

- Between 2007 and 2010, the Office of Family Planning offered ten IUC provider trainings to a total of 249 clinicians across the state. The training covered efficacy, side effects, insertion technique, and medical eligibility criteria for intrauterine contraception.
- The post-training survey showed that knowledge about IUC candidates increased an average of 40%. By the end of the training, over 90% of participants recognized that sexually transmitted disease history, pelvic inflammatory disease history, being adolescent or nulliparous does not rule out a patient as a candidate for IUC.
- Clinicians continued to incorrectly respond to post-training questions on postpartum and post-abortion IUC placement, and to overlook hormonal effects of Mirena or misattribute hormonal effects to ParaGard.



Research

Research Brief on

Intrauterine Contraception: Changes in Knowledge and Attitudes Following Skills-Based Training

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INTRODUCTION

Intrauterine contraception (IUC) is a very safe contraceptive method, with an annual failure rate of less than 1% compared to 9% for birth control pills and 18% for condoms.¹ Despite advantages such as long-term contraceptive coverage, high efficacy and safety, unobtrusiveness, and fast return of fertility, utilization of IUC is low in the United States and within the Family Planning, Access, Care, and Treatment (Family PACT) program, and it is less popular than other methods with higher failure rates. In fiscal year 2004-05, only 1.3% of female Family PACT clients had an IUC insertion. A 2006 Family PACT evaluation survey of 1,246 Family PACT clinicians regarding their knowledge and practices around IUC provision showed a number of knowledge gaps and erroneous beliefs among providers. These included the belief that IUCs have limited use and are only appropriate for a small number of contraceptive patients.²

While IUC does not depend on individual compliance to be highly effective, utilization does depend on the existence of willing, trained clinicians for insertion and removal. To increase the number of sites and clinicians that provide IUC placements, the Office of Family Planning offered a one-day IUC provider training that combined didactic training with hands-on supervised insertion practice to clinician providers of the Family PACT program. Ten of these trainings were provided between September 2007 and September 2010 at a variety of locations throughout the state. The curriculum covered efficacy, side effects, and medical eligibility criteria for candidate selection for the two IUC devices on the market during this period, the Copper T 380A (ParaGard™) and the levonorgestrel intrauterine system (LNG-IUS, Mirena™). Insertion techniques were demonstrated for both IUC devices since they are inserted with different techniques, and proctored insertion practice using a pelvic model was provided.

METHODS

Participating clinicians at each of the ten provider trainings completed a pre-training survey about their knowledge, attitudes, and current practices regarding IUC. In addition, they provided details about their demographics and medical training on IUC placements. At the end of the six-hour training, clinicians completed a post-training survey to assess changes in knowledge and attitudes towards IUC in response to the training. A total of 249 clinicians participated in the trainings, representing 173 unique provider sites. The pre- and post-training survey was completed by 231 clinicians.

Training Participants

The majority of clinicians were early or mid-career professionals, with a mean age of 45 years. Nearly two-thirds of all clinicians (63%) had been licensed practitioners for less than ten years -- most for five years or less, for a mean of nine years in practice. Seventy percent (70%) were advance practice clinicians (nurse practitioners, 48%; physician assistants, 22%) and the majority represented a general primary care specialty. Most of the participants were female (82%).

Participants reported seeing an average of 28 contraceptive patients a week, but the range was quite large – from none to 250 patients a week. The majority of clinicians represented public community clinic sites, though a sizeable minority came from private group or solo medical practices.

Figure 1. IUC Insertion Training Participant Demographics (n=249)

| | No. | % |
|---|-----|-----|
| Provider Sector/Office Practice Type | | |
| Private | 85 | 35% |
| Group/Solo Medical Practice | 57 | 24% |
| Multi-Office Practices | 11 | 5% |
| Hospital-Based Outpatient Clinic | 4 | 2% |
| Other | 13 | 5% |
| Public | 156 | 65% |
| Community Clinics | 109 | 45% |
| County or City Health Department Clinic | 22 | 9% |
| Planned Parenthood | 16 | 7% |
| School-Based Student Health Center | 9 | 4% |
| Missing/Not Recorded | 8 | |
| Primary Specialty | | |
| General Primary Care ^a | 161 | 67% |
| OB/GYN/Women's Health | 43 | 18% |
| Multi-Specialty | 19 | 8% |
| Pediatrics/Adolescent Medicine | 12 | 5% |
| Other | 6 | 2% |
| Missing/Not Recorded | 8 | |

^a Includes Family Practice, Internal Medicine and General Practice sites.

Source: 2011 UCSF Family PACT IUC Insertion Provider Training Database Records.

Participants' Clinical Practices Prior to Training Related to IUC Provision

Participants reported only rarely recommending Mirena for the additional non-contraceptive benefits it offers or ParaGard for emergency contraception. Just 29% reported ever recommending Mirena for the potential side benefits offered by its inclusion of hormones, such as reduction or cessation of painful or heavy menstruation. Only 18% of clinicians had ever recommended ParaGard for emergency contraception.

Prior to the training, clinicians reported very cautious practices relating to IUC provision. Insertion of the IUC can take place at any time during the menstrual cycle provided the woman is not pregnant. However, nearly a third of clinicians required a patient to be on her menses during insertion. Many reported routinely requiring hemoglobin, chlamydia, or cervical cytology testing before IUC placement. These tests are generally not necessary to establish a patient's eligibility for the method. Hemoglobin tests are not necessary and chlamydia tests are required before insertion only for women who are symptomatic. Pap smears are never necessary before insertion.

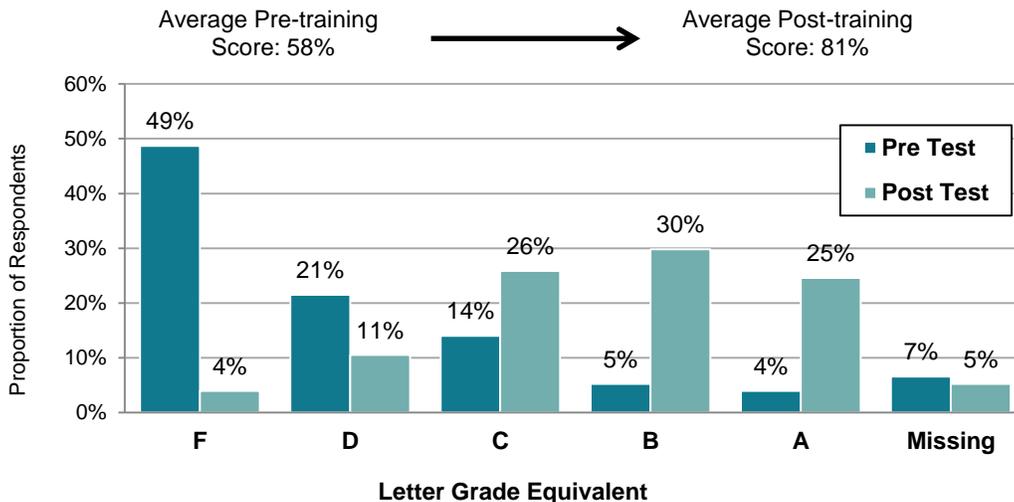
Figure 2. Participants' Clinical IUC Provision Practices Prior to Training:

| | No. | % |
|---|-----|------|
| Total | 231 | 100% |
| Patient must be on her menses during IUC insertion (n=204) | 60 | 29% |
| Hemoglobin test within the past three months (n=206) | 86 | 42% |
| Chlamydia test within the past three months for women 25 years or younger (n=208) | 190 | 91% |
| Chlamydia test within the past three months for women older than 25 years (n=206) | 154 | 75% |
| Pap smear within the past year (n=213) | 166 | 78% |

Source: 2011 UCSF Family PACT IUC Insertion Provider Training Database Records.

One primary goal of the training was to emphasize the broad range of women who can safely use IUC in order to increase provider’s awareness of the current medical eligibility criteria for this method. The pre- and post-training tests included nine categories of women potentially eligible for IUC, for a total IUC Candidate Scale score of 36 points. On the pre-test, few providers correctly identified all nine categories as eligible. However, by the end of training, the summary score for the IUC Candidate Scale had changed significantly, from 21 to 29 ($p < 0.001$), indicating that participants increased their overall knowledge of the wide range of appropriate IUC candidates. Translating this into a letter-grade equivalent, the average score on the IUC Candidate Scale prior to training was a grade of F (58%). After training, the average score on the IUC Candidate Scale had increased to a B grade (81%). By the end of the training, over 90% of participants recognized that sexually transmitted disease history, pelvic inflammatory disease history, age (teens), and parity (nulliparous) do not need to automatically rule out a patient as a candidate for IUC.

Figure 3. IUC Candidate Scale Scores: Proportion of Participants by Letter Grade Equivalent on the Pre-Training and Post-Training Surveys (n=231)



Source: 2011 UCSF Family PACT IUC Insertion Provider Training Database Records.

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The training covered the risks and benefits of IUC insertion in both the postpartum and post-abortion periods. Insertion of an IUC immediately after delivery has the advantage of knowing that the woman is not pregnant, and at this time she may have high motivation for accepting contraception. Immediate postpartum insertion of the ParaGard is considered generally safe and effective.³ However, this topic produced some confusion among participants: more than one in ten participants changed their initially correct answers to an incorrect answer and left the training indicating that placing an IUC postpartum or post-abortion is not appropriate. It could be that some providers become confused by the training's emphasis on how the specific timing of insertion impacts expulsion risk, causing them to erroneously conclude that postpartum and post-abortion women should not receive IUC placement at that time at all.

Figure 4. Clinicians' Opinions Regarding IUC Candidate Selection (n=231)

| | Percent Correct Answer ^a | | Percent Changed Original Answer | | Mean Change ^b |
|---|-------------------------------------|-------------|---------------------------------|-----------------|--------------------------|
| | Pre-Survey | Post-Survey | To Correct Answer | To Wrong Answer | |
| IUC can be inserted immediately after a woman gives birth (pre n=219; post n=227) | 52% | 75% | 67% | 15% | 0.78*** |
| IUC can be inserted immediately after a woman has an abortion (pre n=226; post n=229) | 56% | 95% | 92% | 13% | 0.86*** |

Source: 2011 UCSF Family PACT IUC Insertion Provider Training Database Records.

^a "Correct" equals combined answers of "strongly agree" and "agree."

^b Significance of mean change in item score using four-point Likert item response scale: * p<0.05; ** p<0.01; *** p<0.001.

Knowledge of IUC Device-Specific Side Effect Counseling Topics – Post-Training

The IUC training sought to provide clinicians with up-to-date information on the side effects that clients should be counseled on prior to adopting IUC, both to support informed consent and to prevent premature discontinuation of the method. Mirena has a different side effect profile than ParaGard and providers should help clients assess the benefits and risks of both devices when considering IUC.

Due to the levonorgestrel hormone in the Mirena device, more than 10% of Mirena users will experience lighter or shorter periods with up to 20% of users having their periods stop altogether (amenorrhea) after the first year of use.⁴ Smaller percentages of Mirena users may experience systemic hormonal side effects as well: between 5-10% of women will experience headache, acne, or depressed mood and less than 5% will experience breast tenderness.⁵ In contrast, ParaGard contains no hormones and therefore cannot reduce or eliminate menstrual flow. In fact, one of its common side effects is heavier or longer periods (menorrhagia) and clinicians should counsel all ParaGard patients about this likelihood. Unlike Mirena, ParaGard will not cause systemic hormonal side effects.

After the training, most clinicians understood that amenorrhea should be emphasized when counseling on Mirena; 81% would place strong emphasis on this factor. However, even after training, nearly one-third of clinicians reported that they would mention amenorrhea when counseling about ParaGard, and 21% would place strong emphasis on this non-applicable factor.

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On the post-training survey, the majority of clinicians did not report the systemic hormonal side effects as warranting strong emphasis when counseling on Mirena. Only a third of clinicians would place some or a lot of emphasis on these effects (headache, 33%; mood change, 37%; acne, 32%) even though substantial numbers of users will experience these effects and may discontinue use because of them. In addition, a fair proportion of providers did not recognize the importance of discussing these systemic hormonal effects for Mirena at all, even after training: between 21-30% would not even mention these effects. Other providers continued to show confusion about ParaGard: 27% would mention at least one systemic hormonal side effect for this method despite the lack of hormones in this device.

Figure 5. Proportion of Clinicians by Reported Emphasis that Clinician Would Place on

| Counseling Topic | Post-Training Survey Responses | | | | | |
|-----------------------------------|--------------------------------|----------------------|-------------|-----------------|---------|-------------|
| | Mirena | | | ParaGard | | |
| | Strong Emphasis ^a | Mention ^b | Not Mention | Strong Emphasis | Mention | Not Mention |
| Amenorrhea | 81% | 91% | 9% | 21% | 30% | 70% |
| Menorrhagia | 31% | 51% | 49% | 84% | 93% | 7% |
| At least one hormonal side effect | 43% | 86% | 14% | 15% | 27% | 73% |
| Headache | 33% | 71% | 29% | 12% | 23% | 77% |
| Mood change | 37% | 79% | 21% | 11% | 18% | 82% |
| Acne | 32% | 70% | 30% | 8% | 15% | 85% |
| Breast tenderness | 34% | 71% | 29% | 9% | 17% | 83% |

Source: 2011 UCSF Family PACT IUC Insertion Provider Training Database Records.

^a Strong Emphasis combines two response levels: "A lot" and "Some" emphasis placed on topic during counseling.

^b Mention combines three response levels "A lot," "Some," and "A little."

Clinicians' Attitudes about IUC

Before and after the training clinicians were asked six questions measuring attitudes towards IUC that could influence IUC provision. While the overwhelming majority of respondents already believed that IUC is safe (99%), nearly two-thirds of the clinicians (63%) endorsed at least one attitude or belief that could limit their willingness to offer IUC to all appropriate candidates on the pre-training survey. Of these questions, the greatest change occurred for the question regarding women desiring pregnancy within two years. On the pre-training survey, 27% of respondents indicated that a woman who wanted to get pregnant in two years should not receive IUC. After the training, only 8% continued to hold this belief, a statistically significant reduction ($p < 0.001$).

On the post-training survey, only 79 of the 231 clinicians (34%) continued to hold at least one potentially limiting attitude. The most common was the belief that non-monogamous women should not receive IUC (19% strongly agree/agree) and that IUC was more likely to lead to lawsuits than other methods (10% strongly agree/agree).

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Figure 6. Potentially Limiting Attitudes about IUC (n=231)

| | Pre Test | | Post Test | | Mean Change ^a |
|--|----------|-----|-----------|-----|--------------------------|
| | No. | % | No. | % | |
| a) The IUC is safe (pre n=187; post n=228) | | | | | 0.38 *** |
| Strongly agree | 83 | 44% | 189 | 83% | |
| Agree | 103 | 55% | 37 | 16% | |
| Disagree | 1 | 1% | 0 | 0% | |
| Strongly disagree | 0 | 0% | 2 | 1% | |
| b) I believe the IUC causes abortion (pre n=200; post n=228) | | | | | -0.55 *** |
| Strongly agree | 6 | 3% | 2 | 1% | |
| Agree | 14 | 7% | 9 | 4% | |
| Disagree | 70 | 35% | 63 | 28% | |
| Strongly disagree | 110 | 55% | 154 | 68% | |
| c) IUC more likely to lead to lawsuits (pre n=168; post n=221) | | | | | -0.91 *** |
| Strongly agree | 8 | 5% | 1 | 0% | |
| Agree | 33 | 20% | 22 | 10% | |
| Disagree | 79 | 47% | 110 | 50% | |
| Strongly disagree | 48 | 29% | 88 | 40% | |
| d) A woman who plans to get pregnant in two years should <u>not</u> have an IUC (pre n=216; post n=224) | | | | | -0.47 *** |
| Strongly agree | 11 | 5% | 1 | 0% | |
| Agree | 48 | 22% | 17 | 8% | |
| Disagree | 104 | 48% | 103 | 46% | |
| Strongly disagree | 53 | 25% | 103 | 46% | |
| e) A woman who is in a non-monogamous relationship should <u>not</u> have an IUC (pre n=225; post n=227) | | | | | -0.61 *** |
| Strongly agree | 36 | 16% | 9 | 4% | |
| Agree | 70 | 31% | 33 | 15% | |
| Disagree | 86 | 38% | 108 | 48% | |
| Strongly disagree | 33 | 15% | 77 | 34% | |
| f) A woman who is unmarried should <u>not</u> have an IUC (pre n=219; post n=227) | | | | | -0.28 *** |
| Strongly agree | 2 | 1% | 0 | 0% | |
| Agree | 8 | 4% | 3 | 1% | |
| Disagree | 127 | 58% | 99 | 44% | |
| Strongly disagree | 82 | 37% | 125 | 55% | |

Source: 2011 UCSF Family PACT IUC Insertion Provider Training Database Records.

^a Significance of mean change in item score using four-point Likert item response scale: * p<0.05; ** p<0.01; *** p<0.001.

CONCLUSION

Unintended pregnancy is an ongoing public health issue that can be best addressed by offering a woman access to the most effective contraceptive method that works for her lifestyle and medical history. Intrauterine contraception is a highly effective method that offers many advantages, but provider training is essential in order to increase the number of providers able to provide accurate information and willing to offer insertions without referral.

Participants in the training had measurable increases in their clinical knowledge about IUC and reductions in the strength of misconceptions that could potentially limit provision. The IUC trainings also reached providers most in need of this training opportunity including many

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practicing in family medicine or primary care and those who reported little training on IUC during their residency or advanced practice program. IUC insertion and removal is within the scope of practice of advanced practice clinicians in California and wider availability of advanced practice clinicians trained in IUC insertion could result in greater access to IUCs for patients.

Increasing access to women's choice of contraception best matched to their needs requires addressing the barriers to provision that providers' experience. The IUC trainings offered by the Office of Family Planning successfully addressed some of the barriers that limit IUC provision by improving providers' ability to counsel on and provide IUC insertions and removals. Allocating resources to in-person trainings is an important strategy for improving access to IUC. Hands-on practice are an important addition to didactic lectures in building providers' skill. Post-training assessment of participants can help organizations identify remaining points of confusion and any barriers that providers anticipate facing in translating knowledge into clinical practice. Based on the positive impact of Family PACT's IUC training, other healthcare programs may benefit from offering skills-based trainings to effectively reach more providers, increase clinician knowledge of IUC, and change attitudes that limit IUC provision.

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