Spatial Analyses of Crisis Pregnancy Centers and Abortion Facilities in the United States, 2021

Andrea Swartzendruber, Nicole Luisi, Erin Johnson, Danielle Nicole Lambert

Submitted to: JMIR Public Health and Surveillance
on: April 28, 2024

Table of Contents

Original Manuscript **5**
Supplementary Files **27**
Figures **28**
Figure 1 ..... **29**
Figure 2 ..... **30**

Spatial Analyses of Crisis Pregnancy Centers and Abortion Facilities in the United States, 2021

Andrea Swartzendruber[1] PhD, MPH; Nicole Luisi[1] MPH, MS; Erin Johnson[1] MPH; Danielle Nicole Lambert[1] PhD, MPH

[1]Department of Epidemiology and Biostatistics College of Public Health University of Georgia Athens US

Corresponding Author:
Andrea Swartzendruber PhD, MPH
Department of Epidemiology and Biostatistics
College of Public Health
University of Georgia
101 Buck Road
Athens
US

Abstract

Background: Crisis pregnancy centers (CPCs) are religious non-profit organizations that have a primary mission of diverting people from having abortions. For decades, one tactic used by CPCs has been to locate near abortion facilities. Despite medical groups' warnings that CPCs do not adhere to medical and ethical standards and pose risks to individual and public health, government support for CPCs has significantly increased over the past decade.

Objective: This study aimed to map CPCs, abortion facilities, and geographic areas in the United States (US) categorized into four zones defined by their proximity to CPCs and abortion facilities in 2021. We also sought to describe the number and percentage of reproductive-aged women living in each zone and the proximity of CPCs to abortion facilities.

Methods: Using 2021 data from CPC Map and the Advancing New Standards in Reproductive Health (ANSIRH) Abortion Facility Database, we determined the ratio of CPCs to abortion facilities. Using these sources and Census data, we categorized and mapped US block groups into four distinct zones based on the locations of block group centroids within 15-mile radii of CPCs and abortion facilities: 1) no presence, 2) CPC only, 3) abortion facility only, and 4) dual presence. We used summary statistics to calculate the number and percentage of block groups and reproductive-aged (15-49 years) women living in each zone. We also calculated distances and drive times from abortion facilities to the nearest CPC. All analyses were conducted nationally and by region, division, and state. We used chi-square statistics to test for differences by region and division in the number of block groups and women classified to each zone.

Results: Nationally, the ratio of CPCs to abortion facilities was 3.4, and 55% of block groups were categorized in the "dual presence" zone, 27% as "CPC only," and 0.8% in the "abortion facility only" zone. Most (60%) reproductive-aged women lived in a "dual presence" zone, 26% in a "CPC only", and 0.8% lived in an "abortion facility only" zone. We detected statistically significant variations ($p<0.001$) in the number of block groups and women classified as living in each zone by region and division. Nationally, the median distance from abortion facilities to the nearest CPC was 2 miles, and the median drive time was 5.5 minutes. Minimum drive times were <1 minute in all but 11 states.

Conclusions: The findings suggest that CPCs' tactic of locating near abortion facilities was largely realized before the 2022 US Supreme Court decision that overturned the federal right to abortion. Research on CPCs' locations and tactics should continue given the dynamic abortion policy landscape and risks posed by CPCs. Tailored programming to raise awareness about CPCs and help people identify and access safe sources of healthcare may mitigate harm.

(JMIR Preprints 28/04/2024:60001)
DOI: https://doi.org/10.2196/preprints.60001

Preprint Settings

1) Would you like to publish your submitted manuscript as preprint?

✓ **Please make my preprint PDF available to anyone at any time (recommended).**
Please make my preprint PDF available only to logged-in users; I understand that my title and abstract will remain visible to all users.
Only make the preprint title and abstract visible.
No, I do not wish to publish my submitted manuscript as a preprint.

2) If accepted for publication in a JMIR journal, would you like the PDF to be visible to the public?

✓ **Yes, please make my accepted manuscript PDF available to anyone at any time (Recommended).**
Yes, but please make my accepted manuscript PDF available only to logged-in users; I understand that the title and abstract will remain v
Yes, but only make the title and abstract visible (see Important note, above). I understand that if I later pay to participate in <a href="http

Original Manuscript

Original Paper

Spatial Analyses of Crisis Pregnancy Centers and Abortion Facilities in the United States, 2021

Andrea Swartzendruber, PhD, MPH; Nicole Luisi, MPH, MS; Erin R Johnson, MPH; Danielle Lambert, PhD, MPH

University of Georgia College of Public Health
Epidemiology and Biostatistics Department

Corresponding Author:
Andrea Swartzendruber, PhD, MPH
101 Buck Road
Athens, GA 30602
Phone: 706-583-8149
aswartz@uga.edu

Abstract

Background: Crisis pregnancy centers (CPCs) are religious non-profit organizations that have a primary mission of diverting people from having abortions. For decades, one tactic used by CPCs has been to locate near abortion facilities. Despite medical groups' warnings that CPCs do not adhere to medical and ethical standards and pose risks to individual and public health, government support for CPCs has significantly increased over the past decade.
Objective: This study aimed to map CPCs, abortion facilities, and geographic areas in the United States (US) categorized into four zones defined by their proximity to CPCs and abortion facilities in 2021. We also sought to describe the number and percentage of reproductive-aged women living in each zone and the proximity of CPCs to abortion facilities.
Methods: Using 2021 data from CPC Map and the Advancing New Standards in Reproductive Health (ANSIRH) Abortion Facility Database, we determined the ratio of CPCs to abortion facilities. Using these sources and Census data, we categorized and mapped US block groups into four distinct zones based on the locations of block group centroids within 15-mile radii of CPCs and abortion facilities: 1) no presence, 2) CPC only, 3) abortion facility only, and 4) dual presence. We used summary statistics to calculate the number and percentage of block groups and reproductive-aged (15-49 years) women living in each zone. We also calculated distances and drive times from abortion facilities to the nearest CPC. All analyses were conducted nationally and by region, division, and state. We used chi-square statistics to test for differences by region and division in the number of block groups and women classified to each zone.
Results: Nationally, the ratio of CPCs to abortion facilities was 3.4, and 55% of block groups were categorized in the "dual presence" zone, 27% as "CPC only," and 0.8% in the "abortion facility only" zone. Most (60%) reproductive-aged women lived in a "dual presence" zone, 26% in a "CPC only", and 0.8% lived in an "abortion facility only" zone. We detected statistically significant variations ($p<0.001$) in the number of block groups and women classified as living in each zone by region and division. Nationally, the median distance from abortion facilities to the nearest CPC was 2 miles, and the median drive time was 5.5 minutes. Minimum drive times were <1 minute in all but 11 states.
Conclusions: The findings suggest that CPCs' tactic of locating near abortion facilities was largely realized before the 2022 US Supreme Court decision that overturned the federal right to abortion. Research on CPCs' locations and tactics should continue given the dynamic abortion policy landscape and risks posed by CPCs. Tailored programming to raise awareness about CPCs and help people identify and access safe sources of healthcare may mitigate harm.

Keywords: crisis pregnancy center; abortion, induced; reproductive health; policy; access to information; internet; directory; geographic information system; spatial analyses

Introduction

Crisis pregnancy centers (CPCs) are grassroots organizations within the anti-abortion movement that hold themselves out as providing "alternatives to abortion" [1-3]. The centers are religious non-profit organizations that frequently mimic medical clinics and even abortion facilities to reach their anti-abortion, anti-contraception, anti-comprehensive sex education, and evangelical goals [4-6]. CPCs particularly target young people, people of color, and people living in low-income households; these communities disproportionately experience barriers to healthcare, are burdened by unintended pregnancy and other adverse sexual and reproductive health outcomes, and experience among the highest abortion rates [4-7]. Although, increasingly, CPCs provide limited medical services, they are not medical centers, are not regulated as such, frequently provide inaccurate health information in support of their goals, and do not adhere to national medical and ethical practice standards [5, 6, 8]. Major public health and medicine organizations warn that CPCs pose risks to individual, family, and public health [5].

CPCs risk harm by prioritizing their own goals over client needs, not adhering to standard medical and ethical practices, including giving inaccurate health information, particularly about abortion and contraception, failing to promote informed consent, and using deceptive advertising [5, 6]. However, government funding and support for CPCs increased substantially in the decade before and in the years since the *Dobbs v Jackson Women's Health Organization* decision, which overturned *Roe v Wade* and the federal right to abortion in the United States (US) [9, 10].

Over the decades and across the US, CPCs and their affiliate organizations have made clear their goals to "compete" with abortion facilities [1, 11]. Opening and locating near abortion facilities to attract people considering and seeking abortion has been a key strategy encouraged by the umbrella organizations with which CPCs affiliate, such as Heartbeat International (formally called "Alternatives to Abortion International"), at least since the 1990s [1]. In the early 1990s, abortion facilities were primarily located in large cities, and CPCs mainly operated in mid-size cities, towns, and rural areas [1]. Abortion facilities continue to be concentrated in urban areas in the US [12]. Although there have been many anecdotal reports of CPCs locating near abortion facilities to engage with and unwittingly attract people seeking abortion care, to date, a dearth of studies has directly examined the locations of CPCs around abortion facilities.

CPCs operated in every state pre-*Dobbs* [4]. Many of the states that have banned or severely restricted abortion since the *Dobbs* decision have continued to fund or increased funding for CPCs (e.g., Alabama, Florida, Indiana, Iowa, Louisiana, Mississippi, Tennessee, West Virginia) [10, 13-22], whereas other states where abortion remains legal or that have moved to protect abortion access have sought to regulate CPCs, have issued consumer warning alerts, or de-funded CPCs (e.g., California, Colorado, Illinois, Massachusetts, New Jersey, Pennsylvania) [23-34].

Studies show that closer proximity to abortion facilities is associated with increased abortion rates [35]. Similarly, proximity to CPCs is associated with an increased likelihood of visiting CPCs for services [36]. Understanding CPC locations and to what extent, how close, and where CPCs were located to abortion facilities pre-*Dobbs* may serve as a useful baseline for evaluating CPCs' impact and identifying CPCs' strategies and tactics post-*Dobbs* and may provide a more comprehensive understanding of the extent to which CPCs integrated within the geographic landscape of reproductive health services. Better understanding about where CPCs locate relative to abortion facilities may also identify areas where tailored programming is needed to increase awareness about CPCs, including their objectives and tactics, among reproductive-aged people, particularly communities that CPCs target. Examining relative locations of CPCs and abortion facilities may also be useful for investigating and explaining sexual and reproductive health outcomes.

The objective of this study was to describe the location of CPCs in the US relative to abortion facilities in 2021. Specifically, we mapped four distinct geographic zones based on their location within 15-mile radii of CPCs and abortion facilities, where: 1) neither CPCs and abortion facilities operated, 2) only CPCs operated, 3) only abortion facilities operated, and 4) both CPCs and abortion facilities operated. We also aimed to describe the number and proportion of women of reproductive age who resided in each zone and to examine distances and drive times from abortion facilities to the nearest CPC.

Methods

Data Sources

Data about the locations of CPCs in 2021 were obtained from CPC Map [37], an online geocoded directory of all of the CPCs operating in the US [4]. CPC Map identifies the brick-and-mortar locations of CPCs that provide free pregnancy testing. It excludes mobile CPC vans, adoption agencies, maternity homes, thrift stores, and offices that are affiliated with CPCs but do not provide free pregnancy testing [4]. In 2021, 2,546 CPCs were included in the CPC Map database.

Data about the locations of abortion facilities in 2021 were obtained from Advancing New Standards in Reproductive Health's (ANSIRH's) Abortion Facility Database [38]. The ANSIRH database provides location information for all abortion facilities in the US that publicly advertise abortion services online [38]. For the current analysis, we included brick-and-mortar facilities that were open and active. We excluded abortion facilities that exclusively offered telehealth services and a single facility without address information. A total of 757 abortion facilities were included in the current analysis.

Census block groups were established based on 2021 cartographic boundaries published by the US Census Bureau [39]. Data about the number of women of reproductive age were obtained from 2020 US Census Demographic and Housing Characteristics [40].

Statistical Analysis

First, we calculated the ratio of abortion facilities nationally and by region, division, and state and mapped the geolocations of CPCs and abortion facilities. Next, we generated a 15-mile driving distance buffer zone for each CPC and abortion facility using the Generate Travel Areas tool with default settings for traffic and time of day. Then, we identified the geometric center of each census block group using the Find Centroids tool in ArcGIS Online (Esri, Inc.) and assigned entire block groups to distinct zones based on block group centroids' locations relative to each buffer zone.

We categorized block groups into one of four zones based on driving distances from CPCs and abortion facilities. Block groups outside a 15-mile driving distance radius of a CPC or abortion facility were categorized as being in a "no presence" zone. Block groups within a 15-mile radius of an abortion facility only were categorized as being in an "abortion facility only" zone. Block groups within a 15-mile radius of a CPC only were categorized as being in a "CPC only" zone. Block groups that were within a 15-mile radius of a CPC and abortion facility were categorized as being in a "dual presence" zone.

We defined zones using a 15-mile driving radius based on prior research. A 2017 study that used county-level analyses reported that the median distance to the nearest abortion facility for reproductive-aged women in the US was almost 11 miles in 2014 [12]. County-level analyses have since been shown to result in relatively large underestimates of abortion access [41]. Another published study that used data from the 2014 Abortion Patient Survey reported that abortion patients traveled a median of 15.7 miles to an abortion facility [42].

We selected block group as a unit of analysis because it is the smallest geographic unit for which

US census data are available by both age and sex. We used summary statistics to examine the number and percentage of women of reproductive age (15-49 years) living in each zone. Spatial analyses were conducted with ArcGIS Online (Esri Inc.). Other descriptive statistics were prepared with R Statistical Software (v4.3.1; R Core Team 2023). All analyses were conducted nationally and by region, division, and state. We used chi-square statistics to test for differences by region and division in the number of block groups and women classified as living in each zone.

Results

Ratio of CPCs to Abortion Facilities

Multiple CPCs and at least one abortion facility were operating in every state in 2021 (Figure 1). Nationally, the ratio of CPCs to abortion facilities in 2021 was 3.4 (Table 1). By region, the ratio was lowest in the West (1.6) and highest in the Midwest (7.6). By division, the ratio was lowest in New England and Pacific (1.2) and >10.0 in the West South Central (10.6), West North Central (11.5), and East South Central (13.1). In only three states (Maine, Nevada, California) and the District of Columbia (DC) was the ratio of CPCs to abortion facilities <1. The ratio was 1.0 in New Jersey and >15.0 in six states, including Oklahoma (15.7), West Virginia (17.0), Arkansas (20.0), Kentucky (27.5), Mississippi (29.0), and Missouri (73.0).

Figure 1. Crisis pregnancy centers (CPCs) and abortion facilities in the United States, 2021.

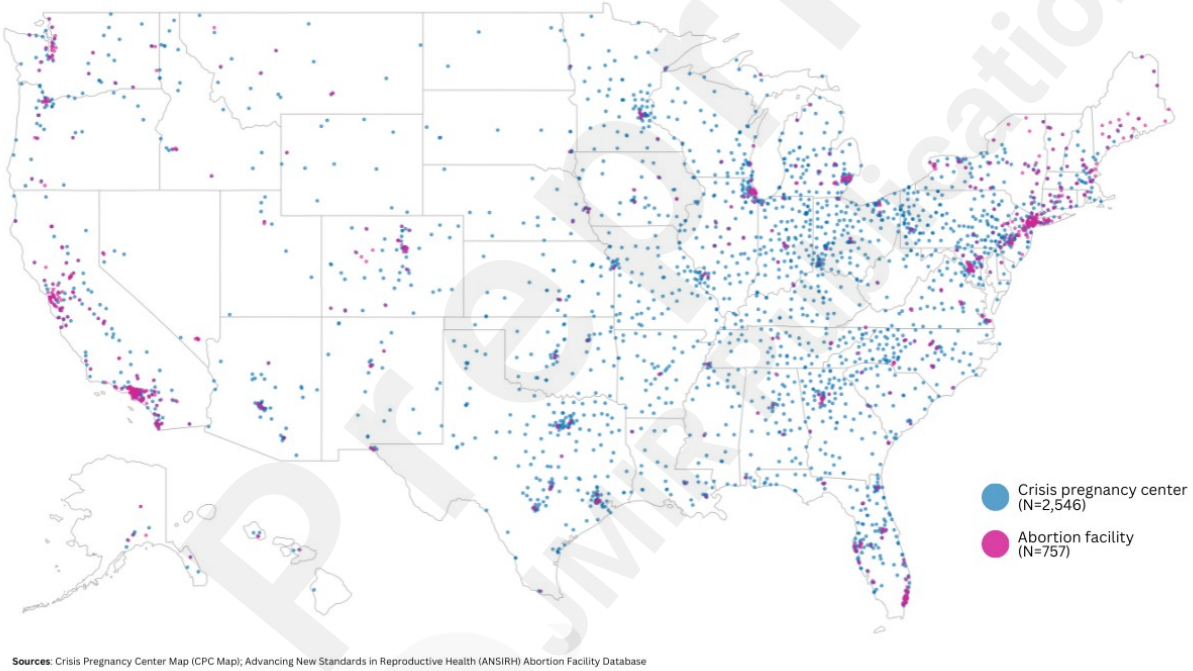


Table 1. Number of crisis pregnancy centers (CPCs) and ratio of CPCs to abortion facilities, in the United States and by region, division, and state, 2021.

	Number of CPCs	Ratio of CPCs to Abortion Facilities
United States	2,546	3.4
Northeast	375	1.8
New England	84	1.2
Connecticut	20	1.3
Maine	11	0.6
Massachusetts	29	1.6
New Hampshire	14	2.3
Rhode Island	3	1.5
Vermont	7	1.2
Middle Atlantic	291	2.0
New Jersey	39	1.0
New York	92	1.1

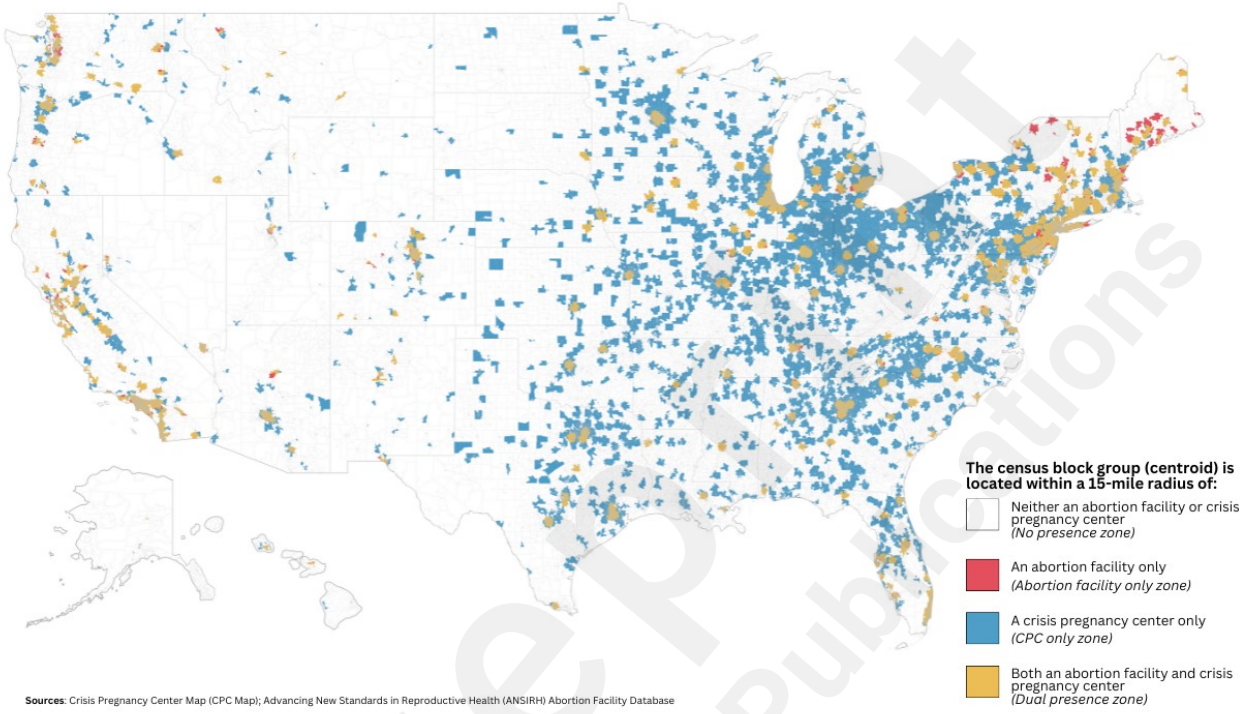
Pennsylvania	160	10.0
Midwest	745	7.6
East North Central	480	6.4
Illinois	97	3.6
Indiana	96	13.7
Michigan	105	3.8
Ohio	124	13.8
Wisconsin	58	14.5
West North Central	265	11.5
Iowa	43	7.2
Kansas	38	9.5
Minnesota	73	10.4
Missouri	73	73.0
Nebraska	20	6.7
North Dakota	7	7.0
South Dakota	11	11.0
South	994	5.7
South Atlantic	481	3.7
Delaware	5	2.5
District of Columbia	2	0.5
Florida	151	2.7
Georgia	88	6.3
Maryland	40	2.0
North Carolina	89	5.6
South Carolina	35	11.7
Virginia	54	3.6
West Virginia	17	17.0
East South Central	196	13.1
Alabama	52	10.4
Kentucky	55	27.5
Mississippi	29	29.0
Tennessee	60	8.6
West South Central	317	10.6
Arkansas	40	20.0
Louisiana	32	10.7
Oklahoma	47	15.7
Texas	198	9.0
West	432	1.6
Mountain	185	3.1
Arizona	47	5.9
Colorado	51	2.1
Idaho	19	4.8
Montana	17	2.8
Nevada	7	0.8
New Mexico	24	4.8
Utah	8	4.0
Wyoming	12	12.0
Pacific	247	1.2
Alaska	10	2.0
California	148	0.9
Hawaii	6	2.0
Oregon	38	2.9
Washington	45	1.6

Block Groups By Zone

We mapped block groups by zone (Figure 2) and determined the number and percentage of block groups categorized into each zone nationally and by region, division, and state (Table 2). Over half

(54.9%) of block groups in the US were within 15 miles of both a CPC and an abortion facility and categorized in the “dual presence” zone. Over one-quarter (26.6%) were in the “CPC only” zone. Less than one-fifth (17.7%) were categorized in the “no presence” zone. Less than 1% (0.8%) of block groups nationally were categorized in the “abortion facility only” zone. We observed statistically significant ($p<0.05$) differences by region ($X^2 = 23,224$, df = 9, $p<0.001$) and division ($X^2 = 33,159$, df = 24, $p<0.001$).

Figure 2. United States Census block groups within crisis pregnancy center (CPC) and abortion facility presence zones, 2021.



By region, nearly three-fourths of block groups in the Northeast (72.6%) and West (70.4%) were categorized in the “dual presence” zone, whereas less than half in the Midwest (45.2%) and South (42.7%) were. Over one-third of block groups in the Midwest (35.8%) and South (35%) were categorized in the “CPC only” zone as compared to 15.8% in the Northeast and 11.9% in the West. The South had the highest (22.2%) and the Northeast the lowest (10.0%) percentage of block groups categorized into the “no presence” zone. The Northeast (1.5%) and West (2.1%) had >1.0% of block groups categorized in the “abortion facility only” zone, whereas the percentage was 0.1% in both the South and Midwest.

By division, the percentage of block groups categorized in the “dual presence” zone ranged from 27.2% in East South Central to 78.9% in the Pacific. The percentage was <50% in only three divisions, the West South Central (38.3%), West North Central (34.8%), and East South Central (27.2%). Block groups categorized as “CPC only” ranged from 7.5% in the Pacific to over one-third in the West North Central (34.6%), East North Central (36.5%), West South Central (37.8%), and East South Central (41.2%). Block groups categorized in the “no presence” zone ranged from 7.9% in the Middle Atlantic to nearly one-third in the West North Central (30.6%) and East South Central (31.5%) divisions. The percentage categorized as “abortion facility only” was <1% in most divisions, except the the Middle Atlantic (1.2%), Mountain (1.2%), Pacific (2.5%), and New England (2.6%).

In only two states, Wyoming (1.8%) and West Virginia (8.5%), was the percentage of block groups in the “dual presence” zone <10%; the percentage was >75% in six states, including Maryland (77.2%), Nevada (77.7%), New York (82.4%), California (85.4%), Connecticut (88.8%), and New Jersey (89.1%), and DC (100%). The percentage categorized as “CPC only” ranged from 5% or less

in DC (0%), Connecticut (4.1%) and Nevada (5.0%) to >50% in Arkansas (50.4%), Indiana (51.0%), Missouri (51.3%), and Wyoming (52.5%). The percentage assigned to the “no presence” zone ranged from <10% in DC (0%) and seven states, including New Jersey (4.1%), Connecticut (6.3%), California (7.6%), Maryland (7.7%), Ohio (7.8%), Pennsylvania (8.7%), and New York (8.9%) to >50% in West Virginia (51.3%), Vermont (52.7%), South Dakota (58.1%), and North Dakota (60.1%). The percentage categorized in the “abortion facility only” zone was <1% in 42 states and DC.

Table 2. Number and percentage of block groups in the United States categorized by their location within a 15-mile radius of a crisis pregnancy center (CPC) and abortion facility, 2021.

	Block Groups Outside Of A 15-Mile Radius Of Both A CPC And An Abortion Facility (No Presence Zone)	**Block Groups Within A 15-Mile Radius Of An Abortion Facility Only (Abortion Facility Only Zone)**	**Block Groups Within A 15-Mile Radius Of A CPC Only (CPC Only Zone)**	**Block Groups Within a 15-Mile Radius Of Both A CPC And Abortion Facility (Dual Presence Zone)**
	# (%)	# (%)	# (%)	# (%)
United States	42,447 (17.7)	1,926 (0.8)	63,679 (26.6)	131,410 (54.9)
Northeast	4,423 (10.0)	670 (1.5)	6,985 (15.8)	32,037 (72.6)
New England	1,844 (16.3)	293 (2.6)	1,660 (14.6)	7,544 (66.5)
Connecticut	172 (6.3)	21 (0.8)	111 (4.1)	2,408 (88.8)
Maine	436 (37.0)	154 (13.1)	120 (10.2)	468 (39.7)
Massachusetts	564 (11.0)	62 (1.2)	1,109 (21.7)	3,377 (66.1)
New Hampshire	244 (24.5)	49 (4.9)	199 (20.0)	504 (50.6)
Rhode Island	137 (17.3)	0 (0.0)	69 (8.7)	585 (74.0)
Vermont	291 (52.7)	7 (1.3)	52 (9.4)	202 (36.6)
Middle Atlantic	2,579 (7.9)	377 (1.2)	5,325 (16.2)	24,493 (74.7)
New Jersey	270 (4.1)	62 (0.9)	386 (5.9)	5,875 (89.1)
New York	1,429 (8.9)	314 (2.0)	1,077 (6.7)	13,189 (82.4)
Pennsylvania	880 (8.7)	1 (0.0)	3,862 (38.0)	5,429 (53.4)
Midwest	10,453 (18.8)	51 (0.1)	19,911 (35.8)	25,129 (45.2)
East North Central	4,992 (13.3)	41 (0.1)	13,735 (36.5)	18,904 (50.2)
Illinois	1,192 (12.0)	8 (0.1)	2,299 (23.2)	6,397 (64.6)
Indiana	620 (11.7)	0 (0.0)	2,697 (51.0)	1,970 (37.3)
Michigan	1,202 (14.4)	22 (0.3)	2,216 (26.6)	4,904 (58.8)
Ohio	737 (7.8)	11 (0.1)	4,483 (47.4)	4,236 (44.7)
Wisconsin	1,241 (26.5)	0 (0.0)	2,040 (43.6)	1,397 (29.9)
West North Central	5,461 (30.6)	10 (0.1)	6,176 (34.6)	6,225 (34.8)
Iowa	1,130 (41.8)	7 (0.3)	909 (33.6)	657 (24.3)
Kansas	712 (28.9)	0 (0.0)	853 (34.7)	896 (36.4)
Minnesota	1,113 (23.7)	2 (0.0)	1,288 (27.4)	2,300 (48.9)
Missouri	1,202 (23.9)	1 (0.0)	2,579 (51.3)	1,249 (24.8)
Nebraska	521 (31.6)	0 (0.0)	279 (16.9)	848 (51.5)
North Dakota	380 (60.1)	0 (0.0)	129 (20.4)	123 (19.5)
South Dakota	403 (58.1)	0 (0.0)	139 (20.0)	152 (21.9)
South	19,352 (22.2)	112 (0.1)	30,551 (35.0)	37,302 (42.7)

South Atlantic	7,971 (18.0)	79 (0.2)	13,768 (31.1)	22,409 (50.7)
Delaware	126 (17.9)	0 (0.0)	142 (20.2)	435 (61.9)
District of Columbia	0 (0.0)	0 (0.0)	0 (0.0)	571 (100.0)
Florida	1,367 (10.2)	26 (0.2)	3,466 (26.0)	8,491 (63.6)
Georgia	1,303 (17.5)	3 (0.0)	2,912 (39.1)	3,223 (43.3)
Maryland	315 (7.7)	4 (0.1)	607 (14.9)	3,143 (77.2)
North Carolina	1,713 (24.2)	26 (0.4)	2,750 (38.8)	2,603 (36.7)
South Carolina	1,032 (30.3)	4 (0.1)	1,465 (43.0)	906 (26.6)
Virginia	1,275 (21.4)	16 (0.3)	1,767 (29.7)	2,897 (48.6)
West Virginia	840 (51.3)	0 (0.0)	659 (40.2)	140 (8.5)
East South Central	4,566 (31.5)	31 (0.2)	5,971 (41.2)	3,942 (27.2)
Alabama	1,149 (29.3)	7 (0.2)	1,397 (35.6)	1,371 (34.9)
Kentucky	1,161 (32.4)	0 (0.0)	1,623 (45.3)	797 (22.3)
Mississippi	1,157 (47.4)	0 (0.0)	985 (40.3)	301 (12.3)
Tennessee	1,099 (24.1)	24 (0.5)	1,966 (43.1)	1,473 (32.3)
West South Central	6,815 (23.8)	2 (0.0)	10,812 (37.8)	10,951 (38.3)
Arkansas	864 (37.7)	0 (0.0)	1,157 (50.4)	273 (11.9)
Louisiana	1,407 (32.8)	2 (0.0)	1,518 (35.4)	1,358 (31.7)
Oklahoma	1,056 (31.3)	0 (0.0)	944 (28.0)	1,374 (40.7)
Texas	3,488 (18.7)	0 (0.0)	7,193 (38.6)	7,946 (42.7)
West	8,219 (15.7)	1,093 (2.1)	6,323 (11.9)	36,942 (70.4)
Mountain	4,286 (25.1)	210 (1.2)	3,566 (20.9)	9,007 (52.8)
Arizona	979 (20.5)	1 (0.0)	1,039 (21.8)	2,754 (57.7)
Colorado	585 (14.4)	27 (0.7)	644 (15.9)	2,802 (69.0)
Idaho	477 (37.1)	1 (0.1)	336 (26.2)	470 (36.6)
Montana	423 (47.0)	8 (0.9)	169 (18.8)	300 (33.3)
Nevada	283 (14.4)	57 (2.9)	98 (5.0)	1,525 (77.7)
New Mexico	485 (30.0)	5 (0.3)	571 (35.4)	553 (34.3)
Utah	845 (41.8)	111 (5.5)	469 (23.2)	595 (29.5)
Wyoming	209 (45.7)	0 (0.0)	240 (52.5)	8 (1.8)
Pacific	3,933 (11.1)	883 (2.5)	2,666 (7.5)	27,935 (78.9)
Alaska	214 (42.5)	1 (0.2)	50 (9.9)	239 (47.4)
California	1,941 (7.6)	408 (1.6)	1,376 (5.4)	21,860 (85.4)
Hawaii	310 (29.3)	6 (0.6)	197 (18.6)	545 (51.5)
Oregon	581 (19.6)	28 (0.9)	623 (21.0)	1,731 (58.4)
Washington	887 (16.7)	440 (8.3)	420 (7.9)	3,560 (67.1)

Reproductive-Aged Women Living In Each Zone

We calculated the number and proportion of reproductive-aged women categorized as living within each zone in 2021, nationally and by region, division, and state (Table 3). Nationally, most (59.7%) of women aged 15-49 years in the US lived in the “dual presence” zone, and over one-quarter (26.1%) lived in a “CPC only” zone. Less than one in seven (13.4%) lived in a “no presence zone” and only 0.8% lived in an “abortion facility only” area. We observed statistically significant differences by region (X^2= 7,687,947, df = 9, p<0.001) and division (X^2 = 10,772,551, df = 24, p<0.001).

Over three-quarters of women lived in a “dual presence” zone in the West (75.1%) and Northeast (77.2%) regions, whereas less than half did in the Midwest (49.9%) and South (47.3%). Over one-third of women in the Midwest (35.9%) and South (35.9%) lived in a “CPC only zone; the percentage was <15.0% in Northeast (14.2%) and West (10.8%). The percentage of women who lived in a “no presence” zone ranged from 7.2% in the Northeast to 16.7% in the South. The percentage of women who lived in an “abortion facility only” zone was 0.1% both in the Midwest and

South, 1.3% in the Northeast and 2.2% in the West.

The percentage of women living in a “dual presence” zone by division ranged from 29.4% in East South Central to 82.9% in the Pacific. The majority of women lived in a “dual presence” zone in all divisions except the East South Central, West North Central (38.7%), and West South Central (42.6%). The Pacific (6.6%) division had the lowest and the East South Central had the highest (44.5%) percentage of women who lived in a “CPC only” zone. In addition to the East South Central, >20.0% of women lived in a “CPC only” zone in the Mountain (20.0%), South Atlantic (30.7%), East North Central (34.9%), West North Central (38.0%), and West South Central (39.9%) divisions. Less than 10.0% of women of reproductive age lived a “no presence” zone in the Pacific (8.1%), Middle Atlantic (5.5%), and East North Central (9.9%) and >20.0% did in the Mountain (20.6%), West North Central (23.3%) and East South Central (25.8%) divisions. The percentage of women who lived in an “abortion facility only” zone ranged from 0% in West South Central to 2.1% in New England.

By state, the percentage of reproductive-aged women who lived in a “dual presence” zone ranged from 2.0% in Wyoming to 91.6% in Connecticut and 100% in DC. In 21 states and DC, more than half of women lived in a “dual presence” zone. The percentage who lived in a ”CPC only” zone was <5% in DC (0%), Connecticut (3.0%), Nevada (3.7%), New Jersey (4.5%), and California (4.8%) and >50% in Kentucky (50.6), Wyoming (57.1%), Missouri (57.6%), and Arkansas (58.4%). The percentage who lived in a “no presence” zone ranged from 0% in DC, 3.5% in New Jersey, and 4.8% in Connecticut to >45% in Vermont (45.3%), West Virginia (47.1%), South Dakota (47.9%), and North Dakota (51.2%). The percentage who lived in an “abortion facility only” zone ranged from 0.0% in DC and 21 states to 12.0% in Maine. In addition to Maine, the percentage was >1% in only seven states, including Vermont (1.1%), California (1.5%), New York (1.7%), Nevada (3.6%), New Hampshire (4.4%), Utah (7.2%), and Washington (8.6%).

Table 3. Number and percentage of women aged 15-49 years in the United States residing within a 15-mile radius of a crisis pregnancy center (CPC) and abortion facility, 2021.

	Women Who Lived Outside Of A 15-Mile Radius Of Both A CPC And An Abortion Facility (No Presence Zone) # (%)	Women Who Lived Within A 15-Mile Radius Of An Abortion Facility Only (Abortion Facility Only Zone) # (%)	Women Who Lived Within A 15-Mile Radius Of A CPC Only (CPC Only Zone) # (%)	Women Who Lived Within a 15-Mile Radius Of Both A CPC And Abortion Facility (Dual Presence Zone) # (%)
United States	10,109,943 (13.4)	625,403 (0.8)	19,696,572 (26.1)	45,150,110 (59.7)
Northeast	947,254 (7.2)	171,165 (1.3)	1,864,296 (14.2)	10,101,787 (77.2)
New England	418,360 (12.3)	69,712 (2.1)	500,179 (14.7)	2,411,200 (70.9)
Connecticut	38,058 (4.8)	5,213 (0.7)	24,129 (3.0)	732,584 (91.6)
Maine	84,900 (30.7)	33,073 (12.0)	33,227 (12.0)	125,187 (45.3)
Massachusetts	136,601 (8.3)	17,087 (1.0)	356,943 (21.7)	1,136,257 (69.0)
New Hampshire	54,946 (18.9)	12,845 (4.4)	52,418 (18.1)	169,856 (58.6)
Rhode Island	42,411 (16.9)	0 (0.0)	21,861 (8.7)	186,074 (74.3)
Vermont	61,444 (45.3)	1,494 (1.1)	11,601 (8.5)	61,242 (45.1)
Middle Atlantic	528,894 (5.5)	101,453 (1.0)	1,364,117 (14.1)	7,690,587 (79.4)
New Jersey	73,272 (3.5)	18,762 (0.9)	94,911 (4.5)	1,920,326 (91.1)
New York	270,709 (5.7)	82,432 (1.7)	270,750 (5.7)	4,129,864 (86.9)
Pennsylvania	184,913 (6.5)	259 (0.0)	998,456 (35.4)	1,640,397 (58.1)

Midwest	2,149,730 (14.1)	15,622 (0.1)	5,474,481 (35.9)	7,618,288 (49.9)
East North Central	1,044,280 (9.9)	11,670 (0.1)	3,671,594 (34.9)	5,781,054 (55.0)
Illinois	227,612 (7.7)	1,455 (0.0	616,053 (20.9)	2,103,928 (71.3)
Indiana	138,446 (9.1)	0 (0.0)	724,692 (47.8)	651,722 (43.0)
Michigan	233,766 (10.6)	6,182 (0.3)	561,663 (25.6)	1,395,184 (63.5)
Ohio	168,383 (6.5)	4,033 (0.2)	1,203,655 (46.6)	1,206,096 (46.7)
Wisconsin	276,073 (21.8)	0 (0.0)	565,531 (44.7)	424,124 (33.5)
West North Central	276,073 (21.8)	0 (0.0)	1,802,887 (38.0)	1,837,234 (38.7)
Iowa	219,739 (32.0)	2,786 (0.4)	246,640 (36.0)	216,656 (31.6)
Kansas	142,549 (22.1)	0 (0.0)	243,669 (37.7)	259,394 (40.2)
Minnesota	218,902 (17.3)	914 (0.1)	371,688 (29.4)	672,825 (53.2)
Missouri	243,814 (17.9)	252 (0.0)	783,798 (57.6)	332,663 (24.5)
Nebraska	103,262 (23.7)	0 (0.0)	72,719 (16.7)	259,122 (59.6)
North Dakota	87,715 (51.2)	0 (0.0)	39,423 (23.0)	44,340 (25.9)
South Dakota	89,469 (47.9)	0 (0.0)	44,950 (24.1)	42,234 (28.0)
South	4,823,254 (16.7)	39,766 (0.1)	10,386,971 (35.9)	13,709,252 (47.3)
South Atlantic	2,004,962 (13.4)	26,694 (0.2)	4,586,992 (30.7)	8.301,860 (55.6)
Delaware	22,371 (10.4)	0 (0.0)	48,440 (22.5)	144,011 (67.0)
District of Columbia	0 (0.0)	0 (0.0)	0 (0.0)	215,054 (100.0)
Florida	371,060 (8.1)	6,793 (0.1)	1,124,675 (24.5)	3,087,436 (67.3)
Georgia	343,125 (13.3)	1,254 (0.0)	1,021,499 (39.7)	1,209,071 (47.0)
Maryland	82,860 (5.8)	1,106 (0.1)	214,229 (14.9)	1,140,822 (79.3)
North Carolina	438,613 (18.4)	10,955 (0.5)	855,600 (35.8)	1,083,256 (45.4)
South Carolina	256,293 (22.7)	2,880 (0.3)	500,719 (44.4)	367,944 (32.6)
Virginia	315,680 (15.8)	3,706 (0.2)	657,469 (32.9)	1,022,109 (51.1)
West Virginia	174,960 (47.1)	0 (0.0)	164,361 (44.2)	32,167 (8.7)
East South Central	1,129,365 (25.8)	12,411 (0.3)	1,949,048 (44.5)	1,288,215 (29.4)
Alabama	274,439 (24.1)	3,413 (0.3)	438,581 (38.5)	422,444 (37.1)
Kentucky	260,112 (26.1)	0 (0.0)	503,657 (50.6)	231,357 (23.2)
Mississippi	273,673 (40.9)	0 (0.0)	296,536 (44.3)	99,264 (14.8)
Tennessee	321,141 (20.4)	8,998 (0.6)	710,274 (45.1)	535,150 (34.0)
West South Central	1,688,927 (17.5)	661 (0.0)	3,850,931 (39.9)	4,119,177 (42.6)
Arkansas	186,313 (27.9)	0 (0.0)	390,339 (58.4)	91,256 (13.7)
Louisiana	307,130 (28.8)	661 (0.1)	365,725 (34.3)	391,470 (36.8)
Oklahoma	230,365 (26.0)	0 (0.0)	266,693 (30.1)	388,664 (43.9)
Texas	965,119 (13.7)	0 (0.0)	2,828,174 (40.2)	3,247,787 (46.1)
West	2,189,705 (12.0)	398,850 (2.2)	1,970,824 (10.8)	13,720,783 (75.1)
Mountain	1,168,835 (20.6)	96,521 (1.7)	1,133,533 (20.0)	3,265,353 (57.6)
Arizona	252,530 (16.1)	84 (0.0)	324,918 (20.7)	991,101 (63.2)
Colorado	148,348 (10.9)	9,539 (0.7)	189,189 (13.9)	1,016,400 (74.5)
Idaho	120,393 (29.6)	203 (0.0)	117,425 (28.9)	168,308 (41.4)
Montana	82,674 (36.7)	2,156 (1.0)	51,220 (22.7)	89,403 (39.7)
Nevada	71,733 (10.1)	25,553 (3.6)	26,522 (3.7)	584,440 (82.5)
New Mexico	108,859 (23.7)	1,002 (0.2)	163,615 (35.6)	185,682 (40.4)
Utah	334,264 (41.2)	57,984 (7.2)	190,754 (23.5)	227,594 (28.1)
Wyoming	50,034 (40.9)	0 (0.0)	69,890 (57.1)	2,425 (2.0)
Pacific	1,020,870 (8.1)	302,329 (2.4)	837,291 (6.6)	10,455,430 (82.9)
Alaska	64,376 (39.1)	340 (0.2)	21,500 (13.1)	78,409 (47.6)
California	523,724 (5.6)	140,404 (1.5)	449,947 (4.8)	8,295,997 (88.2)
Hawaii	90,187 (29.1)	1,765 (0.6)	66,925 (21.6)	150,775 (48.7)
Oregon	119,257 (12.4)	7,410 (0.8)	184,859 (19.3)	646,589 (67.5)
Washington	223,326 (12.6)	152,410 (8.6)	114,060 (6.4)	1,283,660 (72.4)

Driving Distance and Drive Times From Abortion Facilities To The Nearest CPC

We calculated the minimum, mean, median, and maximum driving distances (Table 4) and drive times (Table 5) from abortion facilities to the nearest CPC, nationally and by region, division, and state. Nationally, the minimum driving distance was 0.001 miles (approximately 5 feet) and the

maximum was 119.9 miles. The mean was 3.8 miles and median 2.1 miles. The minimum drive time was 0.004 minutes and the maximum 122.1 minutes, with a mean of 7.8 minutes and median of 5.5 minutes.

In each of the four regions, minimum driving distances were <0.02 miles and minimum drive times were <0.05 minutes or <3 seconds. Median driving distances ranged from 1.6 miles in the Midwest to 2.7 miles in the West. Maximum driving distances ranged from 7.2 miles in the Midwest and 119.9 miles in the West. Median drive times ranged from 3.9 minutes in the Midwest to 6.8 minutes in the West, and maximum drive times ranged from 17.2 minutes in the South to 122.1 minutes in the West.

By division, minimum driving distances were <0.1 miles, and minimum drive times were <0.4 minutes or <24 seconds. Median driving distances were <1 mile in three divisions (West North Central, East South Central, and West South Central) and <2.5 miles in all divisions except the Pacific (2.8 miles). Maximum driving distances ranged from <10 miles in five divisions (East North Central, West North Central, South Atlantic, East South Central, and West South Central) to >90 miles in two divisions (New England, Pacific). Median drive times ranged from 2.1 minutes (West North Central) to 7.3 minutes (Pacific). Maximum drive times ranged from 9.9 minutes in the West North Central division to 121.5 in the Pacific division.

By state, minimum driving distances from abortion facilities to the nearest CPC were <0.01 mile or <52.8 feet in New York, New Jersey, Florida, and Washington. In only DC and five states (North Dakota, Hawaii, Utah, Rhode Island, and South Dakota) were the minimum driving distances >0.5 miles. South Dakota had the highest minimum driving distance of 2.4 miles. Median driving distances ranged from 0.07 miles in Mississippi to 10.8 miles in Maine. Median driving distances were <0.5 miles in eleven states (Mississippi, South Carolina, Indiana, Kansas, Wyoming, West Virginia, Nebraska, Kentucky, Missouri, Pennsylvania, and Arkansas) and >3.0 miles in two states (Oregon and Maine). Maximum driving distances were <1.0 mile in ten states (Missouri, Wyoming, West Virginia, Mississippi, South Carolina, Kansas, Kentucky, North Dakota, Nebraska, and Arkansas) and >13.0 miles in 11 states (New Jersey, Massachusetts, Montana, New Hampshire, Washington, Oregon, Colorado, California, New York, Maine, and Alaska).

By state, minimum drive times from abortion facilities to the nearest CPC ranged from 0.01 minutes or <1 second in New Jersey to 6.3 minutes in South Dakota. Minimum drive times were >1.0 minute in only 13 states (Maine, Rhode Island, Missouri, North Dakota, South Dakota, West Virginia, Kentucky, Oklahoma, Arizona, Idaho, New Mexico, Utah, and Hawaii) and DC. Median drive times ranged from 0.3 minutes in Mississippi to 19.1 minutes in Maine. Median drive times were <2.0 minutes in 11 states (Indiana, Wisconsin, Kansas, North Dakota, South Carolina, West Virginia, Kentucky, Mississippi, Arkansas, Oklahoma, and Wyoming). Median drive times were >9 minutes in only two states (Maine and Oregon) and DC. Maximum drive times ranged from 0.9 minutes in South Carolina to 122.1 minutes in Alaska. Maximum drive times were <5.0 minutes in fourteen states, between 5.0 and <15.0 minutes in 21 states and DC, between 15 and 30 minutes in 10 states, and >30 minutes in five states.

Table 4. Driving distance in miles from abortion facilities to the nearest crisis pregnancy center (CPC) in the United States, 2021.

	Driving Distance to Nearest CPC (Miles)			
	Minimum	Median	Mean	Maximum
United States	0.001	2.069	3.812	119.936
Northeast	0.001	1.660	5.243	90.758
New England	0.060	1.240	7.741	90.758
Connecticut	0.083	1.049	2.169	8.717
Maine	0.394	10.826	20.857	90.758

Massachusetts	0.060	1.309	2.709	13.499
New Hampshire	0.069	1.273	3.340	14.825
Rhode Island	0.925	1.061	1.061	1.197
Vermont	0.134	0.550	0.605	1.146
Middle Atlantic	0.001	1.782	4.064	59.742
New Jersey	0.002	2.227	3.458	13.373
New York	0.001	1.974	4.831	59.742
Pennsylvania	0.081	0.473	1.445	7.779
Midwest	0.015	1.582	1.952	7.239
East North Central	0.015	1.854	2.219	7.239
Illinois	0.076	1.854	2.205	5.901
Indiana	0.028	0.290	0.451	2.000
Michigan	0.015	2.470	2.804	7.239
Ohio	0.046	2.718	2.498	6.702
Wisconsin	0.052	0.522	0.681	1.626
West North Central	0.039	0.554	1.082	3.804
Iowa	0.041	0.853	1.072	2.688
Kansas	0.070	0.318	0.315	0.554
Minnesota	0.069	2.137	1.765	3.804
Missouri	0.471	0.471	0.471	0.471
Nebraska	0.039	0.425	0.459	0.912
North Dakota	0.610	0.610	0.610	0.610
South Dakota	2.387	2.387	2.387	2.387
South	0.004	1.697	2.102	9.286
South Atlantic	0.004	2.221	2.293	9.286
Delaware	0.042	0.869	0.869	1.697
District of Columbia	1.027	1.890	2.034	3.329
Florida	0.004	2.586	2.405	5.735
Georgia	0.035	1.090	1.938	7.411
Maryland	0.029	2.218	2.574	9.286
North Carolina	0.158	1.457	2.163	8.259
South Carolina	0.024	0.166	0.224	0.483
Virginia	0.222	2.723	2.779	5.794
West Virginia	0.351	0.351	0.351	0.351
East South Central	0.053	0.956	1.676	7.246
Alabama	0.092	0.966	1.839	5.199
Kentucky	0.272	0.438	0.438	0.603
Mississippi	0.070	0.070	0.070	0.070
Tennessee	0.053	1.507	2.143	7.246
West South Central	0.035	0.828	1.488	7.997
Arkansas	0.049	0.483	0.483	0.917
Louisiana	0.148	0.694	0.777	1.488
Oklahoma	0.466	0.582	1.242	2.680
Texas	0.035	0.899	1.710	7.997
West	0.009	2.745	4.467	119.936
Mountain	0.085	2.347	4.153	40.578
Arizona	0.184	1.896	1.693	3.328
Colorado	0.085	2.744	6.633	40.578
Idaho	0.433	2.109	2.565	5.612
Montana	0.205	1.750	3.429	13.501
Nevada	0.097	1.951	2.645	6.670
New Mexico	0.137	2.979	2.296	3.957
Utah	0.858	2.927	2.927	4.996
Wyoming	0.339	0.339	0.339	0.339
Pacific	0.009	2.845	4.554	119.936

Alaska	0.194	2.520	26.786	119.936
California	0.027	2.987	3.946	50.663
Hawaii	0.833	1.953	1.817	2.666
Oregon	0.015	4.094	4.418	16.805
Washington	0.009	1.689	4.503	15.836

Table 5. Driving-times in minutes from abortion facilities to the nearest crisis pregnancy center (CPC) in the United States, 2021.

	Drive-Time To The Nearest CPC (Minutes)			
	Minimum	Median	Mean	Maximum
United States	0.004	5.528	7.772	122.058
Northeast	0.004	5.776	10.113	117.400
New England	0.285	4.517	12.784	117.400
Connecticut	0.364	3.559	5.283	12.630
Maine	1.087	19.075	30.216	117.400
Massachusetts	0.285	4.402	6.818	27.511
New Hampshire	0.363	3.873	6.108	20.231
Rhode Island	3.798	4.207	4.207	4.616
Vermont	0.658	2.144	2.111	3.808
Middle Atlantic	0.004	6.242	8.852	78.524
New Jersey	0.010	7.031	7.997	20.127
New York	0.004	6.523	10.127	78.524
Pennsylvania	0.526	2.540	4.112	13.736
Midwest	0.049	3.859	4.762	17.508
East North Central	0.049	4.716	5.262	17.508
Illinois	0.557	4.977	6.027	17.508
Indiana	0.049	0.984	1.335	4.623
Michigan	0.086	5.794	5.829	15.880
Ohio	0.252	7.093	5.550	11.279
Wisconsin	0.165	1.749	2.348	5.730
West North Central	0.089	2.139	3.133	9.886
Iowa	0.277	2.417	3.051	6.930
Kansas	0.594	1.177	1.157	1.680
Minnesota	0.442	6.308	4.772	9.886
Missouri	2.400	2.400	2.400	2.400
Nebraska	0.089	2.139	1.695	2.857
North Dakota	1.960	1.960	1.960	1.960
South Dakota	6.276	6.276	6.276	6.276
South	0.037	4.607	5.062	17.155
South Atlantic	0.037	5.491	5.548	17.155
Delaware	0.152	3.814	3.814	7.475
District of Columbia	5.340	9.547	9.263	12.617
Florida	0.037	6.108	5.576	13.998
Georgia	0.212	2.507	4.533	14.283
Maryland	0.155	5.268	6.180	15.795
North Carolina	0.227	4.217	5.403	17.155
South Carolina	0.232	0.718	0.605	0.865
Virginia	0.889	7.023	6.192	11.198
West Virginia	1.615	1.615	1.615	1.615
East South Central	0.262	2.669	4.176	14.319
Alabama	0.406	4.123	4.556	10.554
Kentucky	1.586	1.935	1.935	2.284
Mississippi	0.320	0.320	0.320	0.320
Tennessee	0.262	4.366	5.096	14.319
West South Central	0.174	2.416	3.398	10.895
Arkansas	0.316	1.446	1.446	2.575

Louisiana	0.825	2.722	2.319	3.410
Oklahoma	1.264	1.633	3.191	6.676
Texas	0.174	2.416	3.751	10.895
West	0.035	6.816	8.775	122.058
Mountain	0.390	5.566	7.482	48.780
Arizona	1.145	4.261	3.935	7.051
Colorado	0.684	6.499	10.438	48.780
Idaho	1.628	4.917	6.266	13.601
Montana	0.390	4.984	6.074	17.317
Nevada	0.860	5.807	6.414	12.101
New Mexico	1.033	6.087	5.351	8.776
Utah	3.084	6.224	6.224	9.363
Wyoming	0.983	0.983	0.983	0.983
Pacific	0.035	7.291	9.133	122.058
Alaska	0.702	4.625	28.956	122.058
California	0.050	7.460	8.578	67.039
Hawaii	2.642	5.982	5.358	7.451
Oregon	0.064	9.347	9.768	22.432
Washington	0.035	4.499	8.957	26.951

Discussion

Principal Results

CPCs aim to attract people who are considering or seeking abortion to influence their pregnancy decisions and options toward childbirth. CPCs have employed many strategies to attract people who are not looking for CPC services to their centers. For decades, one strategy has been to locate near abortion facilities [1, 11]. This study aimed to examine the geographic landscape of CPCs and abortion facilities in the US in 2021. This is the first study to directly examine CPC locations relative to abortion facilities.

We found that the ratio of CPCs to abortion facilities in the US was 3.4 in 2021, similar to the ratio of 3.2 which we reported using the same datasets in 2018 [4]. The number of CPCs was similar in 2018 (pre-COVID-19) and 2021 (active COVID-19 pandemic). Although new centers opened after 2018 and prior to the pandemic and some CPCs benefited from federal government support programs during the pandemic, such as the Paycheck Protection Program [43], and continued to operate during the early years of the pandemic, others closed [44]. The extent to which CPCs re-opened after the height of the pandemic is currently being studied. Consistent with our 2018 results [4], ratios of CPCs to abortion facilities were highest in the South and Midwest regions and the West North Central, East South Central, and West South Central divisions. Similarly, Missouri, Kentucky, Mississippi, and Wisconsin had the highest ratios and California, DC, Maine, Nevada, and New Jersey had the lowest in both 2018 [4] and 2021. In our 2018 analyses [4], we reported that an increasing number of CPCs per state was associated with an increased likelihood of the introduction of legislation to ban all or most abortions [4]. Notably, abortion is currently completely banned in all six states where the ratio of CPCs to abortion facilities was >15.0 in 2021. In addition, the ratio was >7.0 in 13 of the 14 states that currently completely ban abortion.

Nationally, more than half (55%) of block groups were within 15 miles of a CPC and an abortion facility. More than one-quarter (27%) were categorized in the “CPC only” zone, meaning that 82% of all block groups in the US were located within 15 miles of a CPC in 2021. The percentage of block groups within 15 miles of both a CPC and an abortion facility was highest (at least 70%) in the Northeast and West regions and the Middle Atlantic and Pacific divisions, where the number of abortion facilities was highest. Although almost two-thirds (64%) of all abortion facilities nationally were located in the Northeast and West regions and nearly half (47%) in the Middle Atlantic and Pacific divisions [45], <3% block groups in each of these areas were categorized as “abortion facility

only" zones. In all regions, divisions, and all but five states there were more block groups within a 15-mile radius of a CPC than outside of that distance. In 20 states and DC, >50% of block groups were categorized as being within 15 miles of both a CPC and an abortion facility ("dual presence" zone).

Nationally, 60% of women of reproductive age, 45.2 million women, lived within 15 miles of both a CPC and an abortion facility, and 26%, nearly 19.7 million, lived within 15 miles of a CPC only. Less than 15% of women of reproductive age in the US lived more than 15 miles from a CPC. In contrast, less than one-third lived within 15 miles of an abortion facility, and <1%, approximately 625,000 women, lived within 15 miles of an abortion facility only. In all regions, divisions, and states, except North Dakota, more women lived within a 15-mile radius of a CPC than outside of that distance.

CPCs were located exceptionally close to abortion facilities in the US in 2021. In all regions, divisions, and 34 states, the minimum distance from an abortion facility to the nearest CPC was <0.1 miles or <528 feet. The median distance was 2 miles nationally and <2 miles in all regions except the West, all but three divisions, and 33 states and DC. Median drive time to the nearest CPC was 5.5 minutes nationally and <5 miles in two of four regions; all but four divisions, and 31 states.

Limitations

This study is subject to several limitations. In general, spatial analyses that utilize the smallest feasible geographic unit available better limit bias and increase precision. This study utilized block groups given they are the smallest unit for which Census information for gender and age data were available. Block groups may result in small underestimates of abortion accessibility relative to census blocks but are much more precise than county-level analyses and facilitated examination of the number and percentage of women of reproductive age living in each zone in the current study [41]. Further, selection of different driving distances to define each zone and catchment area of reproductive-aged women could influence the findings. We opted to define buffer zones based on a 15-mile radius from CPCs and abortion facilities based on prior research on median distances to abortion facilities nationally in the US. Lastly, the current study does not account for density of CPCs and abortion facilities, number of staff or volunteers, types of services offered, volume and types of or potential targets of advertising, or other factors that may influence individual decision-making about health-seeking. Despite limitations, the study offers significant strengths, including: utilization of scientifically rigorous national data sources; analyses unrestricted to state boundaries, in line with behaviors of people seeking health services; advanced spatial methods that produced estimates of driving distances and drive times; and novel approaches to examine an under-studied health topic of critical importance.

Comparison with Prior Work

Although other researchers have examined geographical access to abortion facilities in the US [12, 36], distances patients travel to obtain abortion care nationally [12, 42], and compared categorizations of drive times to abortion facilities and CPCs [46], this is the first study to directly examine relative geographic access to CPCs and abortion facilities using the lens of CPCs' long-standing geographic tactic of locating near abortion facilities. In addition, this is the first published study to report the proximity of CPCs to abortion facilities nationally.

Only one previous study has examined populations in proximity to CPCs and abortion facilities [46]. The study utilized a CPC database that included shelters, thrift shops, adoption agencies, and administrative offices that did not offer pregnancy testing and information designed to influence pregnancy options toward childbirth. The study also compared relative distances to the nearest CPC and abortion facility based on 30- and 60-mile drive time categorizations for the total US population, including all genders, children, and seniors. The current study utilized a public health approach, concentrating on centers that most directly aimed to attract people seeking or considering abortion care; it was limited to anti-abortion "pregnancy centers" that offered free pregnancy testing (e.g.,

excluded thrift stores and administration offices) and excluded adoption agencies and maternity homes [46]. Thus, findings from this study are presumed to be both more precise and conservative than previous research.

Conclusions

Despite their risks to individual, family, and public health, this study's findings suggest that, prior to the *Dobbs* decision, CPCs' tactic of locating near abortion facilities was largely realized, and the centers were "positioned" to attempt to intercept people considering and seeking abortion, given their relative numbers and locations, and close proximity to abortion facilities. Estimates have likely changed drastically since the *Dobbs* decision as some states banned or severely restricted abortion and increased funding for CPCs and other states have passed protections and expanded abortion access. The number and locations of CPCs post-*Dobbs* are currently being studied. It is possible but remains to be seen if CPCs proliferated in the states that increased funding for the centers and proliferated in states where abortion remains legal and protected.

Research shows that many people seek sources of sexual and reproductive healthcare online, including abortion [47]. The vast majority (>96%) of CPCs advertise to potential clients online [48]. Currently, some states direct people seeking abortion to CPCs through mandated counseling. The federal government provides referrals to CPCs through its online HIV and sexually transmitted infection (STI) service locators powered by the Centers for Disease Control and Prevention's (CDC's) contract with the National Prevention Information Network (NPIN) [48]. Given CPCs' health risk and the vast majority of women in the US reside within 15 miles of a CPC, location-aware digital tools, such as Yelp, which currently identifies CPCs, and tools with location-based filters, such as CPC Map [4], created with a primary goal of helping people seeking health services identify CPCs, and can be valuable for assisting people looking for safe, quality sexual and reproductive healthcare identify the centers. In addition, public health and medical professionals and advocates should make themselves aware of CPCs operating in their areas and help educate the public and patients about CPCs and their potential harms and where to find safe, quality sources of care and information [5]. Tailored programming to raise awareness about CPCs based on geography may help people avoid healthcare delays and adverse outcomes.

CPCs continue to operate largely unregulated [6]. Identical federal legislation to regulate CPCs from providing inaccurate health information and engaging in deceptive advertising was introduced into the House and Senate in 2022 but has not been passed [49, 50]. Efforts to regulate CPCs at the state level have not been entirely successful. For example, a law passed in California to require CPC post signage was overturned by the US Supreme Court, and the state of Illinois agreed not to enforce a law that imposed fines for CPCs providing misleading health information after a federal judge ruled in favor of CPCs' First Amendment free speech rights [51, 52]. Connecticut in 2021 and Vermont in 2023 passed laws barring CPCs from engaging in false and misleading advertising [26, 34]. Some cities have passed local ordinances to regulate CPCs and to prevent them from locating in their areas and have made zoning decisions to prevent CPCs from locating near abortion facilities [53-55].

Given few currently available regulatory strategies and increased funding for CPCs in many states since *Dobbs*, to minimize harm, public health and medical professionals, advocates, researchers, funders, and government officials should prioritize: 1) raising awareness about CPCs, including awareness about local CPCs and safe sources of healthcare; 2) urging governments to refrain from supporting, referring to, and funding CPCs; 3) urging government regulation of CPCs; and 4) identifying CPCs' strategies and tactics, especially post-*Dobbs* -- in addition to facilitating, providing, and advocating for safe, respectful, accessible, appropriate, and effective sexual and reproductive healthcare for all.

Conflicts of Interest

None declared

Abbreviations

CDC: Centers for Disease Control and Prevention
CPC: Crisis Pregnancy Center
DC: District of Columbia
HIV: Human Immunodeficiency Virus
NPIN: National Prevention Information Network
STI: Sexually transmitted infection
US: United States

References

1. Hartshorn MH. Foot Soldiers Armed with Love: Heartbeat International's First 40+ Years: CreateSpace Independent Publishing Platform; 2014. ISBN: 1503222667.
2. Kelly K. In the name of the mother: Renegotiating conservative women's authority in the crisis pregnancy center movement. Signs: Journal of Women in Culture and Society. 2012; 38(1):203-30.
3. Hussey LS. Crisis pregnancy centers, poverty, and the expanding frontiers of American abortion politics. Politics & Policy. 2013; 41(6):985-1011.
4. Swartzendruber A, Lambert DN. A web-based geolocated directory of crisis pregnancy centers (CPCs) in the United States: Description of CPC Map methods and design features and analysis of baseline data. JMIR Public Health and Surveillance. 2020; 6(1):e16726.
5. Swartzendruber A, English A, Greenberg K, Murray P, Freeman M, Upadhya K, et al. Crisis pregnancy centers in the United States: Lack of adherence to medical and ethical practice standards; A joint position statement of the Society for Adolescent Health and Medicine and the North American Society for Pediatric and Adolescent Gynecology. Journal of Adolescent Health. 2019; 65(6):821-4. doi: 10.1016/j.jadohealth.2019.08.008.
6. Bryant AG, Swartz JJ. Why crisis pregnancy centers are legal but unethical. AMA Journal of Ethics. 2018; 20(3):269-77. doi: 10.1001/journalofethics.2018.20.3.pfor1-1803.
7. Kortsmit K, Nguyen AT, Mandel MG, Hollier LM, Ramer S, Rodenhizer J, et al. Abortion surveillance — United States, 2021. MMWR Surveillance Summaries. 2023; 72(9):1-29. doi: 10.15585/mmwr.ss7209a1.
8. Baggett L. New data reveals CPCs are spreading, casting wider net to attract non-pregnant clients. https://publichealth.uga.edu/new-data-reveals-cpcs-are-spreading/: University of Georgia College of Public Health; 2022.
9. Kindy K. Partisan battle grows over state funding for antiabortion centers. The Washington Post. September 14, 2023.
10. Sherman C. Anti-abortion centers raked in $1.4bn in year Roe fell, including federal money. The Guardian. February 12, 2024.
11. Lin V, Dailard C. Crisis pregnancy centers seek to increase political clout, secure government subsidy. The Guttmacher Report on Public Policy. 2002; 5(2):4-6.
12. Bearak JM, Burke KL, Jones RK. Disparities and change over time in distance women would need to travel to have an abortion in the USA: A spatial analysis. The Lancet Public Health. 2017; 2(11):e493-e500. doi: 10.1016/S2468-2667(17)30158-5.
13. Kruesi K. Millions in tax dollars flow to anti-abortion centers in US. AP News. February 5, 2022.
14. Vollers AC. Abortion-ban states pour millions into pregnancy centers with little medical care. Stateline. August 24, 2023.
15. Pregnancy resource act, HB 356, Alabama Legislature (2024).
16. TN Office of the Governor. Gov. Lee launches Tennessee strong families grant program. 2023 [updated September 13, 2023]; Available from: https://www.tn.gov/governor/news/2023/9/13/gov--lee-launches-tennessee-strong-families-grant-program-.html.
17. Support for mothers and babies act, HB 2002, West Virginia Legislature (2023).
18. Pregnancy resource act, HB 1685, Mississippi Legislature (2022).
19. Senate Bill 2 Fiscal Matters (SB 2), Indiana General Assembly Special Session (2022).
20. Pregnancy and parenting support, SB 300, The Florida Senate (2023).
21. Health and human services appropriations bill, HF2578, Iowa General Assembly (2023).
22. Establishes a tax credit for certain maternal wellness center, SB 41, Louisiana Senate (2023).
23. State of California Office of the Attorney General. Open Letter from Attorneys General Regarding CPC Misinformation and Harm, October, 23 2023. https://oag.ca.gov/system/files/attachments/press-docs/Open%20Letter%20re%20Crisis%20Pregnancy%20Centers%20FINAL.pdf2023.
24. Illinois State Government. Gov. Pritzker signs Bill strengthening protections against

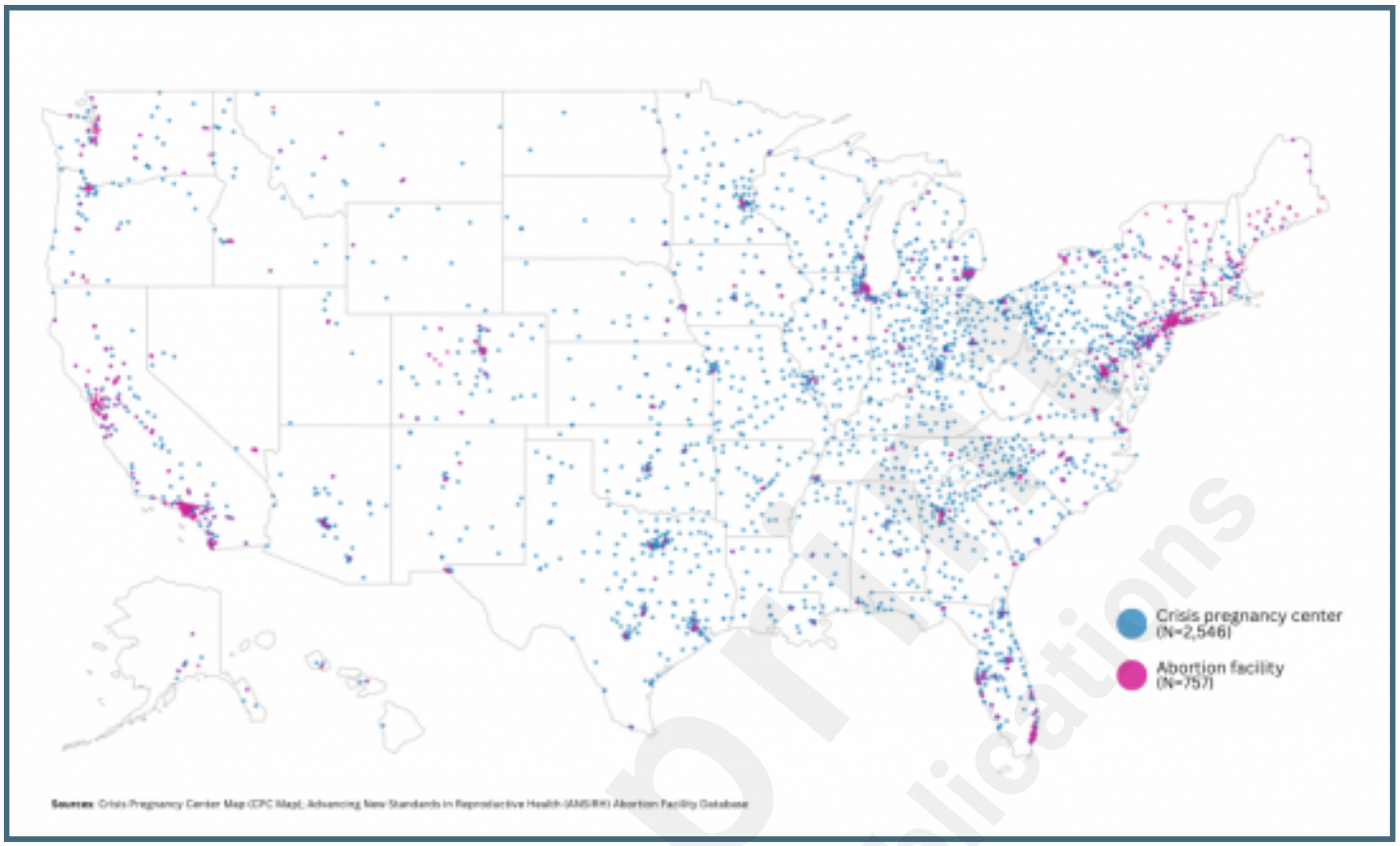
misinformation at ‘crisis pregnancy centers'. 2023 [updated July 27, 2023]; Available from: https://www.illinois.gov/news/press-release.26779.html.
25. Deceptive trade practice pregnancy-related service, SB23-190, Colorado General Assembly (2023).
26. An act relating to access to legally protected health care activity and regulation of health care providers, Act 15, S. 37, General Assembly of the State of Vermont (2023).
27. Schultz B, Kruesi K. After nearly 30 years, Pennsylvania will end state funding for anti-abortion counseling centers. AP News. September 1, 2023.
28. Rodriguez O. California sues anti-abortion organizations for unproven treatment to reverse medication abortions. AP News. September 21, 2023.
29. Office of the Solicitor General. Consumer alert: Understanding the difference between “crisis pregnancy centers” and licensed facilities that provide reproductive health. https://www.azag.gov/sites/default/files/2024-03/Consumer%20Alert%20Crisis%20Pregnancy%20Centers.pdf: Arizona Attorney General Kris Mayes; 2024.
30. State of California Office of the Attorney General. Attorney General Bonta issues Consumer Alert warning Californians that crisis pregnancy centers do not offer abortion or comprehensive reproductive care. 2022 [updated June 1, 2022]; Available from: https://oag.ca.gov/news/press-releases/attorney-general-bonta-issues-consumer-alert-warning-californians-crisis.
31. Office of Massachusetts Attorney General Maura Healey. Consumer advisory: Crisis pregnancy centers. 2022; Available from: https://www.mass.gov/doc/consumer-advisory-crisis-pregnancy-centers-english/download.
32. The Office of Minnesota Attorney General Keith Ellison. Know your rights to abortion and reproductive healthcare in Minnesota. 2022; Available from: https://www.ag.state.mn.us/abortionrights/.
33. New Jersey Division of Consumer Affairs. Consumer alert: Crisis pregnancy centers. 2022; Available from: https://www.nj.gov/oag/newsreleases22/2022-1207_crisis-pregnancy-centers.pdf.
34. An Act Concerning Deceptive Advertising Practices of Limited Services Pregnancy Centers, CT SB835, Connecticut General Assembly (2021).
35. Brown BP, Hebert LE, Gilliam M, Kaestner R. Distance to an abortion provider and its association with the abortion rate: A multistate longitudinal analysis. Perspectives on Sexual and Reproductive Health. 2020; 52(4):227-34. doi: https://doi.org/10.1363/psrh.12164.
36. Cartwright AF, Tumlinson K, Upadhyay UD. Pregnancy outcomes after exposure to crisis pregnancy centers among an abortion-seeking sample recruited online. PLOS ONE. 2021; 16(7):e0255152. doi: 10.1371/journal.pone.0255152.
37. Swartzendruber A, Lambert D. Crisis Pregnancy Center Map, 2021. http://www.crisispregnancycentermap.com2021.
38. Advancing New Standards in Reproductive Health (ANSIRH). Abortion Facility Database. University of California San Francisco. https://abortionfacilitydatabase-ucsf.hub.arcgis.com/2021.
39. U.S. Census Bureau. Cartographic Boundary Files. 2021 [cited 2023 July 13]; Available from: https://www.census.gov/geographies/mapping-files/time-series/geo/cartographic-boundary.2021.html#list-tab-1883739534.
40. U.S. Census Bureau. 2020 Census demographic and housing characteristics. 2020 [cited 2023 July 14]; Available from: https://data.census.gov/table.
41. Seymour JW, Milechin D, Upadhyay UD, Wise LA, Rudolph AE. Improving our estimates: Assessing misclassification of abortion accessibility in the United States. Annals of Epidemiology. 2022; 76:98-107. doi: https://doi.org/10.1016/j.annepidem.2022.10.012.
42. Fuentes L, Jerman J. Distance traveled to obtain clinical abortion care in the United States and reasons for clinic choice. Journal of Women's Health. 2019; 28(12):1623-31. doi: 10.1089/jwh.2018.7496.
43. Glenza J. Anti-abortion centers receive at least $4M from US coronavirus bailout. The Guardian. August 3, 2020.
44. Murtha T, Clark KC, Hall CL, Basgall WL, Poyer AC, McKenna MJ, et al. Essential services?

Operating status of crisis pregnancy centres in the United States during the COVID-19 pandemic. BMJ Sexual & Reproductive Health. 2021; 47(4):304-5. doi: 10.1136/bmjsrh-2021-201208.
45. Schroeder R, Munoz I, Kaller S, Bergla N, Upadhyay U. Trends in abortion care in the United States, 2017-2021. https://www.ansirh.org/sites/default/files/2022-06/Trends%20in%20Abortion%20Care%20in%20the%20United%20States%2C%202017-2021.pdf: University of California, San Francisco, 2022.
46. Thomsen C. Animating and sustaining outrage: The place of crisis pregnancy centers in abortion justice. Human Geography. 2022; 15(3):300-6. doi: 10.1177/19427786221076154.
47. Upadhyay UD, Jovel IJ, McCuaig KD, Cartwright AF. Using Google Ads to recruit and retain a cohort considering abortion in the United States. Contraception. 2020; 2:100017. doi: 10.1016/j.conx.2019.100017.
48. Swartzendruber A, Solsman A, Lambert DN. The availability of HIV and sexually transmitted infection testing and treatment services at crisis pregnancy centers in the United States. Sexually Transmitted Diseases. 2021; 48(10):738-47. PMID: 33783415. doi: 10.1097/olq.0000000000001406.
49. Stop Anti-Abortion Disinformation (SAD) Act, H.R. 8210, United States House of Representatives, 117th Congress Sess. (2022).
50. Stop Anti-Abortion Disinformation (SAD) Act, S.4469, United States Senate, 117th Congress Sess. (2022).
51. National Institute of Family and Life Advocates, dba NIFLA, et al v. Becerra, Attorney General of California, et al. Supreme Court of the United States; 2018.
52. Iqbal M. Illinois agrees to stop enforcing a controversial new law cracking down on crisis pregnancy centers. WBEZ Chicago. December 13, 2023.
53. Hudson M. Mayor Buttigieg vetoes zoning decision for Women's Care Center. ABC 57. April 27, 2018.
54. Crisis Pregnancy Centers, S. 5.64, City of Cambridge Massachusetts (2023).
55. Deceptive advertising practices of limited services pregnancy centers, Ordinance No. 2022-03 Ch. 6, Article VI, City of Somerville (2022).

Supplementary Files

Figures

Crisis pregnancy centers (CPCs) and abortion facilities in the United States, 2021.



United States Census block groups within crisis pregnancy center (CPC) and abortion facility presence zones, 2021.