# US "Safety Net" Clinics Provide Access to Effective Contraception for Adolescents and Young Women, 2017–2019

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**Objectives.** To describe patterns of providing moderately effective versus the most effective contraception and of providing implants versus intrauterine devices in US community health centers.

**Methods.** We conducted a historical cohort study (2017–2019). Outcomes were woman-level receipt of most effective contraception (long-acting reversible contraception; implants and intrauterine devices) or moderately effective contraception. We used logistic regression to identify patient and clinic factors associated with providing (1) most versus moderately effective methods, and (2) implants versus intrauterine devices. We calculated adjusted probabilities for both outcomes by age group.

**Results.** We included 199652 events of providing contraception to 114280 women in 410 community health centers. Adjusted probabilities were similar across age groups for moderately versus most effective methods. However, the adjusted marginal means for receiving an implant compared with an intrauterine device were highest for adolescents (15–17 years: 78.2% [95% confidence interval (CI) = 75.6%, 80.6%]; 18–19 years: 69.5% [95% CI = 66.7%, 72.3%]). Women's health specialists were more likely to provide most versus moderately effective contraception.

**Conclusions.** Community health centers are an important access point for most effective contraception for women of all ages. Adolescents are more likely to use implants than intrauterine devices. (*Am J Public Health.* 2022;112(S5):S555–S562. https://doi.org/10.2105/AJPH.2022.306913)

E nsuring access to choice of effective forms of contraception is fundamental to supporting individuals in achieving their reproductive goals. The most effective contraception includes long-acting reversible contraception: the implant and the intrauterine device (IUD). Understanding patterns of providing the most effective contraceptive methods and how they may vary by clinic type and population served are important indicators of access to contraceptive care and risk of pregnancy. It is similarly meaningful to examine use of IUDs and implants separately. Each method has distinct medical eligibility criteria, mechanism of action, and side effect profile, and each requires different types of skill to insert and remove.<sup>1</sup> However, research often examines access to the most effective methods overall, without disaggregating IUDs and implants, thus masking important differences that affect service delivery.<sup>2,3</sup>

Subdermal contraceptive implants are effective forms of contraception, but use is still relatively low because of lack of awareness, misperceptions about safety and efficacy by both providers and users, and high up-front costs.<sup>4</sup> Although data on implant use are limited, the available reports<sup>5</sup> suggest that younger women (i.e., adolescents aged 14–17 years) are likely to choose the implant over an IUD, perhaps because it does not require a pelvic examination. Previous reports also suggest that implant users tend to have lower incomes and have Medicaid coverage or are uninsured (compared with having private coverage). Community health centers (CHCs) play a vital role in providing access to contraceptive care for low-income and medically underserved populations, regardless of insurance status or ability to pay.<sup>6</sup> CHCs vary in the scope of family-planning services they deliver, but most health centers offer contraceptive methods onsite to facilitate access to care.<sup>7</sup> However, barriers persist to delivering the most effective contraceptive services in CHCs, including stocking devices onsite and availability of staff trained for IUD or implant insertions or removals.

We describe patterns of moderate and most effective contraceptive provision over a 3-year period (2016–2019) in a national network of CHCs. We describe patient and clinic characteristics of contraceptive provision, describe method mix by age group, and identify patient and clinic characteristics associated with providing the most effective (i.e., long-acting reversible contraception) methods versus moderately effective methods and providing implants versus IUDs.

## **METHODS**

We used individual-level electronic health record (EHR) data to conduct a historical cohort study using the Accelerating Data Value Across a National Community Health Center Network (ADVANCE) clinical research network, a member of the National Patient-Centered Outcomes Research Network.<sup>8</sup> ADVANCE is a multicenter collaborative led by OCHIN in partnership with the Health Choice Network, Fenway Health, and Oregon Health & Science University. Outpatient EHR data from CHCs in the 4 data-sharing partner organizations are integrated and standardized into a common data

model.<sup>8</sup> ADVANCE data include information from more than 7 million patients from CHCs across 31 states, represent 25% of all CHC patients nationwide, and are demographically similar to the national profile of CHC patients.<sup>9</sup> ADVANCE data are collected under a waiver of authorization because of minimal risk to patients and the practical issues of getting consent from the number of patients included. EHR data from ADVANCE are not originally developed for research but have been validated by multiple validation studies.<sup>10,11</sup>

## Sample

We selected CHC clinics (i.e., brick-andmortar care locations) when meeting certain care-type characteristics and patient volume criteria. We applied exclusions at the clinic level and then the patient level. We used data from CHC clinics that were live on the EHR system by September 1, 2016 (4 months before study start, i.e., January 1, 2017), and through the study end of June 30, 2019 (we chose to end the study before the implementation of the 2019 Trump-Pence Title X rule changes, which could have affected service delivery).<sup>12,13</sup> 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 (12-49 years) per study year (for details, see the Appendix [available as a supplement to the online version of this article at http://www.ajph.org]).

In included clinics, we first identified people documented as female in the EHR with at least 1 ambulatory visit between January 1, 2017 and June 30, 2019 (n = 745 979 patients). We were unable to comprehensively assess gender identity and will use the term "women" throughout the article to refer to these patients. We identified 118 022 patients' receipt of a most or moderately effective contraceptive method. We included all contraceptive methods except for those provided to women after evidence of sterilization (n = 381) or to women with infecundity (n = 2433). We excluded the less than 1% of the study population with no data in the EHR for age (n = 83) or payor (n = 812; see Figure A in the Appendix)for a study flow diagram). We did not observe any contraceptives provided to individuals aged 12 to 14 years in our sample, so our final study sample is 114 280 women aged 15 to 49 years who received contraceptive services. These women were seen at 410 CHCs.

## Variables

Our outcomes were woman-level contraceptive method type: moderately effective (i.e., short-acting hormonal contraception methods of injectables, oral contraceptives, patch, vaginal ring)<sup>14</sup> versus most effective (i.e., IUDs and implants) and then within most effective, IUD versus implant, following Office of Population Affairs metric specifications.<sup>15</sup> 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 Current Procedural Terminology, the Healthcare Common Procedure Coding System, and the International Classification of Diseases, 10th Revision (Geneva, Switzerland: World Health Organization; 1992 [/CD-10]) procedure codes, as well as ICD-10 diagnosis codes (Table A in the Appendix). We captured contraceptive methods at the woman visit level (n = 198734), and some visits (n =918) included more than 1 method

(e.g., both IUD and oral contraceptives). We assigned women to their highest efficacy contraceptive over the study period; therefore, we chose to describe our unit of analysis as "contraceptive provision" (hereafter "provision").

We assigned patient demographic characteristics based on their first contraceptive visit in the study period. We included age (15–17 years at first study visit, 18–19, then 5-year age bands to 49), race/ethnicity (Latina, non-Latina White, non-Latina Black, non-Latina other [including Asian, American Indian/Alaska Native], or non-Latina missing race), patient income as a proportion of the federal poverty level (FPL) category (< 100% FPL, 101%-150% FPL, 151%-200% FPL, > 200%, or missing income), payor or insurance (private, public, or uninsured; additional details on insurance are in the Appendix), and medical provider (whether they were a women's health specialist or not). If we encountered missing data, we used the next most recent contraceptive visit with known data. Data were not missing at random for missing patient race/ethnicity (5.5%) or for income category (11.6%; Tables B and C in the Appendix); therefore, we chose to include missingness as its own level in categorical variables and did not perform multiple imputation.

We identified clinics' Title X funding status, which is known to be associated with providing the most effective methods,<sup>13</sup> by cross-referencing CHC addresses with a list of Title X–funded clinics that we obtained from the Office of Population Affairs.<sup>6</sup> We classified clinics as rural using 2010 Rural–Urban Commuting Area codes; we categorized small towns and lower as rural.<sup>16</sup> We also included state-level indicators: presence of a state family-planning program (1115, State Plan Amendment, Family Planning waiver) status<sup>17</sup> and Medicaid expansion status (as of January 1, 2016).<sup>18</sup>

## **Statistical Analysis**

We described patient-, provider-, clinic-, and state-level characteristics at the woman level, stratified by receipt of the most effective versus moderately effective contraceptive during the study period. We next described contraceptive provision by individual method type and age by the age distribution in each method type and by the method mix in each age group. Finally, to identify the patient-, clinic-, and state-level factors associated with the most versus moderately effective methods and the provision of implants versus IUDs, we fit 2 generalized logistic linear models with logit link function and binomial distribution, clustered on the clinic with an exchangeable correlation structure. We excluded women with evidence of having both implant and IUD during the study period (n = 499) from the second model. We calculated predicted population absolute probabilities (marginal means) of each outcome for all age categories.

To assess the robustness of our model results, we performed the following sensitivity analyses. We tested models without either payor or income, models with 1 and then the other singly, and a model with both; results were unchanged (data not shown). We present the full model in this article. We tested the interaction of age and payor and of age and clinic Title X status; the interaction terms were not statistically significant (data not shown), and we present the models with fixed effects. We conducted all analyses in SAS version 8.3 (SAS Institute, Cary, NC).

## RESULTS

We identified 199652 events of contraceptive provision to 114280 women in 410 CHCs between January 1, 2017, and June 30, 2019. Nearly 14% were aged 15 to 17 years, 10% were aged 18 to 19 years, slightly more than 41% were aged 20 to 29 years, and slightly more than 35% were 30 years or older (Table 1). The largest proportion of contraceptive visits were by Latina women (39%), followed by non-Latina White (30%), and then Black (19%) women. The majority (63%) of the sample had incomes less than 100% FPL, and 21% were uninsured. The provider on record for contraceptive provision was most often a general practitioner (71.2%), and 29% of women with contraceptive provision had their first study visit to a Title X clinic. There were no meaningful differences in age by whether a woman received any most effective method compared with only moderately effective contraception during the study period. Other bivariate differences between use of only moderately and any most effective methods can be seen in Table 1.

Table 2 shows the age distribution of specific contraceptive methods. The largest proportions of injectable, patch, and ring users were aged 20 to 29 years; the age distribution was more even for oral contraceptive pill users. Among implant users, the largest proportion were aged 20 to 24 years (22% of implant users) and 15 to 17 years (19% of implant users). The population of IUD users skewed older, with the largest age groups aged 25 to 29 years and 30 to 34 years.

Table 3 displays method mix in each age category. The oral contraceptive pill and injectable were the most common methods across all age groups. In the

		Any Most Effective	Only Moderately	
		Contraceptive	Effective Contraceptive	
all successful to the	All Patients,	During Study,	During Study,	_
Characteristics	No. (%)	No. (%)	No. (%)	Р
Women	114 280	88 167	26 1 1 3	
Woman-level charact	teristics at first contract	eptive visit during study	period	
Age, y				<.001
15-17	15 672 (13.7)	12 205 (13.8)	3 467 (13.3)	
18–19	10 966 (9.6)	8 718 (9.9)	2 248 (8.6)	
20-24	23 710 (20.7)	18 414 (20.9)	5 296 (20.3)	
25-29	23 271 (20.4)	17 572 (19.9)	5 699 (21.8)	
30-34	18 094 (15.8)	13763 (15.6)	4331 (16.6)	
35-39	12 224 (10.7)	9 359 (10.6)	2865 (11.0)	
40-49	10 343 (9.1)	8 136 (9.2)	2 207 (8.5)	
Race/ethnicity				<.001
Latina	44 754 (39.2)	33 370 (37.8)	11 384 (43.6)	
Non-Latina White	34 354 (30.1)	26 692 (30.3)	7 662 (29.3)	
Non-Latina Black	21 535 (18.8)	17 881 (20.3)	3 654 (14.0)	
Non-Latina other	7 388 (6.5)	5 604 (6.4)	1 784 (6.8)	
Missing	6 249 (5.5)	4620 (5.2)	1 629 (6.2)	
Income as % of federal poverty level <sup>a</sup>				<.001
< 100	71 937 (62.9)	55 297 (62.7)	16 640 (63.7)	
101–150	15 185 (13.3)	11 589 (13.1)	3 596 (13.8)	
151-200	6 203 (5.4)	4754 (5.4)	1 449 (5.5)	
>200	7 973 (7.0)	6 258 (7.1)	1 715 (6.6)	
Missing	13 220 (11.6)	10 327 (11.7)	2 893 (11.1)	
Payor				<.001
Private	23 846 (20.9)	18756 (21.3)	5 090 (19.5)	
Public	66 008 (57.8)	50 045 (56.8)	15963 (61.1)	
Uninsured	24 426 (21.4)	19366 (22.0)	5 060 (19.4)	
Provider				<.001
Women's health MD/APC	32 873 (28.8)	23 477 (26.6)	9 396 (36.0)	
Other provider	81 407 (71.2)	64 690 (73.4)	16 717 (64.0)	
	Clinic-level characte	ristics	· · · · · · · · · · · · · · · · · · ·	
First study visit to a Title X clinic	33 570 (29.4)	24310 (27.6)	9 260 (35.5)	<.001
First study visit at a rural clinic	4675 (4.1)	3 860 (4.4)	815 (3.1)	<.001
	State-level characte	eristics		
State Family Planning/1115 Waiver as of January 2016	90 606 (79.3)	69857 (79.2)	20 749 (79.5)	.43
Medicaid Expansion under ACA as of January 2016	84312 (73.8)	61 880 (70.2)	22 432 (85.9)	<.001

## **TABLE 1**— Client and Clinic Characteristics of Women With Contraceptive Provision Visits in US Community Health Centers: 2017–2019

*Note.* ACA = Affordable Care Act; MD/APC = persons with MD, DO, or advanced practice nursing (advanced practice registered nurse, certified nurse-midwife, doctor of nursing practice, physician assistant) degree. Contraceptive provision is captured from prescription records and administrative diagnosis and procedure codes. Most effective contraceptive methods are implant and intrauterine device. Moderately effective contraceptive methods are injection, oral pill, patch, and vaginal ring.

<sup>a</sup>As determined by the Department of Health and Human Services in the year of the patient's clinic visit or the year that the most recent patient data were available.

	Most Effective Contraceptive Methods, No. (%)		Moderately Effective Contraceptive Methods, No. (%) <sup>a</sup>				
Age, Years	Implant	IUD	Injectable	Oral Pill	Patch	Vaginal Ring	
All	14079 (12.3)	12 034 (10.5)	26 980 (23.6)	54 516 (47.7)	3 428 (3.0)	3 243 (2.8)	
15-17	2 700 (19.2)	767 (6.4)	4 469 (16.6)	7 089 (13.0)	454 (13.2)	193 (6.0)	
18–19	1 589 (11.3)	659 (5.5)	2 756 (10.2)	5 448 (10.0)	325 (9.5)	189 (5.8)	
20-24	3 165 (22.5)	2 131 (17.7)	5 448 (20.2)	11 556 (21.2)	706 (20.6)	704 (21.7)	
25-29	2 878 (20.4)	2 821 (23.4)	4 960 (18.4)	10 920 (20.0)	751 (21.9)	941 (29.0)	
30-34	1 945 (13.8)	2 386 (19.8)	3 982 (14.8)	8 486 (15.6)	590 (17.2)	705 (21.7)	
35–39	1 125 (8.0)	1 740 (14.5)	2 859 (10.6)	5 812 (10.7)	356 (10.4)	332 (10.2)	
40-49	677 (4.8)	1 530 (12.7)	2 506 (9.3)	5 205 (9.5)	246 (7.2)	179 (5.5)	

## TABLE 2— Age Distribution in Each Contraceptive Method in US Community Health Centers: 2017-2019

Note. IUD = intrauterine device. Sample size was n = 114280. An individual woman is assigned age at first study visit and is assigned the most effective methods received if more than 1 method was received during study period.

<sup>a</sup>Percentage of all contraceptive provision.

youngest age category (15–17 years), 17% used an implant. Use of implants decreased as a proportion of all contraceptive method use by increasing age: by 30 to 34 years, implants accounted for 11% of contraceptive use. The pattern was reversed for IUD use: IUD use as a proportion of contraceptive use was 5% among those aged 15 to 17 years and increased to 15% among women 40 to 49 years.

Finally, we examined 2 multivariable models controlling for patient, clinic, and state factors (Table 4): most effective versus moderately effective method and implant versus IUD. Adjusted probabilities were similar across age groups for any most effective method compared with moderately effective methods, ranging from 19.3% (95% confidence interval [CI] = 16.6%, 22.4%) among those aged 25 to 29 years to 17.5% (95% CI = 14.9%, 20.4%) among those aged 18 to 19 years.

The adjusted absolute probability for receipt of an implant rather than an IUD was highest for adolescents (aged 15–17 years: 78.2% [95% CI = 75.6%, 80.6%]; aged 18–19 years: 69.5% [95% CI = 66.7%, 72.3%]) compared with older women (aged 25–29 years: 51.0% [95% CI = 48.1%, 53.8%]; aged 40-49 years: 30.4% [95% CI = 27.1%, 33.8%]).

The type of provider seen was associated with both receipt of any most effective method and receipt of an IUD and not an implant. Overall, women's health providers were more likely than were general practitioners to provide any most effective method (adjusted odds ratio [AOR] = 2.92; 95% CI = 2.33, 3.65; Table D in the Appendix). Provider type (women's health provider vs general practitioner) was negatively associated with receipt of implant compared with IUD (AOR = 0.67; 95% CI = 0.58,

<b>TABLE 3</b> Contraceptive Method Mix in 03 Community nearth centers by Age. 2017-
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	Most Effective Methods, No. (%)					
Age, Years	Implant	IUD	Injectable	Oral Pill	Patch	Ring
15–17	2 700 (17.2)	767 (4.9)	4 469 (28.5)	7 089 (45.2)	454 (2.9)	193 (1.2)
18–19	1 589 (14.5)	659 (6.0)	2 756 (25.1)	5 448 (49.7)	325 (3.0)	189 (1.7)
20-24	3 165 (13.3)	2 131 (9.0)	5 448 (23.0)	11 556 (48.7)	706 (3.0)	704 (3.0)
25-29	2 878 (12.4)	2 821 (12.1)	4 960 (21.3)	10 920 (46.9)	751 (3.2)	941 (4.0)
30-34	1 945 (10.7)	2 386 (13.2)	3 982 (22.0)	8 486 (46.9)	590 (3.3)	705 (3.9)
35-39	1 125 (9.2)	1 740 (14.2)	2 859 (23.4)	5 812 (47.5)	356 (2.9)	332 (2.7)
40-49	677 (6.5)	1 530 (14.8)	2 506 (24.2)	5 205 (50.3)	246 (2.4)	179 (1.7)

*Note.* IUD = intrauterine device. The sample size was n = 114280.

**TABLE 4**— Adjusted Probabilities of Most Versus Moderately Effective Contraception and of Implant Versus IUD Use by Age: United States, 2017–2019

Age, Years	Most Effective (26113) vs Moderately Effective (88167) Contraception, Probability (95% Cl)	Implant (13 580) vs IUD (12 034), Probability (95% Cl)
15–17	17.7 (15.1, 20.7)	78.2 (75.6, 80.6)
18–19	17.5 (14.9, 20.4)	69.5 (66.7, 72.3)
20-24	17.9 (15.3, 20.9)	59.7 (56.8, 62.6)
25–29 (Ref)	19.3 (16.6, 22.4)	51.0 (48.1, 53.8)
30-34	18.6 (16.0, 21.5)	44.7 (41.8, 47.6)
35-39	18.2 (15.7, 21.1)	38.5 (35.4, 41.7)
40-49	16.8 (14.5, 19.4)	30.4 (27.1, 33.8)

*Note*. CI = confidence interval; IUD = intrauterine device. Probabilities are adjusted and absolute. Moderately effective contraceptive methods are vaginal ring, patch, oral pill, and injectable. Most effective contraceptive methods are IUD and implant. Generated from the full model in Supplemental Table D (available as a supplement to the online version of this article at https://www.ajph.org). Models are adjusted for age, race/ethnicity, income, payor, provider type, Title X clinic visit status, rural clinic visit status, State Family Planning/1115 waiver status, and state Medicaid expansion status.

0.78), indicating that women's health care providers are more likely to provide IUDs (rather than implants) than are general practitioners. Other factors associated with implant use compared with IUD use were Latina ethnicity (AOR = 1.51; 95% CI = 1.39, 1.65, compared with non-Latina White women), low income (< 100% FPL: AOR 1.28; 95% CI = 1.14, 1.43, compared with > 200% FPL), and public insurance (AOR = 1.12; 95% CI = 1.03, 1.23, compared with private). Supplemental Table D provides the full models and AORs.

### DISCUSSION

The CHC network is an important access point for contraception for women of all ages. In 2016, more than 6 million low-income women of reproductive age received care in CHCs or other safety net settings.<sup>19</sup> We show, in a large sample of CHC clinics, that adolescents, young women, and older women have similar proportions of most effective contraception (i.e., longacting reversible contraception) provision compared with moderately effective contraception provision, but that variations exist in the use of individual most effective methods (i.e., IUDs vs implants) by age. We found that the probability of receiving an implant compared with receiving an IUD was highest for adolescents. As hypothesized, we found that patient (e.g., age) and provider (e.g., provider type) level factors were associated with provision of the most effective contraception overall and with type of the most effective methods (i.e., IUDs or implants).

In-line with previous research,<sup>5,20–22</sup> we found that younger (15–17 years) and older (18–19 years) adolescents have a much higher probability of using implants over IUDs than do older women, controlling for patient, clinic, and state factors that could influence method provision (e.g., insurance status, provider type, Title X, or insurance). Also similar to previous reports,<sup>21</sup> implant use decreased as a proportion of all contraceptive method use with increasing age. Higher implant use among younger women may be attributed to their desire for the most effective contraception without a pelvic examination,<sup>23</sup> lower maintenance and chance of user error, or implants' availability at publicly funded clinics.

Adolescents have been shown to choose and continue most effective methods when cost barriers are removed.<sup>22,24</sup> However, provider bias and lack of provider training can pose barriers to adolescent access to the most effective methods,<sup>25</sup> despite medical organizations' endorsement of the safety of implants for adolescents.<sup>4,26</sup> In addition, young women and women of color are more likely to report experiences of coercion or lack of autonomy in contraceptive decision-making. It is critical that all contraceptive counseling be centered in a reproductive justice framework that is developmentally appropriate and uses patient-centered counseling; shared decision-making can emphasize attention to the needs and preferences of adolescents.<sup>27,28</sup>

At the clinic level, we found that provision by a women's health care specialist (i.e., physician or advanced practice provider) was positively associated with provision of the most effective methods overall (i.e., IUD and implant) compared with moderately effective methods, which supports previous research.<sup>29</sup> However, provision by a woman's health care specialist was negatively associated with receiving an implant compared with an IUD, showing that women's health care specialists do the bulk of IUD provision and that implants are provided by a wider range of providers, which expands access. However, barriers exist to the provision of the most effective methods, including

implants, in safety net settings, because of a lack of awareness, lack of staff training for required insertion and removal, and logistical and cost-related difficulties stocking devices onsite.<sup>30,31</sup>

## Strengths and Limitations

Previous findings have often focused on the effectiveness or the use of the most effective methods overall<sup>2,36,32</sup> or have focused on commercially insured women,<sup>3,33</sup> aggregate clinic-level reports,<sup>7</sup> small samples of clinics, or population-based prevalence data,<sup>2</sup> which do not allow us to see where care is provided. Our data using individual-level clinical data from CHCs across the United States support and improve on previous work.

Our study has limitations. First, our sample of CHCs may not be generalizable to all patients in CHCs, CHC clinics, or states. However, our data came 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.<sup>8</sup> Second, our EHR data source precluded information about patient experience of care or content of counseling. Third, we did not know whether women sought contraceptive services outside our CHC network; however, our study question focused on provision, not on population-level prevalence of method use. Fourth, we did not have consistently available data for gravidity or parity, which are known to influence contraceptive use patterns. Finally, we chose to end our study in June 2019, before the Trump-Pence administration weakened the federal Title X program, which provides funding for family planning services for uninsured women. Contraceptive use patterns may have

changed after the implementation of these changes, which have since been reversed under the Biden–Harris administration. Future work is necessary to evaluate this period.

## Public Health Implications

Access to effective contraception, including the most effective methods, is key to supporting individuals in achieving their reproductive goals, including avoiding unintended pregnancy. CHCs are an important access point for the most effective contraception for women of all ages, including women with low incomes or without insurance, who bear the largest burden of unplanned pregnancy.<sup>34</sup> We have shown that CHCs provide access to adolescents and young women to the most and moderately effective contraceptive methods, including the implant and IUDs. CHCs rely on diverse funding streams from the fragmented public family-planning service delivery system to provide contraceptive services, regardless of insurance status or ability to pay. Medicaid expansion under the Affordable Care Act,<sup>6</sup> the federal Title X family-planning program,<sup>13</sup> and state family-planning programs<sup>35</sup> all contribute to expanding access to contraceptive services in the safety net. CHCs must be supported to provide high-quality, developmentally appropriate, noncoercive, and confidential contraceptive services to adolescents and young women. AJPH

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#### CONTRIBUTORS

B. G. Darney and F. M. Biel conceptualized the study and conducted the analysis. B. G. Darney, F. M. Biel, and J. Oakley drafted the article. All authors participated in data interpretation and revised the article for intellectual content.

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**Note.** The funders had no role in data conceptualization, analysis, or interpretation.

#### **CONFLICTS OF INTEREST**

B. G. Darney's institution receives research support from Merck/Organon, and B. G. Darney serves on the Society of Family Planning board of directors. M. I. Rodriguez has served as a contraceptive trainer for Merck and the American Congress of Obstetricians and Gynecologists. She has served on a Bayer advisory board. She has served as a consultant for the World Health Organization. Her institution has received research funding from the Laura and John Arnold Foundation, the National Institutes of Health, Merck, and the Robert Wood Johnson Foundation on projects on which she is the PI. OHSU has reviewed and managed M. I. Rodriguez's potential conflicts of interest. AJPH

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#### HUMAN PARTICIPANT PROTECTION

This study was reviewed by the Western institutional review board.

#### REFERENCES

- Hatcher RA. Contraceptive Technology. 21st ed. New York, NY: Ayer; 2018.
- Kavanaugh ML, Pliskin E. Use of contraception among reproductive-aged women in the United States, 2014 and 2016. F S Rep. 2020;1(2):83–93. https://doi.org/10.1016/j.xfre.2020.06.006
- Law A, Yu JS, Wang W, Lin J, Lynen R. Trends and regional variations in provision of contraception methods in a commercially insured population in the United States based on nationally proposed measures. *Contraception*. 2017;96(3):175–182. https://doi.org/10.1016/j.contraception.2017.05.011
- Committee on Adolescence. Contraception for adolescents. *Pediatrics*. 2014;134(4):e1244–e1256. https://doi.org/10.1542/peds.2014-2299
- Ricketts S, Klingler G, Schwalberg R. Game change in Colorado: widespread use of long-acting reversible contraceptives and rapid decline in births among young. Iow-income women. *Perspect Sex Reprod Health.* 2014;46(3):125–132. https://doi.org/ 10.1363/46e1714
- Darney BG, Jacob RL, Hoopes M, et al. Evaluation of Medicaid expansion under the Affordable Care Act and contraceptive care in US community health centers. *JAMA Netw Open*. 2020;3(6):e206874. https://doi.org/10.1001/jamanetworkopen.2020. 6874
- Wood S, Beeson T, Bruen B, et al. Scope of family planning services available in federally qualified health centers. *Contraception*. 2014;89(2):85–90. https://doi.org/10.1016/j.contraception.2013.09. 015
- DeVoe JE, Gold R, Cottrell E, et al. The ADVANCE network: accelerating data value across a national community health center network. J Am Med Inform Assoc. 2014;21(4):591–595. https:// doi.org/10.1136/amiajnl-2014-002744
- National Association of Community Health Centers. Community Health Center chartbook. January 2021. Available at: https://www.nachc.org/wpcontent/uploads/2021/04/Chartbook-Final-2021. pdf. Accessed August 5, 2021.
- Angier H, Gold R, Gallia C, et al. Variation in outcomes of quality measurement by data source. *Pediatrics*. 2014;133(6):e1676–e1682. https://doi. org/10.1542/peds.2013-4277
- Heintzman J, Marino M, Hoopes M, et al. Supporting health insurance expansion: do electronic health records have valid insurance verification and enrollment data? *J Am Med Inform Assoc.* 2015;22(4):909–913. https://doi.org/10.1093/ jamia/ocv033
- Kaiser Family Foundation. The status of participation in the Title X Federal Family Planning Program. December 20, 2019. Available at: https:// www.kff.org/11b08e1. Accessed February 10, 2020.
- Darney BG, Biel FM, Hoopes M, et al. Title X improved access to most effective and moderately effective contraception in US safety-net clinics, 2016–18. *Health Aff (Millwood)*. 2022;41(4): 497–506. https://doi.org/10.1377/hlthaff.2021. 01483

- Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion. Effectiveness of family planning methods. 2014. Available at: https://www. cdc.gov/reproductivehealth/unintendedpregnancy/ pdf/family-planning-methods-2014.pdf. Accessed February 12, 2021.
- Office of Population Affairs. Contraceptive care measures. Available at: https://www.hhs.gov/opa/ performance-measures/index.html. Accessed October 18, 2018.
- US Department of Agriculture. Rural–urban commuting area codes. 2019. Available at: https:// www.ers.usda.gov/data-products/rural-urbancommuting-area-codes.aspx. Accessed March 30, 2019.
- Guttmacher Institute. Medicaid family planning eligibility expansions. January 1, 2022. Available at: https://www.guttmacher.org/state-policy/ explore/medicaid-family-planning-eligibilityexpansions. Accessed February 2, 2022.
- Henry J Kaiser Family Foundation. Status of state action on the Medicaid expansion decision. September 11, 2018. Available at: https://www.kff. org/907f6c5/. Accessed October 2, 2018.
- Wood S, Strasser J, Sharac J, et al. Community health centers and family planning in an era of policy uncertainty. March 15, 2018. Available at: https://www.kff.org/womens-health-policy/report/ community-health-centers-and-family-planningin-an-era-of-policy-uncertainty. Accessed November 21, 2021.
- Prescott GM, Matthews CM. Long-acting reversible contraception: a review in special populations. *Pharmacotherapy*. 2014;34(1):46–59. https://doi.org/10.1002/phar.1358
- Guttmacher Institute. Contraceptive use in the United States by method. 2021. Available at: https://www.guttmacher.org/fact-sheet/ contraceptive-method-use-united-states. Accessed November 9, 2021.
- Mestad R, Secura G, Allsworth JE, Madden T, Zhao Q, Peipert JF. Acceptance of long-acting reversible contraceptive methods by adolescent participants in the Contraceptive CHOICE Project. *Contraception*. 2011;84(5):493–498. https://doi. org/10.1016/j.contraception.2011.03.001
- Turok DK, Gawron LM, Lawson S. New developments in long-acting reversible contraception: the promise of intrauterine devices and implants to improve family planning services. *Fertil Steril.* 2016;106(6):1273–1281. https://doi.org/10.1016/ j.fertnstert.2016.09.034
- Diedrich JT, Klein DA, Peipert JF. Long-acting reversible contraception in adolescents: a systematic review and meta-analysis. *Am J Obstet Gynecol.* 2017;216(4):364.e1–364.e12. https://doi. org/10.1016/j.ajog.2016.12.024
- Murphy MK, Stoffel C, Nolan M, Haider S. Interdependent barriers to providing adolescents with long-acting reversible contraception: qualitative insights from providers. *J Pediatr Adolesc Gynecol.* 2016;29(5):436–442. https://doi.org/10. 1016/j.jpag.2016.01.125
- Committee on Practice Bulletins-Gynecology, Long-Acting Reversible Contraception Work Group. Practice Bulletin No. 186: Long-acting reversible contraception: implants and intrauterine devices. *Obstet Gynecol*. 2017;130(5):e251–e269. https://doi.org/10.1097/AOG.00000000002400
- 27. Higgins JA. Celebration meets caution: LARC's boons, potential busts, and the benefits of a

reproductive justice approach. *Contraception*. 2014;89(4):237–241. https://doi.org/10.1016/j. contraception.2014.01.027

- Gomez AM, Fuentes L, Allina A. Women or LARC first? Reproductive autonomy and the promotion of long-acting reversible contraceptive methods. *Perspect Sex Reprod Health*. 2014;46(3):171–175. https://doi.org/10.1363/46e1614
- Thompson KMJ, Rocca CH, Stern L, et al. Training contraceptive providers to offer intrauterine devices and implants in contraceptive care: a cluster randomized trial. *Am J Obstet Gynecol.* 2018;218(6):597.e1–597.e7. https://doi.org/10. 1016/j.ajog.2018.03.016
- Boudreaux M, Xie L, Choi YS, Roby DH, Rendall MS. Changes to contraceptive method use at Title X clinics following Delaware Contraceptive Access Now, 2008–2017. *Am J Public Health*. 2020;110(8):1214–1220. https://doi.org/10.2105/ AJPH.2020.305666
- Janiak E, Clark J, Bartz D, Langer A, Gottlieb B. Barriers and pathways to providing long-acting reversible contraceptives in Massachusetts community health centers: a qualitative exploration. *Perspect Sex Reprod Health*. 2018;50(3):111–118. https://doi.org/10.1363/psrh.12071
- Daniels K, Daugherty J, Jones J, Mosher W. Current contraceptive use and variation by selected characteristics among women aged 15–44: United States, 2011–2013. *Natl Health Stat Rep.* 2015;(86):1–14.
- Bearak JM, Finer LB, Jerman J, Kavanaugh ML. Changes in out-of-pocket costs for hormonal IUDs after implementation of the Affordable Care Act: an analysis of insurance benefit inquiries. Contraception. 2016;93(2):139–144. https:// doi.org/10.1016/j.contraception.2015.08.018
- Finer LB, Zolna MR. Declines in unintended pregnancy in the United States, 2008–2011. N Engl J Med. 2016;374(9):843–852. https://doi.org/10. 1056/NEJMsa1506575
- Rodriguez MI, Darney BG, Elman E, Linz R, Caughey AB, McConnell KJ. Examining quality of contraceptive services for adolescents in Oregon's family planning program. *Contraception*. 2015;91(4):328–335. https://doi.org/10.1016/j. contraception.2014.12.008

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