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# States' Abortion Laws Associated With Intimate Partner Violence-Related Homicide Of Women And Girls In The US, 2014–20

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**ABSTRACT** Women who are pregnant or recently gave birth are significantly more likely to be killed by an intimate partner than nonpregnant, nonpostpartum women of reproductive age, implicating the risk of fatal violence conferred by pregnancy itself. The rapidly increasing passage of state legislation has restricted or banned access to abortion care across the US. We used the most recent and only source of population-based data to examine the association between state laws that restrict access to abortion and trends in intimate partner violence-related homicide among women and girls ages 10–44 during the period 2014–20. Using robust difference-in-differences ecologic modeling, we found that enforcement of each additional Targeted Regulation of Abortion Providers (TRAP) law was associated with a 3.4 percent increase in the rate of intimate partner violence-related homicide in this population. We estimated that 24.3 intimate partner violence-related homicides of women and girls ages 10–44 were associated with TRAP laws implemented in the states and years included in this analysis. Assessment of policies that restrict access to abortion should consider their potential harm to reproductive-age women through the risk for violent death.

About 41 percent of women in the US have experienced contact sexual violence, physical violence, or stalking by an intimate partner in their lifetime.<sup>1</sup> Pregnancy can be an added stressor in vulnerable intimate partner relationships, and intimate partner violence may start or escalate during pregnancy and postpartum.<sup>2</sup> Unintended pregnancies in particular have been found to increase the risk for interpersonal violence, conferring a twofold higher likelihood relative to people with intended pregnancies.<sup>3</sup>

Not only does the perinatal period appear to increase the likelihood of experiencing violence,<sup>4</sup> but injuries inflicted on pregnant and postpartum women are more likely to be fatal<sup>5</sup> than the injuries inflicted on nonpregnant

women, and they are most often perpetrated by an intimate partner.<sup>6</sup> Pregnancy was found to be one of the most common factors underlying intimate partner homicide of adolescents ages 11–18,<sup>7</sup> and homicide is among the leading causes of maternal death among pregnant and postpartum people of any age.<sup>8</sup>

The ability to control one's pregnancy status, therefore, may play an important role in reducing the likelihood of fatal violence. Evidence from the landmark Turnaway Study found that women who were denied a wanted abortion because of state regulations experienced sustained physical violence by the man involved with the pregnancy, while violence decreased among those who successfully obtained an abortion.<sup>9</sup> A mixed-methods exploration of Turnaway Study participants' reasons for seeking abortion found

that ending an abusive relationship and avoiding bringing children into violent relationships were commonly reported motivations.<sup>10</sup>

Before the 2022 United States Supreme Court's decision to overturn the constitutional right to abortion, laws in many states had already highly restricted access to abortion services. Supply-side regulations known as Targeted Regulation of Abortion Provider (TRAP) laws limit the capacity of abortion providers through various guidelines and standards that go beyond what is necessary to ensure patient safety.<sup>11</sup> These laws can result in the closure of facilities that provide abortion services and have been shown to greatly reduce access to abortion in states that enact them.<sup>12,13</sup> Despite rapidly changing federal and state legislation regarding abortion, there remains a profound lack of evidence on the potentially harmful intersection of increasingly limited access to abortion, women's reproductive decision making, and intimate partner violence during the perinatal period.

The purpose of this ecologic study was to evaluate associations between state TRAP laws and homicide—both in total and specifically intimate partner violence-related homicide—of women and girls ages 10–44 (broadly defined reproductive age). We used the most recently available data from the National Violent Death Reporting System (NVDRS) of the Centers for Disease Control and Prevention (CDC) and a natural experiment design to evaluate increasingly restricted access to abortion.

## Study Data And Methods

**STUDY POPULATION AND OUTCOME** This study was a retrospective ecological analysis of the Restricted Access Database of the NVDRS for the period 2014–20. The NVDRS is a state-based enhanced surveillance system that includes data from death certificates, coroner and medical examiner reports, and law enforcement reports for all deaths due to violence, including homicide.<sup>14</sup> States' participation in the NVDRS has been incremental, and the most recent Restricted Access Database data available (2020) include forty-seven states; Washington, D.C.; and Puerto Rico, reporting data on 100 percent of violent deaths in their jurisdictions. A list of the states and years of data available for inclusion in this analysis is in online appendix exhibit A1.<sup>15</sup> The population of women and girls included in this analysis represents 52 percent of the total US population of women and girls ages 10–44 during 2014–20.

The NVDRS defines intimate partner violence-related homicides as those where either the victim or the suspect are intimate partners (spouse, ex-spouse, or current or ex-girlfriend or boy-

friend) or where the homicide victim is someone other than the suspect's intimate partner and the death occurred in the context of domestic violence or a suspect attempting to kill an intimate partner (for example, killing of a friend, family member, new intimate partner, or responding law enforcement officer). Data on gender in the NVDRS is obtained from death certificates, which have only male or female options. For the purposes of this analysis, we limited the data to female decedents ages 10–44 who were victims of intimate partner violence-related homicide. This age range is wider than what is typically defined as reproductive age (15–44) because there are cases of intimate partner homicide of pregnant people as young as age thirteen in the NVDRS data. There are also cases of intimate partner violence-related homicide involving ten-year-old girls where the victim is the child of one or both people involved in the intimate partnership.

We aggregated counts of intimate partner violence-related homicide by state and year. We used the Census Bureau's American Community Survey annual five-year estimates of the total state population of females ages 10–44 as the denominator in annual, state-specific mortality rates (deaths per 100,000 population) for total and intimate partner violence-related homicide.

Given the relative rarity of these deaths and the possibility of annual rate instability in states with smaller populations, we estimated empirical Bayes smoothed mortality rates for use in regression modeling. This approach computed a weighted average between the raw estimate for each state and the national average, with weights proportional to the underlying population at risk.<sup>16,17</sup> As a result, spurious outliers (states with small populations and large rate variance) were adjusted to a greater degree than larger states with more stable rates. We conducted rate smoothing separately on two mutually exclusive groups of state-year observations: all state-years with at least one TRAP law in effect (treatment) and all state-years with no TRAP laws in effect (control). We conducted this smoothing separately for the treatment and control observations to avoid imposing any changes in variance that were the result of treatment into the control observations.

**STATE TRAP LAWS** We retrieved data on five commonly enacted TRAP laws from January 2014–January 2020 policy status reports compiled by the Guttmacher Institute.<sup>18</sup> These laws, which are targeted toward facilities providing abortions, included regulations regarding structural standards comparable to those for ambulatory surgical centers, specified procedure room size, specified corridor width, a transfer agree-

ment between the facility and a local hospital, and admitting privileges for the clinician at a local hospital. Appendix exhibit A2 lists the TRAP laws in effect in states and years included in this analysis with at least one such law.<sup>15</sup> Our treatment variable for the cumulative effect of TRAP laws was the count of these five laws in effect in each state-by-year observation. Possible values ranged from 0 (indicating none of the laws in effect) to 5 (indicating all five laws in effect). We additionally modeled each law individually, using dummy indicators with a value of 1 where the law was in effect and 0 where it was not.

**COVARIATES** In addition to state and year fixed effects, we included a robust set of annual state-level characteristics for the period 2014–20 that were identified a priori for relevance to trends in violent death. We controlled for differences in violent crime rates (incidents per 100,000 people) in the total population of each state using data from the Federal Bureau of Investigation's Uniform Crime Reports. Given the outsize role of firearms in cases of pregnancy-associated homicide,<sup>19</sup> we used a proxy indicator of gun ownership developed and validated by Michael Siegel and colleagues<sup>20</sup> that combines the number of paid permit hunting licenses per capita (from the US Fish and Wildlife Service) and the percentage of suicides involving firearms (from the CDC's Web-based Injury Statistic Query and Reporting System),<sup>21</sup> annually over the study time frame. Economic indicators (the Gini index of income inequality and the poverty rate among families) were obtained from the American Community Survey five-year estimates. Because risk for intimate partner homicide of pregnant and postpartum people differs by age and race and ethnicity,<sup>22</sup> we adjusted for differences in demographic characteristics of the pregnant population across states by including the annual percentage of births by maternal age group and the annual percentage of births that were to non-Hispanic White women, non-Hispanic Black women, and Hispanic women. These data were aggregated from the National Center for Health Statistics' annual Natality files. We used data from the National Conference of State Legislatures to include an indicator for the political party control of each state legislature, by year (Democrat, Republican, or split).<sup>23</sup> Finally, we included two additional state policy indicators for whether the state had expanded Medicaid under provisions of the Affordable Care Act and whether the state Medicaid program included a state plan amendment or waiver for expanded access to family planning services, to capture women's access to pregnancy prevention resources, using data available from KFF.<sup>24,25</sup>

## Rates of homicide of women and girls increased in states following the enactment of laws intended to curtail the availability of abortion services.

**STATISTICAL ANALYSIS** Descriptive statistics compared characteristics between states and years with no TRAP laws in effect to states and years with one or more laws in effect. We applied a difference-in-differences approach to adjust for any time-invariant differences across states by fitting two-way fixed effects maximum likelihood linear regression models to identify the association of TRAP law enactment with rates of homicide. To account for serial correlation in state regulatory environments, we allowed standard errors to vary arbitrarily within states. We fit crude difference-in-differences models that included only state and year fixed effects as well as fully adjusted models that additionally included all covariates listed above. The treatment variable of interest, count of TRAP laws, varied at the state-year level. In addition to the cumulative treatment estimate, we fit fully adjusted models to estimate the association between each individual TRAP law and our outcomes of interest. All models were weighted by the number of women ages 10–44 in each state-year cell. We estimated the total number of homicides and intimate partner violence-related homicides associated with TRAP laws in the states and years observed in this study by multiplying the TRAP law count regression coefficients by the mean number of TRAP laws experienced in a state and that state's population over the years included.

We tested the robustness of our findings by examining the association between TRAP laws and a placebo outcome. We used the male homicide rate in each state and year as an outcome and estimated the same crude and adjusted difference-in-differences models described above. We obtained annual age-adjusted homicide rates among men of all ages in each state from the CDC's Web-based Injury Statistics Query and

# Women without the means to travel to obtain a wanted abortion may be forced to continue a pregnancy and experience fatal violence as a result.

Reporting System.<sup>21</sup> We hypothesized that TRAP laws would not be associated with homicide among men.

**LIMITATIONS** This study had a number of limitations. First, the analysis implemented a rigorous quasi-experimental design that allowed for a comparison of each state to itself over time. Although we included a robust set of state-level controls in addition to state and year fixed effects, there was the possibility of residual confounding. Second, although the NVDRS is the most robust source of population-based data on violent death—and the only source that includes circumstantial information—underascertainment of cases remains problematic. NVDRS data abstractors rely on law enforcement reports and corner and medical examiner records to obtain data on circumstantial variables, which may often be incomplete. This may be especially true in cases of homicide where the victim and suspect relationship is unknown to surviving friends and family. Therefore, all rates used and reported in this analysis are likely underestimates of the true magnitude of intimate partner violence-related homicide.

Third, although the NVDRS does include a variable to indicate whether the decedent was pregnant or within one year postpartum at the time of death, we were unable to estimate annual state-level rates of intimate partner violence-related homicide in the maternal population because of sparse case counts. Likewise, small case counts limited our ability to stratify models by victim age or other sociodemographic characteristics such as race and ethnicity or socioeconomic position. Fourth, the NVDRS does not include variables on reproductive history or pregnancy intention, information that would be useful in identifying a subset of victims who may have

been especially affected by a restrictive abortion climate.

Fifth, only states with 100 percent reporting to the NVDRS were available for analysis. This excluded the potentially influential states of California, Texas, and Florida, where there are large populations of women and girls and notable differences in the prevalence of domestic violence and access to abortion. The direction of bias in our point estimates of the association between the number of TRAP laws and homicides caused by omitting these states is unknown. However, we excluded these states from our calculation of additional homicides attributable to TRAP laws, and thus our accounting of homicides was an underestimate of the nationwide number. Additionally, of the states included in our sample, only eighteen reported data in all years. We estimated our models on these eighteen states, and the main effects were largely similar (data not shown). Models using the count of TRAP laws in effect by state and year assume an additive effect, which might not be the case. We sought to additionally identify the association between homicide and each TRAP law separately, and we acknowledge that with the exception of the surgical standards law, these models may be underpowered given the smaller number of states (1–3) with policy status changes over the study period.

## Study Results

There were 8,319 homicides of women and girls ages 10–44 reported by NVDRS-participating states during the period 2014–20. Of these cases, 41 percent ( $n = 3,421$ ) were known to involve intimate partner violence (data not shown). Smoothed annual state rates averaged 3.17 total homicides per 100,000 population and 1.32 intimate partner violence-related homicides per 100,000 population (exhibit 1).

Among the included state-years that ever had a TRAP law in effect during 2014–20, the median number of TRAP laws was two, with a maximum of four. Appendix exhibit A2 lists these state-years and the specific TRAP laws in effect.<sup>14</sup> Eleven states experienced changes in the TRAP laws evaluated over the study period: Four increased the number of laws enforced (Indiana, Louisiana, Missouri, and Ohio), four decreased the number (Connecticut, Kentucky, Utah, and Virginia), and three experienced both increases and decreases (Maryland, Michigan, and North Carolina). Twenty-four states had no TRAP laws in effect during the years observable in this analysis during 2014–20 (see the exhibit 1 notes).

In fully adjusted models, for every additional TRAP law enforced, there was a 4.4 percent

EXHIBIT 1

State-level characteristics and policy indicators, by the presence of Targeted Regulation of Abortion Providers (TRAP) laws, 2014–20

Characteristics	All observations (N = 47 states; 226 state-year observations)		States that never had a TRAP law in effect (n = 24 states; 114 state-year observations) <sup>a</sup>		States that ever had a TRAP law in effect (n = 23 states; 112 state-year observations) <sup>b</sup>	
	Mean	SD	Mean	SD	Mean	SD
Total homicide rate among women and girls ages 10–44 (deaths per 100,000 population)	3.17	1.38	2.74	1.35	3.60	1.27
Intimate partner violence–related homicide rate among women and girls ages 10–44 (deaths per 100,000 population)	1.32	0.43	1.19	0.47	1.46	0.34
Age-adjusted homicide rate among men (deaths per 100,000 population)	9.11	5.55	7.26	4.26	10.88	6.07
Total state population homicide rate (deaths per 100,000 population)	3.62	1.57	3.63	1.87	3.61	1.20
Prevalence of gun ownership (%)	33.76	11.33	32.74	12.68	34.81	9.72
Gini index of income inequality	46.18	1.87	45.96	2.03	46.41	1.66
Families in poverty (%)	9.37	2.63	8.75	2.65	10.00	2.46
Live births by maternal age (%)						
Younger than 20	4.86	1.60	4.43	1.58	5.29	1.52
20–24	19.85	4.41	18.74	4.41	20.98	4.15
25–29	29.65	2.44	29.04	2.50	30.27	2.22
30–34	28.70	3.85	29.62	3.99	27.77	3.48
35 and older	16.94	4.07	18.17	4.09	15.69	3.67
Live births by maternal race and ethnicity (%)						
Non-Hispanic Black	12.20	9.97	8.74	8.91	15.73	9.80
Non-Hispanic White	61.80	16.01	61.65	19.53	61.94	11.47
Hispanic	16.03	11.63	17.59	13.53	14.43	9.11
<b>State policy indicators</b>	<b>Number<sup>c</sup></b>	<b>Percent</b>	<b>Number<sup>c</sup></b>	<b>Percent</b>	<b>Number<sup>c</sup></b>	<b>Percent</b>
Control of state legislature						
Democrat	75	33.19	56	49.12	19	16.96
Republican	125	55.31	40	35.09	85	75.89
Split	26	11.50	18	15.79	8	7.14
Medicaid expansion under the Affordable Care Act	153	67.70	91	79.80	62	55.40
Medicaid family planning waiver in effect	122	53.98	50	43.86	72	64.29

**SOURCE** Authors' analysis of data from the National Violent Death Reporting System (NVDRS), American Community Survey, US Fish and Wildlife Service, Centers for Disease Control and Prevention, Federal Bureau of Investigation, National Center for Health Statistics, National Conference of State Legislatures, Guttmacher Institute, and KFF. **NOTE** This analysis excluded California, Florida, and Texas because those states did not have 100 percent reporting to the NVDRS. <sup>a</sup>Alaska, Colorado, Delaware, Georgia, Hawaii, Idaho, Illinois, Iowa, Kansas, Maine, Massachusetts, Minnesota, Montana, Nevada, New Hampshire, New Jersey, New Mexico, New York, Oregon, Tennessee, Vermont, Washington, West Virginia, and Wyoming. <sup>b</sup>Alabama, Arkansas, Arizona, Connecticut, Indiana, Kentucky, Louisiana, Maryland, Michigan, Mississippi, Missouri, Nebraska, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Carolina, South Dakota, Utah, Virginia, and Wisconsin. <sup>c</sup>State-year observations.

increase in total homicides of women and girls ages 10–44 (beta coefficient: 0.12) and a 3.4 percent increase in homicides related to intimate partner violence (beta: 0.04) (exhibit 2). Applied to the total population of women and girls, these estimates suggest that 72.8 total homicides and 24.3 homicides related to intimate partner violence were associated with TRAP laws enforced across the states and years included in this analysis (data not shown).

Among the individual TRAP laws, each was changed in at least one observed state at least once over the study period. Estimates of associa-

tion varied in magnitude and confidence intervals were less precise than our estimates from the model that considered the total count of TRAP laws because of the relative stability of individual TRAP laws within states over the study period. Laws requiring structural standards comparable to those for ambulatory surgical centers and specifying procedure room size were significantly associated with increasing homicides of reproductive-age women (exhibit 3).

In sensitivity analyses with the placebo outcome, TRAP laws were not associated with homicide among males in either the crude (beta:

**EXHIBIT 2**

**Associations between the number of Targeted Regulation of Abortion Providers (TRAP) laws and homicide among women and girls ages 10–44 in 47 states, 2014–20**

Outcomes among women of reproductive age	Mortality rate among states that never had a TRAP law in effect (baseline) <sup>a</sup>	Increase in homicide rate for every additional TRAP law enforced <sup>a</sup>		Increase in mortality from baseline when TRAP laws in effect	
		Beta coefficient	95% CI	Percent	95% CI
<b>CRUDE MODELS<sup>b</sup></b>					
Total homicide	2.74	0.13 <sup>****</sup>	0.05, 0.20	4.7	1.8, 7.3
IPV homicide	1.19	0.06 <sup>****</sup>	0.03, 0.08	5.0	2.5, 6.7
<b>ADJUSTED MODELS<sup>c</sup></b>					
Total homicide	2.74	0.12 <sup>***</sup>	0.03, 0.21	4.4	1.1, 7.7
IPV homicide	1.19	0.04 <sup>***</sup>	0.01, 0.07	3.4	0.84, 5.9

**SOURCE** Authors' analysis of data from the National Violent Death Reporting System (NVDRS), American Community Survey, US Fish and Wildlife Service, Centers for Disease Control and Prevention, Federal Bureau of Investigation, National Center for Health Statistics, National Conference of State Legislatures, Guttmacher Institute, and KFF. **NOTES** The table reports data for the 47 states with 100 percent reporting to the NVDRS; see the exhibit 1 notes for the included states. The beta coefficients come from a difference-in-differences analysis of the count of state TRAP laws in effect during 2014–20 compared to states and years with no TRAP laws in effect. IPV is intimate partner violence. <sup>a</sup>Deaths per 100,000 population. <sup>b</sup>Crude models include state and year fixed effects only. <sup>c</sup>Adjusted models include state and year fixed effects, violent crime rate, prevalence of gun ownership, the Gini index of income inequality, poverty rate among families, distribution of live births by maternal age and race and ethnicity, political party control of the state legislature, and policy indicators for Medicaid expansion and Medicaid family planning waiver in effect. <sup>\*\*\*</sup>*p* < 0.01 <sup>\*\*\*\*</sup>*p* < 0.001

0.06; 95% confidence interval: -0.12, 0.24; *p* = 0.53) or adjusted (beta: 0.10; 95% CI: -0.10, 0.30; *p* = 0.32) model (data not shown).

**Discussion**

Despite national<sup>26</sup> and global<sup>27</sup> endorsements of abortion as a critically important and life-saving component of comprehensive reproductive health services, access to abortion in the US has been steadily restricted or outright banned

in most states in recent years. In this analysis of the most recently available population-level data on violent death, we found that rates of homicide of women and girls ages 10–44 increased in states following the enactment of laws intended to curtail the availability of abortion services. Our results further suggest that these laws may have exacerbated racial inequities in this outcome, given that non-Hispanic Black women were more likely to give birth in states with TRAP laws than states without them.<sup>28</sup>

**EXHIBIT 3**

**Associations between individual Targeted Regulation of Abortion Providers (TRAP) laws and homicide among women and girls ages 10–44 in 47 states, 2014–20**

TRAP laws	Total homicide		IPV homicide	
	Beta coefficient	95% CI	Beta coefficient	95% CI
Structural standards	0.33 <sup>****</sup>	0.15, 0.50	0.08 <sup>*</sup>	-0.01, 0.17
Specified procedure room size	0.35 <sup>**</sup>	0.07, 0.63	0.24 <sup>***</sup>	0.10, 0.38
Specified corridor width	0.01	-0.36, 0.37	0.04	-0.12, 0.20
Transfer agreements	0.12	-0.17, 0.40	0.09 <sup>*</sup>	0.01, 0.19
Hospital privileges	0.15	-0.16, 0.47	-0.13	-0.36, 0.09

**SOURCE** Authors' analysis of data from the National Violent Death Reporting System, American Community Survey, US Fish and Wildlife Service, Centers for Disease Control and Prevention, Federal Bureau of Investigation, National Center for Health Statistics, National Conference of State Legislatures, Guttmacher Institute, and KFF. **NOTES** The table reports data for the 47 states with 100 percent reporting to the NVDRS; see the exhibit 1 notes for the included states. The beta coefficients come from a difference-in-differences analysis of state years with the specified TRAP laws in effect during 2014–20 compared to state-years without the TRAP law in effect. The TRAP laws are described in more detail in the text. Total and intimate partner violence (IPV) homicides are reported as deaths per 100,000 population. Models include state and year fixed effects, violent crime rate, prevalence of gun ownership, the Gini index of income inequality, poverty rate among families, distribution of live births by maternal age and race and ethnicity, political party control of the state legislature, and policy indicators for Medicaid expansion and Medicaid family planning waiver in effect. <sup>\*</sup>*p* < 0.10 <sup>\*\*</sup>*p* < 0.05 <sup>\*\*\*</sup>*p* < 0.01 <sup>\*\*\*\*</sup>*p* < 0.001

This analysis used data from before the federal constitutional right to abortion was overturned in the 2022 United States Supreme Court decision in *Dobbs v. Jackson Women's Health Organization*.<sup>29</sup> Immediately following this decision, laws in fourteen states—almost all of which had previously implemented at least one TRAP law—went into effect to outright ban or severely restrict abortion.<sup>30</sup> Moreover, TRAP laws remain in effect in many states, even those that have protected access to abortion in their state constitutions.<sup>31</sup> The majority (76 percent) of the states with TRAP laws had Republican-controlled legislatures, and the association between TRAP laws and homicide was significant independent of the state's political party control (exhibit 2). Our results suggest that in the current context of substantially less or no access to abortion care for 29 percent of the US population of reproductive-age women,<sup>32</sup> the incidence of violence against this population may rise in the coming years.

TRAP laws have been shown to reduce abortion by forcing the closure of clinics that provide abortions.<sup>12</sup> Women without the means to travel longer distances to obtain a wanted abortion (that is, unable to pay costs related to transportation and accommodations, child care, and time away from work)<sup>13</sup> may be forced to continue a pregnancy and experience fatal violence as a result. An analysis of intimate partner violence against women shortly before and during pregnancy found that one of the strongest predictors of abuse during pregnancy was the partner's not wanting the pregnancy,<sup>33</sup> findings that parallel those suggesting that ending abuse is a common reason cited by women's seeking abortion care.<sup>10</sup> A qualitative analysis of law enforcement narratives obtained by the NVDRS found that among adolescent victims of intimate partner homicide, pregnancy was one of the commonly noted contributors (for example, the partner did not want her to have the child and killed her).<sup>7</sup>

Our finding that TRAP laws are associated with increased rates of homicide of reproductive-age women were not specific to cases involving intimate partner violence. Prior research suggests that for adolescents in particular, an unwanted pregnancy may increase their risk for familial violence as well.<sup>34</sup> Fear of abuse from parents upon disclosure of pregnancy was reported by minors as a reason for seeking judicial bypass of

mandatory parental consent<sup>35</sup> and as a reason for not telling parents about their abortion in states that did not mandate parental involvement.<sup>36</sup>

In a finding related to ours, Jonathan Zandberg and colleagues, using vital records data from all fifty states dating from 1974 through 2016, reported a 5.8 percent higher annual rate of suicide among reproductive-age women for every additional TRAP law enforced.<sup>37</sup> As is the case with homicide, pregnancy may increase the likelihood of suicide. Pregnancy and the postpartum period are vulnerable times for mental health, when crises may arise or worsen as a result of biological, social, and psychological conditions.<sup>38</sup> Prior work found that pregnant or postpartum suicide victims in the US are significantly more likely to have intimate partner problems (violent and nonviolent) as precipitating circumstances compared with women who were not pregnant or postpartum at the time of their death.<sup>39</sup>

## Conclusion

In this analysis, we found that policies constraining women's ability to obtain abortion care are associated with violent consequences for this population. This study contributes to the growing evidence of the detrimental implications of restricted access to abortion on women of reproductive age, including higher rates of maternal mortality,<sup>40,41</sup> infant mortality,<sup>42-44</sup> and adverse birth outcomes.<sup>45</sup>

The implications of these findings are profound at a time when both abortion restrictions and violence against pregnant and postpartum women are on the rise.<sup>46</sup> The application of a human rights framework is useful for understanding the harmful intersection of these two concerning issues. This framework maintains that affording all women equal access to the right to the highest attainable standard of health requires the removal of political, social, and economic barriers to accessing health care and services that may save their lives.<sup>47</sup> Protecting this right requires participation and accountability by policy makers responsible for repealing laws that constrain the degree to which women may exercise bodily autonomy. This is especially critical when doing so may prevent their violent death. ■

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