Contraception xxx (xxxx) xxx

Contents lists available at ScienceDirect

Contraception

journal homepage: www.elsevier.com/locate/con

Predicted changes in abortion access and incidence in a post-Roe world☆,☆☆,★

Caitlin Myers *,[1], Rachel Jones [2], Ushma Upadhyay [3]

[a] Middlebury College, Middlebury, VT
[b] Guttmacher Institute, New York, NY
[c] Advancing New Standards in Reproductive Health (ANSIRH), Bixby Center for Global Reproductive Health, Department of Obstetrics, Gynecology and Reproductive Sciences, University of California, San Francisco, Oakland, CA

ARTICLE INFO

Article history:
Received 25 June 2019
Received in revised form 16 July 2019
Accepted 18 July 2019
Available online xxxx

Keywords:
Abortion
Abortion rates
Travel
Roe v. Wade
Distance

ABSTRACT

Objective: To examine changes in travel distance and abortion incidence if Roe v. Wade were reversed or if abortion were further restricted.
Study design: We used a national database of abortion facilities to calculate travel distances from the population centroids of United States counties to the nearest publicly-identifiable abortion facility. We then estimated these travel distances under two hypothetical post-Roe scenarios. In the first, abortion becomes illegal in eight states with preemptive "trigger bans." In the second, abortion becomes illegal in an additional 13 states classified as at high risk of outlawing abortions under most circumstances. Using previously-published estimates of the short-run causal effects of increases in travel distances on abortion rates in Texas, we estimate changes in abortion incidence under each scenario.
Results: If Roe were reversed and all high-risk states banned abortion, 39% of the national population of women aged 15–44 would experience increases in travel distances ranging from less than 1 mile to 791 miles. If these women respond similarly to travel distances as Texas women, county-level abortion rates would fall by amounts ranging from less than 1% to more than 40%. Aggregating across all affected regions, the average resident is expected to experience a 249 mile increase in travel distance, and the abortion rate is predicted to fall by 32.8% (95% confidence interval 25.9–39.6%) in the year following a Roe reversal.
Conclusion: In the year following a reversal, increases in travel distances are predicted to prevent 93,546–143,561 women from accessing abortion care.
Implications: A reversal or weakening of Roe is likely to increase spatial disparities in abortion access. This could translate to a reduction in abortion rates and an increase in unwanted births and self-managed abortions.

1. Introduction

Abortion is currently legal in all 50 states. However, accessing abortion care is difficult for some individuals, and research has established that increases in travel distances lower abortion rates [1–4]. In 2017 individuals in 27 United States cities lived more than 100 miles from the nearest abortion facility [5].

Distance to the nearest abortion facility could increase in the coming months and years. Since 2011, states have implemented hundreds of abortion laws. These laws have the potential to shutter clinics because they establish requirements that abortion clinicians cannot meet, such as admitting privileges laws [6,7]. In May 2019 Alabama passed a law making abortion illegal except in situations where the pregnancy put a woman's life at risk or the fetus could not survive. There are currently more than a dozen legal challenges to some of the most extreme abortion restrictions — such as the one passed in Alabama — that have the potential to reach the Supreme Court. However, it is unclear whether the current court would uphold the legal precedent established by Roe v. Wade in 1973. If Roe is overturned, abortion would immediately become illegal in 8 states; other states could begin to enforce pre-Roe abortion bans or enact new ones, and still others could enact laws that present such a burden that facilities would have to close [8]. This

☆ This study received financial support from Middlebury College.
☆☆ Declaration of interest: Myers reports having served in the past year as an expert witness in litigation involving abortion regulations. Jones and Upadhyay have no interests to declare.
★ Financial support: This research received financial support from Middlebury College.
* Corresponding author.
E-mail address: cmyers@middlebury.edu (C. Myers).
[4] Middlebury College, Middlebury, VT
[5] Guttmacher Institute, New York, NY
[6] Advancing New Standards in Reproductive Health (ANSIRH), Bixby Center for Global Reproductive Health, Department of Obstetrics, Gynecology and Reproductive Sciences, University of California, San Francisco, Oakland, California

https://doi.org/10.1016/j.contraception.2019.07.139
0010-7824/

analysis uses data on abortion facility locations in 2019 to examine the potential impact of a Roe reversal on abortion access and incidence.

2. Methods

2.1. Data sources

We identified abortion facilities using the 2018 Abortion Facilities Database maintained by Advancing New Standards in Reproductive Health (ANSIRH) at the University of California, San Francisco [9]. This database includes the names and addresses of all US facilities that publicly advertise abortion services. ANSIRH verifies the facilities on this list via annual internet searches and phone calls, and has updated this database to reflect known facility closures and openings through July 1, 2019.

We identified the geographic coordinates of the population centroid of each county using data published by the US Census Bureau [10]. We measured the population of women aged 15–44 in each county using the most recent estimates of county populations by age and sex published by The National Cancer Institute Surveillance, Epidemiology, and End Results Program [11].

We examined two policy scenarios. If Roe v. Wade were overturned eight states have pre-emptive "trigger bans" and abortion would become immediately illegal (Table 1). Ten additional states retain and could begin to enforce pre-Roe bans on abortion, and other states could quickly enact new restrictions effectively outlawing abortions under most circumstances. We relied on a legal analysis by the Center

Table 1
State-level summary of current abortion access at present and under two post-Roe policy scenarios

State	Present				If trigger bans take effect			If abortion bans take effect in all high-risk states		
	Population of women aged 15–44	Number of abortion facilities	Mean travel distance (miles)	Policies[a]	Affected population[b]	New mean travel distance (miles)	Predicted change in abortion rate (%)[c]	Affected population[b]	New mean travel distance (miles)	Predicted change in abortion rate (%)[c]
Alabama	949,949	5	31	PB, HR	0			929,859	270	−37.1±8.1
Arizona	1,345,764	8	17	PB, HR	0			1,277,694	248	−40.3±7.7
Arkansas	577,447	3	48	TB, PB, HR	577,447	213	−29.8±6.5	577,447	317	−34.5±9.1
California	8,104,632	150	7		0			0	7	
Colorado	1,137,745	21	16		0			0	16	
Connecticut	672,949	19	9		0			0	9	
Delaware	180,343	4	13		0			0	13	
D.C.	186,464	8	1		0			0	1	
Florida	3,828,199	58	15		0			129,648	18	−0.7±0.1
Georgia	2,147,399	17	28	HR	0			2,018,732	185	−33±6.5
Idaho	328,941	4	38	HR	0			212,839	173	−24.6±4.7
Illinois	2,532,027	23	20		1544	20	<|.1|	23,745	20	−0.1±0
Indiana	1,295,622	7	34	HR	83,535	38	−1±0.3	1,295,622	127	−23.6±5.4
Iowa	592,278	6	40		44,301	42	−0.6±0.1	44,301	42	−0.6±0.1
Kansas	558,606	4	53		0			12,523	53	−0.2±0
Kentucky	848,472	1	64	TB, HR	675,756	115	−12.8± 3	848,472	247	−29.8±7.6
Louisiana	936,106	3	47	TB, HR	936,106	190	−29.7± 6	936,106	465	−35.5±10.4
Maine	231,535	18	14		0			0	14	
Maryland	1,193,286	21	11		0			0	11	
Massachusetts	1,381,812	18	13		0			0	13	
Michigan	1,874,298	23	18	PB, HR	0			1,872,347	245	−39.8±7.8
Minnesota	1,066,806	5	37		100,153	46	−1.7±0.4	100,153	46	−1.7±0.4
Mississippi	591,744	1	62	TB, HR	406,750	144	−17.5±3.6	591,744	384	−32.1±11.1
Missouri	1,171,775	1	62	TB, HR	786,826	73	−2.8±0.7	786,826	74	−3.1±0.7
Montana	190,089	6	63		0			0	63	
Nebraska	370,172	3	47		10,612	48	<|.1|	10,612	48	−0.1± 0
Nevada	589,149	8	10		0		11,780	12		<|.1|
New Hampshire	241,346	6	18		0		0	18		
New Jersey	1,715,123	44	5		0		0	5		
New Mexico	395,286	5	56		0		38,575	57		<|.1|
New York	4,001,053	93	5		0			0	5	
North Carolina	2,016,657	17	25		21,848	25	<|.1|	27,298	26	<|.1|
North Dakota	146,282	1	145	TB, HR	135,893	325	−19.5±6.1	135,893	325	−19.5±6.1
Ohio	2,203,285	10	25	HR	0			2,160,067	183	−33.4±6.6
Oklahoma	768,751	4	37	PB, HR	32,722	38	−0.3±0.1	754,319	191	−32.2±6.4
Oregon	810,399	12	16		0			7226	17	−0.2±0
Pennsylvania	2,383,721	12	25		0			33,849	25	<|.1|
Rhode Island	209,072	3	8		0			0	8	
South Carolina	965,704	3	30	HR	0			809,431	102	−19.4±4.8
South Dakota	155,829	1	136	TB, HR	141,086	248	−20.1±4.3	141,086	248	−20.1±4.3
Tennessee	1,312,517	8	35	TB, HR	1,189,422	133	−24.2±5.4	1,309,667	239	−33.7±7.3
Texas	5,885,855	19	40	PB, HR	168,381	42	−0.3±0.1	5,862,312	492	−36.8±9.1
Utah	675,124	2	39	HR	0			621,114	279	−35.9±8.5
Vermont	113,854	6	18		0			0	18	
Virginia	1,668,846	15	21		53,265	23	−0.6±0.1	53,265	23	−0.6±0.1
Washington	1,464,754	31	13		0		0	13		
West Virginia	322,254	1	64	PB, HR	2911	64	<|.1|	168,671	129	−13.9± 2.8
Wisconsin	1,083,819	3	53	PB, HR	0			961,565	117	−16.8± 4
Wyoming	107,740	2	134		0			12,495	139	−0.8±0.2
United States	**63,530,880**	**743**	**25**		**5,368,558**	**33**	**−1.8±0.4**	**24,777,283**	**122**	**−12.8±2.7**

[a] TB = Trigger ban" PB = "Pre-Roe ban" HR = "High-Risk of enforcing ban".
[b] Predictions are presented as percent change in the abortion rate plus or minus the margin of error for a 95% confidence interval.
[c] The affected population is defined as the population of women aged 15–44 living in counties for which the travel distance to the nearest abortion facility increases in a given scenario.

Please cite this article as: C. Myers, R. Jones and U. Upadhyay, Predicted changes in abortion access and incidence in a post-Roe world, Contraception, https://doi.org/10.1016/j.contraception.2019.07.139

for Reproductive Rights to identify those states most likely to enforce their pre-Roe bans or enact new restrictions that would make abortion virtually inaccessible. Their analysis considers recent activity and compositions of state legislatures as well state constitutional protections, and they assign each state a level of "risk" of banning abortion if Roe were reversed [8]. In total, 21 states are classified as at high-risk of banning abortion (Table 1).

2.2. Analysis

We used the Stata [12] *georoute* module [13] to identify the geographic coordinates of each abortion facility and to calculate one-way travel distance via car from the population centroid of each county in the continental United States to the geographic coordinates of the nearest facility in any state. For each policy scenario, we modeled all abortion facilities in states with bans as closed and then re-calculated travel distances from each county to the nearest abortion facility among those that remain. When aggregating county-level distances to construct regional or national averages, we weighted the distances by the population of women aged 15–44 in each county [11] so that all averages account for the spatial distribution of the population and represent distances for the average woman in a given region.

We predicted changes in published abortion rates using estimates of the causal effects of travel distance based on prior research of abortion restrictions in Texas. In November 2013, Texas began enforcing a law mandating that physicians who provide abortions have admitting privileges with a hospital located within 30 miles of the facility where abortions were performed. In turn, 22 of the state's 41 abortion clinics closed, most of them suddenly and as a direct result of the law [6]. These closures caused sudden changes to distances to the nearest abortion facility, which varied spatially across the state [2–4]. Lindo et al. exploited this natural experiment, estimating a difference-in-difference Poisson model of county resident abortion rates as a function of travel distance and its square [4]. The results indicated that increasing distance prevents women from accessing abortion care, but at a diminishing rate. For example, an increase in travel distance from 0 to 100 miles reduces resident abortion rates more substantially (by 29.8%) than an increase from 100 to 200 miles (by 18.7%). Intuitively, these results mean that the same increase in travel distance is less impactful to women who already are distant from a provider than to women who currently are close to one. Lindo et al. emphasize that this approach captures changes in abortions obtained from medical facilities reporting abortions per state mandates. Their analysis cannot capture changes in self-managed abortions. Fischer et al. independently adopt a similar approach, and reach similar conclusions [3].

We conducted a thought experiment: How would published abortion rates change in a post-Roe world if women in affected regions responded to increasing travel distances similarly to women in Texas? We used the results of Lindo et al.'s most flexible functional form to predict percent changes in county abortion rates due to hypothetical post-Roe changes in travel distance. To aggregate county-level predictions to regional summary statistics, we used county populations as weights because abortion rates were not available for all US counties.

Appendix A provides additional details about the methodology.

3. Results

3.1. Travel distances in 2019

There were 743 publicly-identifiable abortion facilities in the continental United States in the ANSIRH database. In 2019 the average woman age 15–44 lived 25 miles from the nearest abortion facility (Table 1). Distances vary substantially across the country (Fig. 1), ranging from less than 50 to more than 200 miles. Counties facing high travel distances tend to be more sparsely populated. At present, 83% of the population of US women of childbearing age live within 50 miles of an abortion facility, and 1% live more than 200 miles from the nearest facility. Mean travel distances range from 5 miles in New York and New Jersey to 145 miles in North Dakota (Table 1).

3.2. Predicted changes in travel distances

In a post-Roe scenario in which trigger bans cause abortion to become illegal in 8 states, the distance the average woman would travel to the nearest abortion facility would increase from 25–33 miles (Table 1), and the percent of women living more than 200 miles from an abortion facility would increase from 1% to 3%. The enforcement of trigger bans would substantially exacerbate spatial inequalities in abortion access (Fig. 2). The increases in distances are larger in Arkansas (48–213 miles), Louisiana (47–190 miles), and Tennessee (35–133

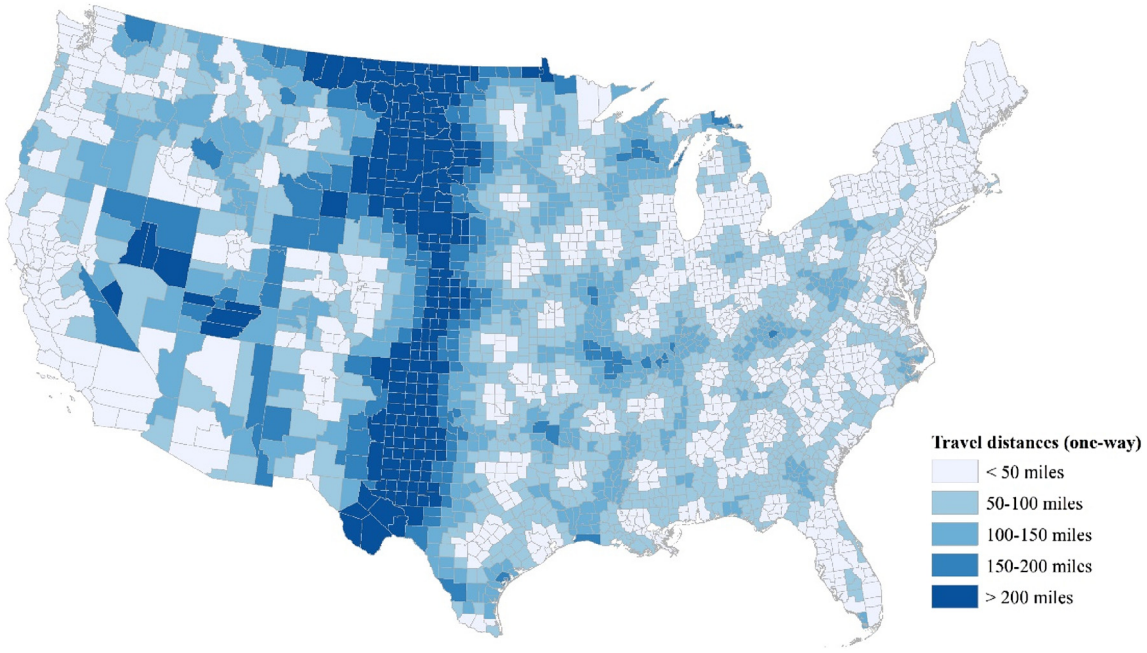
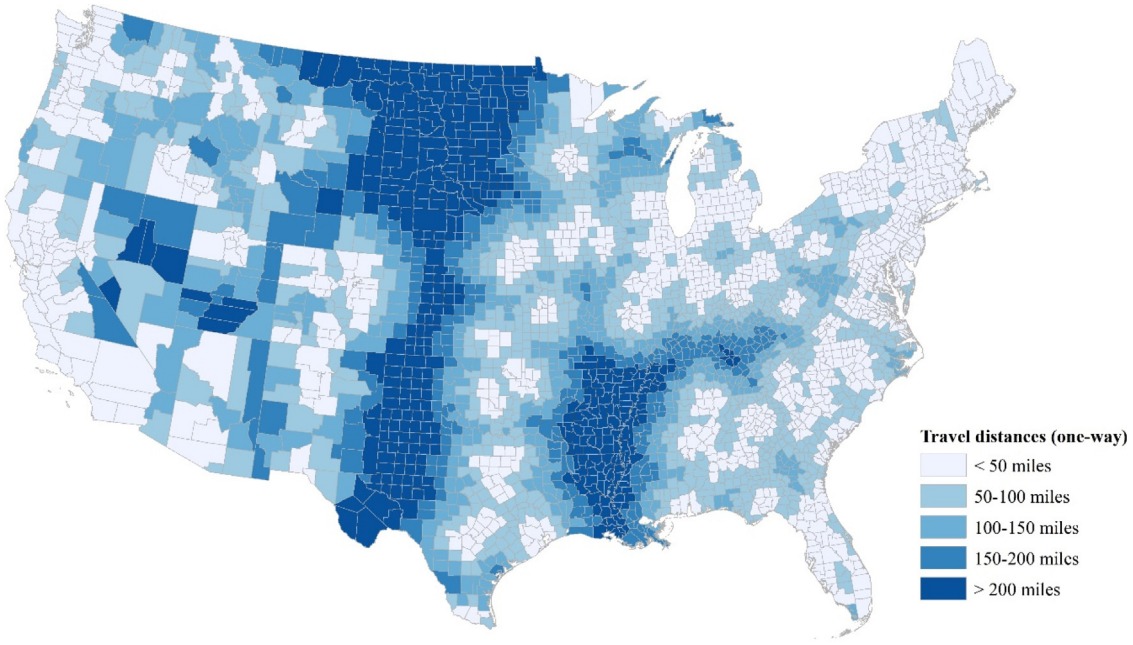


Fig. 1. Travel distances from county population centroids to the nearest publicly-identifiable abortion facility in the ANSIRH database.

Please cite this article as: C. Myers, R. Jones and U. Upadhyay, Predicted changes in abortion access and incidence in a post-Roe world, Contraception, https://doi.org/10.1016/j.contraception.2019.07.139

A. Travel distances if trigger bans take effect



B. Travel distances if all high-risk states ban abortion

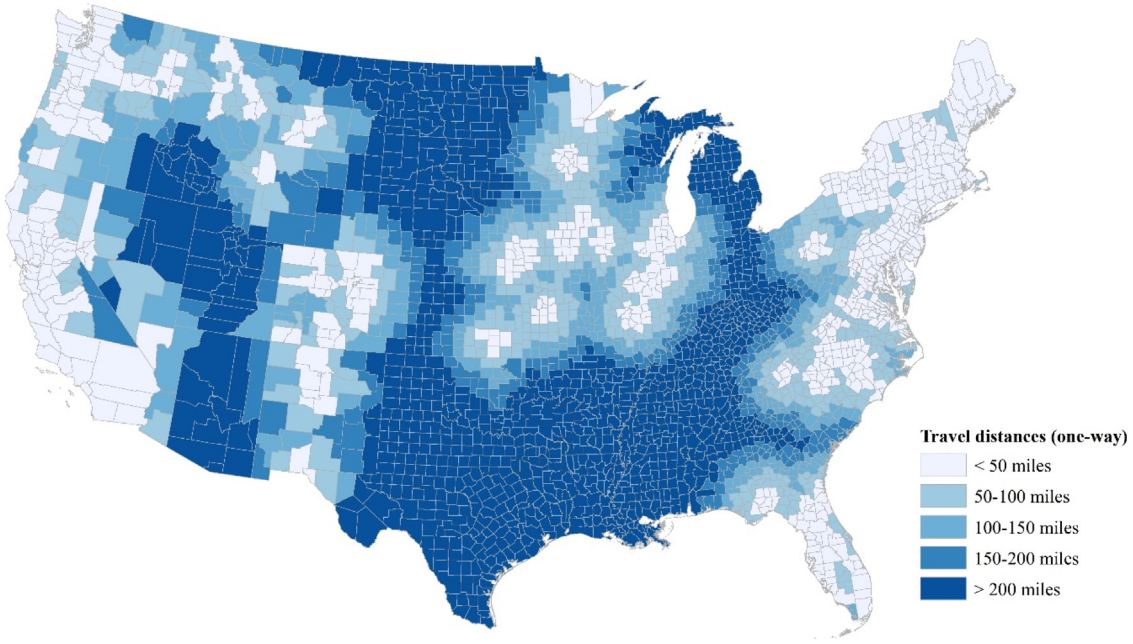


Fig. 2. Predicted travel distances from county population centroids to the nearest remaining abortion facility in the ANSIRH database under two post-Roe policy scenarios. Panel A, Travel distances if trigger bans take effect. Panel B, Travel distances if all high-risk states ban abortion.

miles) than in Kentucky (64–115 miles), Mississippi (62–144 miles), and Missouri (62–73 km). This is largely because each of the latter three states has only a single abortion facility, and many residents already travel out of state to reach the closest abortion provider. Overall, the average woman living in an affected county would experience an increase in travel distance from 56 to 156 miles.

In the second scenario, if all 21 high-risk states were to ban abortion, increases in travel distance would be larger and more widespread. Nationally, average travel distance would increase from 25 to 122 miles (Table 1). Regional disparities are pronounced in this scenario (Fig. 2): 56% of women of childbearing age would live within 50 miles of an abortion facility, while 26% would live more than 200 miles from one.

Travel distances in states with trigger bans reach even greater levels in the scenario in which their neighboring states also ban abortion. For instance, the average travel distance for Louisiana residents is 47 miles at present, 190 miles under the trigger ban scenario, and 465 miles

Please cite this article as: C. Myers, R. Jones and U. Upadhyay, Predicted changes in abortion access and incidence in a post-Roe world, Contraception, https://doi.org/10.1016/j.contraception.2019.07.139

under the high-risk scenario in which it and all of its neighbors enforce abortion bans. Women in the Midwest would also experience large increases in travel distances. For instance travel distances increase from 34 to 127 miles in Indiana, 18 to 245 miles in Michigan, and 25 to 183 miles in Ohio (Table 1). Overall, the average woman living in an affected county would experience an increase in travel distance from 37 to 286 miles.

3.3. Predicted changes in abortion rates

The effects of a Roe reversal on women seeking abortions vary substantially both between and within states (Fig. 3). Wide swaths of the country, are expected to have no major changes to travel distances and, in turn, no resulting reductions in abortion rates (gray counties in Fig. 3). For the remaining counties, three factors determine the

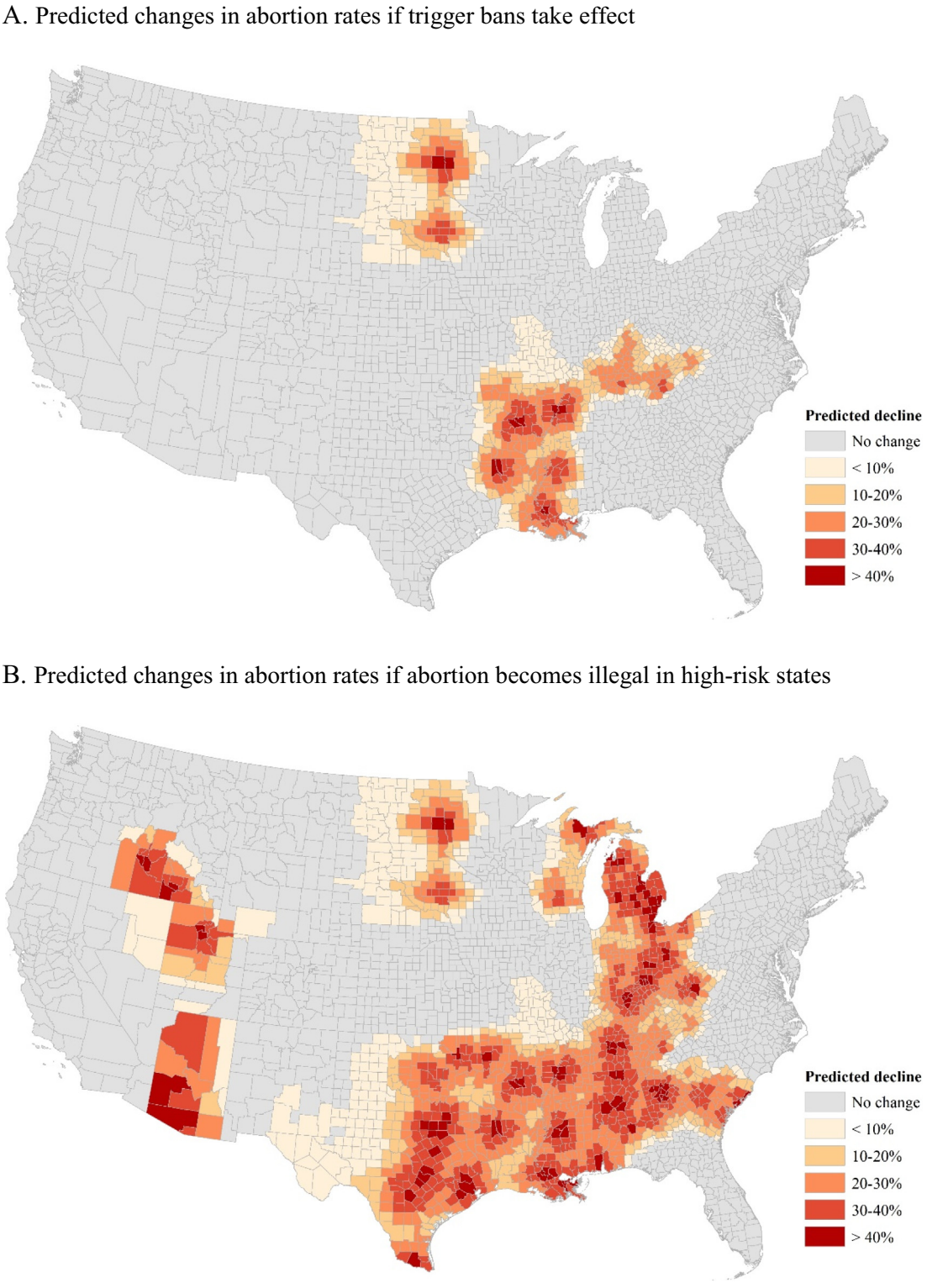


Fig. 3. Predicted changes in abortions due to changes in travel distances in two post-Roe policy scenarios. Panel A, Predicted changes in abortion rates if trigger bans take effect. Panel B, Predicted changes in abortion rates if abortion becomes illegal in high-risk states.

Please cite this article as: C. Myers, R. Jones and U. Upadhyay, Predicted changes in abortion access and incidence in a post-Roe world, Contraception, https://doi.org/10.1016/j.contraception.2019.07.139

magnitudes of the predicted effects on abortion rates: current travel distances, neighboring states' policy environments, and facility locations in neighboring states.

The contrasting predictions for Missouri and Arkansas illustrates these factors. Both states have trigger bans, but abortions are predicted to decline by 2.8% in Missouri (95% CI 2.1–3.5%) and by 29.8% in Arkansas (95% CI 23.3–36.3%). This is because the closest providers for many Missouri residents are already out of state requiring travel to neighboring states. In addition, if Missouri's sole provider in St. Louis were to close, another provider is located nearby in Granite City, Illinois. In contrast, Arkansas has lower present travel distances than Missouri, and also is surrounded to the north, south, and east by other states with trigger bans. As a result, the enforcement of trigger bans would have a much greater impact on abortion access for Arkansas residents.

If all high-risk states were to ban abortion, predicted declines in abortion rates expand to much of the rest of the South and Midwest (Fig. 3). Abortion rates are predicted to decline by more than 40% across most urban areas in affected states, and overall by more than 20% in Alabama, Arizona, Arkansas, Georgia, Idaho, Indiana, Kentucky, Louisiana, Michigan, Mississippi, Ohio, Oklahoma, South Dakota, Tennessee, Texas, and Utah (Table 1).

Aggregating to broader geographic levels, abortion rates are predicted to fall by 32.8% (95% CI 25.9–39.6%) for the regions at high risk of banning abortions. For the country as a whole—including counties where distances and abortion rates are not predicted to fall—the results suggest there would be 12.8% (95% CI 10.1–15.5%) fewer abortions in the immediate aftermath of a Roe reversal. Using the most recently available estimates for abortions [14], this would amount to 118,554 (95% CI 93,546–143,561) women prevented from obtaining abortions in a single year due to increased travel distances.

4. Discussion

In this paper we found that in two post-Roe scenarios the predicted effects of abortion bans spill across state boundaries. An in-state ban causes little or no increase in travel distances for residents close to neighboring states where facilities are likely to remain open. On the other hand, some women residing in states that are not likely to ban abortions could nonetheless experience substantial increases in travel distances because their nearest facility is in a neighboring state that is likely to enforce a ban. Overall, in a scenario in which all high-risk states ban abortions, residents of affected counties face a predicted increase in travel distances of 249 miles, an effect that is particularly concentrated in the Midwest and the South due to the potential for bans to be enforced in multiple neighboring states.

Even if federal protections of abortion rights are weakened rather than reversed, states could pass new laws that could close abortion facilities. Between 2011 and 2014, the number of abortion clinics in the United States declined by 6%, and declines were largest in states that had enacted the greatest number of regulations of providers [14]. The admitting privileges law in Texas illustrated that state regulations can have dramatic effects on provider operations [2,4]. While the law was struck down by the Supreme Court in 2016, other states have since passed and enforced similar laws, and it is unclear if the current court will uphold the precedent set by Whole Woman's Health v. Hellerstedt.

Prior research has demonstrated that increases in distance are associated with lower abortion rates [1–4]. Three-quarters of abortion patients are low-income or poor, 59% have children, and 55% have experienced a recent disruptive life event [15,16]. Women with limited resources and difficult personal circumstances would likely find substantial increases in travel distances a major impediment.

To develop our estimated effects on abortion rates in a Post-Roe world, we applied the magnitudes of the effects of distances on abortion rates documented in a previous Texas study to the entire continental United States [4]. We believe this is a reasonable assumption given that similar effects of travel distances were observed across ages and racial and ethnic groups in Texas [4], and women have been found to be responsive to travel distances in other contexts [17,18].

Our predictions likely understate the magnitudes of effects that would actually be observed. First, Lindo et al. do not observe evidence that increases in distances beyond 291 miles cause further reductions in abortions. In keeping with this finding, we model all distance increases beyond 291 miles as having no additional effect on abortion rates. However, increases of this magnitude also are largely beyond what has been observed in Texas, and it is possible that there are further effects that have yet to be observed. Second, our models do not account for the congestion that is likely to arise if thousands of residents of states with abortion bans begin flowing to states without bans. To the extent that the remaining providers cannot fully absorb this influx, the estimated reductions are likely to be even greater. In fact, Lindo et al. found that congestion accounted for substantial portion of declines in abortions in Texas [4]. Increasing congestion also has been found to increase delays in obtaining abortions [4,19].

In the long-run, individuals could change their sexual behavior in response to the decreased availability of abortion but the limited evidence on such behavioral responses suggests they are unlikely to be large [20]. Some supply-side responses might also occur: facilities in states where abortion remains legal might expand or open, providers and policymakers might innovate on telemedicine to mail abortion pills to border towns [21], and organizations might facilitate information and transportation for women seeking abortion care. Such long-run increases in supply could increase the availability of abortion services. They might also increase women's awareness of where abortion services are available, lowering information barriers to abortion access [22]. On the other hand, women in much of the South and in Michigan are surrounded by states at high risk of banning abortions, and these developments would do little to reduce travel distances faced by women in these states.

In the short-run, our estimates suggest that increased travel distances alone are likely to prevent 93,546–143,561 women from obtaining abortion care in the first year following a reversal of Roe. This may translate to an increase in births resulting from unintended pregnancies, which is associated with negative outcomes for both the woman and existing children [23–27]. It is also possible that more women would obtain abortion pills on the internet that would allow them to pursue self-managed abortion [28]. Regardless, these findings demonstrate that a Roe reversal would dramatically increase regional disparities in abortion access, and prevent large numbers of women from obtaining reproductive health care from a health care provider.

Acknowledgements

The authors are grateful to Jason Lindo and Amy Myrick for helpful comments and suggestions.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.contraception.2019.07.139.

References

[1] Joyce T. The supply-side economics of abortion. N Engl J Med 2011;365:1466–9.
[2] Grossman D, White K, Hopkins K, Potter JE. Change in distance to nearest facility and abortion in Texas, 2012 to 2014. JAMA 2017;317:437–9.
[3] Fischer S, Royer H, White C. The impacts of reduced access to abortion and family planning services on abortions, births, and contraceptive purchases. J Public Econ 2018;167:43–68.
[4] Lindo JM, Myers C, Schlosser A, Cunningham S. How far is too far? New evidence on abortion clinic closures, access, and abortions. National Bureau of Economic Research 2017:23366.
[5] Cartwright AF, Karunaratne M, Barr-Walker J, Johns NE, Upadhyay UD. Identifying National Availability of abortion care and distance from major US cities: systematic online search. J Med Internet Res 2018;20:e186.
[6] Gerdts C, Fuentes L, Grossman D, White K, Keefe-Oates B, Baum SE, et al. Impact of clinic closures on women obtaining abortion services after implementation of a restrictive law in Texas. Am J Public Health 2016;106:857–64.

Please cite this article as: C. Myers, R. Jones and U. Upadhyay, Predicted changes in abortion access and incidence in a post-Roe world, Contraception, https://doi.org/10.1016/j.contraception.2019.07.139

[7] Roberts SCM, Fuentes L, Kriz R, Williams V, Upadhyay UD. Implications for women of Louisiana's law requiring abortion providers to have hospital admitting privileges. Contraception 2015;91:368–72.
[8] Center for Reproductive Rights. What If Roe Fell n.d. https://reproductiverights.org/what-if-roe-fell [accessed June 9, 2019].
[9] Advancing New Standards in Reproductive Health (ANSIRH). Abortion Facilities Database, updated to reflect known changes through June 2018;1(2019):2019.
[10] United States Census Bureau. Center of Population by county: 2010; 2010.
[11] Surveillance, epidemiology, and end results program (SEER). SEER*stat database: Populations County-level population files; 1973-2017; 2019.
[12] StataCorp. Stata statistical software: Release 15. Station, TX: College; 2017.
[13] Weber S, Péclat M. GEOROUTE, Stata module to calculate travel distance and travel time between two addresses or two geographical points. Statistical Software Components: Boston College Department of Economics; 2016.
[14] Jones RK, Jerman J. Abortion incidence and service availability in the United States, 2014: abortion incidence and service availability in the United States, 2014. Perspect Sex Reprod Health 2017;49:17–27.
[15] Jones RK, Jerman J. Abortion incidence and service availability in the United States, 2014: abortion incidence and service availability in the United States, 2014. Perspect Sex Reprod Health 2017;49:17–27.
[16] Jones RK, Jerman J. Characteristics and circumstances of U.S. women who obtain very early and second-trimester abortions. PLoS ONE 2017;12.
[17] Joyce T, Kaestner R. The impact of Mississippi's mandatory delay law on the timing of abortion. Fam Plann Perspect 2000;32:4–13.
[18] Joyce T, Tan R, Zhang Y. Abortion before & after Roe. J Health Econ 2013;32:804–15.
[19] White K, Baum SE, Hopkins K, Potter JE, Grossman D. Change in second-trimester abortion after implementation of a restrictive state law. Obstet Gynecol 2019;133:771–9.
[20] Sabia JJ, Anderson DM. The effect of parental involvement laws on teen birth control use. J Health Econ 2016;45:55–62.
[21] Upadhyay UD. Innovative models are needed for equitable abortion access in the USA. Lancet Public Health 2017;2:e484–5.
[22] Fuentes L, Lebenkoff S, White K, Gerdts C, Hopkins K, Potter JE, et al. Women's experiences seeking abortion care shortly after the closure of clinics due to a restrictive law in Texas. Contraception 2016;93:292–7. https://doi.org/10.1016/j.contraception.2015.12.017.
[23] Biggs MA, Upadhyay UD, McCulloch CE, Foster DG. Women's mental health and well-being 5 years after receiving or being denied an abortion: a prospective, longitudinal cohort study. JAMA Psychiat 2017;74:169–78. https://doi.org/10.1001/jamapsychiatry.2016.3478.
[24] Biggs MA, Upadhyay UD, Steinberg JR, Foster DG. Does abortion reduce self-esteem and life satisfaction? Qual Life Res Int J Qual Life Asp Treat Care Rehabil 2014;23:2505–13. https://doi.org/10.1007/s11136-014-0687-7.
[25] Foster DG, Biggs MA, Raifman S, Gipson J, Kimport K, Rocca CH. Comparison of health, development, maternal bonding, and poverty among children born after denial of abortion vs after pregnancies subsequent to an abortion. JAMA Pediatr 2018;172:1053–60. https://doi.org/10.1001/jamapediatrics.2018.1785.
[26] Upadhyay UD, Biggs MA, Foster DG. The effect of abortion on having and achieving aspirational one-year plans. BMC Womens Health 2015;15:102. https://doi.org/10.1186/s12905-015-0259-1.
[27] Foster DG, Biggs MA, Ralph L, Gerdts C, Roberts S, Glymour MM. Socioeconomic outcomes of women who receive and women who are denied wanted abortions in the United States. Am J Public Health 2018;108:407–13. https://doi.org/10.2105/AJPH.2017.304247.
[28] Murtagh C, Wells E, Raymond EG, Coeytaux F, Winikoff B. Exploring the feasibility of obtaining mifepristone and misoprostol from the internet. Contraception 2018;97:287–91. https://doi.org/10.1016/j.contraception.2017.09.016.

Please cite this article as: C. Myers, R. Jones and U. Upadhyay, Predicted changes in abortion access and incidence in a post-Roe world, Contraception, https://doi.org/10.1016/j.contraception.2019.07.139