

# UCSF

## UC San Francisco Previously Published Works

### Title

Same-day LARC insertion attitudes and practices

### Permalink

<https://escholarship.org/uc/item/480777gh>

### Journal

Contraception, 88(5)

### ISSN

0010-7824

### Authors

Biggs, M Antonia  
Arons, Abigail  
Turner, Rita  
et al.

### Publication Date

2013-11-01

### DOI

10.1016/j.contraception.2013.05.012

Peer reviewed

Original research article

# Same-day LARC insertion attitudes and practices<sup>☆</sup>

M. Antonia Biggs<sup>a,\*</sup>, Abigail Arons<sup>a</sup>, Rita Turner<sup>b</sup>, Claire D. Brindis<sup>a</sup>

<sup>a</sup>*Bixby Center for Global Reproductive Health, University of California, San Francisco, San Francisco, CA 94118, USA*

<sup>b</sup>*Philliber Research Associates, Accord, NY, 12404, USA*

Received 12 March 2013; revised 6 May 2013; accepted 20 May 2013

## Abstract

**Background:** Little is known regarding clinicians' attitudes about or the extent to which the recommendation to offer same-day insertions for long-acting reversible contraception (LARC) is applied in practice.

**Study Design:** Since 2006, 47 family planning agencies in Colorado and Iowa participated in two initiatives to reduce unintended pregnancy by increasing LARC provision. Clinic directors ( $n=45$ ) and clinicians ( $n=114$ ) participating in these initiatives were interviewed and surveyed regarding their LARC provision practices and attitudes.

**Results:** Agencies required fewer visits for the contraceptive implant than for the intrauterine device (IUD). Only 18% of agencies typically offered an IUD, and 36% typically offered an implant in one visit. Years of experience and professional title significantly predicted attitudes about the number of visits required to get LARC.

**Discussion:** Barriers must be overcome for full implementation of professional LARC guidelines and for more women to receive chosen methods without the extra burden of multiple visits.

© 2013 Elsevier Inc. All rights reserved.

*Keywords:* Women; Low income; Long-acting reversible contraception; Iowa; Colorado; Family planning; Professional guidelines; Barriers to care

## 1. Introduction

Long-acting reversible contraception (LARC), which includes the intrauterine contraception device (IUD), specifically, hormonal (Mirena<sup>®</sup>) and copper T (ParaGard<sup>®</sup>) IUDs, and single rod, contraceptive implants (Implanon<sup>®</sup> and Nexplanon<sup>®</sup>), are highly effective because they do not require periodic user initiative, they provide continuous, long-term protection ranging from 3 to 10 years and are coitus independent [1]. Increasingly, LARC methods are being recommended as a first-line contraceptive option for the majority of women [1–4]. The American College of Obstetricians and Gynecologists (ACOG) has noted the few contraindications, many benefits and suitability of these methods for nearly all women [5–7]. In 2009, ACOG issued a recommendation to adopt same-day LARC insertion protocols, with the aim of reducing barriers and increasing LARC use [6]. The clinical recommendations

specifically state that LARC can be inserted at any time during the menstrual cycle as long as pregnancy is reasonably excluded and that routine sexually transmitted infection (STI) screening is not required unless the client is at high risk of STIs, in which case screening and insertion can occur on the same day or when the test results are available. In addition, ACOG recommends LARC insertion immediately following miscarriage, abortion and vaginal or cesarean delivery [5,6,8].

The proportion of reproductive-aged (ages 15–44) women using LARC methods in the US has increased in recent years from 2.4% in 2002 to 8.5% in 2009 [9]. This increase can partly be attributed to the expansion of women deemed suitable for LARC, changing demographics, direct to consumer marketing and increases in the number of providers trained in insertion and removal [10,11]. The Centers for Disease Control and Prevention Medical Eligibility Criteria gives IUDs and implants a classification<sup>1</sup> of 1 or 2 for women with a history of pelvic inflammatory disease, ectopic pregnancy, teenagers, nulliparous women, smokers,

<sup>☆</sup> Competing Interests: The authors declare that they have no competing interests.

\* Corresponding author.

E-mail addresses: [antonia.biggs@ucsf.edu](mailto:antonia.biggs@ucsf.edu), [m.antonia.biggs@gmail.com](mailto:m.antonia.biggs@gmail.com) (M.A. Biggs).

<sup>1</sup> Categories: 1 = a condition for which there is no restriction for the use of the contraceptive method, 2 = a condition for which the advantages of using the method generally outweigh the theoretical or proven risks.

women with a history of hypertension, HIV-positive women and diabetic and obese women [12]. While implant use in the US is higher than in other countries, IUD use continues to be substantially lower [13].

An important barrier to LARC provision may exist when clinic protocols do not allow women to receive a LARC method the same day she requests it, resulting in many women being lost to follow-up and placed at risk of an unintended pregnancy [14,15]. A recent (2012) study of postpartum adolescents in Colorado found that delaying the insertion procedure by just a few weeks resulted in a decreased likelihood of women receiving the LARC method that they intended to use [16]. Similarly, protocols that place IUDs immediately following an abortion have been shown to increase the rate of IUD use and to reduce repeat unintended pregnancies; failure to return for the visit was the most common reason for not getting a postabortion IUD [17,18]. Recent reports from family planning directors and staff have described the challenges that clients face due to outdated facility policies requiring multiple appointments to obtain LARC and to complete requisite consultations and screening tests before LARC insertions [19]. Additional barriers to LARC provision and use include cost barriers, negative attitudes and misconceptions about their safety and clinicians' lack of experience or comfort with insertion and removal [8,20–25].

While the copper T IUD is considered the most effective form of emergency contraception [26], it is not widely used for this purpose [27,28]. The inability of agencies to offer same-day insertions may prevent providers from offering this IUD as emergency contraception [29]. Other barriers to offering the IUD as emergency contraception include providers' concern that the IUD is appropriate for a limited range of clients, limited funds to purchase devices and lack of provider training [27,28].

Few studies have documented how often providers are able to insert LARC in one visit and the barriers leading to delay. A 2006 survey of over 1000 family planning providers in California found that only 7% offered an IUD in one visit [29]. A national study of US abortion providers in 2009 found that a small proportion offered immediate postabortion IUD (36%) and contraceptive implant (17%) placement [25]. Some of the barriers to immediate same-day postabortion LARC insertion included lack of same-day insertion protocols, lack of on-site Chlamydia testing and lack of time. Research on clinicians' attitudes about reducing the number of visits for LARC provision has been limited.

## 2. Materials and methods

### 2.1. The Colorado and Iowa initiatives

From 2006 to 2012, two statewide initiatives in Iowa and Colorado granted funding to all Title X providers in each state as well as other non-Title X family planning providers. The non-Title X family planning providers were selected because they were key leaders in family planning provision

in the state. A total of 47 family planning service agencies (15 in Iowa<sup>2</sup> and 32 in Colorado) were funded to expand their scope of services, improve their infrastructure and market their services — all with the aim of reducing unintended pregnancies in each state by increasing use of LARC. Forty-two of these agencies are Title X agencies, and 5 are non-Title X agencies. As part of a mixed-methods evaluation of these initiatives, data were collected from clinicians and clinic directors at initiative-funded agencies to assess their experiences providing LARC services. The purpose of this study is to assess clinical protocols and clinician attitudes regarding same-day LARC insertions and to identify the barriers to immediate LARC provision. This study is timed only a few years after ACOG's recommendation to providers to adopt same-day LARC insertion protocols, giving us the unique opportunity to assess whether and how these recommendations have begun to affect clinic protocols and clinician attitudes.

### 2.2. Study design and data collection

In the summer of 2012, clinicians and clinic directors from the 47 initiative-funded agencies were surveyed regarding clinic protocols and practices, including same-day insertion practices. The clinic directors from these agencies completed a short, online 30-item survey and participated in in-depth telephone interviews regarding their clinic protocols and practices. The clinic director survey included mostly close-ended questions regarding the demographic characteristics of the clinic director, agency characteristics, contraceptive offerings within their agency and LARC delivery strategies and practices being implemented at the agency level. Upon completion of the online survey, clinic directors were asked to participate in a telephone interview that included 18 questions, many of which were open-ended. The interviews lasted approximately 1 hour and captured views about the family planning climate in their communities, collaboration efforts and the reasons behind their LARC delivery protocols and practices. Clinic directors were asked to deliver a separate anonymous online survey link to up to five clinicians in their agency or the maximum number of clinicians available for sites with fewer than five clinicians. The clinician survey included 16 questions about clinician characteristics, experience delivering LARC methods and LARC attitudes. All research protocols and instruments were approved by the University of California, Committee on Human Research.

### 2.3. Measures

The following domains were included as part of the survey tools completed by clinic directors and clinicians participating in the initiative:

<sup>2</sup> There were originally 17 funded family planning agencies in Iowa; since the Planned Parenthood of the Heartland merger with 2 former Planned Parenthood affiliates, there are 15.

### 2.3.1. Number of visits typically required to get LARC

Clinic directors were asked, “At your clinics, how many visits are required and typical for a patient to receive an IUD?” They were instructed to indicate the number of “required” and “typical visits” and to answer a similar question for the contraceptive implant. Respondents were instructed to count all visits for counseling, assessment, laboratory testing and insertion. A dichotomous variable combining the average response for the required number of visits for an IUD and implant was created to measure “no more than one visit required for an IUD and implant insertion” and was included in the multivariable models.

### 2.3.2. Agency characteristics

The characteristics of the agencies were taken from the clinic director survey and interview and included whether the agency was a Title X provider, had either IUDs or contraceptive implants available on-site, whether the clinic provides laboratory services and whether the clinic director is concerned about LARC patients requiring less follow-up than users of other methods.

### 2.3.3. Clinicians' beliefs about same-day insertions

Clinicians were asked, “Do you think that the number of visits required to get an IUD or implant affects how many women choose these methods?” with a choice of three answer options: 1) no, not at all, 2) yes, sometimes and 3) yes, often. Both “yes” responses were collapsed to create one dichotomous measure. This measure served as the outcome variable in the multivariable model.

### 2.3.4. Reasons more than one LARC visit is required

The clinic director interviews included two open-ended questions regarding the number of visits required for LARC methods. Clinic directors were asked, “Do you think that the number of visits required to get LARC affects how many women choose these methods?” and “Is there some way you could reduce the number of visits required at your clinics?” These responses were analyzed qualitatively to identify reasons for more than one visit to receive LARC, the perceived impact of these protocols on LARC uptake among patients and barriers to reducing the number of visits.

## 2.4. Data analysis

Multivariable logistic regression analyses using Generalized Estimating Equations (GEE) to account for clustering by agency was used to identify significant predictors with clinicians' attitudes about same-day insertions. GEE are a population-averaged modeling approach commonly used to estimate the associations between clustering characteristics (in this case the agency) and individual-level outcomes (in this case clinician level outcomes) [30]. Age was excluded from the model due to its collinearity with years as a licensed practitioner. Qualitative responses from the clinic director interviews were typed verbatim and analyzed using a general inductive approach to triangulate with the quantitative data. One of the coauthors conducted all of the qualitative

analyses. All quantitative analyses were conducted in STATA 12.1.

## 3. Results

### 3.1. Sample characteristics

Clinic directors from 45 out of the 47 agencies surveyed completed a phone interview and survey; over 100 ( $n=114$ ) clinicians from 44 agencies (an average of 2.5 clinicians per agency) responded to the online survey; some clinicians may have been clinic directors and completed the clinic director survey and interview. The extent to which the same person may have completed both is unknown, as the clinician surveys were anonymous. Characteristics of agencies and clinic directors are presented in Table 1. Most agencies were located in Colorado (67%), were Title X agencies (91%) and offered LARC methods on-site (82%). Clinician characteristics are presented in Table 2. Nearly all clinicians were female (96%), and the majority were aged 45 and over (57%). Nearly half (48%) were nurse practitioners and served as a licensed clinician for 15 years or more (47%). Over one third (38%) of clinicians responded “not at all” in response to whether they think the number of visits required to get LARC affects how many women choose these methods; 43% responded “yes, sometimes,” and 19% responded “yes, often” (Table 2).

### 3.2. Agency capacity to offer same-day LARC

According to clinic directors, approximately half of the agencies required only one visit to provide an IUD (49%), and 59% required only one visit to insert a contraceptive implant. However, in practice, three quarters (76%) of clinic directors reported that two visits were typical to insert an IUD and 61% reported that two visits were typical to get an implant. A small proportion of clinic directors reported that three visits were typical for patients to have an IUD (5%) or implant (3%) insertion.

### 3.3. Multivariable analyses

Three multivariable logistic regression GEE models were run predicting clinicians' attitudes regarding whether the number of visits required to get LARC affects whether women choose these methods. The first model (Table 3) assessed the clinician-level predictors of believing that the number of visits required to get an IUD or an implant affects how many women choose these methods, indicating support for same-day insertion protocols. Nurse practitioners [odds ratio (OR) 0.21; 95% confidence interval (CI) 0.06–0.70] and clinicians with more years of experience as a licensed practitioner (OR 0.95; 95% CI 0.91–0.99) had significantly reduced odds of holding this belief.

The second model predicted clinicians' beliefs about same-day LARC insertions using agency-level characteristics as predictors (Table 3, Model 2). Significant predictors

Table 1  
Agency and clinic director characteristics (N=45)

	n	%
<i>Agency characteristics according to clinic directors</i>		
State of Colorado	30	67
State of Iowa	15	33
Title X agency	41	91
LARC available on-site	37	82
IUD	36	80
Implant	35	90
Laboratory services offered	39	87
Number of visits required to get an IUD		
1	20	49
2	19	46
3	2	5
Number of visits typical to get an IUD		
1	7	18
2	29	76
3	2	5
Number of visits required to get an implant		
1	23	59
2	16	41
Number of visits typical to get an implant		
1	13	36
2	22	61
3	1	3
<i>Clinic director characteristics</i>		
Female	44	98
Professional background		
Not a clinician (health administrator, president, chief executive officer, etc.)	14	31
Physician	1	2
Physician's assistant	1	2
Nurse Practitioner	10	22
Registered nurse	19	42
Years working at this agency		
1–3	8	13
4–9	10	23
10–14	8	18
15–24	11	25
25–42	7	16
Concerned that LARC patients require less follow-up	26	58

included working at a Title X agency (OR, 0.03; CI, 0.00–0.73), working at an agency that offers laboratory services (OR, 11.49; CI, 1.06–124.58) and representing an agency that does not require multiple visits for LARC insertions (OR, 2.79; CI, 1.06–7.34). The third model predicted clinicians' belief about same-day LARC insertions using both clinician-level and agency-level characteristics as predictors (Table 3, Model 3). Years of experience as a licensed practitioner was the only variable that remained significant in Model 3 (OR, 0.95; CI, 0.90–0.99).

### 3.4. Reasons for multivisit protocols

The 21 clinic directors who reported that multiple visits are necessary to provide LARC were asked whether they thought these protocols impacted the number of women choosing these methods and whether they could reduce the number of visits required. Over half (n=12) responded that

Table 2  
Clinician characteristics (n=114)

Clinician characteristics	n	%
Female	109	96
Age group		
25–34	19	17
35–44	30	26
45–54	26	23
55+	39	34
Professional title		
Physician	21	18
Physician's assistant	10	9
Nurse practitioner	55	48
Registered nurse	11	10
Certified nurse midwife/other	16	14
Years as a licensed practitioner		
1–3	15	13
4–9	28	25
10–14	17	15
15–24	29	25
25–42	25	22
Think number of visits required to get LARC affects how many women choose these methods		
Not at all	43	38
Yes, sometimes	49	43
Yes, often	21	19

one visit was not adequate time to complete comprehensive counseling and testing before inserting LARC methods. Several clinic directors (n=7) responded that their clinical staff wanted to spend enough time with a patient to go over her medical history, explain the different available methods, inform her about potential side effects and ensure that the method was a good fit for the patient. As one clinic director stated, clinicians “want to make sure the patient is fully aware of side effects.” In order to avoid the risk of method discontinuation, these clinicians wanted to allow their patients more time to consider their options and commit to the LARC method before having it inserted.

Several clinic directors (n=5) mentioned the need to test for pregnancy and STIs prior to inserting LARC methods, which they believed requires more time than is possible during one clinic visit, especially for clinics that do not have on-site laboratories. As one clinic director responded, “We always want to see if their pap is good.” Six clinic directors also mentioned the referral process as a reason for requiring more than one visit. Five of these clinics do not offer these methods on-site, so patients usually receive counseling and testing in one visit at the initial clinic site and then have a second visit at the referral site for their insertion procedure.

Two clinic directors mentioned the significant cost of LARC methods as a reason to give the patient more time between counseling and insertion. As one stated, “Because of the cost of the method, they do not want to insert if the patient doesn't seem committed to the method.” Another explained, “Providers are frugal in the respect that they don't want to insert a device that costs money and then, due to patient dissatisfaction, have to remove it. That is

Table 3

Multivariable logistic regression using GEE predicting clinicians' belief that the number of visits required to get an IUD or contraceptive implant affects how many women choose these methods

Clinician and agency characteristics	Model 1 (n=110)		Model 2 (n=107)		Model 3 (n=106)	
	OR	CI	OR	CI	OR	CI
Clinician level characteristics						
Professional title						
Physician (reference)						
Physician's assistant	1.06	[0.17, 6.82]			2.28	[0.24, 21.68]
Nurse practitioner	<b>0.21*</b>	[0.06, 0.70]			0.29	[0.07, 1.18]
Certified nurse midwife/other	1.79	[0.26, 12.40]			2.20	[0.28, 17.30]
Registered nurse	0.37	[0.08, 1.79]			0.37	[0.06, 2.30]
Years of experience as a licensed practitioner	<b>0.95*</b>	[0.91, 0.99]			<b>0.95*</b>	[0.90, 0.99]
Agency-level characteristics						
Title X provider			<b>0.03*</b>	[0.00, 0.73]	0.07	[0.00, 2.62]
No more than one visit required for an IUD and implant insertion			<b>2.79*</b>	[1.06, 7.34]	2.40	[0.84, 6.89]
Laboratory services offered			<b>11.49*</b>	[1.06, 124.58]	8.92	[0.78, 101.37]
LARC methods dispensed on-site			0.89	[0.21, 3.73]	1.41	[0.28, 7.01]
Clinic director concerned about LARC patients requiring less follow-up than users of other methods			1.48	[0.58, 3.77]	1.78	[0.63, 4.97]

\* p<.05.

why they [attempt to] make sure the patient is... sure about her decision.”

Some clinic directors responded that they had tried both types of protocols — a one-visit protocol and a multivisit protocol — for patients seeking LARC methods. Two agencies initially required multiple visits and found that they preferred to offer same-day LARC, to improve quality of care and increase the likelihood that the patient receives the method. “In the past, we had required more than one visit,” explained one clinic director, “and we found that was a barrier... One visit has decreased barriers and increased the likelihood of the client choosing the IUD.” Another clinic director stated that they used to require a delay for STI testing and found that very few patients had positive results, so “it was better to move forward with the one visit and not make the woman wait for the results” before insertion.

In contrast, one agency switched from providing same-day LARC to requiring multiple visits, to give patients more time to decide on the method and decrease the risk of method discontinuation over time. “We have done it both ways,” the clinic director explained, “and we have greater success with method continuation if they take more time to make the decision first.”

#### 4. Discussion

The providers surveyed in this study comprise a unique sample of clinicians working in agencies that have received dedicated funding aimed at increasing LARC use, including funding specifically for devices. The proportion of facilities able to dispense LARC methods on-site was markedly higher (over 90%) than that reported among a national sample of

Title X providers (35%–60%) [31], likely improving their ability to offer same-day LARC care. While other studies have assessed clinical protocols and barriers to contraceptive access from the clinician perspective [32], few have documented whether clinic protocols offer women same-day LARC insertion services. About one half of agencies in this study required no more than one visit for an IUD, a much higher proportion than that reported elsewhere (7%) [29], suggesting that changes in professional recommendations regarding insertion and/or participation in the initiatives may have influenced the protocols at these sites. New to the literature is our finding regarding same-day insertion protocols for the contraceptive implant. Agencies required fewer visits for the contraceptive implant than for the IUD.

Clinic directors pointed to attitudinal and systemic barriers preventing many agencies from offering immediate LARC placement. The primary challenge expressed by clinic directors was “fitting it all” — pregnancy and STI testing, cervical cancer screening and contraceptive counseling — in one visit, particularly for sites that do not have laboratory services. These barriers are similar to those limiting the provision of immediate postabortion LARC [25]. These challenges are inconsistent with ACOG's recommendation to adopt same-day insertion protocols [6]. For the women who may require STI screening, the lack of on-site laboratory services and need to wait for test results was a barrier to same-day provision. However, some providers seem to require screening tests for all women, prior to IUD and implant placement, rather than limiting STI screening to those at high risk of STIs; STI screening should not be required prior to implant insertions [33]. While it will be difficult to overcome the barrier of not having laboratory services on-site, a better understanding of the circumstances

under which screening tests should be required may facilitate providers' ability to offer same-day LARC care.

Attitudes about same-day LARC insertions also played a role in limiting agencies' ability to offer immediate LARC placement. Over one third of clinicians did not feel that requiring multiple visits would deter women from selecting LARC methods. Furthermore, many clinic directors held the belief, or reported that clinicians at their agency held the belief, that delaying the insertion procedure was a means to improve the quality of care. By offering dedicated contraceptive counseling and testing and allowing more time between method counseling and LARC insertion, clinic directors and clinicians hoped to give women more time to fully understand common side effects and to "commit" to a long-acting method — all with the hope of reducing the risk of discontinuation. Providers' desire to offer women the most comprehensive care must be weighed against the lost opportunities to deliver effective contraceptives and the increased risk of an unintended pregnancy that is created by requiring women to return for a subsequent visit. Multiple visits place an unnecessary burden on patients and increase their likelihood of engaging in unprotected intercourse before returning to the clinic and of not returning for their required second or third insertion visit.

Clinic directors' mention of cost concerns among providers is especially interesting in this study, where the cost of LARC devices was eased by the funder. Even in the context of subsidized LARC methods, it seems clinicians still consider these methods expensive and, thus, requiring serious commitment by the patient. The fact that some agencies have experimented with various visit protocols for LARC methods and arrived at different conclusions points to the diversity of opinions surrounding this topic and the need for additional provider education and training regarding professional guidelines. Furthermore, clinicians might benefit from having additional information on patient outcomes, including level of patient satisfaction with single versus multiple-visit requirements, as well as the levels of method continuation stemming from different clinic practices.

Some of the differences in attitudes towards same-day insertions were explained by provider characteristics. Provider LARC attitudes were associated with their number of years of experience as a licensed practitioner and professional title, suggesting that younger providers and physicians may be better trained and familiar with the latest protocols and professional guidelines. Similarly, a study of health care providers attending meetings of the professional societies of family medicine and obstetrics and gynecology found that younger providers and obstetrician/gynecologist providers were more knowledgeable about IUDs [20]. Our finding that clinicians from Title X providers held less favorable attitudes about same-day LARC provision is surprising, as Title X clinics have played a key role in LARC provision and have been shown to be more likely to offer LARC methods than non-Title X providers in other states [34]. This result is probably a reflection of the

unique sample of providers that participated in the initiative. The non-Title X family planning providers were selected because they were well known to play a prominent and leading role in family planning provision in the state, likely explaining why their LARC attitudes were more favorable.

This study should be interpreted in the context of its limitations. One obvious limitation is that the data were based on clinicians' and clinic directors' self-report, which does not precisely measure the protocols regarding same-day insertions. In addition, we did not capture the number of visits it actually takes for a client to have a LARC method placed. The actual number of visits may be different from that reported by the clinic director, or may vary widely, depending on patient and clinician characteristics. Although the study sample included nearly all Title X providers in the states of Iowa and Colorado, the sample was relatively small, limiting the statistical power of our analyses and ability to detect statistically significant differences among the sample. In addition, the clinicians' surveys were not randomly distributed throughout each agency, potentially biasing our sample of clinicians to those most likely to respond.

The inability to offer same-day LARC insertions affects providers' ability to offer LARC immediately postpartum, postabortion and as emergency contraception. This practice is likely to deter a substantial number of clients from getting their desired method, missing an important opportunity for providing women with needed contraceptive care. Clinic director attitudes about the counseling and time required for adequate patient decision making, as well as concerns about method cost and discontinuation rates, may play a role in preferences for more than one visit prior to insertion. Concurrently, improving providers' understanding of and adherence to current professional guidelines, including the benefits of different kinds of LARCs for a wider array of clients, will hopefully optimize the mainstreaming of LARC insertion during the client's first visit.

## Acknowledgments

The authors thank Susan Philliber, the study's co-principal investigator, for conceptualizing the study and reviewing the manuscript; Heather Hirsch for study coordination and management; Ashley Philliber and Louis Mortillaro for project support; Charles McCulloch, Caitlin Gerdtts and Sarah Roberts for statistical support; and all of the participating agencies and staff. This study was supported by an anonymous foundation.

## References

- [1] Allen RH, Goldberg AB, Grimes DA: Expanding access to intrauterine contraception. *Am J Obstet Gynecol.* 2009, 201(5):456 e451-5.
- [2] Blumenthal PD, Voedisch A, Gemzell-Danielsson K. Strategies to prevent unintended pregnancy: increasing use of long-acting reversible contraception. *Hum Reprod Update* 2011;17(1):121–37.

- [3] Peipert JF, Madden T, Allsworth JE, Secura GM. Preventing unintended pregnancies by providing no-cost contraception. *Obstet Gynecol* 2012;120(6):1291–7.
- [4] Speidel JJ, Harper CC, Shields WC. The potential of long-acting reversible contraception to decrease unintended pregnancy. *Contraception* 2008;78(3):197–200.
- [5] ACOG Practice Bulletin No. 121: long-acting reversible contraception: implants and intrauterine devices. *Obstet Gynecol* 2011;118(1):184–96.
- [6] American College of O, Gynecologists Committee on Gynecologic P, Long-Acting Reversible Contraception Working G. ACOG Committee Opinion no. 450: increasing use of contraceptive implants and intrauterine devices to reduce unintended pregnancy. *Obstet Gynecol* 2009;114(6):1434–8.
- [7] Committee on Adolescent Health Care Long-Acting Reversible Contraception Working Group TACoO. Gynecologists: Committee opinion no. 539: adolescents and long-acting reversible contraception: implants and intrauterine devices. *Obstet Gynecol* 2012;120(4):983–8.
- [8] Madden T, Allsworth JE, Hladky KJ, Secura GM, Peipert JF. Intrauterine contraception in Saint Louis: a survey of obstetrician and gynecologists' knowledge and attitudes. *Contraception* 2010;81(2):112–6.
- [9] Finer LB, Jerman J, Kavanaugh ML. Changes in use of long-acting contraceptive methods in the United States, 2007–2009. *Fertil Steril* 2012;98(4):893–7.
- [10] Hubacher D, Finer LB, Espey E. Renewed interest in intrauterine contraception in the United States: evidence and explanation. *Contraception* 2011;83(4):291–4.
- [11] American College of Obstetricians and Gynecologists. Long-acting reversible contraception: implants and intrauterine devices. Practice Bulletin No. 121. *Obstet Gynecol* 2011;118:184–96.
- [12] Centers for Disease C. Prevention: U S. Medical Eligibility Criteria for Contraceptive Use, 2010. *MMWR Recomm Rep* 2010;59(RR-4):1–6.
- [13] United Nations, Department of Economic and Social Affairs, Population Division. *World Contraceptive Use 2010* 2011, <http://www.un.org/esa/population/publications/contraceptive2011/contraceptive2011.htm>.
- [14] Bergin A, Tristan S, Terplan M, Gilliam ML, Whitaker AK. A missed opportunity for care: two-visit IUD insertion protocols inhibit placement. *Contraception* 2012;86(6):694–7.
- [15] Ogburn JA, Espey E, Stonehocker J. Barriers to intrauterine device insertion in postpartum women. *Contraception* 2005;72(6):426–9.
- [16] Tocce K, Sheeder J, Python J, Teal SB. Long acting reversible contraception in postpartum adolescents: early initiation of etonogestrel implant is superior to IUDs in the outpatient setting. *J Pediatr Adolesc Gynecol* 2012;25(1):59–63.
- [17] Fox MC, Oat-Judge J, Severson K, Jamshidi RM, Singh RH, McDonald-Mosley R, et al. Immediate placement of intrauterine devices after first and second trimester pregnancy termination. *Contraception* 2011;83(1):34–40.
- [18] Cremer M, Bullard KA, Mosley RM, Weisberg C, Molaei M, Lerner V, et al. Immediate vs. delayed post-abortion copper T 380A IUD insertion in cases over 12 weeks of gestation. *Contraception* 2011;83(6):522–7.
- [19] Kavanaugh ML, Frohwirth L, Jerman J, Popkin R, Ethier K. Long-acting reversible contraception for adolescents and young adults: patient and provider perspectives. *J Pediatr Adolesc Gynecol* 2013;26(2):86–95.
- [20] Dehlendorf C, Levy K, Ruskin R, Steinauer J. Health care providers' knowledge about contraceptive evidence: a barrier to quality family planning care? *Contraception* 2010;81(4):292–8.
- [21] Kane RIG, Brown S, Purks N, Walling M, Killick S. Long-acting, reversible and permanent methods of contraception: insight into women's choice of method. *Qual Prim Care* 2009;17(2):107–14.
- [22] Wong RC, Bell RJ, Thunuguntla K, McNamee K, Vollenhoven B. Implanon users are less likely to be satisfied with their contraception after 6 months than IUD users. *Contraception* 2009;80(5):452–6.
- [23] Harper C, Raine TT, Thompson KK, Stratton LL, Speidel JJ. Advance practice clinicians and provision of long-acting reversible contraceptives in the United States: results from a national survey. *Contraception* 2011;84(3):333.
- [24] Adams K, Beal MW. Implanon: a review of the literature with recommendations for clinical management. *J Midwifery Womens Health* 2009;54(2):142–9.
- [25] Thompson KM, Speidel JJ, Saporta V, Waxman NJ, Harper CC. Contraceptive policies affect post-abortion provision of long-acting reversible contraception. *Contraception* 2011;83(1):41–7.
- [26] Cheng L, Che Y, Gulmezoglu AM. Interventions for emergency contraception. *Cochrane Database Syst Rev* 2012;8:CD001324.
- [27] Belden P, Harper CC, Speidel JJ. The copper IUD for emergency contraception, a neglected option. *Contraception* 2012;85(4):338–9.
- [28] Cleland K, Zhu H, Goldstuck N, Cheng L, Trussell J. The efficacy of intrauterine devices for emergency contraception: a systematic review of 35 years of experience. *Hum Reprod* 2012;27(7):1994–2000.
- [29] Harper CC, Speidel JJ, Drey EA, Trussell J, Blum M, Darney PD. Copper intrauterine device for emergency contraception clinical practice among contraceptive providers. *Obstet Gynecol* 2012;119(2):220–6.
- [30] Hubbard AE, Ahern J, Fleischer NL, Van der Laan M, Lippman SA, Jewell N, et al. To GEE or not to GEE: comparing population average and mixed models for estimating the associations between neighborhood risk factors and health. *Epidemiology* 2010;21(4):467–74.
- [31] Centers for Disease C. Prevention: contraceptive methods available to patients of office-based physicians and title X clinics — United States, 2009–2010. *MMWR Morb Mortal Wkly Rep* 2011;60(1):1–4.
- [32] Landry DJ, Wei J, Frost JJ. Public and private providers' involvement in improving their patients' contraceptive use. *Contraception* 2008;78(1):42–51.
- [33] ACOG Committee on Gynecological Practice. ACOG committee opinion No. 431: routine pelvic examination and cervical cytology screening. *Obstet Gynecol* 2009;113(5):1190–3.
- [34] Park HY, Rodriguez MI, Hulett D, Darney PD, Thiel de Bocanegra H. Long-acting reversible contraception method use among Title X providers and non-Title X providers in California. *Contraception* 2012;86(5):557–61.