Discretionary Child Protective Services Reporting for Infants With Prenatal Opioid Exposure

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abstract

OBJECTIVE: Hospital guidelines implemented in May 2021 to end reflexive child protective services (CPS) reporting for infants with prenatal substance exposure nearly halved overall reporting rates among infants with prenatal opioid exposure (IPOE). Given concerns that discretionary reporting may exacerbate inequities, this study assessed whether the guideline's effects differed between subgroups of IPOEs.

METHODS: We used a difference-in-difference-in-differences (DDD) approach to assess the differential impact of guideline implementation on rates of CPS reporting and discharge in the custody of a biological parent by minoritized (vs nonminoritized) birthing parent race and ethnicity, prescribed (vs any nonprescribed) opioid exposure, and presence (vs absence) of additional nonopioid coexposures. Analyses included 3581 IPOEs born across 17 Massachusetts birthing hospitals from 2017 to 2024.

RESULTS: In DDD analyses, guideline implementation did not differentially affect rates of CPS reporting by race and ethnicity or coexposure to cannabis. Guideline implementation did lead to larger decreases in CPS reporting rates among IPOEs exposed to only prescribed opioids compared with those exposed to nonprescribed opioids (DDD, −61.3 percentage points [pp] [95% CI, −65.6 to −57.0]), as well as larger decreases among IPOEs without additional exposures to alcohol (−27.1 pp [−37.0 to −17.2]), amphetamines (−17.7 pp [−27.7 to −7.8]), benzodiazepines (−16.4 pp [−26.4 to −6.4]), and cocaine (−55.5 pp [−64.2 to −46.8]). Guideline implementation had no overall or differential impacts on rates of discharge in parental custody.

CONCLUSION: Guideline-informed discretionary reporting for IPOEs did not lead to differential impacts by race or ethnicity. The largest decreases in reporting were among infants with only prescribed opioid exposure and without other substance coexposures.

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SUMMARY OF POLICY IMPLICATIONS: Legislative mandates to file maltreatment reports for infants with prenatal opioid exposure vary widely and are interpreted inconsistently. Prior efforts to end reflexive reporting raised concerns that introducing subjectivity may exacerbate inequities. We found that implementation of a hospital guideline for discretionary reporting did not lead to differential reporting of minoritized (nonwhite and/or Hispanic) families and led to the largest decreases among infants with only prescribed opioid exposure. As Massachusetts plans to implement discretionary reporting statewide, similarly clear regulatory guidance may help mitigate inequities.

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INTRODUCTION

The US opioid overdose epidemic is a public health crisis with devastating impacts on pregnant people, newborns, and their families.[1–3] From 2018 to 2023, the leading cause of mortality among pregnant and postpartum women was unintentional drug overdose.[4] Simultaneously, child welfare system involvement and foster care entry for infants with prenatal substance exposure continue to rise while entries for other reasons have largely declined.[5,6] Alongside behavioral therapy and perinatal care, medications for opioid use disorder (MOUD) are the mainstay of OUD treatment during and after pregnancy.[3,7,8] MOUD use in pregnancy not only reduces maternal overdose risk[9,10] but also improves infant outcomes, including lower incidence of preterm birth, low birth weight, and hospital readmission in infancy, as well as greater receipt of recommended well-child care.[9,11,12] For families involved in child protective services (CPS) systems, MOUD use is also associated with custody retention.[5,13,14]

Despite these clear benefits, less than half of pregnant people with OUD receive MOUD.[9,15,16] Fear of triggering a CPS report remains a major barrier to uptake.[15,17–19] In the United States, federal law requires that clinicians "notify" their state of all newborns "affected by" prenatal substance use or exposure-related withdrawal symptoms.[20,21] Although these notifications need not be communicated as reports of suspected child maltreatment, federal and state policies have repeatedly failed to clarify whether child maltreatment reporting requirements should exclude infants only exposed to prescribed opioids, including MOUD.[22,23] As such, states, hospitals, and clinicians have interpreted reporting obligations heterogeneously.[21,24–30] The mandatory reporting of all infants with prenatal substance exposure has failed to improve neonatal outcomes or rates of unregulated drug use during pregnancy and can fuel stigma, undermine care engagement, and damage family continuity.[18,19,23,31–36]

Beginning in 1973, Massachusetts law required clinicians to file a report for suspected maltreatment anytime there was "reasonable cause to believe a child is suffering physical or emotional injury resulting from . . . physical dependence on an addictive drug at birth."[37,38] Although regulatory guidance was updated in 2017 to clarify "clinical considerations" that may influence reporting decisions,[39] standard practice across Massachusetts has historically been to reflexively file a CPS report for all infants with prenatal substance exposure.[40] Less than half of these reports were substantiated from 2019 to 2024.[41–46] To support care engagement and reduce potentially unnecessary reporting, in May 2021, Boston Medical Center (BMC) implemented a novel clinical guideline to end reflexive CPS reporting for prenatal substance exposure, advising clinical teams to file reports only if specific child safety concerns are identified. Our early evaluation of guideline impacts among infants with prenatal opioid exposure (IPOE) through mid-2023 demonstrated a 44.9-percentage-point (pp) decrease in CPS reporting without significant changes in rates of discharge in parental custody or newborn length of stay.[47] Subsequently, in December 2024, a new Massachusetts state law explicitly eliminated reflexive CPS reporting for IPOE, instead creating an alternative notification pathway for infants without explicit protective concerns while still facilitating CPS involvement when needed.[48–50]

Despite these promising steps forward, evaluations in other states have suggested that discretionary reporting may introduce bias and inconsistency, creating or sustaining racial and economic inequities.[30,51–53] Reporting practices may also vary in the setting of other substance coexposures.[28,30,54] Given concerns about unintended consequences, we evaluated the differential effects of BMC's guideline on CPS reporting and discharge custody outcomes among IPOE born to birthing parents from a minoritized racial or ethnic background (compared with non-Hispanic white birthing parents), IPOE exposed solely to MOUD or other prescribed opioids (compared with any nonprescribed opioid exposure), and IPOE without coexposure to additional nonopioid substances (compared with the presence of each coexposure).

METHODS

Data Source and Study Population

We obtained quarterly birth hospitalization data on birthing parent–infant dyads with prenatal opioid exposure from the Massachusetts Perinatal-Neonatal Quality Improvement Network (PNQIN), a statewide quality improvement initiative focused on improving the care of infants and families impacted by perinatal opioid use and neonatal opioid withdrawal syndrome (see Supplementary Methods for additional information).[55–57] PNQIN hospital teams manually reviewed charts to identify infants with prenatal exposure to illicit or prescribed opioids based on verbal prenatal substance use screening, toxicology testing results, and/or use of an opioid withdrawal scoring scale (ie, Finnegan[58] or Eat, Sleep, Console[59,60]) for monitoring during the birth hospitalization; infants with solely postnatal opioid exposure or who were transferred to another facility were not included. Data abstracted from the electronic medical record included maternal demographics, prenatal exposures, pharmacologic and nonpharmacologic treatment details, CPS reporting, and discharge disposition.

We included data from IPOE born at the 17 PNQIN hospitals that submitted data for at least 5 quarters before and 5 quarters after BMC's guideline implementation (Q2-2021) between January 1, 2017, and December 31, 2024. These 17 hospitals accounted for 46.6% of all Massachusetts births in 2022 and had similar characteristics to non-PNQIN hospitals (see Supplementary Methods and Table S10).[61] To

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allow for an implementation washout period, we excluded births within the first 2 quarters of 2021 a priori. To avoid misattribution of guideline nonexposure, we also excluded 5 dyads from a non-BMC PNQIN site whose births occurred after their hospital system implemented a similar guideline in April 2024.[62] This study was approved by the BMC Institutional Review Board as exempt research.

Intervention

BMC implemented a new hospital-level clinical practice guideline titled "When to Report Protective Concerns in the Setting of Prenatal Substance Use"[47] in May 2021. The guideline provides recommendations to multidisciplinary care teams on assessment of protective concerns among infants with prenatal substance exposure (including, but not limited to, IPOE) and advice on decision-making regarding when to file a CPS report. The guideline aims to optimize infant safety, promote parental engagement in prenatal and postpartum care, and ensure that clinicians meet their obligations as mandated reporters.[37] Table 1 summarizes key guideline recommendations,[47] including those related to universal verbal substance use screening in pregnancy,[7,25,63] limitations of clinical diagnostics (ie, 1-time toxicology tests),[7,64,65] and differentiation of situations when clinicians are legally obligated to file a CPS report[37] from situations when reporting decisions should be based on multidisciplinary and/or expert review.[66]

Outcomes and Additional Exposures

We examined 2 birth hospitalization outcomes: CPS reporting prior to discharge (yes/no) and discharge home in the custody of a biological parent (vs a nonparental guardian, foster family, or CPS agency). To assess for differential guideline impacts, we examined outcomes by binary indicators for birthing parent race and ethnicity, type of prenatal opioid exposure, and prenatal coexposure to 1 of 6 nonopioid substances. First, due to sample size constraints, we used a binary indicator of minoritized race and ethnicity as a proxy for exposure to structural racism and interpersonal biases.[67] We considered birthing parents with American Indian and Alaska Native, Asian, Black or African American, or Native Hawaiian and Pacific Islander race and/or Hispanic ethnicity to be minoritized and categorized this group as "nonwhite and/or Hispanic." We considered birthing parents with white race and non-Hispanic ethnicity to be nonminoritized. Next, we binarized prenatal opioid exposure type as second and/or third trimester exposure to only prescribed opioids, including MOUD,

TABLE 1. Summary of Key Recommendations from BMC's 2021 Clinical Practice Guideline on "When to Report Protective Concerns in the Setting of Prenatal Substance Use"

Specific Protective Concerns That Should Prompt a Report[a]	Circumstances That Are Not Sufficient (in the Absence of Protective Concerns) to Meet the "Reasonable Cause" Reporting Standard[b]	Considerations for Substance Use Screening, Newborn Toxicology Testing, and Test Interpretation
Presence of untreated substance use disorder	Treatment with prescribed MOUD or other opioids for pain management during pregnancy	As a universal component of comprehensive prenatal care, all pregnant patients should undergo verbal substance use screening, brief intervention, and referral for treatment using a validated screening tool
Resumption of substance use with evidence of lack of control or negative consequences of use	Presence of NOWS after delivery due to MOUD or other prescribed medications	CPS reports may be filed based on self-reported substance use if protective concerns are present, without need for parent or infant toxicology testing
Lack of follow-up or other indication concerning for continued substance use	Requirement of pharmacologic treatment for NOWS	Neither urine nor meconium testing should be performed without parental informed consent and discussion of clinical indications for testing
Relevant history of CPS involvement or loss of custody of other children	Treatment with prescribed cannabis or use of nonprescribed cannabis alone	Universal urine and/or meconium testing of substance-exposed newborns is not recommended
Lack of parental capacity to care due to untreated psychiatric disorder	Treatment with prescribed naltrexone for opioid or alcohol use disorder	If newborn urine or meconium testing is performed based on a clinical indication, then a specific plan must be documented for reviewing and acting upon the results
Pattern of parental behavior that raises concerns for the safety of the infant		Toxicology test results should not be the sole basis for filing a CPS report
Use of nonprescribed medications or misuse of prescribed medications with concomitant concerns for parental capacity to care		
Clinical concerns for the presence of FASD, even in the absence of reported alcohol use		

Abbreviations: CPS, child protective services; FASD, fetal alcohol spectrum disorder; MOUD, medication for opioid use disorder; NOWS; neonatal opioid withdrawal syndrome.

[a] In addition to outlining protective concerns to guide clinician and social worker assessments for all birthing parents who report substance use during pregnancy, the guideline notes that there is "no indication for 'automatic filing' based on a single fact or filing" and that "a filing should not be made due to lack of information," thus warranting thorough assessment of protective concerns for all birthing parents with prenatal substance use.

[b] Until December 2024, Massachusetts General Law c. 119, §51A stated that a mandated reporter is required to file a CPS report when there is "reasonable cause" to believe that a child is suffering from physical or emotional injury resulting from sexual abuse, neglect, or "physical dependence upon an addictive drug at birth."[37]

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TABLE 2. Characteristics of Infants With Prenatal Opioid Exposure at BMC vs All Other Sites, 2017–2024

	All Other Sites, n (%)		BMC, n (%)		
	Pre (N = 2323)	Post (N = 783)	Pre (N = 302)	Post (N = 173)	Overall (N = 3581), n (%)
Birthing parent race and ethnicity[a]					
Nonminoritized (white, non-Hispanic)	1895 (81.6)	632 (80.7)	228 (75.5)	131 (75.7)	2886 (80.6)
Minoritized (nonwhite and/or Hispanic)	265 (11.4)	112 (14.3)	37 (12.3)	36 (20.8)	450 (12.6)
Missing or unknown	163 (7.0)	39 (5.0)	37 (12.3)	6 (3.5)	245 (6.8)
Type of prenatal opioid exposure					
Any nonprescribed opioid(s)	735 (31.6)	254 (32.4)	113 (37.4)	93 (53.8)	1195 (33.4)
Only prescribed opioid(s)	1543 (66.4)	519 (66.3)	186 (61.6)	75 (43.4)	2323 (64.9)
Missing or unknown	45 (1.9)	10 (1.3)	3 (1.0)	5 (2.9)	63 (1.8)
Specific opioid exposure(s) from any source[b]					
Buprenorphine	1174 (50.5)	379 (48.4)	121 (40.1)	65 (37.6)	1739 (48.6)
Methadone	830 (35.7)	312 (39.8)	167 (55.3)	96 (55.5)	1405 (39.2)
Fentanyl/heroin	420 (18.1)	190 (24.3)	75 (24.8)	87 (50.3)	772 (21.6)
Other opioids	431 (18.6)	79 (10.1)	58 (19.2)	11 (6.4)	579 (16.2)
Other substance or medication exposure(s) from any source[b]					
Alcohol	84 (3.6)	15 (1.9)	13 (4.3)	18 (10.4)	130 (3.6)
Amphetamine	223 (9.6)	91 (11.6)	25 (8.3)	26 (15.0)	365 (10.2)
Benzodiazepine	352 (15.2)	110 (14.0)	66 (21.9)	39 (22.5)	567 (15.8)
Cannabis	704 (30.3)	224 (28.6)	28 (9.3)	27 (15.6)	983 (27.5)
Cocaine	418 (18.0)	161 (20.6)	81 (26.8)	72 (41.6)	732 (20.4)
Nicotine/tobacco	1144 (49.2)	395 (50.4)	191 (63.2)	94 (54.3)	1824 (50.9)
Receipt of any SCN-/NICU-level care					
Did not receive SCN/NICU care	1352 (58.2)	487 (62.2)	212 (70.2)	91 (52.6)	2142 (59.8)
Received SCN/NICU care	971 (41.8)	296 (37.8)	90 (29.8)	82 (47.4)	1439 (40.2)
Child protective services reporting					
Yes	2182 (93.9)	733 (93.6)	301 (99.7)	100 (57.8)	3316 (92.6)
No	141 (6.1)	50 (6.4)	1 (0.3)	73 (42.2)	265 (7.4)
Custody at discharge					
Biological parent	1785 (76.8)	554 (70.8)	203 (67.2)	105 (60.7)	2647 (73.9)
Nonparental guardian, foster family, or state agency	538 (23.2)	229 (29.2)	99 (32.8)	68 (39.3)	934 (26.1)

Abbreviations: BMC, Boston Medical Center; NICU, neonatal intensive care unit; SCN, special care nursery.

[a] Race and ethnicity were reported separately, as documented in the electronic health record at each site, and recoded to reflect mutually exclusive categories.

[b] Column totals may sum to >100% because multiple exposures may be present. Exposures presented here are agnostic to source (ie, inclusive of prescribed and nonprescribed) and reflect exposure any time after the first trimester.

vs any nonprescribed opioids. Finally, we defined additional nonopioid coexposures as the absence (vs presence) of second and/or third trimester exposure to alcohol, amphetamines, benzodiazepines, cannabis, cocaine, or nicotine/tobacco as identified by urine toxicology testing and/or parental self-report.

Statistical Analysis

First, we calculated descriptive statistics for infant characteristics and outcomes of interest at BMC vs all other sites overall and by race and ethnicity, type of prenatal opioid exposure, and polysubstance coexposure. Second, to confirm parallel preintervention trends, we plotted each unadjusted outcome by quarter, generated covariate-adjusted event-study plots, and used precision-weighted linear regressions to empirically test whether the slope of preintervention event-study coefficients were significantly different from 0 (see Supplementary Results and Figure S1).[68–70] Third, we applied a difference-in-differences (DiD) approach using logistic regressions to estimate the causal effect of BMC's guideline implementation on changes in outcomes among IPOE born at BMC (guideline-exposed group) and those born at all other PNQIN sites (comparison group).[71] Fourth, we extended these models using a difference-in-difference-in-differences (DDD, or "triple-differences") framework to assess effect heterogeneity.[72]

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All logistic regression models included a group indicator (BMC vs all other sites), time indicator (before vs after guideline implementation), and a group-time interaction term. DDD models used a 3-way interaction term that added indicators for race and ethnicity, opioid exposure type, or 1 of 6 substance coexposures. Prespecified DiD and DDD model covariates included receipt of any neonatal intensive care unit–level or special care nursery–level care, hospital fixed effects (thereby dropping the main effect of treatment group, which was entirely determined by hospital), and year fixed effects to account for residual confounding due to differences in reporting practices between units, between hospitals, or over time. We calculated adjusted DiD and DDD estimates as marginal effects with robust SEs at the hospital level.[73,74]

Regression specifications, DiD and DDD assumptions, and further details on our analytic approach are available in the Supplementary Material. We used R, version 4.4.3 (R Foundation for Statistical Computing) for statistical analyses.

RESULTS

We identified 3939 opioid-exposed parent-infant dyads at the 17 participating Massachusetts hospitals from January 2017 through December 2024. We excluded 265 IPOE (6.7%) born during the 2-quarter peri-implementation washout period and 93 IPOE (2.4%) with missing outcome data, yielding a study sample of 3581 IPOE, of which 475 (13.3%) were born at BMC.

Dyad characteristics stratified by treatment group and time period are presented in Table 2. Dyad characteristics and unadjusted pre- and postimplementation outcomes stratified by race and ethnicity, opioid exposure type, and additional substance coexposures are presented in Tables S1 through S9. Overall, 1739 IPOE (48.9%) had exposure to buprenorphine, 1405 (39.2%) to methadone, 772 (21.6%) to fentanyl or heroin, and 579 (16.2%) to other opioids. The most prevalent substance coexposures were nicotine/tobacco (N = 1824; 50.9%), cannabis (N = 983; 27.5%), cocaine (N = 732; 20.4%), and benzodiazepines (N = 567; 15.8%). Among the 2323 (64.9%) IPOE only exposed to prescribed opioids, 58.4% were exposed to methadone, 36.2% to buprenorphine, and 7.1% to other prescribed opioids such as oxycodone and hydromorphone (Table S2).

Impact on CPS Reporting

Figure 1A displays unadjusted trends in CPS reporting rates among IPOE born at BMC vs all other sites. Figure S1A displays the event-study plot and preintervention slope test, confirming the parallel trends assumption. In adjusted DiD analyses, guideline implementation led to an overall decrease in CPS reporting of 50.7 pp (95% CI, −59.4 to −42.0), corresponding to 88 (95% CI, 73–103) IPOE with averted CPS reports at BMC in the postimplementation period. If the guideline had been applied similarly across all 17 hospitals in the postimplementation period, an estimated 485 (95% CI, 402–568) reports could have been averted.

In triple-differences analyses, there were no significant differential impacts of the guideline on CPS reporting by race and ethnicity or by coexposure to cannabis or nicotine/tobacco (Figure S2, Figure 2). Guideline implementation did lead to significantly larger decreases in CPS reporting rates among IPOE with prenatal exposure to only prescribed opioids compared with those with any nonprescribed opioid exposures (DDD, −61.3 pp [95% CI, −65.6 to −57.0]). Guideline implementation also led to significantly larger decreases in reporting among IPOE without coexposure to alcohol (DDD, −27.1 pp [95% CI, −37.0 to −17.2]), amphetamines (DDD, −17.7 pp [95% CI, −27.7 to −7.8]), benzodiazepines (DDD, −16.4 pp [95% CI, −26.4 to −6.4]), and cocaine (DDD, −55.5 pp [95% CI, −64.2 to −46.8]), compared with IPOE with coexposure to each.

Impact on Discharge Custody

Figure 1B displays unadjusted trends in rates of parental custody at discharge among IPOE born at BMC vs all other sites. Figure S1B displays the event-study plot and preintervention slope test; most event-study coefficients were significantly less than 0, but the preintervention slope test was nonsignificant, supporting the presence of parallel trajectories. In adjusted DiD analyses, BMC's guideline did not significantly affect rates of parental custody at discharge (DiD, 4.5 pp [95% CI, −11.8 to 20.7]). In triple-differences analyses, guideline implementation had no differential impacts on this outcome by race and ethnicity, opioid exposure type, or presence of any polysubstance coexposures (Figure S3, Figure 3).

DISCUSSION

In 2021, BMC implemented clinical guidelines to end reflexive CPS reporting for all infants with prenatal substance exposure, with goals of promoting care engagement, reducing stigma, and avoiding unnecessary reporting. In this quasi-experimental study of 3581 parent-infant dyads with prenatal opioid exposure, we found that BMC's guideline implementation halved CPS reporting rates for IPOE, without significantly or differentially affecting rates of parental custody at discharge. Triple-differences analyses revealed significant effect heterogeneity: The guideline's impact on CPS reporting was reassuringly largest among infants with exposure to only prescribed opioids (primarily MOUD) and IPOE without coexposure to alcohol, amphetamines, benzodiazepines, or cocaine. Notably, we did not identify evidence of differential impacts on CPS reporting by race and ethnicity or by coexposure to cannabis or nicotine/tobacco.

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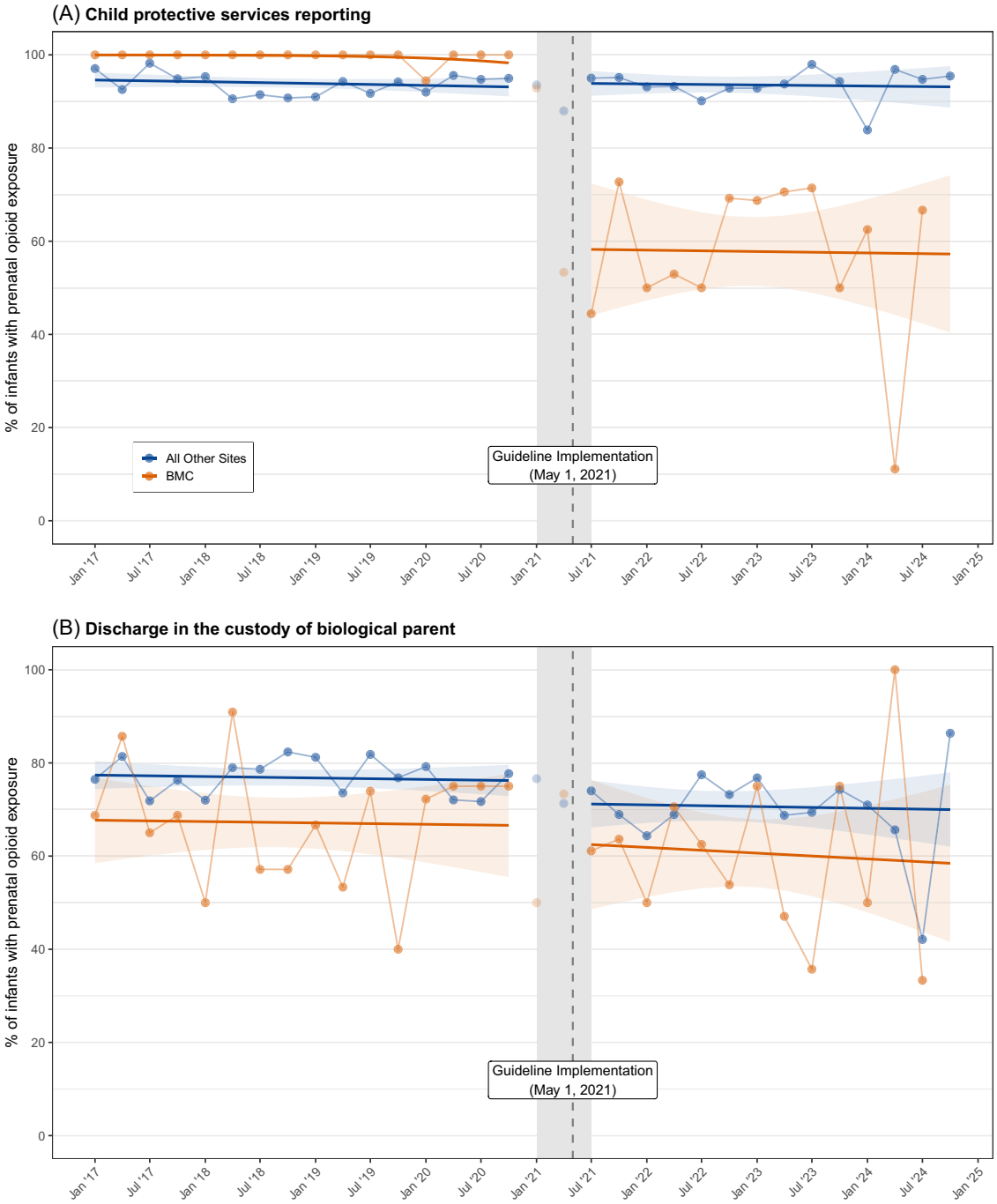


FIGURE 1.
Quarterly trends in child protective services reporting (A) and discharge in parental custody (B) among infants with prenatal opioid exposure at Boston Medical Center vs all other sites, 2017–2024. To illustrate pre- and postimplementation trends, trendlines and cluster-robust 95% CI ribbons based on predicted probabilities from our difference-in-differences logistic regression models are also plotted.

BMC's guideline achieved a similar overall decrease in CPS reporting compared with an analogous effort to end reflexive reporting for prenatal substance exposure in Connecticut.[75] We identified a larger effect size in this study through 2024 than our prior study through mid-2023 (−50.7 vs −44.9 pp),[47] suggesting the guideline's effect may have increased over time. In contrast to 2 prior studies,[52,53] we found that BMC's guideline did not differentially affect reporting or parental custody at discharge by race and ethnicity. Racial disparities in CPS reporting emerged in early data from Connecticut's 2019 effort to divert reports for infants with prenatal substance exposure

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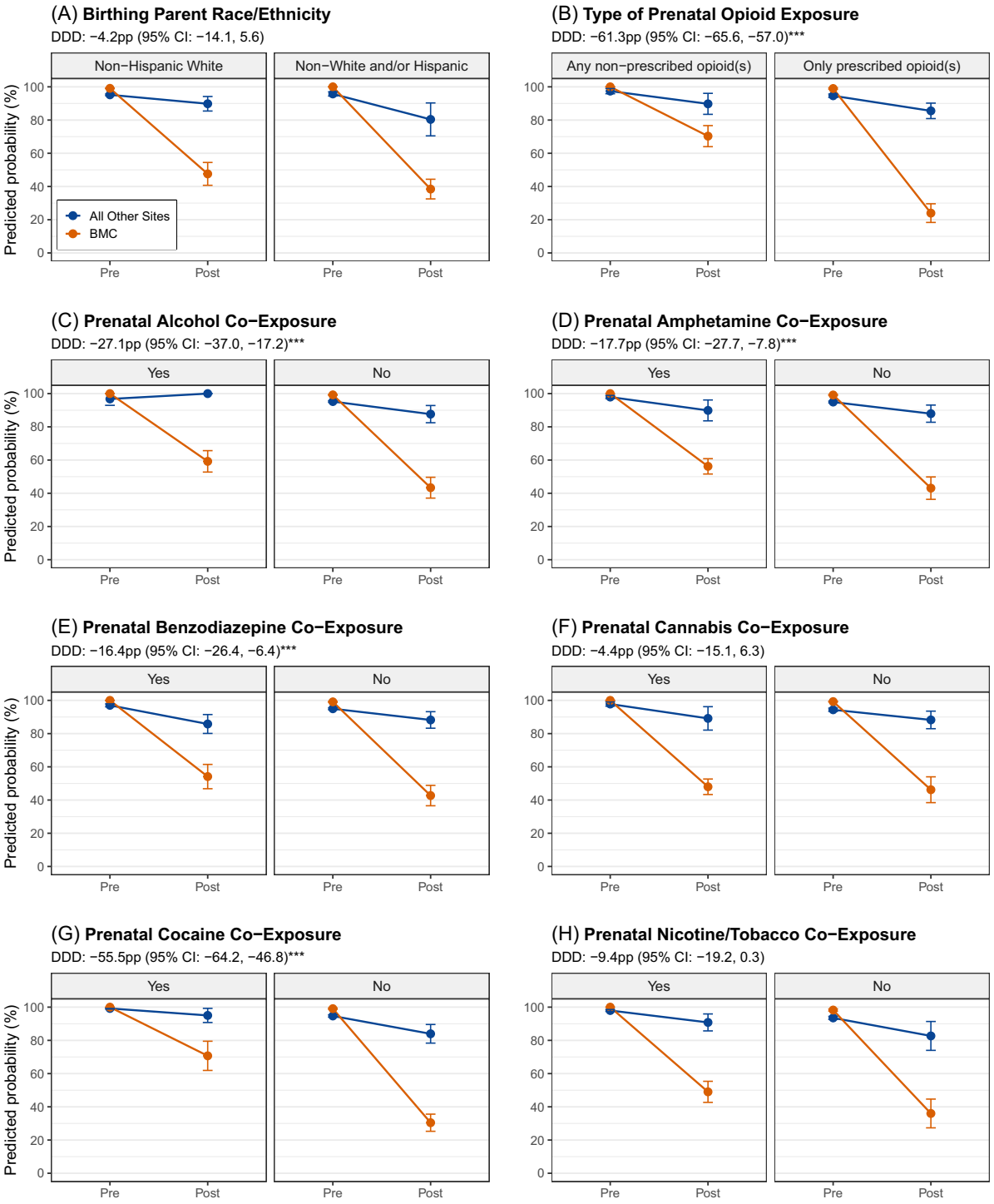


FIGURE 2.

Differential impact of BMC's prenatal substance exposure guideline on child protective services reporting by minoritized birthing parent race and ethnicity (A), type of prenatal opioid exposure (B), and prenatal polysubstance coexposure (C-H). Predicted probabilities by group (birth at BMC vs all other sites) and time period (before vs after implementation of BMC's guidelines in May 2023) were obtained from adjusted logistic regression models by using marginal standardization to account for the marginal distribution of covariates. DDD estimates were then derived by subtracting the subgroup difference-in-difference estimates (each calculated as the difference between BMC and non-BMC estimated marginal probabilities in the preimplementation period from the difference in the postimplementation period). All models were adjusted for neonatal intensive care unit or special care nursery admission, hospital fixed effects, and year fixed effects. The 95% CIs were derived from cluster-robust SEs at the hospital level. Abbreviations: BMC, Boston Medical Center; DDD, difference-in-difference-in-differences; pp, percentage point.

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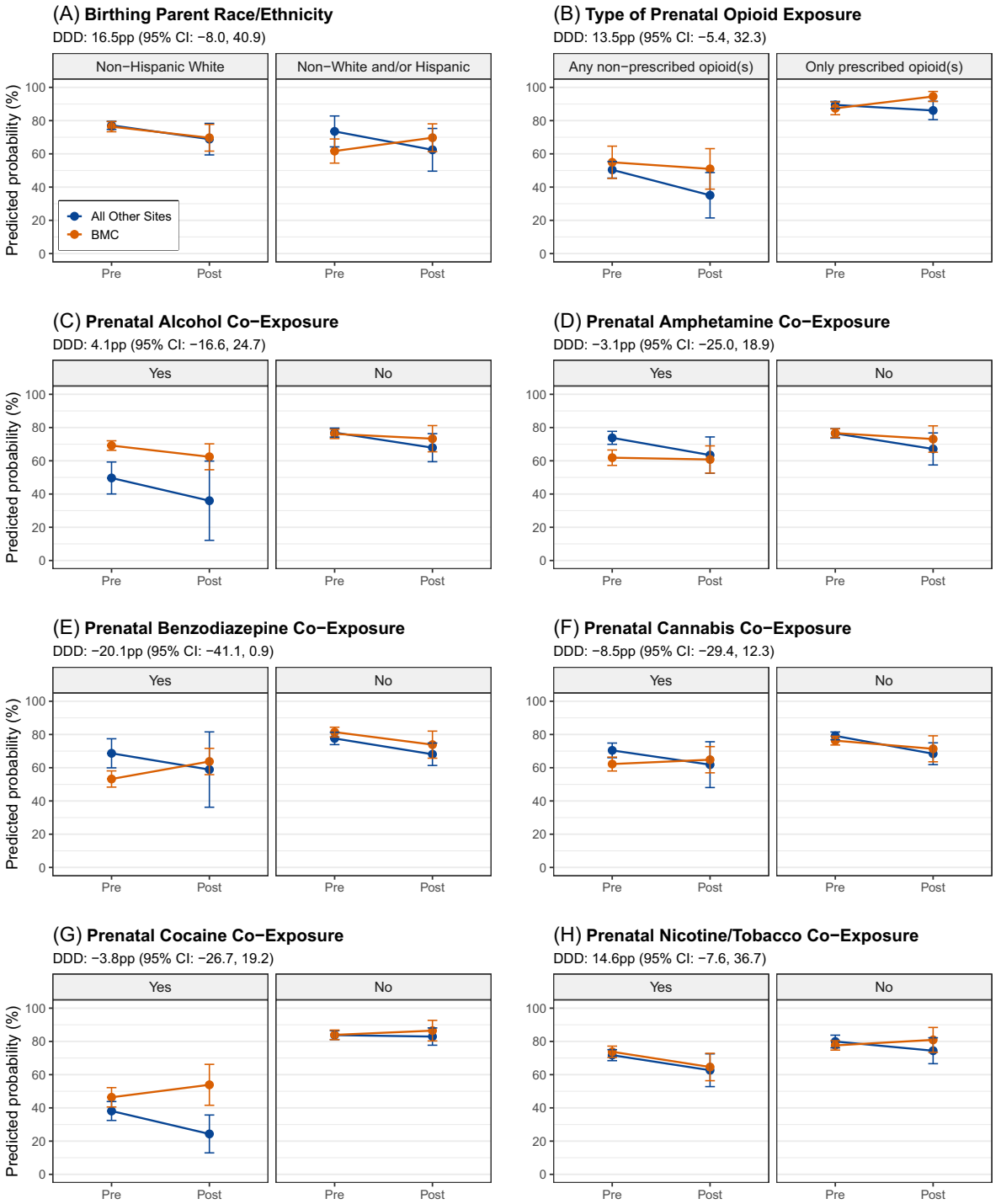


FIGURE 3.

Differential impact of BMC's prenatal substance exposure guideline on discharge in parental custody by minoritized birthing parent race and ethnicity (A), type of prenatal opioid exposure (B), and prenatal polysubstance coexposure (C-H). Predicted probabilities by group (birth at BMC vs all other sites) and time period (before vs after implementation of BMC's guidelines in May 2023) were obtained from adjusted logistic regression models by using marginal standardization to account for the marginal distribution of covariates. DDD estimates were then derived by subtracting the subgroup difference-in-difference estimates (each calculated as the difference between BMC and non-BMC estimated marginal probabilities in the preimplementation period from the difference in the postimplementation period). All models were adjusted for neonatal intensive care unit or special care nursery admission, hospital fixed effects, and year fixed effects. The 95% CIs were derived from cluster-robust SEs at the hospital level. Abbreviations: BMC, Boston Medical Center; DDD, difference-in-difference-in-differences; pp, percentage point.

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without protective concerns to the state public health department.[53] Similarly, in California, researchers identified that 5 times more Black (vs white) newborns were reported to CPS after adoption of a standardized birthing unit protocol for universal substance use assessment with discretionary reporting, concluding that "efforts to encourage hospitals to adopt protocols as a strategy to reduce disparities [in CPS reporting] may be misguided."[51] More recent analyses have revealed that hospital-level differences explain 24% of variance in California's prenatal substance exposure reporting rates.[30] These studies differed from ours in their inclusion of infants with any substance exposure, the vast majority of whom were included due to cannabis exposure. In our cohort of solely IPOE, we did not identify a differential impact of BMC's guideline in the presence of prenatal cannabis coexposure, despite known increases in peripartum cannabis use and toxicology testing following Massachusetts' 2016 legalization.[76–78]

Our finding that ending reflexive reporting did not have differential impacts by race and ethnicity contradicts the notion that routine reporting should be equated with equity, or the contention that universal verbal screening for prenatal substance use with discretionary CPS reporting inherently leads to racial disproportionality.[51] One explanation may lie in the framing of BMC's guideline, which was developed and socialized across clinical departments with an explicitly trauma-informed, antiracist lens and included specific recommendations for bias reduction. Guideline implementation at BMC also benefitted from leadership of our Child Protection Team,[79] who were available as a consult service to clinicians and social workers for complex cases,[66,80] as well as multidisciplinary prenatal and postpartum addiction care teams to support new parents in recovery.[81,82] Because of these layered opportunities for iterative expert assessment and supportive intervention, decision-making around whether to file a CPS report at delivery (and risk tolerance, when deciding not to file) was heavily informed by longitudinal patient relationships, information gathered before the birth hospitalization, and connection of patients to multidisciplinary dyadic care[83–85]—potentially mitigating racial biases.

Guideline implementation did not significantly or differentially affect rates of parental custody at discharge despite a reduction in CPS reporting of 50.7 pp, suggesting that nearly half of CPS reports at BMC in the preguideline period were not needed to identify the highest-risk cases for which CPS intervened to change a newborn's custodial guardian. Some have posited that CPS reporting triggers necessary investigations based on unique factors that health care teams are unable to identify as protective concerns due to their lack of access to home visits or prior CPS records.[66,86] Our short-term findings suggest against the presence of such "underreporting," although we could not assess the long-term durability of these birth hospitalization outcomes.

Policy Implications

Existing evidence supports the notion that decoupling prenatal MOUD use from CPS reporting may increase prenatal treatment engagement,[18,19,31] improve postpartum retention in addiction care,[31] improve newborn outcomes,[32,34,36] and reduce foster care placements.[35,75,87] While reflexive reporting may serve as a "high sensitivity, low specificity" approach that allows clinicians to shift responsibility for assessing child maltreatment concerns to CPS, overreporting of infants with prenatal substance exposure has well-documented adverse consequences for children, families, and overburdened CPS systems.[19,25,88–90] Our findings highlight the potential of guideline-directed discretionary reporting to achieve similar sensitivity with substantially improved specificity. Discretionary reporting implementation requires greater resource inputs by care delivery and public health systems but mitigates the resource footprint of unnecessary CPS investigations; policymakers should invest in infrastructure to train frontline staff, monitor for consistent application across hospital systems, and ensure effective linkage of infants and parents to developmental and family-supportive interventions.[30,91] As Massachusetts implements the December 2024 law to end reflexive CPS reporting for infants with prenatal substance exposure statewide,[48] expanded evaluation efforts should examine how discretionary CPS reporting at birth affects clinical workflows, care delivery resource constraints, downstream service receipt, CPS involvement, out-of-home placement, and dyadic health care utilization, retention in care, and health outcomes.

Strengths and Limitations

Key assets of our study include the use of rigorous quasi-experimental methods and statewide data, both of which strengthen causal inferences. Our detailed analysis of both prescribed and nonprescribed opioid and polysubstance exposures reflects the unique strength of PNQIN data, as CPS data systems often fail to disaggregate reports by exposure type. The study also has potential limitations. First, DiD and DDD analyses may be subject to residual place and time-varying confounding factors, such as increasing prevalence of unregulated fentanyl and various adulterants in the drug supply.[92,93] Second, the guideline's lack of overall or differential impacts on discharge custody should be interpreted with caution due to a lack of unequivocal evidence that the parallel trends assumption was met. Although preintervention slopes were not significantly different, supporting parallel preintervention trajectories, most preintervention event-study coefficients differed from 0. There is reasonable debate in the econometrics literature regarding the pitfalls of using event-study coefficients to verify parallel trends[68–70]; thus, we opted to present multiple approaches to evaluating preintervention trends in the Supplementary Material. Third, our study examines the

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impact of implementing discretionary reporting guidelines at a safety-net academic health system, which may limit generalizability to hospitals with lower rates of prenatal opioid exposure or fewer subspecialty resources. Fourth, our study relies solely on birth hospitalization data; future work should investigate the guideline's impact using longitudinal and more comprehensive data sources. Fifth, data were limited to IPOE and do not capture infants with solely nonopioid prenatal substance exposures. Sixth, due to limited sample size, we aggregated race and ethnicity categories for triple-differences analyses; there may be important heterogeneity to disentangle further within or between individual racial and ethnic groups or by directly examining additional dyad-level characteristics associated with outcomes (eg, social and structural drivers of health).

CONCLUSION

The deleterious impacts of prenatal opioid use on pregnant people and their newborns are a public health emergency and are exacerbated by policies that surveil or punish patients for seeking addiction treatment. We found that a hospital-based guideline shifting to discretionary reporting for IPOE without protective concerns averted 88 CPS reports over 3 years and could have averted 485 IPOE reports if it had been implemented across all 17 included hospitals. The largest impacts were among infants only exposed to MOUD or other prescribed opioids, with no differential impacts by race and ethnicity or coexposure to nicotine/tobacco or cannabis.

To mitigate widespread variability in CPS reporting practices for infants with prenatal substance exposure,[28–30] the principles outlined in BMC's guideline[47] could be extended to birthing hospitals nationwide and paired with local context-specific regulatory guidance on reporting obligations.[23,94] Although longitudinal outcomes among a wider range of substance exposures are needed, decoupling CPS reporting from prenatal substance use treatment may be a promising approach for policymakers, health systems, and clinicians to destigmatize lifesaving care and acknowledge MOUD use as a protective factor.

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ABBREVIATIONS

BMC: Boston Medical Center
CPS: child protective services
DDD: difference-in-difference-in-differences (also known as "triple-differences")
DiD: difference-in-differences
IPOE: infants with prenatal opioid exposure
MOUD: medications for opioid use disorder
OUD: opioid use disorder
PNQIN: Massachusetts Perinatal-Neonatal Quality Improvement Network

R Khazanchi and HE Hsu conceptualized, designed, and obtained funding for the study. R Khazanchi, AM Modest, EM Wachman, and HE Hsu acquired the data. R Khazanchi, DM Schiff, PR Shafer, and HE Hsu constructed the analysis plan. R Khazanchi conducted the statistical analyses and drafted the initial manuscript. All authors critically reviewed and revised the manuscript, approved the final manuscript as submitted, and agreed to be accountable for all aspects of the work.

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