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Title X improves access to most and moderately effective contraception in US safety net clinics, 2016–2018

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Abstract

Community health centers (CHCs) are a crucial source of care for reproductive-aged women. Some CHCs receive funding from the federal Title X program to provide family planning services. We described provision of most effective (intrauterine devices and implants) and moderately effective (short acting hormonal methods) contraceptive methods in a large network of 384 CHCs across 20 states, 2016–2018. Title X clinics provided more most and moderately effective contraception at all time points and for all age groups (adolescent, young adult, adult). Title X clinics provided 52% more (aRR=1.52, 95% CI: 1.23, 1.88) most effective contraceptives to women at risk of pregnancy than those not funded by Title X. This finding was especially notable for adolescents (58% more; aRR=1.58, 95% CI: 1.24, 2.02). Title X clinics play a key role in access to effective contraception across the United States safety net. Strengthening the Title X program should continue to be a policy priority for the Biden-Harris administration.

INTRODUCTION

Nearly half (45%) of the over 6 million annual pregnancies in the United States (US) are unintended(1); reduction of unintended pregnancy is a national public health priority for both individual and community health(2, 3). Unintended pregnancy is associated with negative health and economic consequences(4), including delays in initiating prenatal care, reduced likelihood of breastfeeding, increased risks of maternal depression and intimate partner violence during pregnancy(4, 5) and lower educational and economic achievement(6, 7). Disparities in who experiences unintended pregnancy are widening, becoming more concentrated among adolescents, women of color, and women living in poverty(1). Access to effective contraception is key to promoting reproductive autonomy by ensuring individuals can realize their decisions about if and when to become pregnant(8).

Community health centers (CHCs), which include Federally Qualified Health Centers (FQHCs), rural health centers, and county health departments are a crucial source of care for low-income reproductive-aged women(9). CHCs meet the needs of their community by providing care regardless of insurance or documentation status, or ability to pay. As part of the obligations under Section 330(10), FQHCs must provide or arrange for access to voluntary family planning and reproductive health services. However, individual FQHCs vary considerably in the scope and quality of family planning services they deliver(11, 12), and barriers persist to delivering contraceptive services, especially the most effective methods, long-acting reversible contraception (LARC; IUDs and implants,). These barriers include difficulties stocking devices on site, making provision of same-day LARC provision challenging(13–16); the cost of contraceptive care, especially challenging when serving low-income and uninsured populations(13, 17, 18); and lack of staff trained in LARC insertions and removals(13–19).

Some CHCs participate in the federal Title X family planning program, which provides supplemental funding for clinics to provide contraceptive services and supplies, sexually transmitted infection (STI) testing and treatment, and related sexual and reproductive healthcare(20). The Title X program is a key payor for contraceptive services for low-income individuals(21). In contrast to Section 330 funding, Title X funding requires that clinics provide on-site access to a broad range of FDA-approved contraceptive methods(22) and adhere to national family planning quality guidelines(23). Title X provides targeted funding, including site-level incentives to stock LARC devices by covering up-front costs, which facilitates same-day provision(13); and training for staff to ensure appropriate staffing to provide a wide range of methods. Health centers that participate in Title X are therefore be expected to provide more robust contraceptive services compared with non-Title X-funded CHCs(12, 24), as previous literature has found.

In 2019, the Trump-Pence administration weakened the Title X program, implementing non-evidence based guidelines, including the prohibition of abortion referrals; removal of the requirement to provide a full range of FDA-approved contraceptive methods; and removal of confidentiality provisions for adolescents(25). Many grantees and clinic sites left the Title X program rather than comply with these changes, and the number of clients served by Title X dropped from 3.9 million in 2018 to 1.5 million in 2020(26, 27). The Biden-Harris administration recently reversed those changes(28); studies about the impact of weakening Title X require a baseline for comparison and this study fills that gap. We need comprehensive information about the role of Title X in the US Safety net prior to the 2019 rule changes.

The purpose of this study was to describe provision of contraception in CHCs by Title X status and patient age, in 2016–2018, prior to the 2019 implementation of rule changes that weakened the Title X program(25, 29). Using patient-level electronic health record (EHR) data from 384 CHC clinics across the US, we assessed provision of most (LARC; IUD or implant) and moderately effective (oral pill, patch, contraceptive injection, vaginal ring) contraceptive methods using the Office of Population Affairs (OPA) quality metric(30). We hypothesized that Title X CHCs were more likely to provide most effective methods of contraception than non-Title X CHCs, especially for adolescents (15–19 years old).

METHODS

We used individual-level EHR data to conduct a retrospective cohort study to examine clinic-quarter rates of contraception provision by Title X funding status, adjusted for state, clinic, and individual patient characteristics.

We used the Accelerating Data Value Across a National Community Health Center Network (ADVANCE) clinical research network, a member of PCORnet(31). A total of 144 independent health systems in 26 states contribute data to ADVANCE. For this study, CHC clinics (i.e., brick-and-mortar care locations) were selected when meeting certain care type characteristics and patient volume criteria, described below. We used patient data from 384 CHC clinics in 20 states that were live on the EHR system by September 1, 2015 (four months before study start) and through the study end of December 31, 2018. We excluded clinics that did not provide primary care services (e.g. dental clinics) or provided fewer than 50 visits to women of reproductive age (15–49) per year (see Technical Appendix for details(32)).

Within included clinics, we identified people documented as female in the EHR, at risk of pregnancy, between ages of 15–49 years, with at least one ambulatory encounter between January 1, 2016 and December 31, 2018. We were unable to comprehensively assess gender identity and will use the term ‘women’ throughout the analysis to refer to these patients. We used the Office of Population Affairs (OPA) metric specifications to identify women at risk of pregnancy(30). The OPA metric is intended for use with claims or EHR data and does not incorporate pregnancy intention. Patients were determined to be at risk of pregnancy in the absence of any EHR evidence of sterilization, infecundity, or current pregnancy among structured EHR fields, consistent with previous literature and national metrics(30, 33, 34) (see Technical Appendix for details(32)). We determined each woman’s eligibility for inclusion in the denominator each quarter.

Our outcomes were woman-level rates of provision of most effective (LARC; IUDs and implants) or moderately effective (short-acting hormonal contraception methods of oral contraceptives, injectables, vaginal ring or patch)(35) contraception, following Office of Population Affairs (OPA) quality metric specifications(34). We extracted contraception information from several structured EHR fields, including prescription orders as identified by medication code and name searches, records of medical procedures using CPT, HCPCS and ICD-10 procedure codes, as well as ICD-10 diagnosis codes (see Technical Appendix(32)).

After identifying contraception provision by woman-quarter level, we aggregated data to the clinic-quarter level. We summed the incidence of most and moderately effective method provision at the clinic-quarter level, and then divided that sum by the total number of patients at risk of pregnancy in that clinic-quarter. This resulted in the unadjusted proportion of all patients at risk of pregnancy (denominator) who received most or moderately effective contraception (numerator) per clinic-quarter.

Our main independent variable, clinic Title X funding status, was obtained by cross-referencing ADVANCE CHC and clinic locations with a list of Title X-funded clinics that

we obtained from the Office of Population Affairs through a Freedom of Information Act (FOIA) records request.

We included patient covariates extracted from EHR records and aggregated to the clinic level overall. We classified women as adolescents (15–19 years old), young adults (20–24 years old), or adults (25–49 years old). We included proxy measures of systemic disparities affecting health care access(36): clinic level patient mix by race/ethnicity and poverty level. Latinx ethnicity was captured from patient self-reported Hispanic ethnicity or Spanish language preference. Non-Latinx Black and White race were ascertained from patients' EHR-recorded race and ethnicity. The clinic proportion of low-income patients (0 to <138% of the Federal Poverty Level [FPL]) was based on patients' first reported household income during the study period.

We included additional characteristics of the overall patient population at study clinics. We calculated the mean number of patients seen with ambulatory encounters during the study time period. We calculated 'patient mix' as the proportion of ambulatory encounters with reproductive aged women relative to ambulatory encounters with all ages and genders and 'payor mix' as the proportion of uninsured ambulatory encounters divided by the total number of ambulatory encounters per clinic. The proportion of women's health specialist visits ('provider mix') was the total count of ambulatory encounters to women of reproductive age at the clinic with an ambulatory encounter to women's healthcare specialist divided by the total number of ambulatory encounters to women of reproductive age. Data on medical specialty was captured from each providers National Provider Identifier (NPI) data. We classified women's health specialists as obstetricians, gynecologists, midwives, women's health advanced practice clinicians (APCs), or maternal/fetal medicine providers.

Clinic location was categorized as rural based on the clinic site address using 2010 Rural-Urban Commuting Area (RUCA) codes; small town cores and lower were categorized as rural(37). We also included state level indicators: Medicaid expansion status (as of Jan 1 2016)(38), and presence of a state family planning program (1115/State Plan Amendment/Family Planning waiver) status(39). We classified Wisconsin as a Medicaid expansion state following previous literature(40, 41), given that they expanded Medicaid to 100% of the Federal Poverty Level in 2014, although outside of the Affordable Care Act (ACA).

We first calculated the mean clinic proportion of patients with demographic characteristics described above by clinic Title X status, in addition to clinic- and state-level characteristics of study clinics. Next, we calculated clinic-quarter rates of provision of most and moderately effective contraception encounters.

We used a generalized estimating equation Poisson model to estimate rates of contraception provision, adjusted for the clinic, patient, and state characteristics described above, and we plotted the model-predicted population rates for each quarter by Title X status. The analytic unit for the models was the clinic-quarter. A total of 605,621 patients, comprising 149,909 patients with contraceptive provision and 455,712 patients without contraceptive provision, were observed at 384 clinics over the 3 years (12 quarters) of the study. All

clinics contributed data for each quarter. Utilizing this patient-level data, aggregated to the clinic-quarter level, a total of 4,608 clinic-quarters of data were utilized in the models.

Models were performed for the overall sample and stratified by age group (adolescents, young adults, adults). To compare results in aggregate across the entire study period, we calculated adjusted squares means estimates for all quarters, and compared averaged Title X estimates to those from clinics not funded by Title X. We used an autoregressive correlational structure and an empirical sandwich variance estimator to account for temporal correlation, and included an offset of the log of the total number of women at risk of pregnancy in each clinic to account for differences in overall clinic size.

We conducted two sensitivity analyses. First, to account for clinics that do not have a reproductive health focus, we excluded 55 clinics with a large proportion of mental health encounters (>75th percentile) despite not being classified as mental health clinics in EHR metadata. Second, we excluded 97 ‘lower-volume’ clinics that were in the bottom quartile of visits for women of reproductive age. We did this to remove clinics not likely to provide contraceptive services. Results were robust to these changes, and we present our main analysis only. All analyses were conducted in SAS (version 7.15); figures were prepared in R (version 3.6.2). This study was approved by the Western Institutional Review Board (WIRB).

Limitations

Our sample of CHCs may not be generalizable to all patients in CHCs, CHC clinics, or states. However, our data come from the largest national set of data from people accessing care in safety net settings, and the ADVANCE patient population is demographically and clinically similar to the overall CHC population(31). Similarly, our sample of Title X clinics may not represent the universe of Title X clinics. We compared our sample patient characteristics to data reported by the Title X program; our sample skews younger and has a lower proportion of women who are Black and non-Latina than the overall Title X program(27). However, few studies are able to compare clinics with Title X funding to those without it across multiple states and with patient-level objective data as we have done using this dataset. Third, there may be unmeasured differences between Title X and non-Title X CHCs that our study does not capture. We control for patient, provider, and payor mix at the clinics in our sample. Fourth, we are not able to comprehensively identify gender identity among patients in our sample and we did not have access to an organ inventory to assess risk of pregnancy. This may result in misclassification of risk of pregnancy(42), however small.

RESULTS

Of 384 CHCs included in the analysis, 12% (n=46) were Title X funded clinics and 88% (n=338) were non-Title X funded clinics (Exhibit 1). Title X clinics served a lower proportion of Black non-Latinx patients (9.0%) compared with non-Title X clinics (16.6%). Non-Title X clinics saw a slightly smaller proportion of adolescents (26.9% vs. 29.0% Title X) and reproductive aged women (34.6% vs 44.1% Title X.). Nearly all (98.0%) Title X clinics were in states that expanded Medicaid; approximately two thirds of non-Title X clinics (66.0%) were in Medicaid expansion states.

Over the three-year study period, adjusted clinic-quarter rates of most and moderately effective contraceptive methods remained stable, with Title X clinics providing both most and moderately effective methods at a higher rate than non-Title X clinics (Exhibits 2 and 3, respectively). In the last quarter of the study, Title X funded clinics provided most effective methods to 2.2% of women at risk of pregnancy, and moderately effective methods to 15.8% of at-risk women, compared to 1.6% and 9.5%, respectively, among CHC clinics not funded by Title X ($p = 0.001$ most effective, $p < 0.001$ moderately effective).

Title X clinics had the highest rates of most effective method provision among young adults and adolescents over the study period (Appendix Exhibit A(43)). Averaging across all study quarters ($n = 4,608$ clinic-quarters), Title X funded clinics provided 52% more most effective contraceptives to women at risk of pregnancy than non-Title X funded clinics (aRR=1.52, 95% CI: 1.23, 1.88), $p = 0.001$; Exhibit 4). Most effective contraception provision at Title X clinics was more pronounced among adolescents (58% higher, 95% CI 24% - 100%) than among young adults (26% higher, 95% CI 2% - 61%) and adults (46% higher, 95% CI 17% - 83%), compared with non-Title X clinics.

DISCUSSION

Using EHR data across the US safety net, we show that CHC clinics that receive Title X funding consistently provide access to most and moderately effective contraception at higher rates (52% more most and 49% moderately effective) than CHC clinics that do not. This finding was consistent during each quarter of the three-year study period and across all age groups. Our findings demonstrate that CHCs in the Title X program provide access to most and moderately effective contraceptive methods. We found that Title X clinics were 58% more likely to provide most effective contraception and 35% more likely to provide moderately effective contraception to adolescents compared with non-Title X clinics.

Our results support previous work, which has shown that Title X clinics provide access to effective contraception. However, evidence that compares Title X clinics to other safety net providers has been limited to single states(44–47), relied on site-level data(47–49), or focused on the Medicaid expansion period(33). Previous work has highlighted the important role of Title X in states that did not expand Medicaid in providing access to contraception(50, 51) and in School-Based Health Center (SBHC) clinics(52), key access points for adolescents. We find a similar important role for Title X in providing access to effective contraception across states and safety net clinics.

Title X CHC clinics are key access points for effective contraception for adolescents. Adolescents have been shown to choose and continue LARC methods when cost barriers are removed(53, 54), but provider bias and lack of provider training can pose barriers to adolescent access to LARC(55, 56). Young women and women of color are more likely to report experiences of coercion or lack of autonomy; it is critical that all contraceptive counseling be centered in a reproductive justice framework that focuses on meeting the needs of the individual(57, 58). The Title X program ensures that their clinics received specialized trainings in evidence based reproductive health care, including specialty training in patient-centered counseling, that centers on the needs of the individual and

avoids coercion(59). Developmentally-appropriate, patient centered-counseling and shared decision-making can emphasize attention to the needs and preferences of adolescents(60, 61) and ensure human rights(62). Adolescents were specifically targeted under the Trump-Pence administrations changes to the Title X program; confidentiality provisions, known to be especially important to adolescents(63, 64), were removed, prioritizing parental involvement in care. We show that Title X clinics are key to supporting access to LARC for adolescents who seek care in CHCs; the Biden-Harris reversal of the Trump-era changes re-instates confidentiality provisions, ensuring the ability of the Title X network to provide quality contraceptive care to adolescents.

Policy Implications

Our results provide key evidence about contraceptive service delivery at CHCs, and the important role of Title X funding in the CHC network. Our results are from 2016–2018, the period of time preceding important changes made to the Title X program by the Trump-Pence administration. These changes included: prohibition of abortion referrals; complete financial and physical separation of abortion services from other services; removal of the requirement to provide a full range of FDA-approved contraceptive methods; and removal of confidentiality provisions for adolescents(25). These changes significantly decreased the capacity of the Title X program, with one out of 5 grantees leaving the program(27, 65). The impacts of these changes are expected to be most harmful among adolescents, and women who are un- or under-insured or rely on Title X funding to access contraception(20, 66, 67). The Biden-Harris administration recently reversed the Trump-Pence administration changes(25, 68), inviting former grantees to re-apply for Title X funding(26). Future work focusing on the impact of this disruption in the Title X network, such as the impact that the 2019 rule changes had on national rates of adolescent pregnancy, requires a baseline for comparison. Our results clearly show that Title X expands access to effective contraception in the US safety net; strengthening Title X should continue to be a national health policy priority.

Conclusion

In sum, we find that in a large network of safety net clinics, CHCs that receive funding through the Title X family planning program provide most and moderately effective contraception at higher rates than non-Title X funded CHCs. Their impacts are especially notable for adolescents, underscoring the role of Title X in providing access to contraception for the adolescent population across the safety net. Recent action by the Biden-Harris administration to reverse the Trump-era rule changes(69) is a promising step to protect and enhance access to effective contraception for low-income women nationally.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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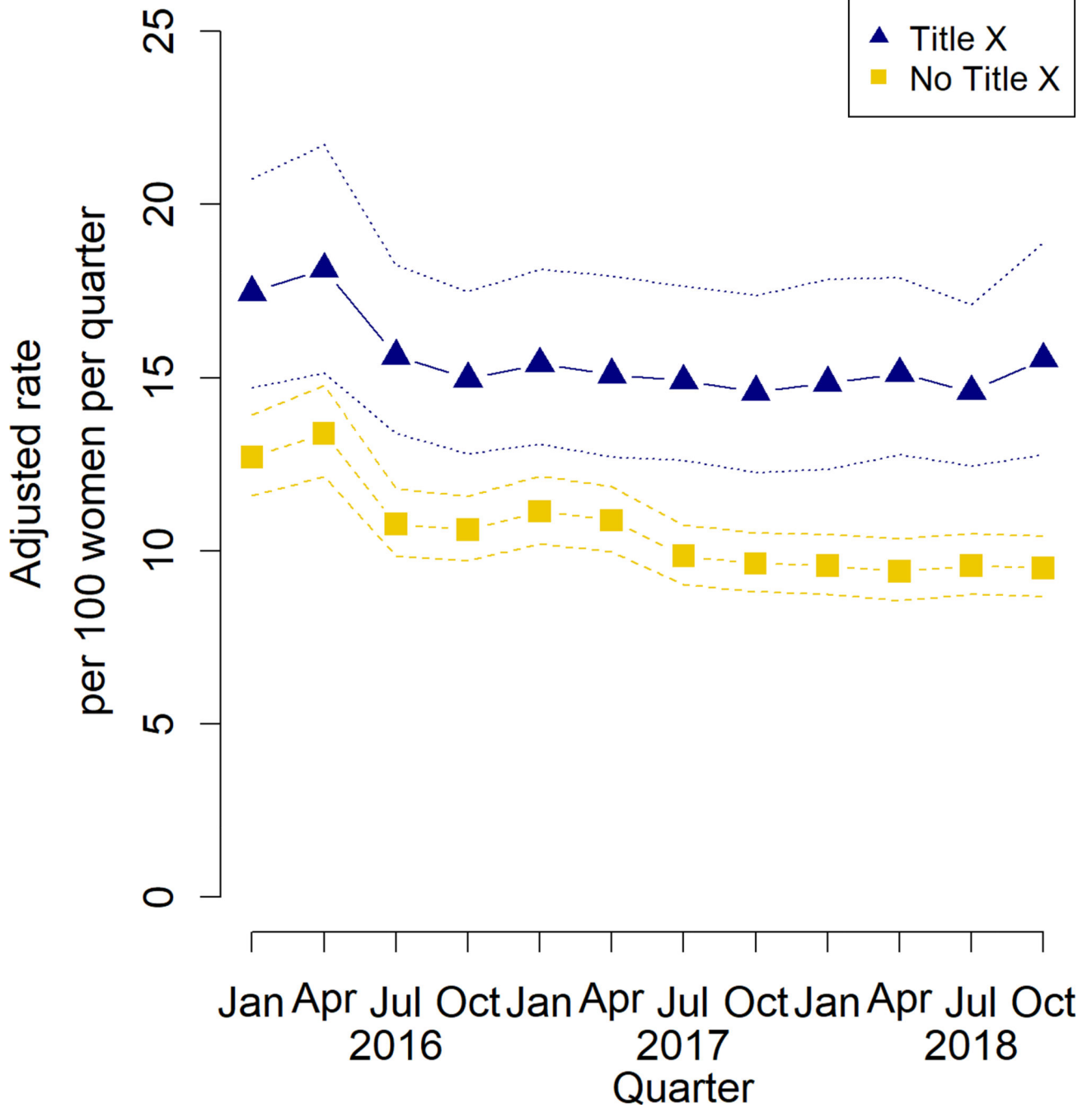


Exhibit 2. Adjusted quarterly rates of provision of most effective contraception by Title X status to women at risk of pregnancy.
SOURCE: Study-generated data. **NOTES:** Dashed lines indicate 95% confidence intervals per quarter. Model results were calculated using Generalized Estimating Equation (GEE) Poisson with indicators for each clinic-quarter, adjusting for clinic-level patient demographics, clinic- and state-level covariates.

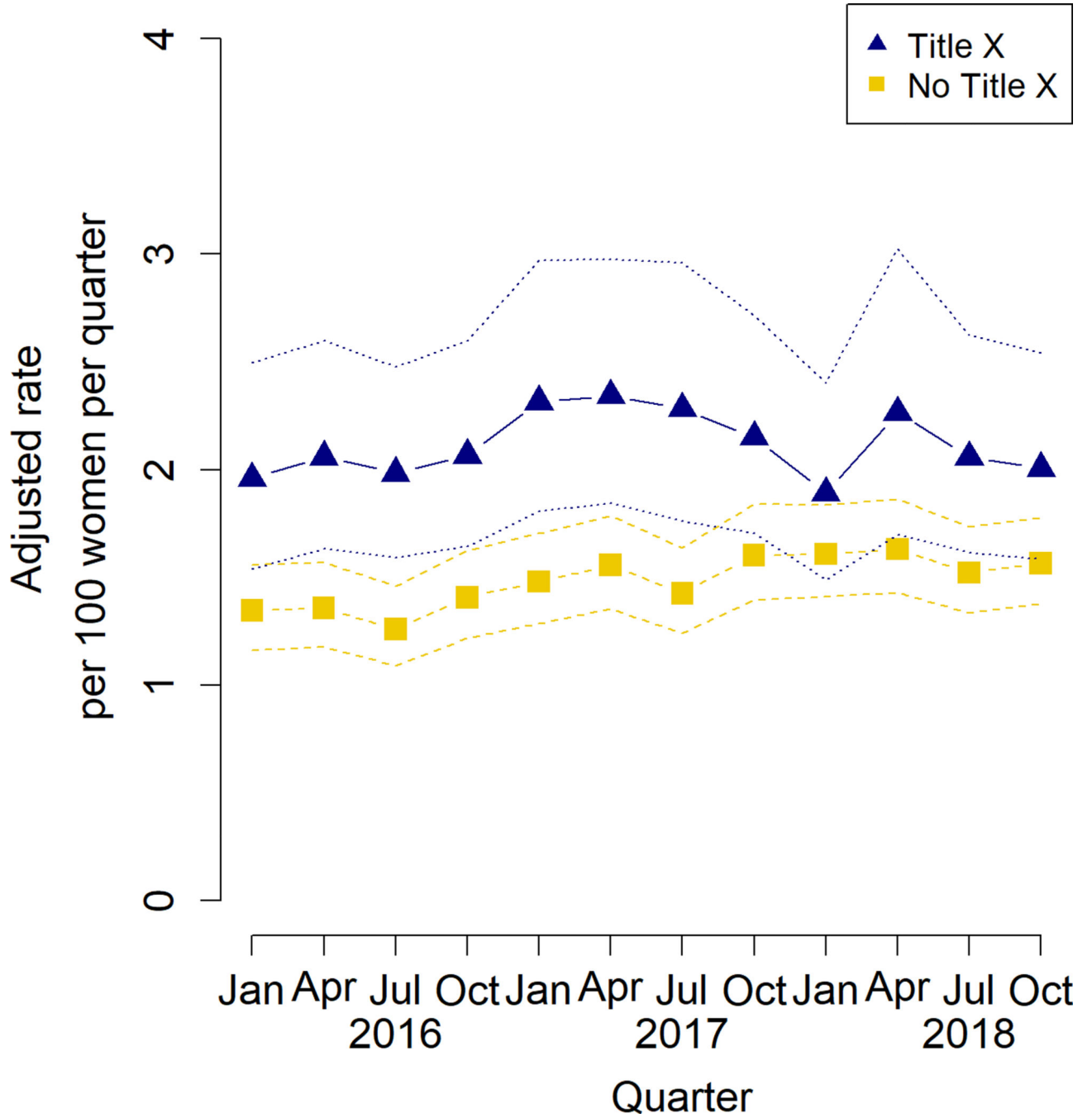


Exhibit 3. Adjusted quarterly rates of provision of moderately effective contraception by Title X status to women at risk of pregnancy.
SOURCE: Study-generated data. **NOTES:** Dashed lines indicate 95% confidence intervals per quarter. Model results were calculated using Generalized Estimating Equation (GEE) Poisson with indicators for each clinic-quarter, adjusting for clinic-level patient demographics, clinic- and state-level covariates.

Exhibit 1

Characteristics of study Community Health Center clinics by Title X funding status, 2016–2018.

	Title X	Not Title X	p-value
Total number of clinics	46	338	-
Mean number of patients per clinic	4,272	3,228	<0.001
Patient Variables (mean proportion of clinic patients (SE))			
Latinx	29.1	30.5	0.748
Black, non-Latinx	9.0	16.6	0.021
White, non-Latinx	31.1	25.4	0.109
Adolescent (15–19 years old)	29.0	26.9	0.686
Young adult (20–24 years old)	13.9	11.1	0.013
Income < 138% of Federal Poverty Level	63.2	59.8	0.506
Clinic Variables (mean unless otherwise specified)			
Rural clinics (count, % of clinics)	6 (13.0%)	33 (9.8%)	0.491
Patient mix: Proportion of <i>encounters to women aged 15–49</i> out of all encounters	44.1	34.6	<0.001
Provider mix: Proportion of encounters <i>to women's health specialists</i> out of encounters to women aged 15–49	9.8	9.2	0.831
Payor mix: Proportion of uninsured encounters out of all encounters	21.5	22.9	0.477
State Variables (count, percentage of clinics)			
Medicaid expansion (count, %)	45 (98.0%)	225 (66.0%)	<0.001
State Family Planning Program (State Plan Amendment/1115 Waiver) (count, %)	40 (85.0%)	298 (88.0%)	0.813

Exhibit 4.

Adjusted relative rate of most or moderately effective contraception provision by Title X funding status, 2016–2018

	Relative increase for Title X clinics compared to non-Title X clinics	95% confidence interval (lower bound, upper bound)
Most effective		
Overall	1.52	(1.23, 1.88)
Adolescents (15–19 years)	1.58	(1.24, 2.02)
Young Adults (20–24 years)	1.26	(0.98, 1.61)
Adults (25–49 years)	1.46	(1.17, 1.83)
Moderately effective		
Overall	1.49	(1.29, 1.73)
Adolescents (15–19 years)	1.35	(1.11, 1.62)
Young Adults (20–24 years)	1.34	(1.13, 1.58)
Adults (25–49 years)	1.61	(1.33, 1.94)

SOURCE: Study-generated data.

NOTE: Most effective contraceptives: intrauterine devices or contraceptive implants. Moderately effective contraceptives: oral pill, patch, contraceptive injection, vaginal ring.

Adjusted means estimate (relative rate) of prevalence of contraception provision by Title X clinics vs non-Title X clinics, averaged across the entire study period, from a total of 4,608 clinic-quarters, 2016–2018. Estimates obtained from Poisson regression model with log link and autoregressive correlation structure with robust variance estimator; relative rate estimates from LSM estimate contrast statement of quarter*Title X interaction.