



Methodological Advances in Population Health: Policy Variation, Geospatial Access, and Target Trial Emulation with Applications to Abortion

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Preface

Geographic access to comprehensive reproductive healthcare is limited for Native peoples, contributing to substantial health inequities, particularly in abortion access.^{1,2} Unlike other populations in the US, Native peoples have *sui generis* healthcare, meaning its provision is obligated from the federal government through treaty, trust, and statutory law, most prominently operationalized through the Indian Health Service (IHS).¹ Chronic underfunding of the IHS, coupled with restrictive federal policies, have resulted in longstanding gaps in the availability and quality of reproductive healthcare for Native communities.²

The 1976 Hyde Amendment is one such policy. Its restrictions on abortion funding, alongside inconsistent implementation within IHS since 1982, have constrained access to services and weakened healthcare infrastructure for Native populations.^{2,3} Available evidence suggests that IHS has been historically unequipped to provide abortions under any circumstances, with few facilities providing abortion services or referrals—even under the Hyde exceptions established in 1993 (i.e., pregnancies resulting from sexual violence or those threatening the pregnant person’s life).² These gaps are particularly consequential given the disproportionate burden of reproductive health inequities, including sexual violence victimization and maternal morbidity and mortality experienced by Native populations. Native women experience the highest prevalence of sexual violence of any racial or ethnic group in the US; national estimates indicate that more than four in five Native women have experienced violence in their lifetime.^{4,5} Compounding this, until recently, Tribal nations were largely unable to prosecute non-Native perpetrators—who constitute the majority of offenders—due to the 1978 Supreme Court ruling of *Oliphant v. Suquamish Indian Tribe*.⁶ Although the 2013 *Violence Against Women Reauthorization Act* expanded Tribal jurisdiction in limited circumstances, challenges remain.⁵ In parallel, Native women experience some of the highest rates of maternal morbidity and mortality in the US.^{7,8} Together, these inequities among others reflect unmet federal obligations and persistent structural barriers to comprehensive, co-located reproductive healthcare.

At the same time, crisis pregnancy centers (CPCs), also referred to as anti-abortion centers, have expanded substantially across the US. There are an estimated 2500 operational CPCs, seeing over 1 million patients annually compared to about 800 operational abortion clinics.⁴ CPCs typically outnumber abortion clinics by a ratio of 3:1; this is even more pronounced in the several states that use taxpayer dollars to sustain and promote CPC operations (e.g., in Pennsylvania the ratio is 9 to 1, and in Minnesota the ratio is 11:1).⁹ Some states fund CPCs through the Temporary Assistance for Needy Families (TANF) program, an annual block grant from the Federal government

intended to assist state residents below the poverty line and typically do so by diverting funds from evidence-based abortion and related family planning care operations^{1,4,9} CPCs also received funding from a variety of private donors.

CPCs often present as medical clinics despite typically lacking medical licensure.^{11,12} As a result, they are not subject to the Health Insurance Portability and Accountability Act (HIPAA), which means they are not required by law to maintain patient confidentiality. Furthermore, following the 2018 US Supreme Court ruling *Anonymous a (National Institute of Family and Life Advocates v. Becerra 2018)*, CPCs are not required to disclose their lack of medical licensure.^{11,12} The limited regulation and surveillance strategies to mitigate the harmfulness of CPCs complicate efforts to assess and mitigate potential harms, leading some states to rely on costly public awareness campaigns (e.g., One million dollar initiative in Massachusetts).^{11–14}

Moreover, a growing body of research indicates that CPCs delay or deter access to evidence-based medical care, stigmatize reproductive health services and disseminate misinformation with negative individual and public health consequences.^{4,12,14–19} One study found that individuals who had visited a CPC had over twice the odds of being delayed and still seeking an abortion compared with those who had not (aOR, 2.26; 95% CI, 1.37–3.73).¹⁹ Although many CPC websites claim to have abortion information available, studies have documented the dissemination of inaccurate claims by CPCs.^{17,18,20} Such claims have linked abortion to adverse health outcomes, adverse mental health sequelae, breast cancer, and future infertility—assertions that have been discredited by robust evidence demonstrating the overall safety of abortion; the overall risk of having a complication at the time of an abortion is similar to that incurred during outpatient dental procedures.²¹ CPCs have also promoted practices that are not evidence-based, such as false, unproven, and potentially harmful interventions like “abortion pill reversal” or falsely marketing ultrasounds (e.g., purport ultrasounds can predict miscarriage).^{4,15,22}

¹ Texas provides a salient example.¹⁰ The state’s Alternatives to Abortion (A2A) program, established in 2005, was initially funded by diverting Temporary Assistance for Needy Families (TANF) dollars away from the family planning budget, which supports contraception, reproductive cancer screening, and STI services for low-income individuals. Over time, the program expanded substantially, with increasing reliance on state general revenue and sustained growth in total funding. This expansion occurred alongside major reductions in publicly funded family planning services, including a two-thirds budget cut in 2011 and the exclusion of providers affiliated with abortion care from state programs, which contributed to clinic closures and reduced access to care. As of 2022, Texas had 198 CPCs—the highest number of any state—reflecting a broader shift in public investment away from comprehensive reproductive health services and toward non-clinical programs. By recent biennia, state investment in A2A programs—largely supporting non-clinical services—has grown rapidly and approached funding levels for women’s health programs that provide evidence-based clinical care. For instance, from 2024–2025, A2A received about 140.0 million dollars while women’s health programs in the state received 222.9 million dollars.

Emerging evidence suggests that Native peoples may be disproportionately exposed to CPCs while simultaneously facing reduced access to abortion care. A census tract–based geospatial analysis found that Native populations more than any other race/ethnicity group lived closer to a CPC than to an abortion clinic—affecting approximately 50% of Native individuals prior to *Dobbs v. Jackson Women’s Health Organization (Dobbs)* and a projected 70% following the decision.²³

These inequities are shaped in part by the distinct geographies of Native lands. Although many Native individuals live in urban areas, approximately 68% reside on or near Native lands, where access to comprehensive reproductive healthcare services is often most limited.²⁴ Prior research demonstrates substantial geographic barriers to care: for example, 69.3% of Native lands are located more than 60 minutes from services for sexual violence victimization.²⁵ Similar patterns exist for abortion access. Building on this, our prior work demonstrated that travel times to abortion facilities are substantially longer for individuals on Native lands than for the general population.²⁶ In the contiguous United States, the median (IQR) travel time after *Dobbs* was 74 minutes from Native lands compared with 17 minutes from census tracts overall; even prior to *Dobbs*, the median travel time from Native lands was 65.5 minutes.^{26,27} These inequities underscore limited geographic access to reproductive healthcare that long predates recent policy changes.^{1,28}

Even so, Native peoples have continued to lead reproductive justice efforts, including expanding formative research and needs assessments, which are increasingly supported by governmental organizations. For example, the Navajo Nation Maternal Child Health Needs Assessment—conducted by the Arizona Department of Health Services, the Navajo Nation Epidemiology Center, and IHS—have named access to family planning services as a priority and transportation as a key barrier.^{29,30}

In this context, the proximity of CPCs may further shape inequities, particularly for individuals residing on Native lands, by interfering with access to evidence-based abortion services. Accordingly, we conducted a cross-sectional geospatial analysis to examine the proximity of crisis pregnancy centers to Native lands compared with abortion clinics in the US.

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