

Background

- Among all opioid prescriptions dispensed to children, approximately 1/3 are prescribed by dentists.
- The FDA announced a Drug Safety Communication (DSC) in April 2017 contraindicating codeine and tramadol use in children < 12
- The DSC impact on pediatric dentistry is unknown

Objectives

- Quantify immediate and sustained changes in prescribing patterns of codeine and tramadol by US dentists before and after the DSC
- Evaluate opioid agent-specific trends before and after the DSC

Study Population & Methods

Study population

- MarketScan Commercial & Medicaid beneficiaries
- Patients < 12 with dental visits involving opioids in 2014-2019

Outcomes

- Monthly proportion of dental visits involving **codeine or tramadol** among all dental visits involving **any opioids**
- Monthly trends in the proportion of opioid-related dental visits by opioid agent

Statistical analysis

- **Implementation period:** March, April, May in 2017
- Interrupted time series analyses estimate immediate level changes and sustained trend changes
 - Segmented linear regression with ARIMA errors for codeine visit analysis
 - Segmented negative binomial regression for tramadol visit-level change
- Counterfactual trends based on baseline level and trend only, as if the intervention had not occurred

Results

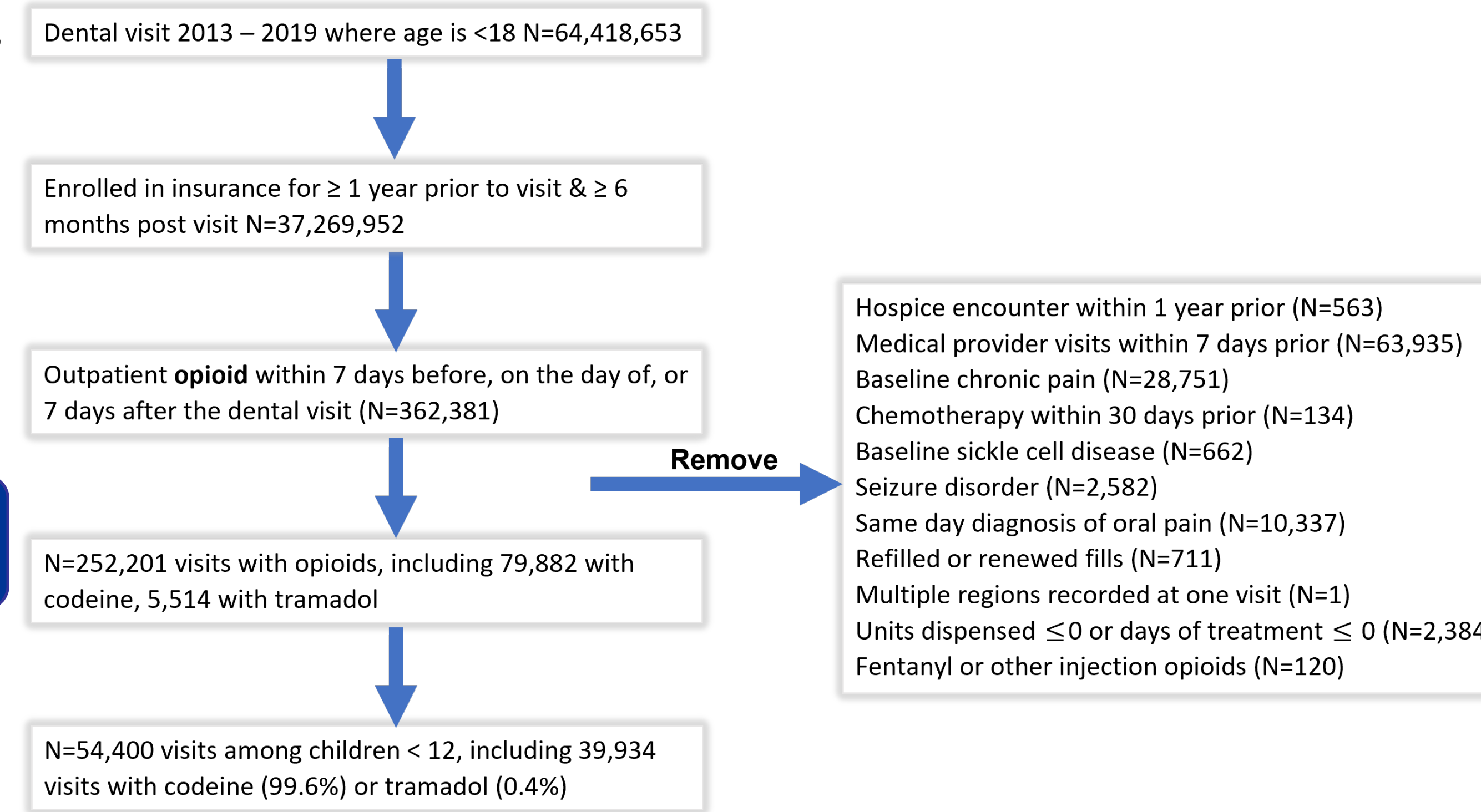


Figure 1 Inclusion and exclusion criteria for cohort of dental visits involving opioids among children < 12 years, 2014–2019

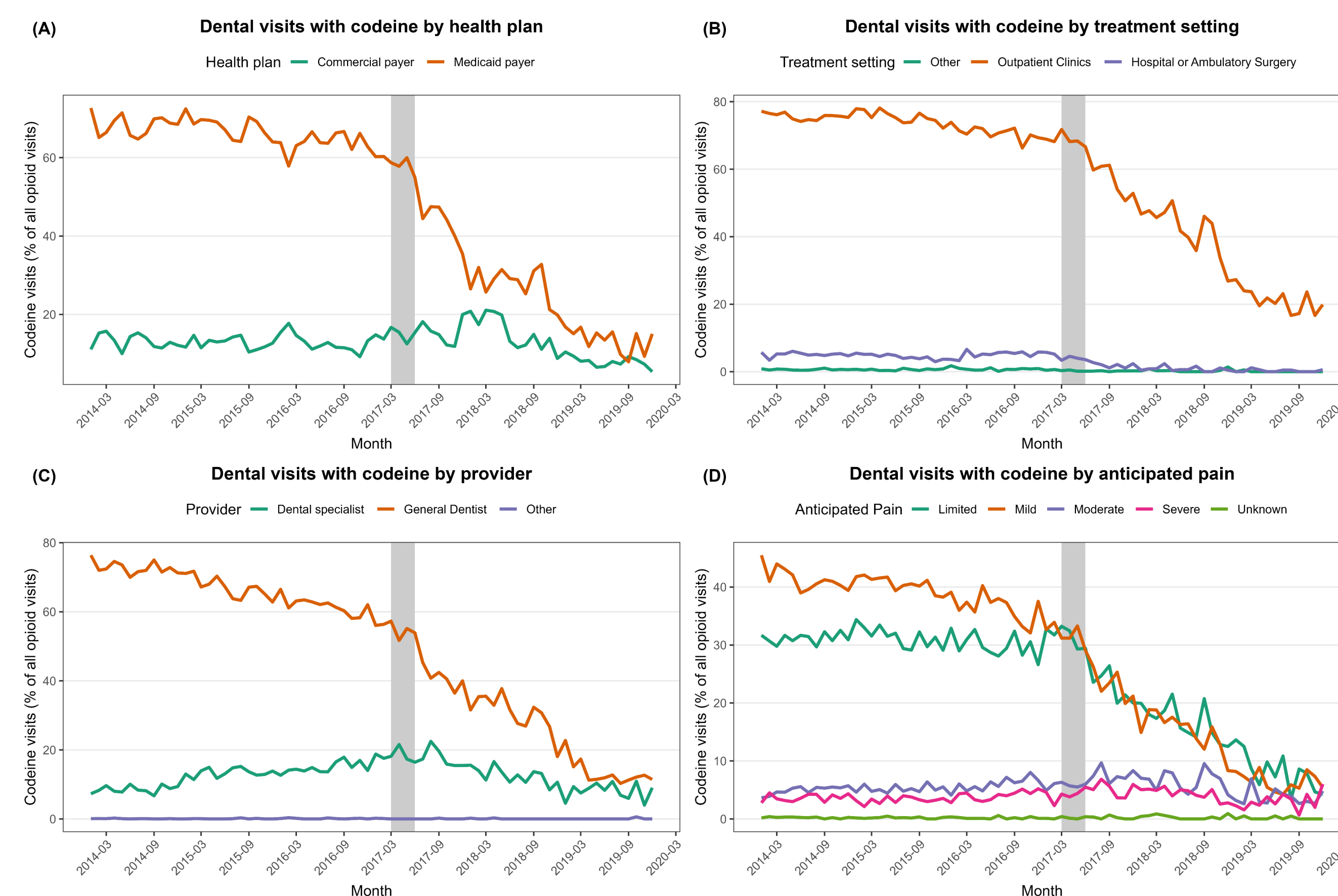


Figure 2. Trends of codeine dental visits by covariates among children < 12 years, expressed as the proportion of dental visits involving codeine among all opioid-related dental visits.

Conclusion

- The DSC was associated with an 8.1 percentage-point immediate reduction and an additional 1.5 percentage-point decline per month in codeine prescribing
- Tramadol use remained rare with no clear change after the DSC
- Decreases in codeine use was accompanied by increased prescribing of hydrocodone and oxycodone
- Drug-specific safety communications may modify prescribing behavior but shift use to alternatives

Results

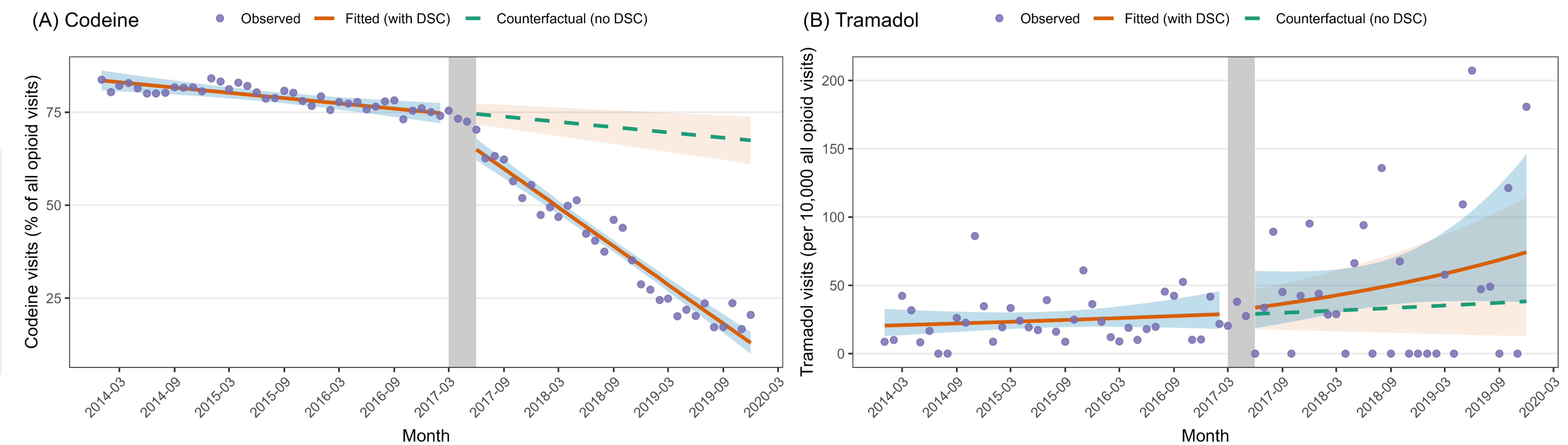


Figure 3. Observed and counterfactual trends in dental visits of codeine (A) and tramadol (B) among children <12 of age. Outcomes are expressed as the proportion of dental visits involving codeine or tramadol among all opioid-related dental visits.

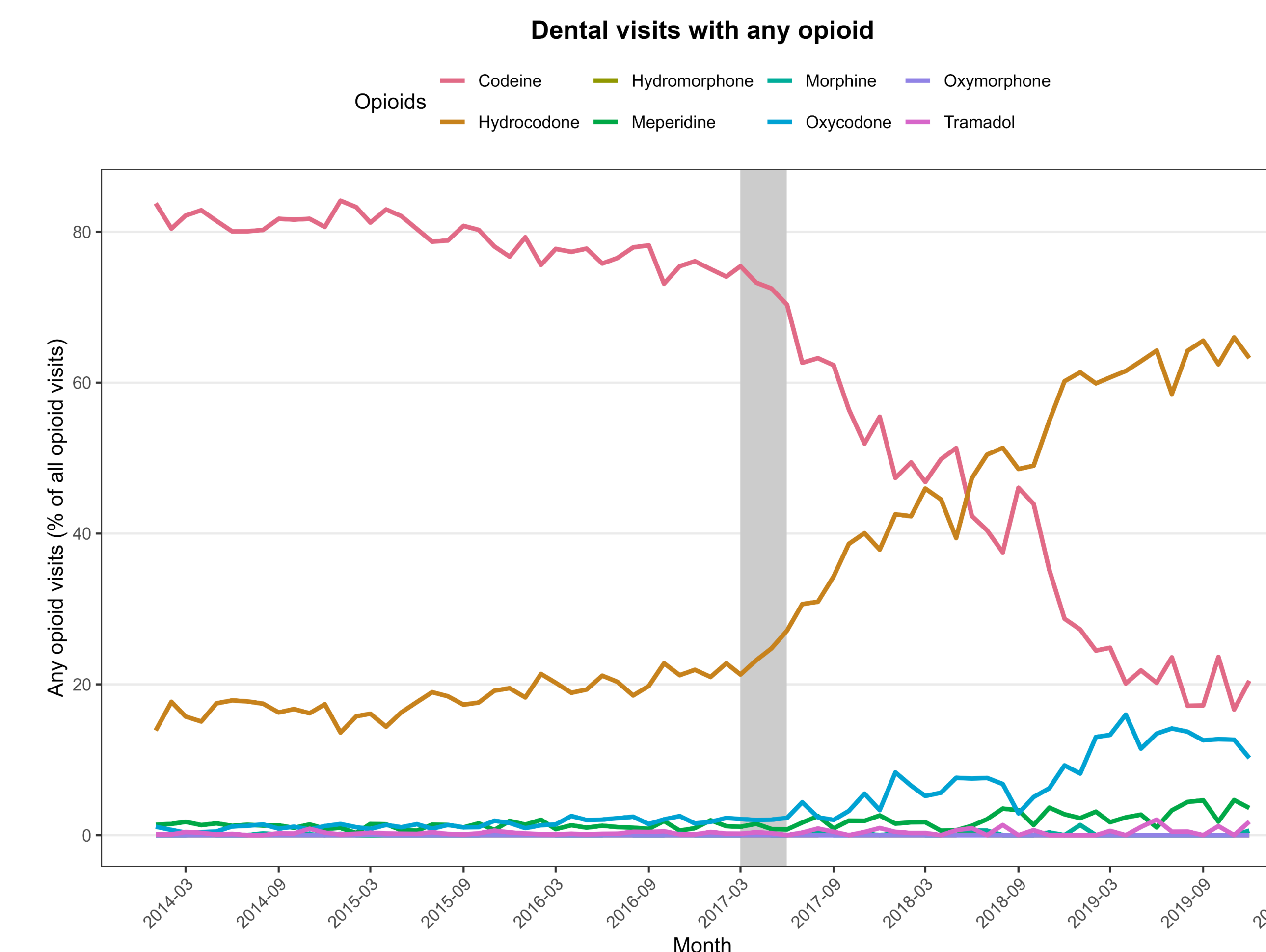


Figure 4. Monthly proportion of all opioid agents prescribed at dental visits among children < 12 years of age, 2014–2019.

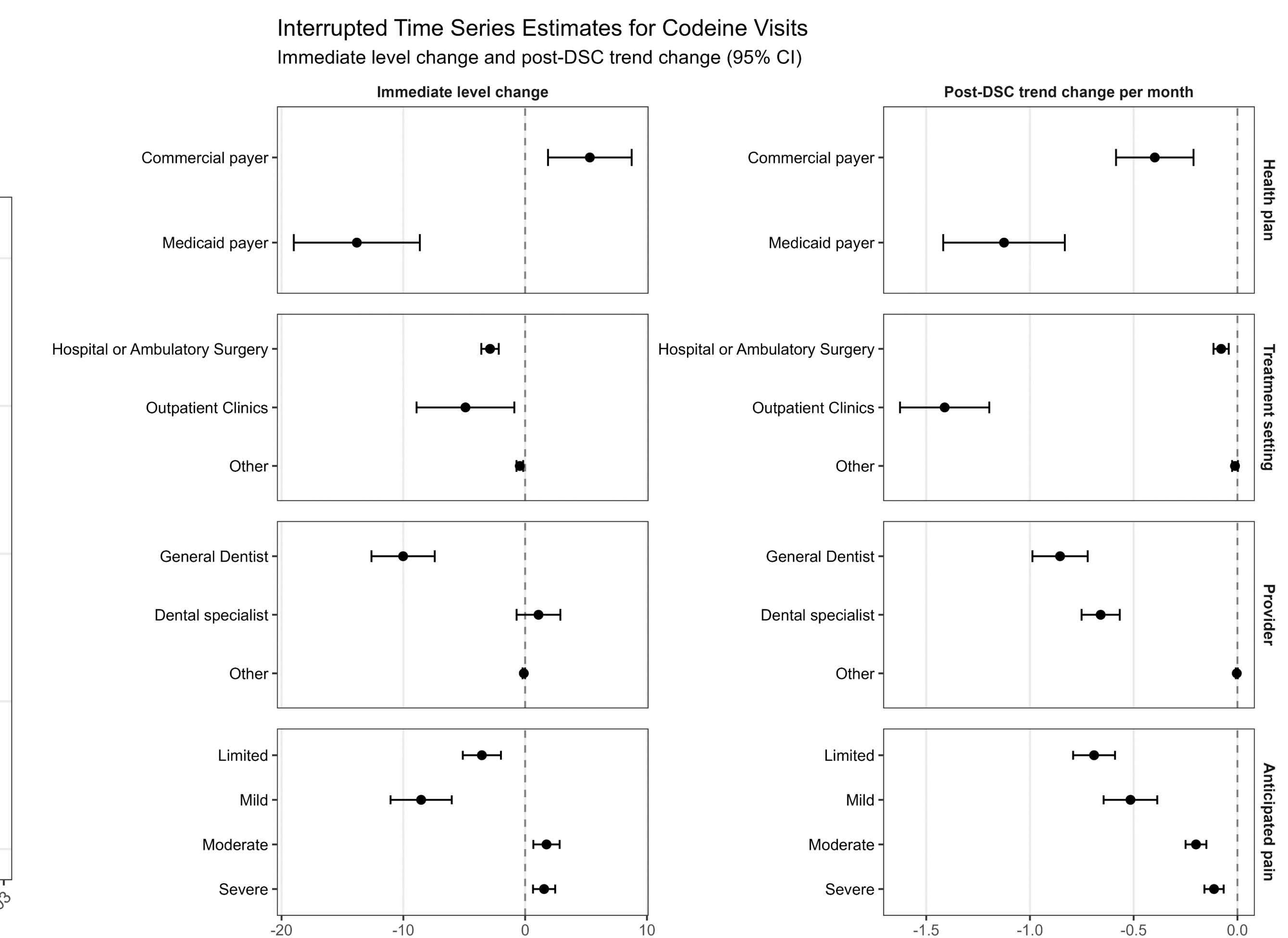


Figure 5. Estimates of level and trend changes associated with the DSC on codeine, stratified by covariate, expressed as the monthly proportion of dental visits involving codeine among all opioid-related dental visits for children < 12 years.