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Original Research

Factors Influencing the Provision of Long-Acting Reversible Contraception in California

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OBJECTIVE: To assess long-acting reversible contraception (LARC) beliefs and practices among site directors who represent the family planning services delivered in their practices.

METHODS: Medical directors from 1,000 sites listed in the Family Planning Access Care and Treatment program (California's family planning Medicaid program) provider database were mailed a survey in the fall of 2011 regarding their LARC beliefs and practices. Participants responded by mail, online, or telephone. Data on family planning clients served and LARC dispensing were obtained from administrative claims data. All analyses were limited to advanced practice clinician respondents. General estimating equation models identified the respondent and practice characteristics associated with LARC provision.

RESULTS: After three follow-up mailings and telephone calls, 68% of eligible sites responded to the survey (636/939). Most respondents were physicians (448/587). They were most likely to consider women with a history of pelvic inflammatory disease unsuitable for hormonal (27%, n=161) and copper (26%, n=154) intrauterine devices. Smokers were the most likely to be considered unsuitable for the implant (16%, n=96). Nearly three fourths of respondents routinely discussed intrauterine devices (413/561) and half (271/558) discussed implants with their contraceptive patients. Characteristics that predicted onsite LARC provision included LARC training, beliefs, and health care provider type.

CONCLUSION: Although there has been significant progress in expanding access and understanding about LARC, many clinicians from sites offering family planning services held beliefs limiting the provision of intrauterine devices and were unfamiliar with the implant, suggesting the need for targeted trainings aimed at informing clinicians of recent developments in LARC recommendations.

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In 2009, long-acting reversible contraception (LARC), which includes intrauterine contraceptive devices (IUDs) and the single-rod implant, was recommended by the American College of Obstetricians and Gynecologists as a first-line contraceptive option, noting the few contraindications and suitability for nearly all women,[1] yet barriers to LARC provision exist, including lack of awareness; misconceptions about their safety, side effects, and suitable candidates; lack of trained and experienced health care providers; and structural and financial obstacles.[2–11]

California's Family Planning Access Care and Treatment (PACT) Program, the largest Medicaid family planning expansion in the nation, serves more than 1.8 million clients annually and has eliminated the financial barrier to provision by offering LARC as well as all other contraceptives for free to low-income and uninsured California residents.[12] A survey conducted in 2006 found that almost all Family PACT clinicians considered IUDs to be safe, but felt they were suitable for a very limited pool of candidates, pointing to the need for health care provider trainings on updated insertion guidelines and method-specific side effects.[5,13] No published research has yet assessed Family PACT providers' implant delivery practices. Recognizing the relatively low use of LARC among

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its clients, a variety of training efforts aimed at increasing health care providers' capacity to deliver high-quality family planning services were implemented. From 2008 to 2010, the California Office of Family Planning disseminated information about LARC in the form of newsletters and web-based trainings (topics included counseling teen clients about LARC, making LARC available in your practice, and managing difficult IUD cases), and offered five in-person health care provider IUD insertion trainings. This study was conducted to assess LARC beliefs and practices among senior clinicians representing the family planning services delivered in their practices to evaluate the effect of enhanced training efforts and updated guidelines related to the provision of LARC services.

MATERIALS AND METHODS

California's Family PACT Program is administered by the California Department of Health Care Services, Office of Family Planning and operates under a Medicaid State Plan Amendment. The program provides contraception and reproductive health services to uninsured women and men under the 200% federal poverty level. Covered services include all contraceptive methods that have been approved by the U.S. Food and Drug Administration, screening and treatment for sexually transmitted infections, limited cancer screening and infertility services, and reproductive health education and counseling. To bill for Family PACT services, "clinician providers" must be enrolled in the program. They represent a practice site where clinical Family PACT services are delivered and include private practice physicians, group practices, and nonprofit community-based clinics. Each practice site receives a unique provider identification number, which was the basis for our sampling frame. In this article, we define a Family PACT site as an enrolled and rendering Family PACT clinician provider with a unique Family PACT provider identification number. Family PACT clients are defined as those who are enrolled and receive Family PACT program services according to Family PACT administrative claims data. Family PACT administrative claims data are derived from the program's database of health care provider enrollment and billing records.

We conducted a cross-sectional mail-in survey of medical directors representing Family PACT provider sites. A mail-in survey was chosen as the primary data collection method because contact information for each site and their medical director was available from the Family PACT provider database. The site medical director or senior clinician responsible for overseeing the site's family planning services was selected for participation based on the belief that their practices and beliefs have the greatest influence on the delivery of care at each site. One respondent represented the entire site. From a total of 2,168 enrolled Family PACT clinician provider sites who served women in fiscal year 2009–2010,[14] 1,020 were selected using the probability proportional to size sampling strategy whereby sites serving a greater number of clients have a greater probability of being selected. Questions on the survey instrument that covered the respondents' beliefs and practices were based on prior LARC research,[5,13] and additionally included items about the practice setting (see the Appendix, available online at http://links.lww.com/AOG/A471). The mail-in survey was first pilot-tested with 20 sites from the pool of 1,020 sampled sites to test comprehension and administration procedures. Before the initial mailing, the Office of Family Planning sent a letter requesting participation as part of program requirements. The final survey was mailed to the remaining 1,000 sites in early September 2011 with three follow-up mailings. Respondents were instructed to complete and return the survey by mail using a self-addressed envelope or to complete an identical survey online. All nonresponding sites were sent up to three follow-up reminder paper mailings. Nonresponding medical directors for whom we had e-mail addresses (659 health care providers) were sent weekly follow-up e-mails in addition to the paper reminder mailings to ensure a good response rate. Six weeks after the survey launch, the 402 nonresponding sites were telephoned to request participation (Fig. 1). Multiple surveys were received from 11 sites. In these cases, one survey from each site (selected randomly) was included in the final sample and the duplicate provider site was dropped from the denominator.

All data from paper surveys were entered in Microsoft Excel, and 15% were reentered to identify and correct any discrepancies based on hard-copy entries. Online surveys were downloaded into Excel and merged with the paper-based data. The study protocol was approved by the University of California, San Francisco, Committee on Human Research.

The survey included items on respondent and practice characteristics (Table 1). The number of Family PACT female clients served and whether a site billed for a LARC method was obtained from the Family PACT administrative claims database.

A list of patient types used in the previous study of Family PACT providers' IUD delivery practices[5] was adapted to assess health care providers' willingness to provide LARC to a broad range of patients.

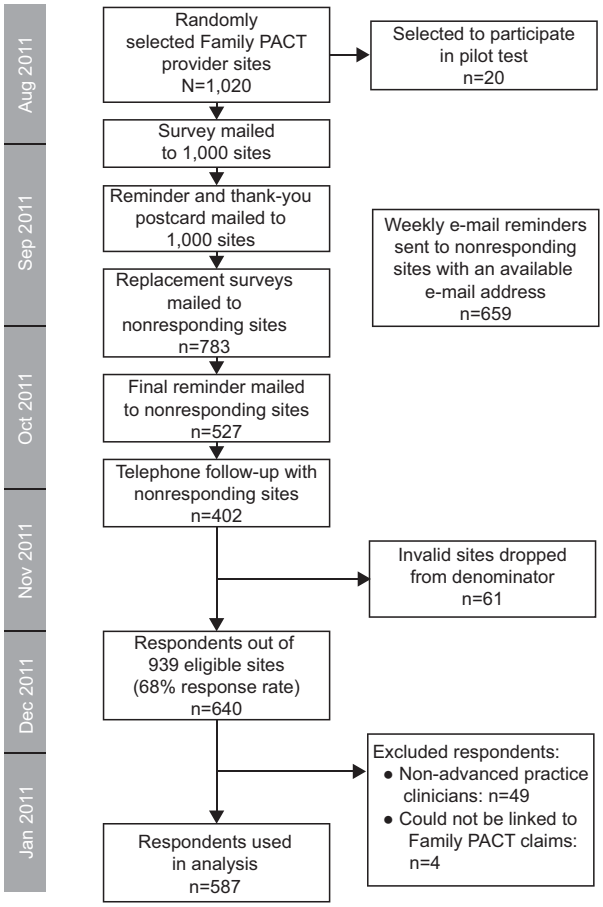

Fig. 1. Study flow diagram.

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Respondents were given a list of 11 patient characteristics (Table 2) and asked to check whether they considered the method inappropriate for these patient types. All patient categories are appropriate for LARC according to the Centers for Disease Control and Prevention guidelines.[15] One IUD restrictive view index was created (range 0–22, 11 patient types for each IUD) with higher scores representing a more restrictive view of suitable patients. A large proportion of respondents considered all patient types suitable for the implant. Thus, a restrictive view of suitable implant candidates was treated dichotomously (0=no inappropriate patient types compared with 1=one or more inappropriate patient types).

Respondents reported their LARC beliefs by selecting whether they strongly agree (4), agree (3), disagree (1), strongly disagree (0), or have no opinion (2) regarding nine IUD and four implant statements. The Beliefs That Favor IUD Provision Scale included nine items (Table 3). The six negative items were reverse-coded (IUD increases the risk of pelvic inflammatory disease, requires routine antibiotics, causes abortion, requires follow-up, are more likely to lead to lawsuits, and requires removal to treat for pelvic inflammatory disease). These six items were then added to the three positive items (IUD is safe, can be inserted immediately postpartum, and immediately postabortion) and averaged to derive a score (range 0–4). The Beliefs That Favor Implant Provision Scale included four items (implant is safe, can be inserted at any time in the menstrual cycle, causes little pain at the site of placement, and a follow-up visit is necessary after insertion). After reverse-coding the last item, an average score on all four items was calculated (range 0–4). Higher scores on each scale indicate beliefs that are more open to and favor LARC provision. These scales have not been validated and had an internal consistency of .73 and .66, respectively.

Respondents were asked with how many female patients seeking contraception they discuss each LARC method (hormonal and copper IUD and implant) with responses most, many, some, few, and none.

Onsite availability of the IUD and implant served as our outcome variables and were based on self-report and billing information. If respondents reported that they did not offer LARC methods onsite, but their site had a paid claim for a LARC method in fiscal year 2009–2010, we considered them to offer these methods onsite based on the assumption that a health care provider would not have a claim for LARC unless it was offered. Respondents who said they offered LARC onsite but had no paid claim for this method, were also considered as offering the method onsite based on the assumption that health care providers could bill under another payer source.

χ^2 analyses for categorical variables, *t* tests for normally distributed continuous variables, and Mann-Whitney tests for nonparametric continuous data were conducted to determine differences between respondent and practice characteristics and the outcome variables (Table 4). Cronbach's α reliability assessed the internal consistency of each scale. Although only one survey was collected per site, oftentimes sites were part of a larger agency, eg, a county health department, community clinic, or Planned Parenthood affiliate. For our multivariable analyses, generalized estimating equation models were used to account for clustering by the 467 agencies. Two multivariable models assessed associations between respondent and practice characteristics and whether sites offered IUDs or implants onsite (Table 5). Number of clients served and practice specialty were excluded from the multivariable

Table 1. Respondent and Practice Characteristics (N=587)

Characteristic	n	%
Respondent characteristics		
Professional background		
Physician	448	76
Nurse practitioner	95	16
Physician assistant	32	5
Certified nurse midwife	12	2
Medical director	367	63
Year completed residency or clinical training		
2000–2011	166	29
1985–1999	260	45
1960–1984	158	26
IUD insertion training		
No training	101	17
Yes	486	83
Residency or clinical training*	336	57
Company sponsored*	153	27
Implant insertion training		
No training	283	48
Yes	304	52
Residency or clinical training*	76	13
Company sponsored training*	249	44
Discusses LARC with most or many clients		
Hormonal IUD	413	74
Copper T IUD	413	74
Implant	271	49
Practice characteristics		
Health care provider type		
Private practice	279	48
Community health center	157	27
Planned Parenthood	83	14
County or city clinic	29	5
Other	39	7
Health care provider specialty		
General or internal medicine	240	41
Obstetrics–gynecology	159	27
Family planning	94	16
Multispecialty	72	12
Other	22	4
No. of Family PACT female clients served, claims fiscal year 2009–2010 [median (interquartile range)]	587	919 (1,433)
LARC methods available onsite, according to combined survey and claims		
Any LARC	421	72
Hormonal IUD	382	65
Copper T IUD	389	66
Implant	241	41
Changes in IUD provision since fiscal year 2007–2008, according to claims		
20% or greater increase	237	40
Less than 20% increase	22	4
No change	193	33
Any decrease	135	23
Changes in implant provision since fiscal year 2008–2009, according to claims		
20% or greater increase	142	24
Less than 20% increase	10	2
No change	412	70
Any decrease	23	4

IUD, intrauterine device; LARC, long-acting reversible contraception; PACT, Planning Access Care and Treatment.
* Respondents could choose more than one training category.

Table 2. Respondent Restrictive Long-Acting Reversible Contraception Views (N=587): Patient Types

Consider the Following Patient Types Inappropriate for LARC	Hormonal IUD	Copper T IUD	Implant
Nulliparous	21	20	7
History of STI in the past 2 years	20	21	4
History of ectopic pregnancy	23	22	4
History of pelvic inflammatory disease	27	26	4
Teenagers aged 15–19 y	22	21	8
Young adults aged 20–29 y	5	4	3
HIV-positive	13	13	6
Diabetic	9	5	10
Obese	7	3	11
Smoker	15	6	16
History of hypertension	13	5	14

LARC, long-acting reversible contraception; IUD, intrauterine device; STI, sexually transmitted infection; HIV, human immunodeficiency virus.
Data are %.

analyses because of their collinearity with health care provider type. Variables specific to each method were included in the models predicting those method outcomes. For example, when predicting IUD provision, we included IUD training and beliefs but not implant training or implant beliefs. All analyses were conducted in STATA 12.1. Significance is reported conservatively at $P<.01$ to avoid type I error that could result from multiple comparisons.

RESULTS

Six percent (61/1,000) of sites were found to be invalid as a result of closures (n=10), disenrollment (n=6), administrative (n=4), duplicate (n=9) or wrong (n=32) address, and did not serve female Family PACT clients in fiscal year 2009–2010 (n=6), leaving a final sample of 939 eligible sites. After three follow-up mailings, one follow-up telephone call, and up to six e-mail reminders for those with an available e-mail address, 636 of the 939 eligible sites completed the survey for a response rate of 68% (Fig. 1). Responding sites served a greater average number of Family PACT clients (1,794 compared with 931; $P<.001$) than nonresponders. Four surveys that could not be linked to the administrative database and 49 nonadvanced practice clinician respondents were excluded from all

Table 3. Respondent Beliefs That Favor Long-Acting Reversible Contraception Provision (N=587)

Belief	Strongly Agree or Agree	Strongly Disagree or Disagree	No Opinion
Beliefs that favor IUD provision (mean 2.07, range 0–4, scale α 0.73)			
Agreement with following IUD statements:			
IUD is safe	93	1	6
Can be inserted immediately postabortion	56	32	12
Can be inserted immediately postpartum	43	44	13
A follow-up visit is necessary after insertion-*R*	76	16	8
IUD causes abortion-*R*	41	43	16
Increases the risk for pelvic inflammatory disease-*R*	33	59	8
A patient should have her IUD removed to treat for pelvic inflammatory disease-*R*	34	57	9
Antibiotics should be given routinely at time of insertion-*R*	11	80	8
IUD is more likely to lead to lawsuits against me or my employer-*R*	11	71	19
Beliefs that favor implant provision (mean 2.5, range 0–4, scale α 0.66)			
Agreement with following implant statements:			
Implant is safe	80	1	19
Can be inserted any time in the menstrual cycle	61	15	24
Little pain is experienced at the site (arm) of placement	72	4	24
A follow-up visit is necessary after insertion-*R*	50	29	21

IUD, intrauterine device; *R,* item was reverse-coded for scale development.
Data are %.

Table 4. Bivariate Analyses Comparing Respondent and Practice Characteristics and Onsite Long-Acting Reversible Contraception Provision

Characteristic	Yes	No
IUD available onsite		
Respondent characteristics	70	30
Professional background		
Physician	65	35*
Nurse practitioner or certified nurse midwife	91	9
Physician assistant	66	35
Years since completed residency and clinical training (mean)	17.2	19.7*
Trained in IUD insertion	79	21*
Restrictive view of patients suitable for the IUD (median)	0*	3*
Beliefs that favor IUD provision (mean)	2.2	1.8*
Discusses IUD with many or most clients	83	17*
Practice characteristics		
Health care provider type		
Private practice	53	47*
Planned Parenthood	99	1
Community health center	88	12
County or city clinic	79	21
Other	49	51
Health care provider specialty		
General or internal medicine	57	43*
Obstetrics–gynecology	80	20
Family planning	89	11
Multispecialty	83	17
Other	14	43
Median no. of Family PACT female clients served, claims fiscal year 2009–2010 (in thousands)	1.11	.57*
Implant available onsite		
Respondent characteristics	41	59
Professional background		
Physician	34	66*
Nurse practitioner or certified nurse midwife	69	31
Physician assistant	44	56
Years since completed residency or clinical training (mean)	16.3	19.2*
Trained in implant insertion	65	35*
Restrictive view of patients suitable for the implant (view one or more patient types unsuitable)	23	77*
Beliefs that favor implant provision (mean)	2.8	2.3*
Discusses implant with many or most clients	70	30*
Practice characteristics		
Health care provider type		
Private practice	18	82*
Planned Parenthood	99	1
Community health center	48	52
County or city clinic	59	41
Other	41	59
Health care provider specialty		
General or internal medicine	29	71*
Obstetrics–gynecology	41	59
Family planning	74	26
Multispecialty	44	56
Other	23	77
Median number of Family PACT female clients served, claims fiscal year 2009–2010 (in thousands)	1.6	.67*

IUD, intrauterine device; PACT, Planning Access Care and Treatment.
Data are % unless otherwise specified.
* χ^2 and Mann-Whitney tests of significance for skewed data and *t* test for normally distributed data, where $P \leq .01$.

Table 5. Multivariable Logistic Regressions Predicting Onsite Long-Acting Reversible Contraception Provision

	Adjusted OR	95% CI
Offers IUD onsite		
Respondent characteristics		
Physician (compared with other advanced practice clinician)	.44	(0.22–0.90)
Years since completed residency or clinical training	1.00	(0.98–1.03)
Trained in IUD insertion	6.78*	(3.94–16.23)
Restrictive view of patients suitable for the IUD	.97	(0.93–1.01)
Beliefs that favor IUD provision	2.78*	(1.87–3.29)
Practice characteristics		
Health care provider type		
Private practice (reference)		
Planned Parenthood	14.81	(1.87–117.53)
Community health center	3.84*	(2.10–7.03)
County or city clinic	.99	(0.36–2.72)
Other	.51	(0.22–1.18)
Offers implant onsite		
Respondent characteristics		
Physician (compared with other advanced practice clinician)	1.61	(0.99–3.40)
Years since completed residency or clinical training	.99	(0.97–1.01)
Trained in implant insertion	7.71*	(4.79–12.41)
Restrictive view of patients suitable for the implant	.66	(0.378–1.19)
Beliefs that favor implant provision	2.50*	(1.74–2.74)
Practice characteristics		
Health care provider type		
Private practice (reference)		
Planned Parenthood	160.57*	(19.73–1,306.84)
Community health center	3.45*	(2.05–5.80)
County or city clinic	5.15*	(2.04–13.02)
Other	3.47*	(1.50–8.00)

OR, odds ratio; CI, confidence interval; IUD, intrauterine device.
* $P \leq .01$.

analyses, leaving a final sample of 587 for analysis. Most participants chose to complete the mail-in survey (75%), 22% completed the survey online, and on request, 3% completed the survey through a telephone interview with the lead author.

Respondent and site characteristics are presented in Table 1. Seventy-two percent of study respondents were physicians, 15% were nurse practitioners, 5% were physician assistants, and 2% were certified nurse midwives. More than half (62%) were site medical directors (n=362), 6% (n=34) were chiefs of obstetrics–gynecology or pediatrics, and the remaining respondents were assistant or associate medical directors, clinic managers, or other clinic staff (32%, n=184). Nearly half (45%) completed their clinical training between 1985 and 1999.

The median number of women provided a Family PACT service in fiscal year 2009–2010 was 919 ranging from 28 to 15,888 women per site (Table 1). Nearly half (44%) of sites experienced an increase in the number of Family PACT clients dispensed an IUD according to claims; more than one fourth (26%) experienced an increase in the number of clients dispensed an implant. Three fourths (74%) of respondents discussed IUDs and 49% discussed the implant routinely with many or most contraceptive patients (Table 1). Approximately 69% (395/573) of respondents reported that their site offered IUDs onsite, whereas 62% (363/587) had Family PACT claims for IUDs (not shown). Forty percent (218/544) of site respondents said the contraceptive implant was available onsite and 30% (175/587) had a paid claim for the implant (not shown). When self-report and administrative claims data were combined, most sites offered the hormonal (65%, n=382) and copper (66%, n=389) IUD onsite. Forty-one percent (n=241) of sites offered the contraceptive implant onsite. According to this combined measure, 72% (421/587) offered at least one of the three LARC methods onsite.

Respondents considered more types of women suitable for the implant than for IUDs ($P<.001$). They were least likely to consider women with a history of

pelvic inflammatory disease suitable for IUDs followed by nulliparous women, with a history of ectopic pregnancy, and teenagers (Table 2). Respondents were most likely to consider smokers (16%) and women with a history of hypertension (14%) inappropriate for the contraceptive implant.

Most respondents agreed (93%) that the IUD is safe. Approximately half correctly agreed that an IUD can be inserted immediately postabortion (56%) or immediately postpartum (43%; Table 3). Three fourths (76%) felt that a follow-up visit is necessary after an IUD insertion, 41% correctly disagreed that IUDs cause an abortion, one third (33%) felt that IUDs increase the risk of pelvic inflammatory disease, 57% disagreed that a patient with pelvic inflammatory disease needs to have her IUD removed to treat for pelvic inflammatory disease, 11% incorrectly believed that antibiotic prophylaxis is indicated at the time of IUD insertion, and 11% felt that an IUD is more likely to lead to lawsuits.

Most respondents viewed the implant as safe (80%) and 19% reported no opinion on safety. Sixty-one percent agreed that the implant can be inserted at any time in the menstrual cycle, 72% agreed that little pain is experienced at the site of placement, and 50% erroneously agreed that a follow-up visit is necessary after implant insertion (Table 3). In bivariate analyses, all respondent and practice characteristics were significantly associated with both outcome variables (Table 4).

According to multivariable logistic regression general estimation equation models, respondents representing community health centers were significantly more likely to offer the IUC onsite (odds ratio [OR] 3.84, 95% confidence interval [CI] 2.10–7.03) than private practice respondents. Respondents trained in IUD insertion (OR 9.15, CI 5.16–16.23) and who held beliefs that favor IUD provision (OR 2.03, CI 1.25–3.25) were more likely to represent a site that offers IUDs onsite than those without such training and less favorable beliefs.

Similar variables were significantly associated with onsite implant provision in multivariable analyses. When compared with private practice respondents, those from Planned Parenthood, community health centers, and county or city clinic sites were more likely to offer implants onsite. The unusually high OR for Planned Parenthood sites is the result of the limited variability among this group with all but one health care provider offering implants onsite. Respondents with implant insertion training (OR 7.71, CI 4.79–12.41) and who held more favorable beliefs about the implant (OR 1.91, CI 1.34–2.74) were more likely to represent a site with onsite implant provision.

DISCUSSION

These findings suggest increased provision and understanding about LARC among California health care providers. This sample represents an ideal scenario for LARC provision because the patient barrier of cost is removed through Family PACT reimbursement. Nearly all respondents (93%) viewed the IUD as safe, a proportion similar to the previous Family PACT and other surveys and higher than a national survey of health care providers where three fifths described IUDs as safe.[9,16] When compared with the prior Family PACT IUD survey, assessments of appropriate candidates for the IUD expanded on all measures, particularly on perceptions of the suitability of IUDs for nulliparous women and women with a history of ectopic pregnancy.[5] The vast majority of respondents in this study were aware that antibiotic prophylaxis and a follow-up visit are unnecessary for IUD care and few were concerned about lawsuits stemming from the provision of IUDs.

However, these results demonstrate that there is still need for practices and beliefs that favor LARC provision. Approximately one fifth of respondents would not recommend IUDs for teenagers, nulliparous women, or women with a history of pelvic inflammatory disease, ectopic pregnancy, or sexually transmitted Infections. A sizeable proportion did not believe that IUDs should be inserted postabortion or postpartum; approximately one third or more also believed that IUDs cause abortion. Such beliefs may lead to limited contraceptive choices for women and a greater burden on patients and health care providers by unnecessarily requiring additional visits and procedures. These findings point to the need to further strengthen and incorporate professional guidelines into health care provider education efforts so as to ensure that women are offered all the contraceptive choices available to them. Office of Family Planning training efforts have already shown success in changing IUD attitudes among Family PACT attendees.[17]

A considerable minority of respondents expressed no opinion regarding the safety or appropriate clinical protocols for the contraceptive implant. Those familiar with the contraceptive implant held a fairly expansive view of the patients considered suitable for this method, particularly when compared with the patients considered suitable for IUDs. On average, less than one patient type was considered inappropriate for the implant, yet one fifth of health care providers stated

they had "no opinion" regarding the implant's safety, insertion timing, whether a follow-up visit is necessary, or whether placement is painful, suggesting that a good level of understanding about this relatively new method has not yet been achieved.

Interestingly, although respondents held more expansive views about the implant than IUDs, fewer offer the implant than the IUD onsite. Nearly three fourths offer IUDs onsite compared with only 41% offering implants onsite, possibly a reflection of insufficient trained health care providers because only half reported training in this area. Health care providers may not be sufficiently skilled or knowledgeable about how to best provide the implant, low patient demand, or both may be influencing the lower level of implant compared with IUD provision.

Family PACT's diverse provider network is a valued component of the program, giving clients greater flexibility when choosing the health care provider that best suits their needs. Onsite insertion of LARC is also clearly an advantage to women, precluding them from having to seek care over several visits and potentially from different sites. However, the findings from this study show that inherent in this array of health care providers are diverse LARC beliefs and practices that in turn may shape and influence the options women are offered. Understanding the strategies implemented by the best performing health care providers could help design future interventions. Tailored training approaches for health care providers at sites not offering LARC methods would help reach the health care providers who may benefit most from such training.

This study must be viewed in light of its limitations. Our data are mostly based on self-report, which may not be an accurate measure of the extent of LARC counseling that takes place in each practice. Although we attempted to improve the reliability of our onsite LARC provision variable by creating a measure that included both self-report and billing data, both may be inaccurate. The respondent may not be fully aware of the types of methods available at their practice and claims data can include billing errors. In addition, each respondent represented the views of their entire site, which does not take into account the diversity of beliefs and practices that likely exist within each site. By choosing the medical director or senior clinician who oversees family planning services at each site, we hope to have captured the prevailing views that may influence the entire practice.

Furthermore, our scales and indices have not been validated and do not capture the complexity of an individual patient's profile, which may determine whether a clinician finds it appropriate to discuss and offer a particular method to its clients. Many respondents held "no opinion" on several items in our LARC beliefs scales, potentially limiting their validity. We chose to code "no opinion" as neutral but its meaning may vary for different items and respondents. Use of a different scoring methodology would have likely changed our results.

In our sampling strategy, the probability of selecting a Family PACT site was proportional to the number of female Family PACT clients served at the site. This method was used to ensure that our findings would be generalizable to the Family PACT provider population to whom the typical female client is exposed. Sites that served few female Family PACT clients are not well represented and their site directors likely hold different views and practices than those who responded to this survey.

Use of LARC services among Family PACT clients has increased significantly in recent years, surpassing that of national estimates.[12,18] These changes in LARC provision and use are likely the result of an array of factors including changing recommendations, increased training, and the changing, more favorable views of LARC presented in this study, yet many clinicians from sites offering family planning services have not kept pace with recent professional guidelines, suggesting the need for continued work aimed at informing health care providers of current recommendations.

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