opioid availability and harm, regulatory strategies that incorporate clear requirements, active monitoring, and accountability should be prioritized over advisory-only frameworks. This evidence provides a strong empirical foundation for directing future PDMP resources toward enforcement-capable interventions most likely to deliver meaningful public health impact.

2. Key Findings and Main Takeaways

2.1 Florida: What Happened After the 2010 Enforcement Crackdown?

Florida implemented a series of enforcement-focused measures in 2010 targeting high-volume pain clinics and irregular prescribing practices. To understand how these actions affected both opioid availability and public health, we compared Florida's county-level trends in opioid shipments and overdose mortality to the trends observed in similar control states over the same period.

Opioid Shipments

Finding: Florida experienced a large and immediate decline in opioid shipments per capita. Following the 2010 policy implementation, Florida's MME per capita declines steadily, while opioid shipments in the control states continue to increase over the same period. This growing divergence indicates that opioid shipments in Florida fell relative to the counterfactual trend observed among comparable states, consistent with a policy-induced reduction in prescription opioid supply (see Figure 1).

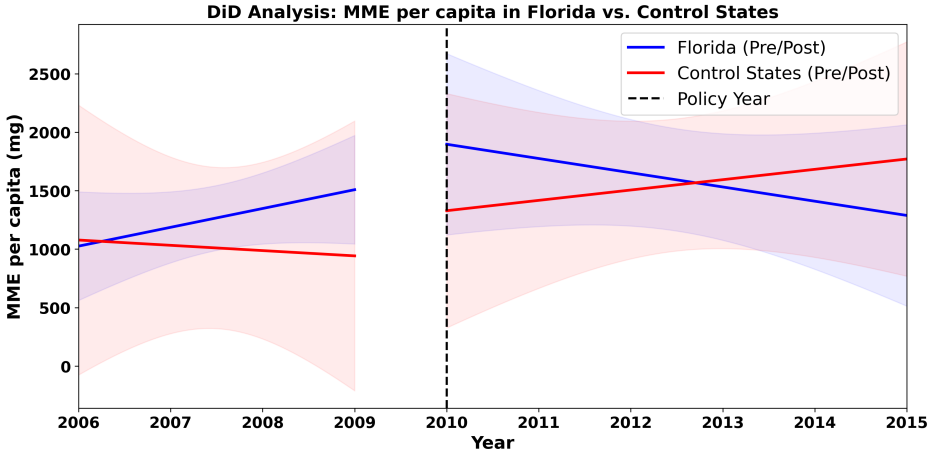

Figure 1: Difference-in-Difference analysis for Florida vs. control states: MME shipments per capita.

Overdose Mortality

Finding: Florida showed a modest but measurable decline in overdose deaths relative to expected trends. In the period before 2010, overdose mortality in Florida and the control group moved along broadly similar trends, consistent with the parallel-trends assumption. After Florida's policy intervention, mortality in Florida (blue line) declines more steeply than in the control states (red line). This pattern supports the idea that lower opioid shipments were followed by a decline in overdose deaths, consistent with a potentially effective policy (See Figure 2).

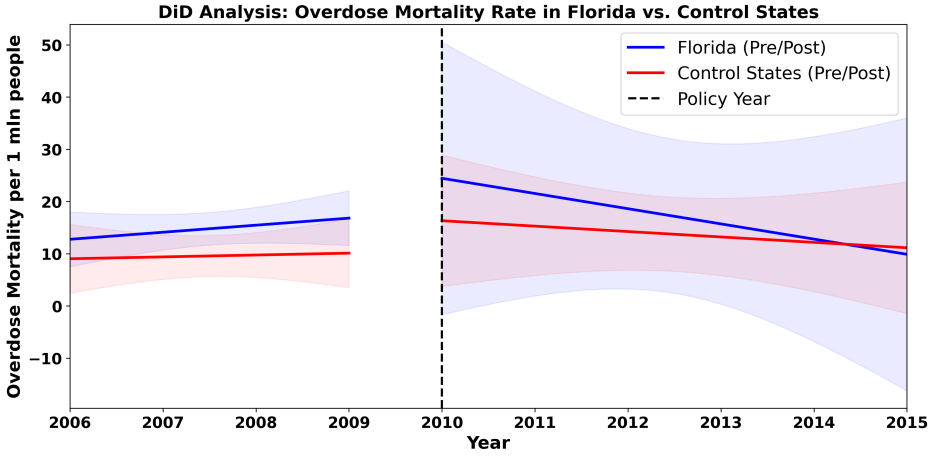

Figure 2: Difference-in-Difference analysis for Florida vs. control states: Overdoes Mortality per 1 Million Residents.

2.2 Washington: What Happened after the 2012 Guideline-Based Policy?

Washington adopted clinical prescribing guidelines in 2012, emphasizing documentation, consultation thresholds, and recommended dosage limits. This study evaluates whether Washington's guideline-based approach was sufficient to alter prescribing behavior or reduce overdose harm.

Opioid Shipments

Finding: Washington experienced no meaningful change in opioid shipment levels. For Washington, before the 2012 policy year, both Washington and the control states exhibited increasing per-capita MME levels. However, after implementation, Washington's MME shipments continue to rise modestly, while shipments in control states begin to fall. This indicates that the policy may not have been as effective as Florida's in limiting prescription opioids, or that the reduction occurred later or through other channels. The crossing of the lines also suggests that pre-policy trends might not have been fully parallel (See Figure 3).

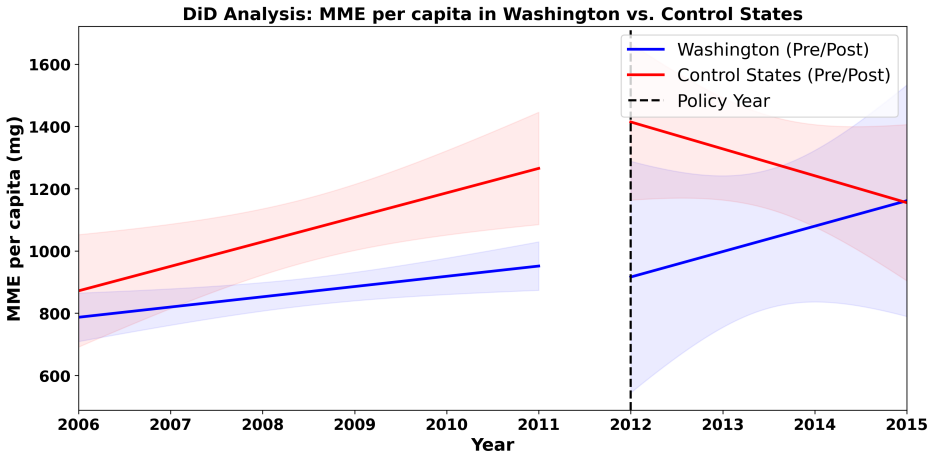

Figure 3: Difference-in-Difference analysis for Washington vs. control states: MME shipments per capita.

Overdose Mortality

Finding: Overdose mortality in Washington did not diverge from control trends. Mortality rates in Washington and the control group follow roughly parallel increases before 2012, satisfying the DiD assumption. Post-policy, Washington's mortality continues to increase slightly, while the control states' rate flattens or declines. This divergence implies that Washington's policy did not significantly reduce overdose deaths compared to the control group and may have had limited immediate impact. As shown in Figure 4, the mortality trajectory remains aligned with control states throughout the study period, suggesting little effect on opioid-related harm (See Figure 4).

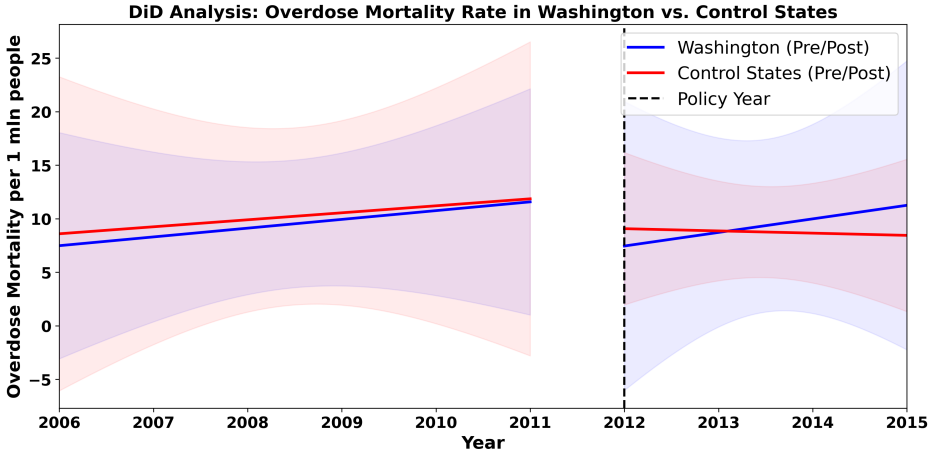

Figure 4: Difference-in-Difference analysis for Washington vs. control states: MME shipments per capita.

Implication for the PDMP Director: Washington's results show that **guideline-only interventions are insufficient** to meaningfully change prescribing behavior or reduce overdose deaths.

2.3 Cross-State Takeaway

Across both states, the contrast is clear: **enforceable restrictions produced measurable reductions in opioid supply and modest improvements in mortality, while guideline-only approaches did not**. For a PDMP Director evaluating future regulatory strategy, the evidence indicates that **strong, enforceable oversight is far more effective than advisory guidance alone**.

3. Constraints on This Analysis

1. **Data suppression in small counties:** Drug-related mortality counts are suppressed in counties with fewer than 10 deaths. To ensure complete and reliable outcome data, we restricted the analysis to counties with populations above 150,000. This improves interpretability but reduces precision for very small rural counties.

2. **Uneven evaluation windows across states:** Florida's analysis includes roughly five years of post-implementation data, while Washington's includes about three. These windows capture early effects but may not reflect longer-term dynamics, delayed changes in provider behavior, or shifts in opioid-use patterns.

3. **Potential unobserved confounders:** As with any observational analysis, unmeasured social, economic, or health-system factors may have changed during the study period and influenced shipment or mortality trends. The difference-in-differences approach reduces—but cannot fully eliminate—bias from such confounders.

Despite these limitations, the observed patterns are strong, internally consistent, and aligned with expected behavioral responses to enforcement versus guidance, supporting confidence in the memo's core conclusions.

4. Returning to the Big Picture

Florida and Washington offer a clear comparison between two regulatory philosophies. Florida's enforcement-oriented model produced immediate and significant reductions in opioid supply, followed by early improvements in overdose mortality. Washington's guideline-only approach, although clinically reasonable, did not alter established prescribing patterns or impact mortality trends.

For a PDMP Director deciding how to shape statewide oversight, the evidence points to a simple conclusion: **guidance can support better practice, but enforcement changes behavior**. Policies that include clear requirements, monitoring mechanisms, and accountability structures show far greater potential to reduce opioid-related harm.

In the appendix, we provide additional transparency on the data sources used, key processing steps, and

parallel-trend checks comparing each treatment state to the average of its control states. These details support the robustness of the findings while allowing the main memo to remain focused on actionable information.

In summary, enforceable oversight is the most effective lever available to reduce inappropriate opioid prescribing and improve public health outcomes meaningfully.

Appendix A: Analytical Approach

These analyses rely on three connected steps:

- **Pre–post comparisons within each state**, used to provide an initial descriptive view of whether opioid shipments and mortality changed after each policy relative to the state's own historical baseline.
- **Difference-in-differences comparisons against matched control states**, used to determine whether observed changes exceeded broader regional trends. This approach is appropriate because the policies were not randomized, and DiD provides a credible counterfactual comparison.
- **A pre-policy parallel-trends check**, used to confirm that treated and control states followed statistically similar trajectories before the intervention, supporting the validity of the DiD estimates.

Appendix B: Data and Data Preparation

This appendix summarizes the key data inputs and the preprocessing steps required to ensure that shipment and mortality measures accurately represent county-level dispensing activity.

B.1 Data Sources

- **ARCOS Opioid Shipment Records:** Nationwide transaction-level data that track the volume of prescription opioids shipped to every county. Used to measure changes in the legal opioid supply entering the market.
- **CDC Vital Statistics Mortality Data:** County-level records of drug-related overdose deaths. Used to assess whether changes in opioid supply were associated with opioid-related harm.
- **U.S. Census Population Estimates:** Annual county population counts. Used to convert shipments and deaths into per-capita metrics for fair comparisons across counties and states.

These data sources collectively provide the essential information needed to evaluate whether state policies affected opioid availability and mortality.

B.2 Population Threshold Selection

Drug-related mortality counts are suppressed in counties with fewer than 10 deaths, creating substantial missingness in small-population counties. To determine an appropriate population threshold for inclusion, we evaluated how missingness, retained observations, and retained counties changed across population thresholds.

A threshold of 150,000 residents balances data completeness and sample coverage: at this cutoff, missingness is approximately 33.8%, the dataset retains 1,448 county-year observations, and 146 unique counties remain.

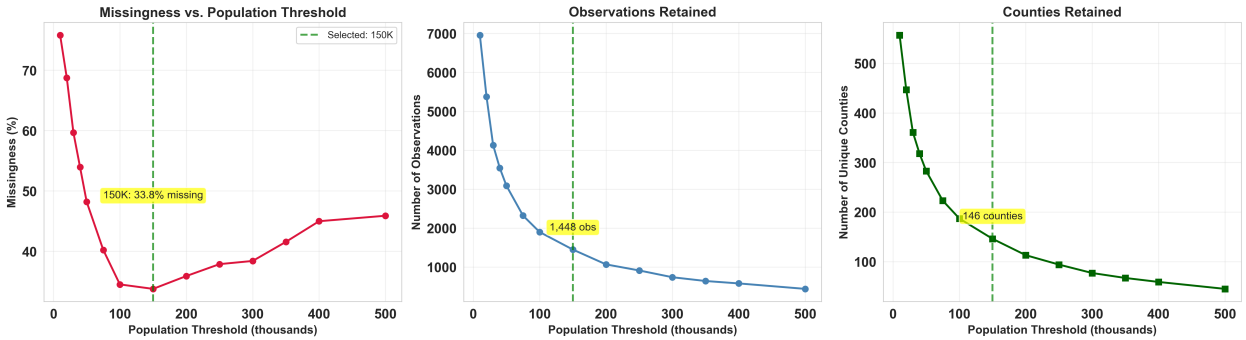

Figure 5: Diagnostics for Selecting a Population Threshold for Mortality Data Inclusion

B.3 Filtering Extreme Shipment Outliers in ARCOS Data

During data cleaning, we identified extreme opioid shipment values that did not reflect real-world dispensing behavior. These outliers were driven almost entirely by transactions involving *MANUFACTURER* buyer types, which represent upstream supply-chain movements rather than prescription dispensing. Because the policies evaluated in this analysis regulate dispensing behavior—not manufacturing activity—we filtered the ARCOS data to include only end-use buyers: retail pharmacies, chain pharmacies, hospitals, clinics, practitioners, and mid-level practitioners.

This filtering removed 1,619 county-year observations (14.00% of the dataset), reduced the maximum MME per capita from 2,534,741,636 to 11,861,450, and eliminated 116 of 119 extreme values. The cleaned dataset more accurately reflects dispensing patterns relevant to state policy evaluation.

Appendix C: Control State Selection and Validity Checks

C.1 Control State Justification

Control states were selected using structural criteria including geographic proximity, demographic and healthcare-system similarity, comparable pre-policy opioid trends, and the absence of early opioid regulations.

Florida Controls

- *Georgia, North Carolina, South Carolina:* Geographically close southeastern states with similar prescribing environments, comparable pre-2010 shipment patterns, and no early pain-clinic regulations (CDC PHLP).

- *Tennessee, Mississippi:* Demographically similar southern states with aligned pre-policy opioid distribution and no major opioid-control policies before 2010 (CDC PHLP).

Washington Controls

- *Oregon, Idaho, Montana:* Regional western peers with similar rural–urban composition and pre-2012 opioid trends. All operated under advisory-only opioid guidance with no mandatory MME thresholds (Arizona DHS; Idaho DHW; Montana DLI).

- *California, Colorado:* Western states with comparable healthcare structures and pre-2012 prescribing trajectories, and no binding statewide opioid regulations prior to 2012.

C.2 Parallel Trends Validation

Next, we conducted formal parallel-trends checks to verify that treated and control states followed statistically similar trajectories before the intervention. For each outcome (opioid shipments and overdose mortality), we estimated pre-policy interaction models.

Across all specifications, the interaction terms were **not statistically significant** ($p > 0.05$), indicating that the pre-policy trends of the treated states did not differ meaningfully from their respective control groups. This validates the suitability of these control states for the DiD analysis.

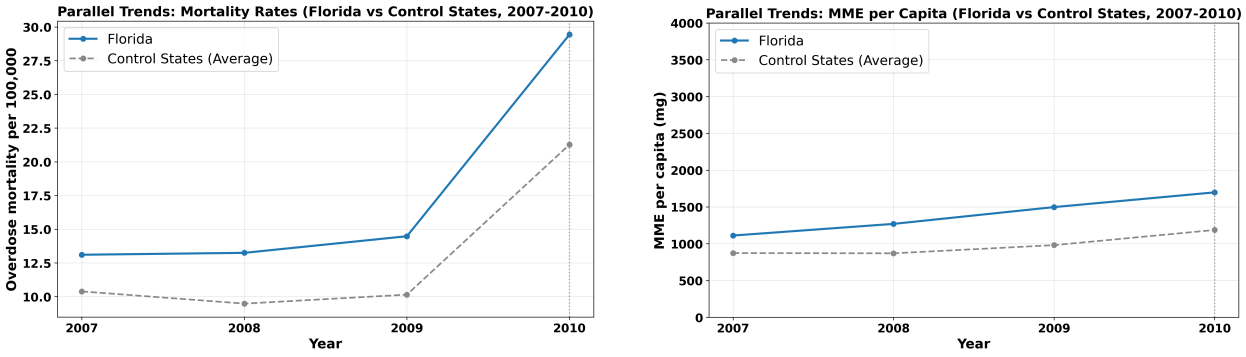

Figure 6: Parallel Trend Check for Florida (Overdose Mortality and MME per Capita)

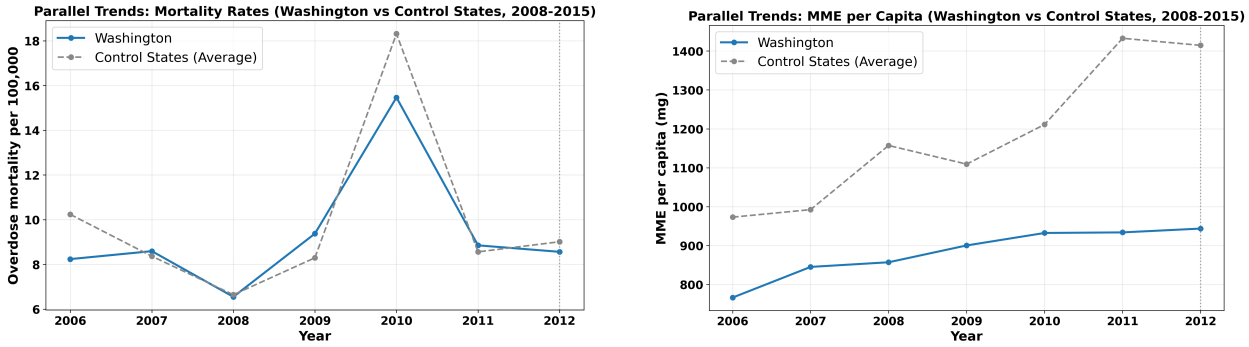

Figure 7: Parallel Trend Check for Washington (Overdose Mortality and MME per Capita)

Appendix D: Difference-in-Differences Regression Results

Table 1: Summary Table: Full Regression Results

State	Outcome	Level Change	p-value
Florida	Shipments (MME/100k)	-320.02	0.148
Florida	Deaths (per 100k)	-3.86	0.0166*
Washington	Shipments (MME/100k)	186.35	0.311
Washington	Deaths (per 100k)	1.98	0.205

$^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$. *Standard errors not clustered in this summary.*