

OPIOID OVERDOSE DEATHS AND EMERGENCY DEPARTMENT VISITS FOR DENTAL CONDITIONS IN MARYLAND

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RESEARCH OBJECTIVES

- Opioid prescribing by Emergency Department (ED) providers for oral health and dental conditions has increased over the past decade.
- Little research examines the potential relationship between dental-related ED visits and opioid-related mortality.
- This study examines trends between the opioid-related mortality and ED visits for dental conditions in the state of Maryland from 2010-2016.

STUDY DESIGN

- Data on opioid-related overdose deaths in 24 Maryland counties were analyzed.
- Data on ED visits for dental-related conditions among adults were aggregated from data provided by the Healthcare Cost and Utilization Project and the Maryland Health Services Cost Review Commission.
- Rates per 10,000 were calculated from Census Population Estimates.
- Data were analyzed using descriptive statistics and random effects regression with a first-order autoregressive disturbance term to correct for geographic and temporal data nesting.
- Control variables include
 - income,
 - health insurance status,
 - type of healthcare provider, and
 - premature death rate.

PRINCIPAL FINDINGS

- The rate of opioid-related overdose deaths per 10,000 of the adult population increased significantly from 2010 to 2016 (see Figures 1 & 2).
- Compared with opioid-related overdose deaths, the rate of fentanyl-related overdose deaths increased significantly throughout the study (see Figure 1).
- There is a significant and positive correlation ($r = .35, p < .05$) between ED visits for dental conditions and total opioid overdose deaths. This relationship is present across all seven years of data (see Figure 4).
- Significant and positive effects persist in random effects regressions when controlling for median household income, the proportion of the population who are uninsured, for those residing in rural areas of the state, and the rate of available dentists, available primary care providers, and non-OD related premature deaths (see Figure 5).

Figure 1. Average Rate of Opioid Overdose Deaths in Maryland Counties, 2010-2016

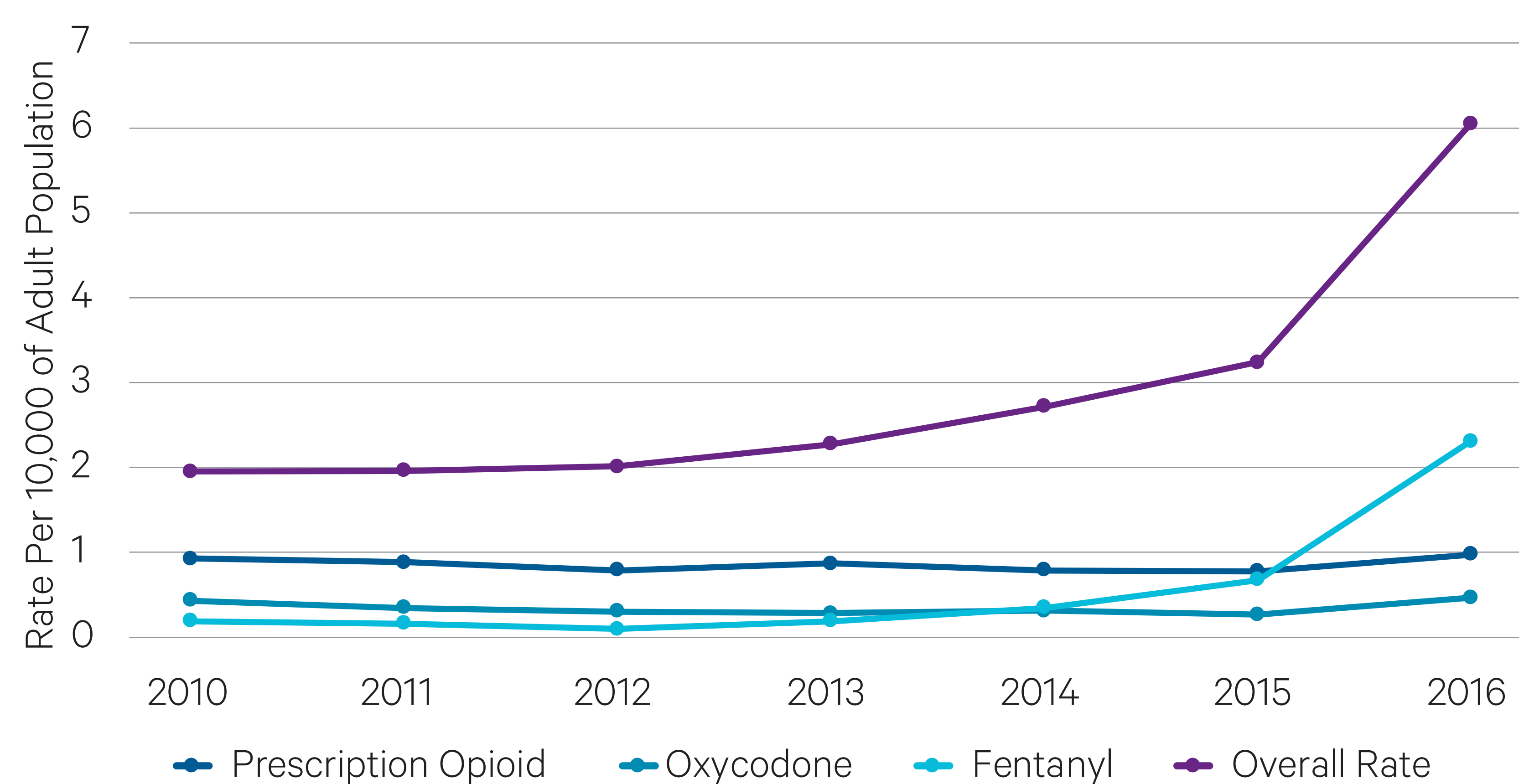


Figure 3. Relationship between ED Visits for Dental Conditions and Opioid Deaths in Maryland Counties, 2010-2016

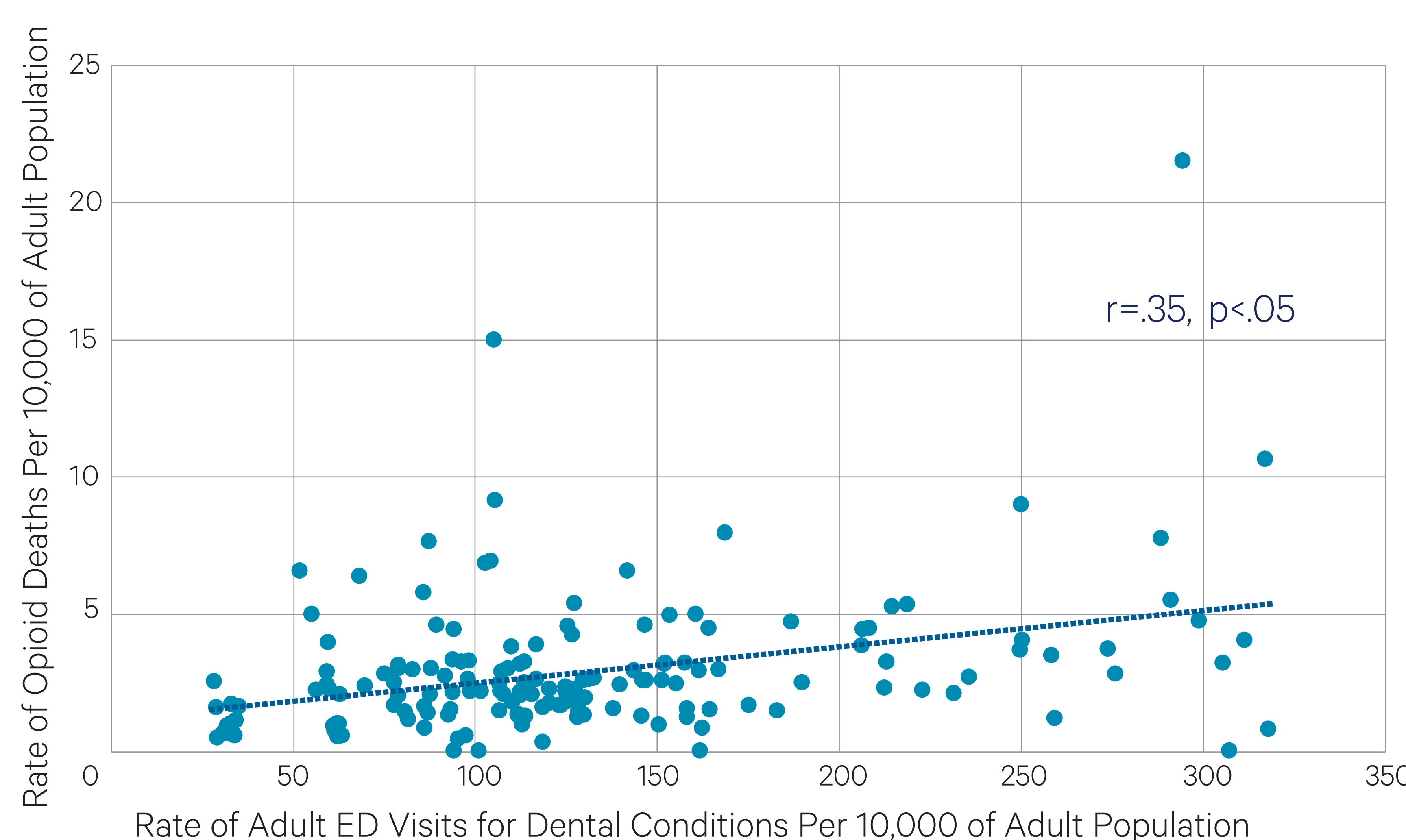


Figure 5. Results from Random Effects Regressions with First-Order Autoregressive Correction Estimating Rate of Opioid Related Overdose Deaths in Maryland Counties, 2010-2016

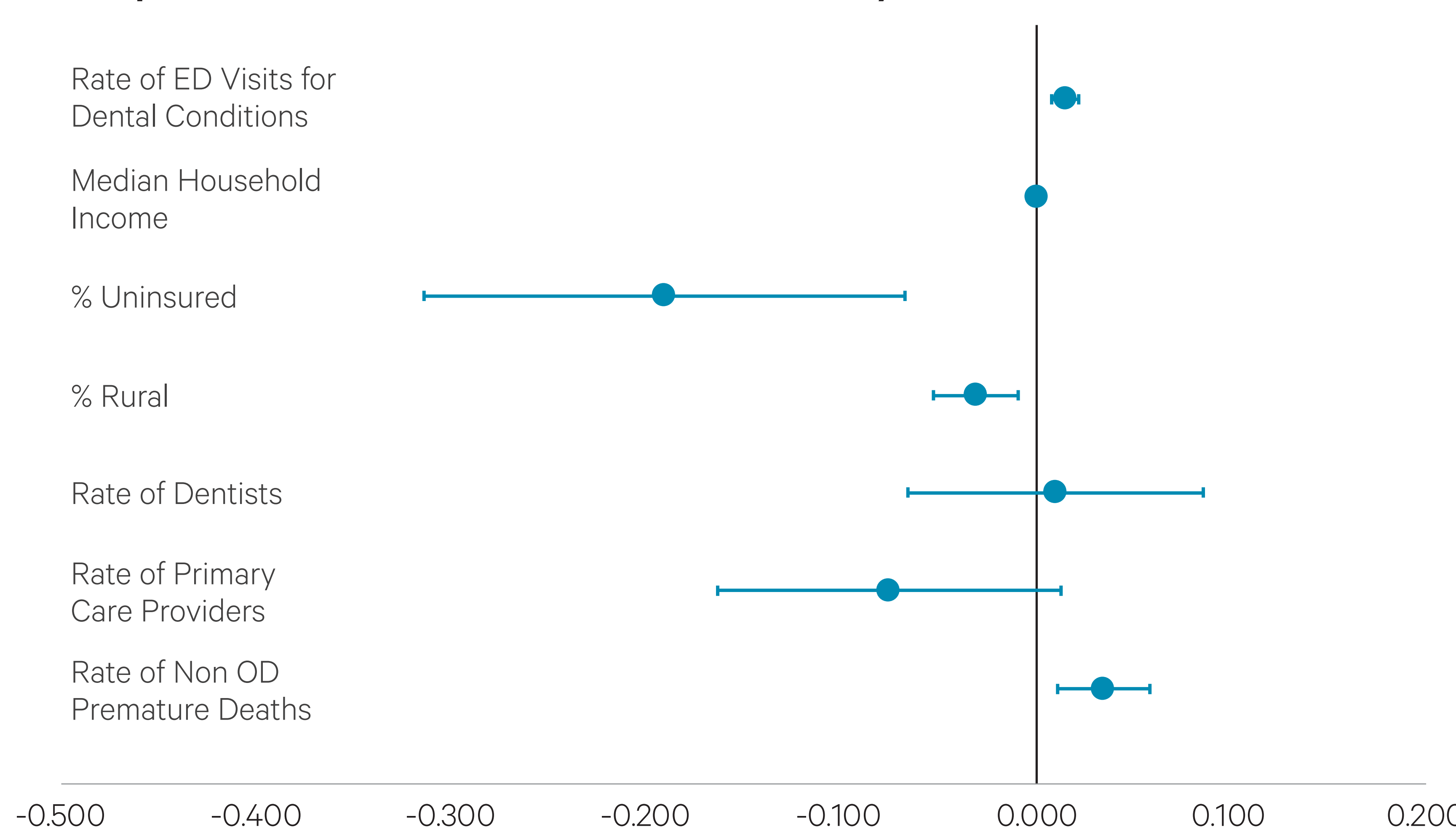


Figure 2. Rate of Opioid Overdose Deaths Per 10,000 Adults in Maryland, 2016

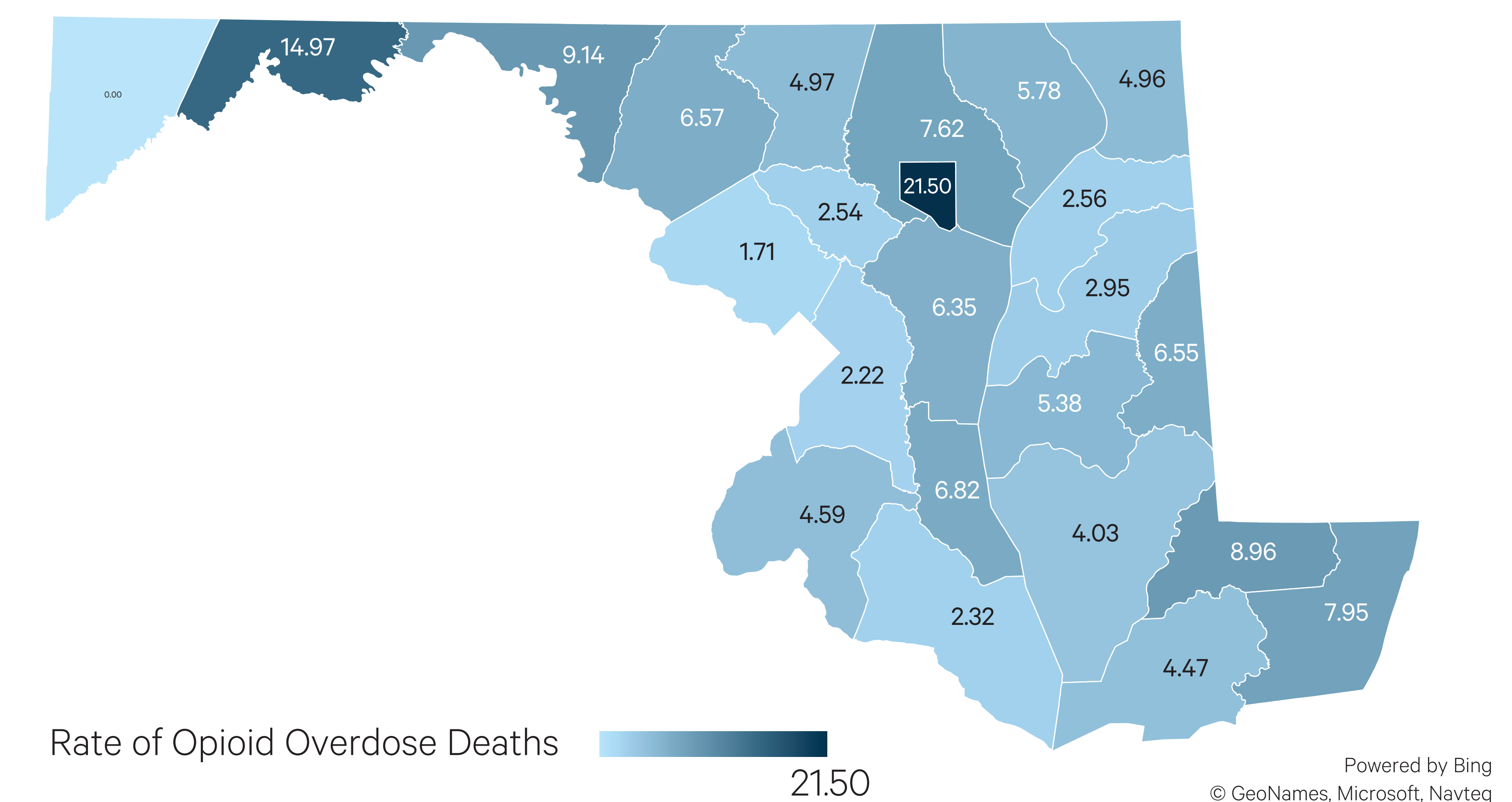


Figure 4. Relationship between Adult ED Visits for Dental Conditions and Opioid Overdose Deaths in Maryland Counties, 2010-2016

Year	Rate of Prescription Opioid Overdose Deaths	Rate of Oxycodone Overdose Deaths	Rate of Fentanyl Overdose Deaths	Rate of Total Opioid Overdose Deaths
2010	0.6*	0.37*	0.58*	0.72*
2011	0.51*	0.39*	0.13*	0.53*
2012	0.55*	0.33	0.23*	0.66*
2013	0.42*	0.08	0.4*	0.63*
2014	0.22	0.16	0.32*	0.38*
2015	0.21	-0.08	0.35*	0.36*
2016	0.25	0.27	0.53*	0.47*

CONCLUSIONS

- The rate of opioid-related overdose deaths increased over time with the use of the ED for dental and oral health conditions in Maryland counties.
- This is consistent with recent research findings that demonstrate links between opioid misuse and addiction and associated overdoses through dependence and drug-seeking behavior.

FOR MORE INFORMATION

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