Letters

RESEARCH LETTER

Change in Distance to Nearest Facility and Abortion in Texas, 2012 to 2014

Texas House Bill 2, enacted in 2013, was one of the most restrictive abortion laws in the country before the US Supreme Court ruled in June 2016 that 2 provisions were unconstitutional.

Following introduction and passage of the bill, the number of Texas facilities providing abortions declined,[1] from 41 in 2012 to 17 in June 2016. Women whose nearest clinic closed traveled farther to access abortion services than those whose nearest clinic remained open.[2] Overall, abortions declined 14% in Texas between 2013 and 2014.[3]

We hypothesized that the decline in abortions would be greater as the change in distance to the nearest open facility increased.

Methods | This study was approved by the institutional review board of the University of Texas at Austin. Since 2012, we have tracked the number and location of facilities providing abortions in Texas.[1] Information on the location of abortion-providing facilities in Arkansas, Louisiana, New Mexico, and Oklahoma was also obtained. County-level data on abortions received by Texas residents both in and out of state in 2012 and 2014 were obtained from the website of the Department of State Health Services.[3] The distance from the centroid of each Texas county to the nearest open facility providing abortions in 2012 and 2014 was calculated using the geodist module in Stata (StataCorp), version 13. Any facility open for at least 6 months in a year was considered open.

Counties were categorized according to whether they had a facility providing abortions in 2014. Those that did not were grouped into 5 categories based on change in distance

Figure. Change in Travel Distance From a Texas County to the Nearest US Facility Offering Abortion, 2012 to 2014

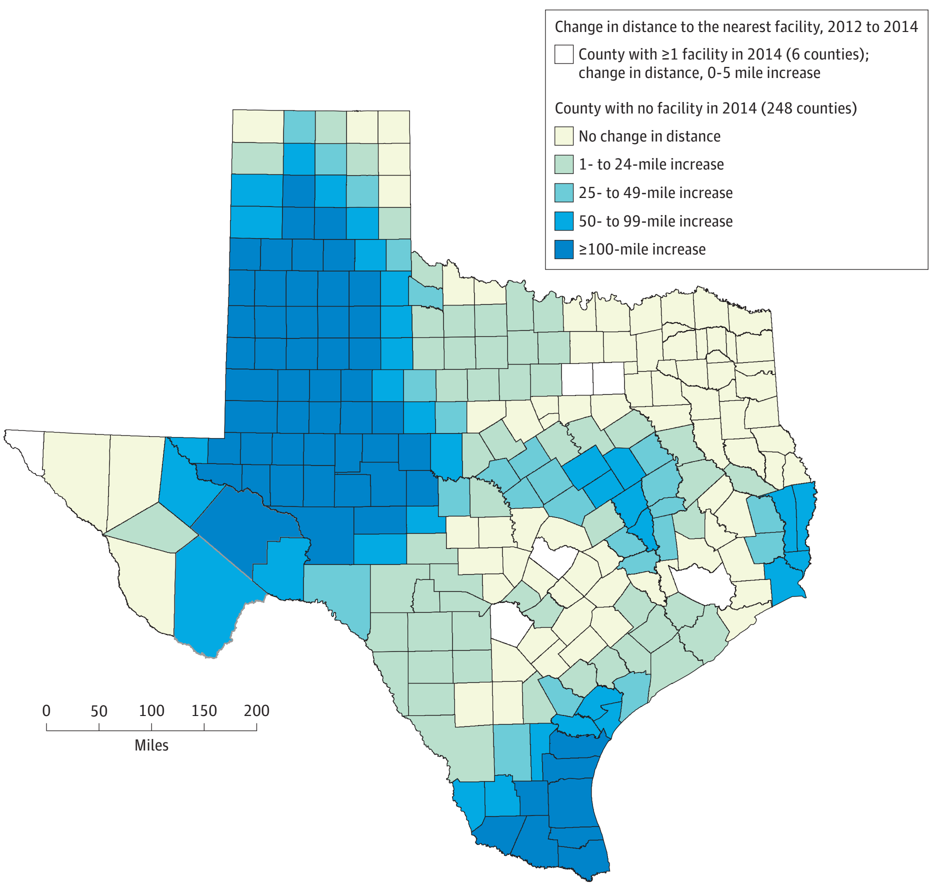

Table. Change in Number of Abortions to Residents of Texas Counties by Change in Distance to Nearest US Facility Providing Abortion, 2012 to 2014

	No. of Counties	No. of Abortions by Year		Decrease in No. of Abortions, % (95% CI)[c]
		2012[a]	2014[b]	
County had ≥1 open facility in 2014	6	43 304	36 421	15.9 (14.8 to 17.0)
Change in distance to nearest facility between 2012 and 2014 in counties with no facility in 2014, mile				
0	79	8627	8516	1.3 (−1.5 to 4.0)
1-24	55	3987	3479	12.7 (9.0 to 16.4)
25-49	25	1671	1249	25.3 (20.1 to 30.4)
50-99	33	2538	1633	35.7 (31.9 to 39.4)
≥100	56	4589	2279	50.3 (48.0 to 52.7)
Total[d]	**254**	**64 716**	**53 577**	17.2 (16.3 to 18.1)

[a] Column does not include 1382 abortion cases with missing information on Texas county of residence.

[b] Column does not include 305 abortion cases with missing information on Texas county of residence.

[c] *P* value for trend for percentage of decrease in number of abortions among counties with no open facility in 2014 was less than .001. The 95% CIs were estimated using the delta method assuming a binomial distribution, a constant proportion of pregnancies ending in induced abortion across groups, and no change in the number of pregnancies between 2012 and 2014.

[d] Indicates total No. of counties in Texas and total No. of abortions for 2012 and 2014.

to the nearest facility, ranging from 0 to 100 miles or greater. For each category, the percentage of change in the number of abortions occurring in 2012 and 2014 to residents of those counties was calculated along with 95% CIs[4]; *P* value for trend was assessed using linear regression in Stata. Two-sided *P* values less than .05 were considered significant. Counties with an open facility in 2014 were not included because distance to the nearest facility was not a comparable determinant of access.

Results | In 2012, 66 098 abortions were performed among Texas residents (97 out of state). In 2014, 53 882 abortions were performed among Texas residents (754 out of state). Of 254 counties, there were 41 facilities in 17 counties in 2012 and there were 21 facilities in 6 counties in 2014.

Counties in West and South Texas had the greatest change in distance to a facility (**Figure**). The mean distance change was 51 miles (SD, 68) and the median change was 13 miles (interquartile range, 0-85). Counties that had an open facility in 2014 (all in large metropolitan areas) had minimal distance changes (0-5 miles) and a 15.9% (95% CI, 14.8%-17.0%) decline in abortions (**Table**).

Among counties without an open facility in 2014, the decline in abortions increased as the distance change to the nearest facility increased ($P < .001$ for trend). Counties with no facility in 2014 but no change in distance to a facility between 2012 and 2014 had a 1.3% (95% CI, −1.5% to 4.0%) decline in abortions. When the change in distance was 100 miles or more, the number of abortions decreased 50.3% (95% CI, 48.0% to 52.7%).

Discussion | In Texas counties without a facility in 2014, an increase in distance to the nearest facility was associated with a decline in abortions between 2012 and 2014. However, abortions also declined among women in counties with an open facility in 2014, indicating that there were other factors related to the decrease, such as limited capacity to meet demand for services.[5] In counties with no facility and no change in distance, the decline in abortion was minimal. Many of these counties were in East Texas where family planning services were disrupted,[6] likely leading to increased demand for abortion that offset the increased capacity barriers women faced.

Limitations include that official statistics may underestimate out-of-state abortions and not capture abortions among women who self-induced or traveled to Mexico for care. Distance to the nearest facility may not reflect actual distance traveled for women seeking second-trimester or medication abortion, which are not available at every facility.

Daniel Grossman, MD
Kari White, PhD, MPH
Kristine Hopkins, PhD
Joseph E. Potter, PhD

Author Affiliations: Advancing New Standards in Reproductive Health, University of California-San Francisco, San Francisco (Grossman); School of Public Health, University of Alabama at Birmingham, Birmingham (White); Population Research Center, University of Texas at Austin, Austin (Hopkins, Potter).

Corresponding Author: Daniel Grossman, MD, Advancing New Standards in Reproductive Health, University of California-San Francisco, 1330 Broadway, Ste 1100, Oakland, CA 94612 (daniel.grossman@ucsf.edu).

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Acquisition, analysis, or interpretation of data: All authors.
Drafting of the manuscript: Grossman, White, Potter.
Critical revision of the manuscript for important intellectual content: White, Hopkins, Potter.
Statistical analysis: White, Potter.
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COMMENT & RESPONSE

Interventions to Lower Low-Density Lipoprotein Cholesterol and Cardiovascular Risk

To the Editor Dr Silverman and colleagues[1] examined the relationship between lowering low-density lipoprotein cholesterol (LDL-C) and cardiovascular risk reduction among different statin and nonstatin therapies. We think that further discussion about the statin therapeutic group is needed.

In the study,[1] the entire statin class was investigated without distinguishing the different types and doses of statin therapy administered. This approach might be overly simplistic. The number of different statins is large, with variation in the active compounds, associated effects, and therapeutic doses. Several reports indicate that there is a gradient in the cardiovascular risk reduction as well as the safety profile across different types and doses of statins, with lower efficacy associated with moderate doses as opposed to more intensive dose therapy.[2,3] The inclusion of lower doses might blunt a more robust effect of high-dose statin therapy on cardiovascular outcome reduction.

Moreover, this type of meta-analysis does not fully take into account the differences in the length of the individual trials with respect to cardiovascular benefits. Some of the nonstatin lipid-lowering trials[4,5] reported benefits only after 7.4 years and 9.7 years, whereas most of the statin trials showed benefits at much earlier time points. These findings suggest that the beneficial effects of statins occur more rapidly and may not be entirely dependent on cholesterol reduction but on pleiotropic effects, which are different across the various types (lipophilic vs hydrophilic) of statins administered.

Eliano P. Navarese, MD, PhD
Michalina Kolodziejczak, MD
Stefano De Servi, MD

Author Affiliations: Department of Cardiology, Multimedica IRCSS, Milan, Italy (Navarese, De Servi); Collegium Medicum in Bydgoszcz, University of Nicolaus Copernicus, Toruń, Poland (Kolodziejczak).

Corresponding Author: Eliano P. Navarese, MD, PhD, Department of Cardiology, IRCSS Multimedica, Milanese 300, Milan, Italy (elianonavarese@gmail.com).

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To the Editor The article by Dr Silverman and colleagues[1] discussed comparatively similar benefits of all currently available LDL-C–lowering therapies, particularly those that lower LDL-C by upregulation of LDL-C receptors or by decreasing LDL-C production, on major cardiovascular events.

When LDL-C–lowering therapies are prescribed, whether for primary or secondary prevention, it typically means long-term therapy (and in most cases a lifelong commitment) to achieve the anticipated benefits of preventing major cardiovascular events. Therefore, careful consideration of the safety profile of all available therapies and their interactions with other medications, which many patients with moderate to high cardiovascular risk are taking for comorbidities, becomes important, especially when their effectiveness is comparable.

The meta-regression analysis compared the relative benefits of all LDL-C–lowering therapies but did not compare their safety profiles. Although each therapy has its own set of adverse effects, making it difficult to compare them across a range of therapies, at least the proportion of patients who experienced adverse effects from each therapy could have been compared. This information would have provided objective evidence of the relative risk and benefit of each LDL-C–lowering therapy to help the patient and the clinician make a fully informed decision.

Kamran Zafar, MD
Maimoona Inayat, MD

Author Affiliations: Department of Medicine, Greenville Health System, Greenville, South Carolina (Zafar); MedStar Union Memorial Hospital, Baltimore, Maryland (Inayat).

Corresponding Author: Kamran Zafar, MD, Department of Medicine, Greenville Health System, 701 Grove Rd, Greenville, SC 29605 (kamranzafar@hotmail.com).