

Original research article

# A missed opportunity for care: two-visit IUD insertion protocols inhibit placement

Ashlee Bergin<sup>a,\*</sup>, Sigrid Tristan<sup>b</sup>, Mishka Terplan<sup>c</sup>, Melissa L. Gilliam<sup>a</sup>, Amy K. Whitaker<sup>a</sup>

<sup>a</sup>University of Chicago Medical Center, Department of Obstetrics and Gynecology, Chicago, IL 60637, USA

<sup>b</sup>New York University School of Medicine, Department of Obstetrics and Gynecology, New York, NY 10016, USA

<sup>c</sup>University of Maryland School of Medicine, Department of Obstetrics, Gynecology and Reproductive Sciences, Department of Epidemiology and Public Health, Baltimore, MD 21201, USA

Received 1 December 2011; revised 14 May 2012; accepted 16 May 2012

## Abstract

**Background:** The intrauterine device (IUD) is a safe, long-acting, highly effective method of birth control. Two-visit protocols for IUD insertion may represent a barrier to IUD uptake.

**Study Design:** This study is a retrospective database review. We identified Medicaid-insured women who requested IUDs in our urban university-based clinic, which employed a two-visit protocol for IUD insertion. The number of women who returned for IUD insertion was determined. To compare women who underwent insertion to those who did not, bivariate and multivariable analyses were used.

**Results:** Of the 708 women who requested IUDs at the initial visit, only 385 had an IUD inserted (54.4%). Single women were less likely to return for IUD placement compared to women who had ever been married (52.4% vs. 70.3%;  $p < .01$ ). Patients who ordered IUDs at gynecologic visits were more likely to return as opposed to those who had them ordered at obstetrics-related visits (60.5% vs. 50.2%;  $p < .01$ ). Women who lived >10 miles away from the clinic were less likely to return for IUD insertion than women who lived <10 miles away from the clinic (45.3% vs. 56.2%;  $p = .03$ ). Race, age and type of IUD ordered were not significantly associated with probability of insertion.

**Conclusions:** Almost half of women who ordered IUDs did not return for insertion, suggesting that two-visit protocols hinder a woman's ability to have an IUD placed. We must eliminate barriers to IUD insertion.

© 2012 Elsevier Inc. All rights reserved.

**Keywords:** IUD (intrauterine device) insertion; Two-visit protocol; Barriers; Urban

## 1. Introduction

The intrauterine device (IUD) is a safe, long-acting, highly effective method of birth control. However, IUD use in the United States remains low [1]. Barriers to IUD placement are common and are an important contributor to low use. These barriers may include device cost, the lack of simple clinic insertion protocols and the misperceptions that IUDs are not appropriate for women who are nulliparous, young or unmarried [2–4]. Other barriers to clinician placement of IUDs include insufficient training and inaccurate knowledge about IUD benefits, risks and side effects [5].

In addition to these barriers, many providers use a two-visit protocol for IUD insertion. This approach requires a woman to see a provider on two separate occasions. Commonly cited reasons for the necessity of a two-visit protocol include insurance restrictions preventing reimbursement for IUD insertion if performed in conjunction with an annual exam or other service as well as the need for preinsertion sexually transmitted infection (STI) and pregnancy screening [6]. This requirement for two visits can be burdensome and may represent a missed opportunity for care. Single-visit protocols for other reproductive health services, including diagnosis and treatment of STIs as well as cervical cancer screening, have been shown to increase rates of treatment and follow-up [7–9].

Two-visit IUD insertion protocols have been studied most often in the postabortal and postpartum settings. A study of postpartum women showed that among women who chose an IUD at hospital discharge, only 65% returned for a

\* Corresponding author. University of Chicago Medical Center, Department of Obstetrics and Gynecology, 5841 S. Maryland Avenue MC 2050, Chicago, IL 60637, USA. Tel.: +1 708 636 9205; fax: +1 708 422 5505.

E-mail address: [abergin13@gmail.com](mailto:abergin13@gmail.com) (A. Bergin).

postpartum visit, and of these, 60% had an IUD placed [10]. Similarly, women who elect to undergo IUD placement after surgical abortion have insertion rates of 30%–71% when the IUD is not inserted immediately [4,11,12]. The current study evaluates IUD insertion rates in patients receiving routine gynecologic and postpartum care at a clinic associated with an urban teaching hospital. In addition, we determine the length of time that a two-visit protocol delays IUD insertion and consider predictors of returning for IUD placement.

## 2. Materials and methods

We performed a retrospective review of the billing database in an urban, university-based, obstetrics and gynecology clinic between May 1, 2007, and June 30, 2008. The clinic served a primarily low-income, Medicaid-insured population. A two-visit protocol was employed for IUD insertion: the first visit to order the IUD and the second visit for placement after the IUD had been received by the clinic. The IUDs were supplied to the clinic by Illinois Medicaid via a third party prescription vendor. Submitting the order form, processing the order, and shipping the device resulted in a two to three week delay between the order and receipt of the IUD. Women were usually scheduled to return for their IUD placement three to four weeks after the date of order.

Women with public insurance who had IUDs ordered between May 1, 2007, and June 30, 2008, from the clinic were included in the study. Patients were identified by IUD order forms, which were completed for all women at the first clinic visit. The IUD order form data were then linked with billing data to determine if and when an IUD was placed.

The primary outcome of the study was the proportion of women who returned after the first visit to have an IUD placed, defined as having an IUD placed by December 31, 2008, according to the billing database. We used this cutoff date to allow 6 months for IUD placement for the last person considered. The clinic closed in 2009, so we were unable to collect data beyond this time frame. These data were confirmed by a review of the electronic scheduling record that provided data on encounter type and diagnosis code. Discrepancies between the billing database and the electronic database were resolved by a review of the paper chart. Type of IUD and date of order were determined from the order form. The billing database provided information on marital status, race, address, type of visit at order and age. Distance lived from the clinic was calculated using GPS Visualizer, version 2008 (GPS Visualizer, Portland, OR, USA), which used longitude and latitude to calculate the straight line distance between the patient's address and the clinic.

We used descriptive statistics to determine baseline characteristics of the study population. Bivariate analysis was used to compare women who did and did not return for IUD insertion, using the  $\chi^2$  test or Fisher's Exact Test for categorical variables as appropriate and the *t* test for continuous variables. We compared the proportions of

patients who had the IUD placed within subgroups of the population using the  $\chi^2$  test. A *p* value < .05 was considered significant for all comparisons. Multivariable logistic regression analysis was performed treating all measured covariates as potential confounders. This analysis included all clinically relevant and available variables: age, race, marital status, IUD type, type of visit at the time of IUD order and distance lived from the clinic. We used STATA/SE, version 10.1, for Windows (StataCorp LP, College Station, TX, USA) for data analysis. This study was approved by the institutional review board of the University of Chicago's Biological Science Division.

## 3. Results

A total of 708 women had an IUD ordered at their request between May 1, 2007, and June 30, 2008. The majority of women were unmarried (90.3%, *n*=597) and African-American (92.2%, *n*=630). The mean age at time of order was 27 years. Most women requested the levonorgestrel-releasing intrauterine system (LNG-IUS, Mirena, Bayer HealthCare Pharmaceuticals, Wayne, NJ, USA) (95.5%, *n*=661) rather than the copper T380A (ParaGard, Barr Pharmaceuticals, Montvale, NJ, USA) (4.5%, *n*=31) (Table 1).

Of the 708 women who requested an IUD during this time period, 385 women returned for IUD placement (54.4%). The median time between order and insertion was 43 days, ranging from 1 to 392 days. Only 4.4% (17/385) of those who returned for placement did so more than 6 months after the order. Single women were less likely to return for IUD placement compared to women who had ever been married

Table 1  
Participant characteristics

Characteristic	All <i>n</i> =708	Inserted <i>n</i> =385	Not inserted <i>n</i> =323	<i>p</i> Value <sup>a</sup>
Age (years)	26.6 (±7.3)	27.0 (±7.5)	26.1 (±7.1)	.09
Race				.80
African-American	630 (92.2)	342 (91.4)	288 (93.2)	
Caucasian	12 (1.8)	8 (2.1)	4 (1.3)	
Hispanic	39 (5.7)	23 (6.2)	16 (5.2)	
Other	2 (0.3)	1 (0.3)	1 (0.3)	
Marital status				.006
Married	64 (9.7)	45 (12.6)	19 (6.3)	
Single	597 (90.3)	313 (87.4)	284 (93.7)	
Distance lived from clinic (miles)	7.2 (±0.4)	6.5 (±0.4)	8.0 (±0.7)	.048
Order visit type				.007
Obstetric	416 (58.8)	209 (54.3)	207 (64.3)	
Gynecologic	291 (41.2)	176 (45.7)	115 (35.7)	
Type of IUD ordered				.67
LNG-IUS	661 (95.5)	358 (95.2)	303 (95.9)	
Copper T380A	31 (4.5)	18 (4.8)	13 (4.1)	

Data are expressed as *n* (%) or mean (±SD).

<sup>a</sup> The *p* values compare women who had IUDs inserted to those who did not, using the *t* test for continuous variables and the  $\chi^2$  or the Fisher's Exact Test for categorical variables.

(52.4% vs. 70.3%;  $p=.006$ ). Only 50.2% of women who had IUDs ordered at pregnancy-related visits returned for insertion compared to 60.5% of those who had IUDs ordered at gynecologic visits ( $p=.007$ ). Race, age and type of IUD ordered were not significantly associated with probability of insertion (Fig. 1).

Women who lived further from the clinic were less likely to return for IUD placement. Those women who returned for IUD placement lived a mean of 6.5 miles from the clinic, while those women who did not return for IUD placement lived a mean of 8.0 miles from the clinic ( $p=.048$ ). Those women who lived >10 miles away from the clinic were significantly less likely to return for IUD insertion compared to women who lived <10 miles away (45.3% vs. 56.2%;  $p=.03$ ).

Multivariable analysis yielded the same correlates with IUD placement, demonstrating that single marital status [odds ratio (OR) 0.48, 95% confidence interval (CI) 0.26–0.88], gynecologic visit at time of IUD order (OR 1.54, 95% CI 1.08–2.19) and distance <10 miles from the clinic (OR 1.72, 95% CI 1.11–2.68) were significantly associated with whether an IUD was inserted, when controlling for age, race and type of IUD (Table 2).

#### 4. Discussion

The benefits of the IUD include convenience, reversibility, nonsurgical insertion and a low failure rate. Indeed, a recent American Congress of Obstetricians and Gynecologists (ACOG) Practice Bulletin concludes that IUDs can be offered to a broad population, including nulliparous women, women

Table 2

Adjusted ORs (with 95% CIs) of returning to the clinic for insertion of the IUD after initial visit

	OR <sup>a</sup> (95% CI)
Age <sup>b</sup>	1.01 (0.99–1.04)
African–American race (reference: Caucasian, Hispanic, other)	0.74 (0.40–1.40)
Single (reference: married)	0.48 (0.26–0.88)
Copper T380A (reference: LNG-IUS)	1.20 (0.56–2.60)
Gynecologic visit at time of order (reference: obstetric visit at time of order)	1.54 (1.08–2.19)
Lives <10 miles from clinic (reference: lives >10 miles from clinic)	1.72 (1.11–2.68)

<sup>a</sup> ORs mutually adjusted for all variables shown in the table.

<sup>b</sup> OR is for each 1-year increase in age.

with a history of ectopic pregnancy and women at high risk for STIs [13]. ACOG also encourages IUD use in adolescents [14].

Two-visit insertion protocols for IUD insertion serve as a critical impediment to IUD uptake. Conversely, single-visit protocols can improve the treatment continuum by providing seamless care. Single-visit protocols have been studied in the context of both STI and cervical cancer screening. STI testing compliance is poor when patients are required to return for a second visit for treatment [9], whereas point-of-care testing, which allows a single visit for STI diagnosis and treatment, increases follow-up and compliance [8]. Similarly, a single-visit protocol for diagnosis and treatment of high-risk cervical cancer screening results in significantly increasing the proportion of women who undergo treatment [7].

Our study evaluated a two-visit IUD insertion protocol in an outpatient obstetrical and gynecologic setting and

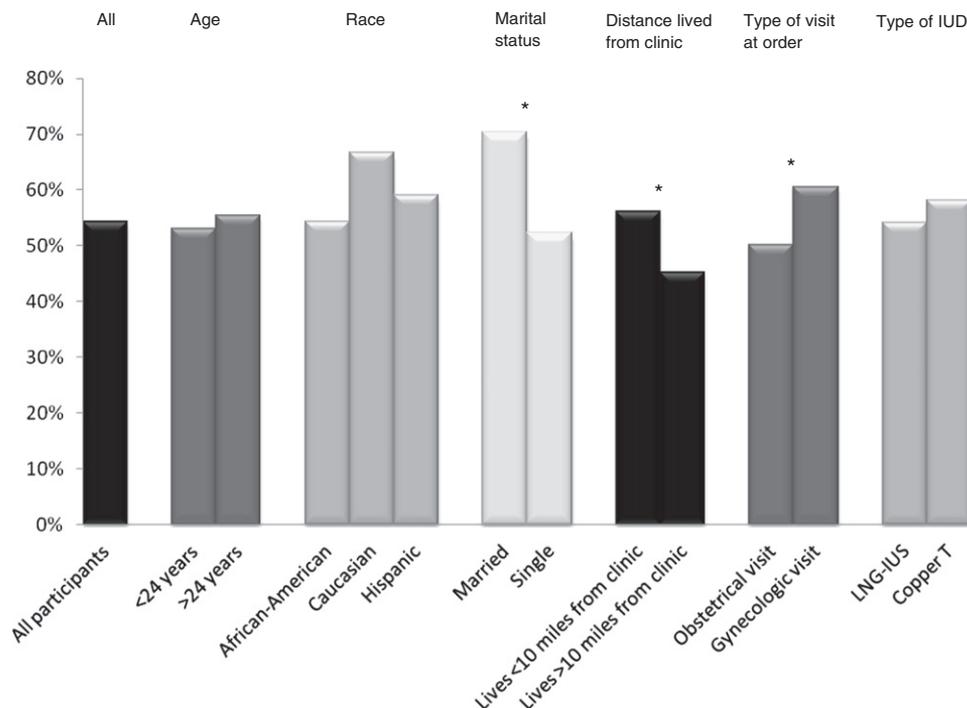


Fig. 1. Percentage of women who had IUD inserted. \*A significant difference ( $p<.05$ ) between groups.

demonstrated that only 54% of the patients for whom an IUD was ordered returned for IUD insertion. These data are consistent with previous studies showing that two-visit protocols in postpartum and postabortal settings frequently result in failure to obtain an IUD [4,10–12]. A recent decision analysis illustrates the impact of this policy, calculating that immediate IUD insertion after abortion could prevent 52 pregnancies over the following year for every 1000 women [15].

Barriers that impede women's attempts to obtain contraceptive care, such as multiple clinic visits and complex provider algorithms, decrease IUD use [2]. In a study investigating the reasons why women failed to obtain an IUD in a two-visit clinic setting, the principal barriers reported by patients were time needed for an additional visit, inability to return for appointment within the 6-week time period and lack of transportation for a subsequent clinic appointment [4]. Our retrospective study prevents such an analysis, but demonstrates that distance from the clinical site may pose an additional barrier to contraceptive care for sites using a two-visit protocol. Further, this study includes a large sample size and considers low-income, urban women at high risk of unintended pregnancy.

Our institution was enrolled in a program administered by the State of Illinois Medicaid program. The program required us to submit an order for each patient that desired an IUD, and subsequently, the IUD would be sent to our clinic. This arrangement resulted in the requirement for a two-visit protocol. A different strategy consists of buying the IUDs directly from the manufacturer and storing them on-site. This can allow for a single clinic visit, improving access. However, in many insurance plans, only one service can be billed per visit. Because of this restriction, it is not possible to perform both an annual exam and an IUD insertion on the same day and get reimbursed for both, which forces many providers to schedule a second visit and in turn creates another barrier for patients. Indeed, there are many obstacles to a single-visit protocol, and a recent study found that 93% of contraceptive providers in the United States require two or more visits for IUD insertion [16].

This study has several notable limitations. First, the medical billing database used as our primary source of information limits the number of variables available for examination. The database, however, is accurate for the outcome of interest, IUD placement, which is a billable service. Further, we are unlikely to have missed insertions, as women who receive care through the Illinois Medicaid system are unable to reorder the device from another provider. Second, we are unable to determine the reason for nonplacement of the IUD. It is possible that women changed their mind or obtained another method of contraception. Finally, given the homogeneous study population, differences in IUD placement based on race and IUD type could not be assessed adequately.

Despite its limitations, our study has important clinical implications. Single-visit protocols overcome a significant

barrier to IUD placement for patients during the gynecologic, postpartum or postabortal visit. This finding underscores the importance of single-visit IUD insertion protocols. Eliminating the barrier of the follow-up visit and developing more single-visit protocols can significantly and positively affect women's reproductive health.

### Acknowledgment

This research abstract was presented at Reproductive Health 2009 in Los Angeles, CA, USA. This study was unfunded.

### References

- [1] Mosher WD, Jones J. Use of contraception in the United States: 1982–2008. *Vital Health Stat* 23 2010;29:1–54.
- [2] Goodman S, Hendlish SK, Benedict C, Reeves MF, Pera-Floyd M, Foster-Rosales A. Increasing intrauterine contraception use by reducing barriers to post-abortal and interval insertion. *Contraception* 2008;78:136–42.
- [3] Harper CC, Blum M, de Bocanegra HT, et al. Challenges in translating evidence to practice: the provision of intrauterine contraception. *Obstet Gynecol* 2008;111:1359–69.
- [4] Stanek AM, Bednarek PH, Nichols MD, Jensen JT, Edelman AB. Barriers associated with the failure to return for intrauterine device insertion following first-trimester abortion. *Contraception* 2009;79:216–20.
- [5] 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;81:112–6.
- [6] Leeman L. Medical barriers to effective contraception. *Obstet Gynecol Clin North Am* 2007;34:19–29.
- [7] Brewster WR, Hubbell FA, Largent J, et al. Feasibility of management of high-grade cervical lesions in a single visit: a randomized controlled trial. *JAMA* 2005;294:2182–7.
- [8] Reed JL, Simendinger L, Griffith S, Kim HG, Huppert JS. Point-of-care testing for sexually transmitted infections increases awareness and short-term abstinence in adolescent women. *J Adolesc Health* 2010;46:270–7.
- [9] Schwabke JR, Sadler R, Sutton JM, Hook III EW. Positive screening tests for gonorrhea and chlamydial infection fail to lead consistently to treatment of patients attending a sexually transmitted disease clinic. *Sex Transm Dis* 1997;24:181–4.
- [10] Ogburn JA, Espey E, Stonehocker J. Barriers to intrauterine device insertion in postpartum women. *Contraception* 2005;72:426–9.
- [11] Bednarek PH, Creinin MD, Reeves MF, Cwiak C, Espey E, Jensen JT. Immediate versus delayed IUD insertion after uterine aspiration. *N Engl J Med* 2011;364:2208–17.
- [12] Cremer M, Bullard KA, Mosley RM, et al. Immediate vs. delayed post-abortal copper T 380A IUD insertion in cases over 12 weeks of gestation. *Contraception* 2011;83:522–7.
- [13] ACOG Practice Bulletin No. 121. Long-acting reversible contraception: implants and intrauterine devices. *Obstet Gynecol* 2011;118:184–96.
- [14] ACOG Committee Opinion No. 392. Intrauterine device and adolescents. *Obstet Gynecol* 2007;110:1493–5.
- [15] Reeves MF, Smith KJ, Creinin MD. Contraceptive effectiveness of immediate compared with delayed insertion of intrauterine devices after abortion: a decision analysis. *Obstet Gynecol* 2007;109:1286–94.
- [16] Harper CC, Speidel JJ, Drey E, Trussel J, Blum M, Darney PD. Copper intrauterine device for emergency contraception: clinical practice among contraceptive providers. *Obstet Gynecol* 2012;119:220–6.