ANNOTATED BIBLIOGRAPHY OF POSTPARTUM INTRAUTERINE CONTRACEPTIVE DEVICE

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COMPILED BY:

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Introduction

Globally, more effort is being made to reach out to women to encourage couples to deliver with a skilled birth attendant to reduce maternal mortality. Healthy timing and spacing is another life-saving intervention both for mothers and infants. Postpartum family planning (PPFP) gives couples the means to achieve healthy spacing of pregnancy or limiting if the couple has completed their families. Postpartum intrauterine contraception (PPIUD) is a component of postpartum family planning and can serve for both spacing and limiting. Health programs are looking at the intersection of births attended by skilled attendants and postpartum family planning.

To further understanding on PPIUDs, MCHIP explored journal articles published from 2000 to the present June 2012. The literature review began by searching on Medline, key words, postpartum IUD. The search was focused on Cooper T 380 A intrauterine devices, although a few studies included Mirena IUS. MCHIP asked experts in the field for contributions.

This bibliography was updated May 30, 2012 to include studies within the past year through a Medline search as stated above. Ten new studies were identified. They are differentiated from last year’s bibliography with a→ preceding the lead author.

**Background:** The 1990–2008 estimates for the maternal mortality associated with unsafe abortion require a re-examination. Objective: To provide the latest estimates of the mortality associated with unsafe abortion and to examine trends within the framework of new maternal mortality estimates.

**Search strategy:** Extensive search of databases and websites for country- and region-specific data on unsafe abortion. Selection criteria: Reports, papers, and websites with data on unsafe abortion incidence and mortality. Data collection and analysis: Earlier published estimates for the unsafe-abortion-related mortality were recalculated by country for 1990, 1997, 2000, and 2003 to harmonize with the new maternal mortality estimates. The resulting estimates were aggregated to give subregional, regional, and global figures, including those recently estimated for 2008. Main results: In 2008, unsafe abortions accounted for an estimated 47 000 maternal deaths, down from 69 000 in 1990. Globally, the unsafe-abortion mortality ratio has declined from 50 in 1990 to 30 in 2008. The overall burden of unsafe abortion mortality continues to be the highest in Africa.

**Conclusions:** Important gains have been made in reducing maternal deaths attributable to unsafe abortion. However, 1 in 8 maternal deaths globally and 1 in 5 maternal deaths in Eastern Africa continue to be attributable to unsafe abortion. Averting these preventable deaths can contribute to achieving Millennium Development Goal number 5 of improving maternal health.


**Objective:** To compare postplacental and early postpartum intrauterine device (IUD) insertions with postpuerperal and interval IUD insertions regarding the reason for continuation and discontinuation.

**Material and Methods:** A study of 130 women (84 postplacental and 46 postpartum) and a control group of 138 women (62 postpuerperal and 76 interval) who had T Cu 380A IUDs inserted were followed-up at 8 weeks and 6 and 12 months, and the data was analyzed.

**Results:** Continuation occurred in 38.6% of the study group and in 72.3% of the control group (p< 0.001). The highest continuation rate was in interval, postpuerperal and postplacental groups respectively (p< 0.05). The reason for discontinuation was frequently partial expulsion in the study group (52.6%) and displacement in the control group (27.8%). The insertion time of IUD most frequently discontinued was postplacental in the study group (55.2%) and interval in the control group (31.3%).

**Conclusion:** The results of this study suggest that the postplacental and early postpartum IUD insertion techniques should be re-evaluated in units that offer this service to decrease the rate of discontinuation due to complications (Akkuzu et al., 2009, abstract).


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BACKGROUND: In 2005, 97,254 abortions were performed in Canada, of which 38% were repeat abortions. The objective of this research was to determine if provision of free intrauterine devices (IUDs) postabortion is associated with a reduction in health-care costs and repeat abortions in a Canadian population compared with provision of oral contraceptives (OCPs) or depo-medroxyprogesterone acetate (DMPA).

STUDY DESIGN: A retrospective cohort study was conducted by intention-to-treat chart review in a facility providing the majority of abortions in a Canadian health region. All (n=1782) residents of this region who underwent abortion in 2003, 2004 and 2008 were included. One- and 5-year rates of repeat abortion were calculated, and a cost-effectiveness analysis was conducted to compare health-care system costs of providing patients with IUDs, OCPs or DMPA and subsequent repeat abortions.

RESULTS: In 2003 and 2004, 1101 index abortions occurred. The main contraceptive cohorts were immediate IUD insertion (n=117, 10.6%), immediate OCP (n=413, 37.5%) and immediate DMPA administration (n=357, 32.4%). After 5 years repeat abortion rates in the respective cohorts were: IUD, 9.4%, OCP, 17.4%, DMPA, 16.2% (p=.05). One-year rates of repeat abortion were not significantly different. Costs of providing contraception and subsequent abortions over 5 years were $142.63 (IUD), $385.61 (OCP) and $384.81 (DMPA) per user.

CONCLUSION: The immediate insertion of IUDs postabortion is associated with a lower 5-year rate of repeat abortion than provision of OCPs or DMPA. A cost reduction to the health-care system occurs when providing IUDs postabortion vs. alternate contraception of equivalent duration.


BACKGROUND: Intrauterine devices (IUDs) provide highly effective, reversible, long-term contraception that is appropriate for many women after first-trimester uterine aspiration. However, the effects of immediate versus delayed IUD insertion after uterine aspiration on rates of complications and IUD use are uncertain.

METHODS: We performed a randomized noninferiority trial involving women undergoing uterine aspiration for induced or spontaneous abortion at 5 to 12 weeks of gestation who desired an IUD. Subjects were randomly assigned (in a 5:6 ratio) to IUD insertion immediately after the procedure or 2 to 6 weeks afterward (delayed insertion). The primary outcome was the rate of IUD expulsion 6 months after IUD insertion; an expulsion rate 8 percentage points higher in the immediate-insertion group was defined as inferior.

RESULTS: Among 575 women who underwent randomization, an IUD was inserted in 100% (258 of 258) of the women in the immediate-insertion group and in 71.3% (226 of 317) of those in the delayed-insertion group (difference, 28.7 percentage points; 95% confidence interval [CI], 23.7 to 33.7). The 6-month expulsion risk was 5.0% (13 of 258 women) after immediate insertion and 2.7% (6 of 226) after delayed insertion (difference, 2.3 percentage points; 95% CI, –1.0 to 5.8), which was consistent with the predefined criterion for noninferiority. Six-month rates of IUD use were higher in the immediate-insertion group (92.3%, vs. 76.6% after delayed insertion; P<0.001). Adverse events were rare and did not differ significantly between groups. No pregnancies occurred in the immediate-insertion group; five occurred in the delayed insertion group (P = 0.07), all in women who never received an IUD.
CONCLUSIONS: The 6-month rate of expulsion of an IUD after immediate insertion was higher than but not inferior to that after delayed insertion. Immediate insertion resulted in higher rates of IUD use at 6 months, without an increased risk of complications. (Funded by the Susan Thompson Buffett Foundation; ClinicalTrials.gov number, NCT00562276.)


OBJECTIVE: To determine the frequency of expulsion of the intrauterine device TCu380A (IUD) inserted either immediately postpartum or after a delayed period. We aimed to identify the factors associated with expulsion.

MATERIALS AND METHODS: A longitudinal and comparative study was carried out in three Family Medicine Units of the Instituto Mexicano del Seguro Social (IMSS) of Leon, Guanajuato. One hundred twenty-five women who had a vaginal delivery and who elected to have IUD inserted immediately after delivery participated in the study along with 125 women who elected to have the IUD inserted after a delayed period after delivery. Studied factors were parity, technique, and insertion by the doctors assigned to the service and medical personnel in training (pre or postdegree). A medical review was performed one month and three months after insertion of the IUD. Results were analyzed by chi-square and Student t test.

RESULTS: The expulsion rates of IUDs during immediate puerperium and also after a delayed period were 16 and 2.7%, respectively (p<0.0004). There was no statistically significant association between expulsion of the IUD and the following factors that were taken into account: age, primipara, personnel who inserted the device, and the application technique. In immediate puerperium, 25.9% of women who had multiple deliveries expelled the IUD, and in those who delayed IUD insertion, it was 4% (p=0.03).

CONCLUSIONS: There is a greater risk of expulsion if the IUD is inserted immediately after delivery and it is associated with multiparity. The percentage of expulsion in immediate puerperium is similar to that reported in the literature.


Background: To describe the impact of the post-abortion family planning counseling in bringing about the contraceptive usage in women who had induced abortion in a family planning clinic.

Method: The Diyarbakir Office of Turkish Family Planning Association (DTFPA) is a nonprofit and nongovernmental organization which runs a family planning clinic to serve the lower socioeconomic populations, in Diyarbakir-Turkey. Post abortion counseling is introduced by using proper communication skills and with using appropriate methods to women. In this study we
introduced contraceptive usage of women who had induced abortion one year ago and followed by DTFPA's clinic.

**Results:** 55.3% of our clients were not using contraceptive methods before abortion. At the end of the one year, 75.9% of our followed-up clients revealed that they were using one of the modern contraceptive methods. There was no woman with IUD before induced abortion. At the end of one year 124 (52.3%) women had IUD. "A modern method was introduced immediately after abortion" was the most important factor increasing modern method usage.

**Conclusion:** Our results advocate that post-abortion counseling may be an effective tool to increase the usage of contraceptives. Improved and more qualified post-abortion family planning counseling should be an integral part of abortion services.


**OBJECTIVES:** To assess the efficacy, safety and, thus, advantages and disadvantages, of early postplacental intrauterine device (IUD) insertion.

**METHODS:** IUDs were inserted within 10 min after postplacental expulsion in term pregnancy both in vaginal and cesarean deliveries via a ring forceps. Of the 276 patients enrolled, 235 were included in the study. Recipients were scheduled for examination before hospital discharge and at 6 weeks, 6 months and 12 months after postplacental insertion. **RESULTS:** The percentages of women returning for a follow-up visit were 221 (94%), 210 (89%) and 183 (78%) at 6 weeks, 6 months and 12 months, respectively. Among IUD acceptors, 74% of the cases had vaginal deliveries and 26% had cesarean deliveries. Continuation rates were relatively high, 87.6% and 76.3%, at 6 and 12 months, respectively, after postplacental insertion of IUD. In this study, the 1-year cumulative expulsion rate with TCu 380A device was 12.3%, which may be regarded as a standard expulsion rate for immediate postplacental insertion of similar models of IUDs.

**CONCLUSION:** The evidence from this study suggests that immediate postplacental insertion of CuT 380 models is an effective, useful, safe, convenient and low-cost procedure for early postpartum contraception.


**Background:** An intrauterine device (IUD) is an effective reversible form of contraception. We determined the efficacy and safety of immediate post-placental IUD insertion during cesarean section.

**Study Design:** Two hundred forty-five women with term pregnancies delivering by cesarean section between September 2006 and December 2007 were included in the study. A copper IUD (TCu 380A) was inserted using a ring forceps within 10 min of removing the placenta. The participants were examined before hospital discharge and at 6 weeks, 6 months and 12 months postpartum.

**Results:** None of the patients were lost to follow-up. There was one case of an unplanned pregnancy
(0.4%). There were no serious complications associated with immediate IUD insertion during cesarean section. The cumulative rates of expulsion, removal for bleeding/pain and other medical reasons were 17.6, 8.2 and 2.4 per 100 women per year, respectively. The continuation rates were 81.6% and 62% at 6 and 12 months, respectively.

**Conclusion:** Immediate post-placental IUD insertion during cesarean section provides adequate protection against pregnancy. However, greater than one fourth of the participants discontinued IUD use due to spontaneous expulsion or other medical reasons.


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**BACKGROUND:** The objective of this study was to assess the effect of timing of postpartum levonorgestrel-releasing intrauterine device (IUD) insertion on breast-feeding continuation.

**Study Design:** Women interested in using a levonorgestrel IUD postpartum were randomized to immediate postplacental insertion (postplacental group) or insertion 6-8 weeks after vaginal delivery (delayed group). Duration and exclusivity of breast-feeding were assessed at 6-8 weeks, 3 months, and 6 months postpartum. Only women who received an IUD were included in this analysis.

**Results:** Breast-feeding was initiated by 32 (64%) of 50 of women receiving a postplacental IUD and 27 (58.7%) of 46 of women receiving a delayed IUD (p=.59). More women in the delayed group compared with the postplacental group continued to breast-feed at 6-8 weeks (16/46 vs. 15/50, p=.62), 3 months (13/46 vs. 7/50, p=.13), and 6 months postpartum (11/46 vs. 3/50, p=.02). The results did not differ when only women who initiated breast-feeding or only primiparous women with no prior breast-feeding experience were analyzed.

**Conclusions:** Immediate postplacental insertion of the levonorgestrel IUD is associated with shorter duration of breast-feeding and less exclusive breast-feeding. Further studies on the effects of early initiation of progestin-only methods on women’s lactation experience are needed. (Chen et al., 2011, Abstract)


**OBJECTIVES:** To compare outcomes in women undergoing immediate or delayed levonorgestrel-intrauterine device (IUD) insertion following first-trimester dilation and curettage (D and C), second-trimester dilation and evacuation (D and E) and vaginal delivery at term.

**METHOD:** We combined data from three studies that enrolled subjects concurrently at the University of Pittsburgh. In all three studies, women were randomized to immediate or delayed levonorgestrel-IUD insertion after D and C (n=243), D and E (n=88), and vaginal delivery (n=102). We compared immediate
and delayed insertion, expulsion, and 6-month IUD usage between studies. Expelled IUDs were replaced if desired. Subjects lost to follow-up were excluded from analysis of 6-month IUD usage. Outcomes were analyzed using chi-square and Fisher's exact tests as appropriate.

RESULTS: Expulsion was more common with post-placental insertion (24%) compared to immediate insertion after D and C (3%) and D and E (7%), (p<.001), but did not differ in the delayed arms (4%, 4% and 5%, respectively, p=1.0). More women returned for delayed insertion after vaginal delivery (90%) compared to D and C (70%) or D and E (46%), (p<.001). More women were lost to follow-up after D and E (39%) compared to D and C (20%) or vaginal delivery (12%), (p<.001). With a strategy of immediate insertion, 93% (152/163) of women were using IUDs at 6 months compared to 77% (135/175) of women who were provided delayed IUDs (p<.001).

CONCLUSIONS: Women undergoing immediate post-pregnancy IUD insertion are more likely to be using an IUD at 6 months. Return for delayed IUD insertion and expulsion are higher for postpartum women compared to women undergoing D and C or D and E. Loss to follow-up is high after D and E. (Chen et al., 2010, Abstract)


Background: The intrauterine device (IUD) is a safe, effective, well-tolerated form of contraception. Immediate placement after second trimester abortion could increase high-tier contraception use in women who are at high risk for unintended pregnancy.

Study Design: This randomized controlled trial compared immediate vs. delayed placement of Copper T380A IUD insertion 2–4 weeks after second trimester abortion. The primary outcome analyzed was the percentage of women using a copper T380A IUD 6 months after surgery. Secondary outcomes were percentage of subjects using other high or middle tier contraception, expulsion, infection and repeat pregnancy rates as well as IUD satisfaction. In expectation of a high loss to follow-up at 6 months, 215 subjects were enrolled for a desired sample size of 158 subjects.

Results: Contraceptive and pregnancy status at 6 months was known for 159 of 215 subjects. Women randomized to immediate insertion were significantly more likely to have an IUD at 6 months compared to delayed (81.7% vs. 28.4%, p=.003). Relative risk was 11.2 (95% CI 5–26). There were 8 (5.1%) of 159 repeat unintended pregnancies. No women had a repeat pregnancy that had an IUD placed in the operating room. In the as-treated analysis, 64 women in the immediate group received the IUD and 0% had a repeat pregnancy. Of the remaining 95 women, 8 (8.4%) had a repeat pregnancy. This is a statistically significant difference (p=.022).

Conclusion: Placing the IUD immediately after the procedure significantly increases the likelihood of use of effective contraception following a second-trimester procedure. Women who have an IUD placed immediately after their procedure may also be less likely to have a subsequent unplanned pregnancy.

Abstract: Uterine perforation is an uncommon complication of intrauterine devices (IUDs). Perforating IUDs can migrate to various locations but paradoxically are rarely found in ovaries or broad ligament. We describe an unusual case of a 23-year-old woman 1-month postpartum with an IUD translocation to the right adnexa. The IUD was inserted only 1 week prior to presentation, and she experienced pain on insertion. After visualization by ultrasound, the IUD was laparoscopically removed. We suggest early use of ultrasound in cases of potential IUD migration, particularly in high-risk patients and when IUD insertion causes pain.


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BACKGROUND: Long-acting reversible contraceptives (LARCs) and sterilization are the most cost-effective methods of contraception but are rarely used in sub-Saharan Africa partly due to limited access.

STUDY DESIGN: HIV-positive pregnant women attending two urban clinics in Rwanda were followed prospectively in a perinatal HIV transmission cohort study. Women attending one clinic were referred to public family planning (FP) services for all contraceptive methods (Site A) and women attending the other clinic (Site B) were offered implants and intrauterine devices (IUDs) on-site.

RESULTS: Fifty three percent of the pregnant women reported an intention to use a LARC or to be sterilized after delivery. The uptake of implants was significantly higher at Site B (38%) than at Site A (6%). The IUD uptake was extremely low at both sites (2%). Twenty-eight of the 39 women at Site B who had intended to start using a LARC actually did so as compared to only one of 23 at Site A.

CONCLUSION: When access to LARC was provided, a substantial number of HIV-positive women started using hormonal implants, but not IUDs, in the postpartum period. HIV and FP services should consider improving access to implants to reduce the number of unintended pregnancies


Objectives: Comparison between Cupper T380 IUD (intrauterine device) and Multiload 375 IUD insertion in early postpartum period in regard to safety, efficacy, side effects, and complications. Methods: A prospective randomized control trial enrolled 300 recently normally delivered females (within 48 h) in El-Shatby Maternity Hospital. The women were counseled for postpartum use of an IUD as a pre-discharge family planning method. Participants were randomly assigned to Cupper T380 (Cu T380) or Multiload 375 IUD insertion. Kelly's forceps was used for insertion of a Cu T380 IUD in 150 women and a Multiload 375 IUD in another 150 females. All women were administered a questionnaire, received a clinical examination, and underwent ultrasonographic scanning at 6 weeks and 6 months following IUD insertion.
Results: The expulsion rates were relatively high for both IUDs, amounting to 15% in Cu T380 compared to 14.9% in Multiload 375 insertions. There was a direct relation between the incidence of IUD expulsion in early postpartum insertion and the IUD-endometrial distance of the uterine fundus measured by ultrasound with 10 mm as a cutoff point. Early postpartum IUD insertion did not increase the discontinuation rate or the incidence of PID (upper genital tract infection). There was no significant difference between the IUDs regarding the safety, efficacy, side effects (such as expulsion and bleeding), and complications (such as perforation).

Conclusion: Both the Cu T380 IUD and Multiload 375 IUD are safe and effective as a pre-discharge family planning method when inserted during the early postpartum period. To decrease postpartum expulsion of IUDs, there is a need to use ultrasound scanning to measure the IUD endometrial distance in Egyptian contraceptive programs. (El Beltagy et al., 2010,

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OBJECTIVE: To evaluate the impact of a copper-containing intrauterine contraceptive device (IUCD) and the levonorgestrel-releasing intrauterine system (IUS) on puerperal and menstrual bleeding when fitted intraoperatively during scheduled elective cesarean.

METHODS: Participants were allocated to 3 groups: cesarean with no device inserted; IUCD inserted during cesarean; and IUS inserted during cesarean.

RESULTS: There was significantly shorter and lighter puerperium in the IUS group (20.2 ± 7.7 days and 3.1 ± 1.6 pads/day) than in the IUCD (33.4 ± 9.5 days and 4.9 ± 2.4 pads/day) and the control (27.0 ± 11.4 days and 4.9 ± 2.3 pads/day) groups (P<0.012 and P<0.0001, respectively). At the end of puerperium, mean duration of amenorrhea was significantly longer in the IUS group than in the IUCD and control groups (P<0.0001). Menstrual periods were longer and heavier in the IUCD group than in the control group but the difference was not significant (P>0.07). In the IUS group, menstrual periods were significantly shorter and lighter than in the other groups (P<0.0001).

CONCLUSION: Intrauterine system fitting at the time of elective cesarean is associated with significant reductions in the duration and amount of puerperal blood loss, as well as a high incidence of amenorrhea and lighter periods thereafter.


Objective: The aim of this study was to evaluate the effect of postpartum counseling on postpartum contraceptive use.

Methods: One hundred and forty-three women who delivered between 1 January 2004 and 31 September 2004 and counseled about postpartum contraception were included in the study. The
participants were interviewed by telephone. Age, gravidity, parity, and mode of delivery of the participants were recorded. Their method of contraception before pregnancy, their decision on the contraceptive method after counseling and the method actually used were asked.

**Results:** Just after postpartum counseling, 47 women (32.9%) decided to use the intrauterine device (IUD), 23 (16.1%) condoms, 16 (11.2%) progestin injections, 7 (4.9%) oral contraceptives, and 7 (4.9%) coitus interruptus for contraception. Thirty-six women (25.2%) did not decide on any method of use. At the time of the telephone interview the actual method used was learned. Fifty-one women (35.7%) were using coitus interruptus, 45 women (31.5%) condoms, and 14 (9.8%) the IUD. Sixteen women (11.2%) were reported as not using any methods.

**Conclusion:** In spite of postpartum counseling, a high majority of the women appeared to use traditional and less effective contraception methods” (Engin-Ustun et al., 2007, abstract).


**Objective:** This study aimed to compare immediate postplacental (IPP) and early postpartum (EP) intrauterine device (IUD) insertions with interval (INT) IUD insertions with respect to efficacy and complications.

**Methods:** The study group consisted of 268 women in whom the following TCu 380A IUD insertions were performed: 84 IPP (less than 10 min), 46 EP (10 min to 72 h) and 138 INT (more than 6 weeks). The women were followed up 8 weeks, 6 months and 12 months after insertion. Complications and pregnancies encountered at the end of 1 year following IPP, EP and INT insertions were compared. The chi-square test and Fisher's Exact Test were used for the evaluation of the data.

**Results:** Complications developed in 40.4% of the women in the IPP group, in 74.4% of the women in the EP group and in 19.2% of the women in the INT group (p<.001). Although no statistically significant difference was found between the groups for uterine perforation and infection (p>.001), there was a statistically significant difference between the groups in the incidence of complete and partial expulsion according to the time of IUD insertion. The overall cumulative pregnancy rate and frequency of pregnancy were found to be higher (p>.05 for both), which are both insignificant for the EP group (2 of 43 women), as compared with the INT (4 of 130 women) and IPP groups (2 of 84 women), and pregnancy rates at 1 year for all groups was 3.1% (8 of 257 women).

**Conclusion:** IPP and EP insertion of the TCu 380A IUD is an effective and convenient procedure, and expulsion rates in these groups are higher than in the INT group. Further studies are necessary to determine the cause of the higher expulsion rates and to find ways to reduce such rates” (Eroglu et al., 2006, abstract).


**Background:** We reviewed our experience with intrauterine device (IUD) placement after surgical abortion up to 20 weeks' gestation.
**Study Design:** Women presenting for elective abortion between January 2004 and March 2009 who requested an IUD were included in this retrospective review.

**Results:** Of 308 women requesting postabortion IUD placement, 221 (72%) planned insertion at the time of abortion (immediate group) and 87 (28%) planned insertion at their postoperative visit (interval group). IUDs were placed in 96% of the immediate group and in 23% of the interval group (212/221 vs. 20/87; pb.0001). Failure to return for placement was the most common reason for non-insertion in the interval group (60/87=69%). Follow-up information was obtained for 56% of patients and was documented a median of 137 days postabortion (range 3–1594 days). There was no difference in complication rates between groups. Expulsion rates were 3% and 0% in the immediate and interval groups, respectively (6/212 vs. 0/20; p=.4). Considering only those with documented follow-up after immediate insertion (119), there was a non-significant trend towards increased expulsion with placement after second vs. first trimester abortion (4/54=7% vs. 2/65=2%; p=.3). When analyzing the 172 subjects with documented follow-up, those planning immediate insertion were more likely to have an IUD in situ at the last contact than those planning later insertion (84/124=68% vs. 20/ 48=42%; p=.002). Conclusion: Immediate postabortion IUD insertion is safe and effective. Given the low rate of return for interval insertion, immediate placement may be preferable.


**BACKGROUND:** The postpartum time is a unique time to address patient’s contraceptive needs and provide education. There are little data to suggest the best approach to provide information about contraception after delivery.

**STUDY DESIGN:** Postpartum patients in an urban university hospital were asked to complete a written survey on postpartum contraception. Participants were asked about contraception counseling offered both antepartum and postpartum. Participants were also asked if they would have elected to have an intrauterine device (IUD) inserted immediately after delivery. Participants were contacted 4-6 months after delivery regarding ongoing contraceptive use.

**RESULTS:** One hundred seventy-five surveys were completed; 77% (134) reported discussing contraception antepartum, and 87% (153), postpartum. Thirty percent of women reported discussing IUD insertion at an antepartum visit and 31% reported discussing it in the hospital prior to discharge. Twenty-three percent (39) of women would have elected immediate postplacental IUD placement if available. Of the 59 patients who were able to be contacted 4-6 months after delivery, 5% reported using an IUD. Twenty-two percent (13) of the participants contacted at follow-up still desired an IUD, of which 62% would have elected postplacental placement, if available. Twenty-nine percent of women reported using no contraceptive method and 32% reported using a method which is not highly effective.

**CONCLUSIONS:** Prenatal visits and postpartum contact with providers create an opportunity to discuss family planning and contraception and most patients report receiving counseling. However, significantly fewer reported continued contraceptive use at 4-6 months postpartum. Initiation of postplacental IUD placement would be acceptable and would increase contraceptive use at 6 months postpartum.

Background: Of the 1.3 million abortions performed annually in the United States, approximately half are repeat procedures. Immediate postabortal intrauterine device (IUD) insertion is a safe, effective, practical and underutilized intervention that we hypothesize will significantly decrease repeat unintended pregnancy and abortion.

Study design: All women receiving immediate postabortal IUD insertion in eight clinics of a Northern California Planned Parenthood agency during a 3-year period comprise the IUD cohort. We selected a cohort of controls receiving abortions but choosing other, non-IUD contraception on the day of the abortion visit in a 2:1 ratio matched by date of abortion. We obtained follow-up data on repeat abortions within the agency for both cohorts through 14 months after the 3-year period. We evaluated differences in repeat abortion between cohorts. All analyses were intent-to-treat.

Results: Women who received an immediate postabortal IUD had a lower rate of repeat abortions than controls (pb.001). Women who received a postabortal IUD had 34.6 abortions per 1000 woman-years of follow-up compared to 91.3 for the control group. The hazard ratio for repeat abortion was 0.38 [95% confidence interval (CI), 0.27–0.53] for women receiving a postabortal IUD compared to controls. When adjusted for age, race/ethnicity, marital status, and family size, the hazard ratio was 0.37 (95% CI, 0.26–0.52).

Conclusion: Immediate postabortal intrauterine contraception has the potential to significantly reduce repeat abortion.


BACKGROUND: Insertion of an intrauterine device (IUD) immediately after delivery is appealing for several reasons. The woman is known not to be pregnant, her motivation for contraception may be high, and the setting may be convenient for both the woman and her provider. However, the risk of spontaneous expulsion may be unacceptably high.

OBJECTIVES: To assess the efficacy and feasibility of IUD insertion immediately after expulsion of the placenta. Our a priori hypothesis was that this practice is safe but associated with higher expulsion rates than interval IUD insertion.

SEARCH STRATEGY: We searched MEDLINE, CENTRAL, POPLINE, EMBBASE, ClinicalTrials.gov, and ICTRIP. We also contacted investigators to identify other trials.

SELECTION CRITERIA: We sought all randomized controlled trials (RCTs) with at least one treatment arm that involved immediate post-partum (within 10 minutes of placental expulsion) insertion of an IUD. Comparisons could include different IUDs, different insertion techniques, immediate versus delayed post-partum insertion, or immediate versus interval insertion (unrelated to pregnancy). Studies could include either vaginal or cesarean deliveries.

DATA COLLECTION AND ANALYSIS: We evaluated the methodological quality of each report and sought to identify duplicate reporting of data from multicenter trials. Two authors abstracted the data. Principal
outcome measures were pregnancy, expulsion, and continuation rates. Because the trials did not have uniform interventions, we were unable to aggregate them in a meta-analysis.

**MAIN RESULTS:** We found nine RCTs; one directly compared immediate post-partum insertion with delayed insertion. Expulsion by six months was more likely for the immediate group than the delayed insertion group (OR 6.77; 95% CI 1.43 to 32.14). In trials of immediate insertion alone, modifications of existing devices, such as adding absorbable sutures or additional appendages, did not appear beneficial. Most studies showed no important differences between insertions done by hand or by instruments. Lippes Loop and Progestasert devices did not perform as well as did copper devices.

**AUTHORS’ CONCLUSIONS:** Immediate post-partum insertion of IUDs appeared safe and effective, though direct comparisons with other insertion times were limited. Expulsion rates appear to be higher than with interval insertion. Advantages of immediate post-partum insertion include high motivation, assurance that the woman is not pregnant, and convenience. The popularity of immediate post-partum IUD insertion in countries as diverse as China, Mexico, and Egypt support the feasibility of this approach. Early follow up may be important in identifying spontaneous IUD expulsions.


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**BACKGROUND:** Postplacental intrauterine device (IUD) insertion is a safe, convenient and effective option for postpartum contraception. Few studies involve ultrasound-guided insertion, and none involve the levonorgestrel IUD or take place in the United States.

**STUDY DESIGN:** The study was conducted to assess the safety and feasibility of ultrasound-guided postplacental insertion of the levonorgestrel IUD following vaginal delivery in a U.S. residency program. Levonorgestrel IUDs were inserted under ultrasound guidance within 10 min of placental delivery by hand or using ring forceps. Subjects were examined at 4 and 10 weeks postpartum for evidence of expulsion or infection.

**RESULTS:** Thirty-four subjects were enrolled and 20 received an IUD. Follow-up data are available for 19 subjects over the 10-week follow-up period; 16 subjects returned for the 4-week follow-up, and 14 returned at 10 weeks. Two additional subjects could be contacted by telephone only. At 4 and 10 weeks postpartum, no subjects had evidence of infection. There were two expulsions (2/19, 10.5%) by 10 weeks postpartum. None of the subjects examined had a partial expulsion (intracervical location of the IUD).

**CONCLUSIONS:** In this pilot study, ultrasound-guided postplacental insertion of the levonorgestrel IUD was feasible and not associated with infection. The risk of expulsion was acceptable. Ultrasound-guided postplacental insertion of the levonorgestrel IUD may be an alternative to delayed insertion but warrants further study.

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Objective: Postpartum insertion of the intrauterine device (IUD) can provide an effective and convenient means of contraception. As a result, the use of IUD's has steadily increased, and the Family Planning Program recommends it because it offers many advantages. However, a major risk associated with the use of IUD's is the possibility of its expulsion, which ranges from 4 to 60%. Furthermore, 20% of women who expelled IUD's were unaware that it occurred, thus increasing their susceptibility to unwanted pregnancies. IUD's modified by the addition of biodegradable strands of chromic suture at time of implantation are thought to be less likely to be expelled, as the sutures anchor the IUD more firmly to the endometrium, and it is possible that the use of these sutures may decrease the risk of expulsion.

Method: Therefore we determined if the chromic extension to IUD enhance retention and decreased the rate of expulsion. In one year of study, 150 women received a modified IUD (TCu 380) with chromic catgut number 0 (ccO) in the transversal arm within 10 minutes of delivery of the placenta. However, only 84 women completed the follow-up study. To evaluate IUD expulsion, exploratory examinations were conducted during the immediate postpartum, at 7 days postpartum and at 6 weeks after delivery. We determined the presence or expulsion of the IUD in these three periods postpartum. Other parameters such as parity, age and marital status were also considered.

Results: A total of 14 modified IUD's (16.6%) were expelled. This represents a similar frequency of expulsion both during the immediate postpartum and the 7 days postpartum period. There was no significant difference in the rate of expulsion between the two periods. Moreover, there was no expulsion at 6 weeks postpartum. The primiparity women had the highest percentage of expulsion (22.8%). Single mothers either living with or without their sexual partner had expulsion rates of 20.6 and 20.5%, respectively. The highest rate of expulsion when we considered age was in women younger than 30 years of age. There was only one case of expulsion where the mother was unaware of its occurrence. The results described here indicate that age, parity and civil status have no direct influence on expulsion of modified IUD's with chrome extensions. In all postpartum periods studied the p-value was greater than 0.05. Six weeks postpartum was the only time at which there was no IUD expulsion. This is most likely a consequence of decreased uterine cavity size and closure cervix.

Conclusion: The modified IUD TCu 380 with chrome strands shows a rate of expulsion similar to other modified IUD's as evidenced in the literature. However, there is a lower rate of expulsion than in unmodified IUD's. It is an important to note that incomplete expulsion of modified IUD's in this study was considered a total expulsion which represent loss of contraceptive effectiveness. On the contrary, if we had considered only completely expelled IUD's in this study, the percentage would have been significantly lower, as only one total expulsion was found. Further studies are necessary to investigate consecutive expulsions of the TCu 380 modified IUD.

**Background:** Insertion of an intrauterine device (IUD) at different times or by different routes during the postpartum period may increase the risk of complications.

**Methods:** We searched Medline, Lilacs and Cochrane Collaboration databases for articles in any language, between database inception until December 2008, which compared outcomes of postpartum IUD insertion time intervals. Search terms included postpartum, puerperium, postcesarean delivery, cesarean section, IUD(s), IUCD(s), intrauterine device(s) and insertion. **Results:** From 297 articles, we identified 15 for inclusion in this review: all studies examined the outcomes from copper IUD insertions within the postpartum time period compared to other time intervals or compared routes (vaginal or via hysterotomy) of postpartum insertion. No studies of levonorgestrel IUDs were identified. Immediate IUD insertion (within 10 min of placental delivery) was safe when compared with later postpartum time periods and interval insertion. Immediate postpartum IUD insertion demonstrated lower expulsion rates when compared with delayed postpartum insertion but with higher rates than interval insertion. Immediate insertion following cesarean delivery demonstrated lower expulsion rates than immediate insertion following vaginal delivery.

**Conclusion:** Poor to fair quality evidence from 15 articles demonstrated no increase in risk of complications among women who had an IUD inserted during the postpartum period; however, some increase in expulsion rates occurred with delayed postpartum insertion when compared to immediate insertion and with immediate insertion when compared to interval insertion. Postplacental placements during cesarean delivery are associated with lower expulsion rates than postplacental vaginal insertions, without increasing rates of postoperative complications (Kapp & Curtis, 2009, abstract).


**Objectives:** To meet the unmet need with a safe, convenient and cost effective postpartum contraceptive method.

**Materials and Methods:** Postpartum Intrauterine Contraceptive Device (PPIUCD) is inserted within 10 minutes after Normal Vaginal Delivery (NVD) and during Caesarean Section (CS) just after removal of placenta, before closing of uterus and between 10 minutes and 48 hours after NVD by a Kelly Forceps. A client delivered in a hospital irrespective of her para with informed choice is eligible for a PPIUCD. Practical training is needed for doctors and nurses on PPIUCD along with infection prevention and counseling. Besides orientation on PPIUCD is needed for family planning workers and counselors. Cu-T 380A and Kelly Forceps are needed for PPIUCD along with other instruments and supplies.

**Results:** During March, 08-February, 2009, 24 clients received IUCD after NVD and 62 received during CS at AD-DIN Hospital, Dhaka. No major difficulties for insertion. Follow up: We followed up the clients during PNC visits by history taking, physical examination and ultrasonography. There was one case on the process of expulsion, one client complained of slight irregular bleeding and another one complained of abdominal pain. Number of clients needed removal was 3.
Conclusion: PPIUCD is a long term, reversible, not affecting breast feeding and suitable method for a woman delivered in a hospital. For its sustainability, counseling to women on PPIUCD during ANC and availability of round the clock trained personnel with required equipment are necessary. (Khatun, 2009, Abstract)


Objective: To compare the expulsion rates of intrauterine devices (IUDs) inserted in the immediate postpartum after vaginal birth and cesarean section.

Methods: Nineteen patients who had a vaginal birth and 19 patients who had a cesarean section at Hospital de Clínicas de Porto Alegre, Brazil, were selected for copper T 380A IUD insertion. With the aim of detecting clinically unnoticed dislodged devices, ultrasound examinations were performed at 1 month and between 3 and 12 months after delivery. The IUDs were considered completely expelled when found outside the endometrial cavity (e.g., in the cervical canal) or outside the uterus (in the vagina).

Results: Expulsion rates were statistically different between the two groups: after a vaginal birth, 50% (ultrasound only) + 27.8% (clinical examination); and post-cesarean section, 0% (p < .001; OR 5.75, 95% CI 2.36-14.01).

Conclusion: Considering that the contraceptive efficacy of IUDs is associated with their intrauterine location, the high expulsion rates seen when they are inserted immediately after vaginal delivery contraindicate their use in this setting. The use of IUDs immediately after a cesarean section is still a reasonable alternative because its expulsion rate was zero. Ultrasound assessment of IUD positioning performed better than clinical examination, which failed to detect expulsion after postpartum insertion in 75% of the cases (9 from 12 cases)” (Letti Muller et al., 2005, abstract).


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BACKGROUND: Immediate postplacental insertion of intrauterine devices (IUDs) during cesarean delivery could reduce a substantial barrier to access to long-term effective contraception. Initiating IUD use prior to discharge from the hospital postpartum eliminates a 6-week postpartum waiting period and an additional office visit.

STUDY DESIGN: This was a prospective cohort study of 90 patients undergoing cesarean delivery. After delivery of the placenta, a copper T380A IUD was inserted into the endometrial cavity through the incision. The study participants were followed up at 6 weeks and 6 months postpartum. This study was
RESULTS: Forty-three (48%) women returned for their 6-week follow-up visits, and among those, no expulsions were recorded. Forty-two (47%) women were reached for phone follow-up at 6 months postpartum, and 80% reported being "happy" or "very happy" with their IUD.

CONCLUSIONS: Immediate postplacental IUD insertion at the time of cesarean delivery is safe and acceptable.


Introduction: The levonorgestrel-releasing intrauterine system Mirenaan® is a long-acting, highly effective reversible method of contraception with the advantages of both hormonal and intrauterine contraception. The clinical advantages of Mirenaan® at time of caesarean section (CS) have been described including: improvement of uterine involution, decreasing lochia and dysfunctional bleeding; induction of persistence of amenorrhea or oligomenorrhea after cessation of breast-feeding during 5 years of use, providing long-term and reversible contraception with effectiveness similar to that of female Sterilization.

Objectives: With the aim to assess if Mirenaan® can be inserted during caesarean section (CS) to provide an immediate, reliable and safe contraception, a randomized, double blind study comparing Mirenaan® with our routinely practice of Cooper T Intrauterine Device (IUD) CS insertion was done.

Methods: After signed informed consent, a total of 396 women were randomly allocated to the application of Mirenaan® IUS (198) or Cooper T 380 IUD (198) after the extraction of placenta, applying it manually through hysterectomy up to the uterine fundus and orienting the IUS or IUD strings to the cervical os. Follow up visits at the end of puerperium and 6 and 12 months after insertion were performed assessing the permanence of IUS/IUD in situ, maternal and babies' health conditions, menstrual patterns (by reference period of 90 days), serum ferritin levels, adverse effects and pregnancies if any. Differences between groups were analyzed by student's t, Fisher and X2 tests as appropriate.

Results: Demographic and baseline characteristics were similar in both groups of treatment (mean age 24.9 + 5.1 y.o.). All patients breastfed their babies at least for 3 months. After one year of follow up, no pregnancies were reported. Expulsion rates were 4.5% in both groups. Menstrual patterns with Mirena® were significantly scant and lighter than with Cooper T 380 (p < 0.0001) with lower incidence of dysmenorrhea (3.1% vs. 24.9% p = 0.014). Proportion of patients with low ferritin serum levels (<12mg/L) at the end of study were significant lower in Mirena® users (OR 0.25 95% CI 0.14-0.44). No detrimental effects on breast-feeding were observed. Interestingly, babies' growth in Mirena® group was higher (above percentile 50th) when comparing body weights at 6 and 12 months of follow-up (p < 0.0001). Continuation rates were 91.5 and 90% for Mirena® and Cooper T groups respectively at first year of follow-up. Main reasons for discontinuation were prolonged bleeding (35%) in Cooper T Group and amenorrhea (11.7%) or infrequent bleeding (11.7%) in Mirena® Group. No serious adverse effects were observed.
Conclusions: Mirena® can be inserted during CS providing high efficacy contraception without negative effects on breastfeeding. Further benefits, mainly reduced menstrual bleeding, had positive impact on Iron metabolism and consequently may hasten recovery after CS improving mothers and babies general health condition. (Lopez-Farfan, 2010, Abstract)


Objectives: To identify barriers to postpartum intrauterine contraception (IUC) placement and to explore patient preferences and satisfaction with contraceptive health services.

Method: Women delivering at a university hospital were recruited to participate in a survey addressing decision-making about post-partum contraception use. Additional information about health service utilization was gathered from a chart review. Women who reported an antenatal plan to use IUC post-partum were identified and followed to determine what proportion actually had IUC placed. Along with a chart review, a written survey is being administered at 6 months post-partum to identify reasons for not having it placed, patient contraception preferences and satisfaction with health services.

Results: Of the 185 women enrolled in the study, 28 reported that they planned to use IUC after delivery. There were no immediate post-placental placements. Missing the post partum appointment, insurance issues and changing to hormonal methods were the most common reasons identified in the medical record. Participant follow-up written questionnaires are being used to further characterize barriers to post-partum IUC placement, to assess satisfaction with current method and to determine if any features of current services are particularly unsatisfactory. Three of the 28 became pregnant within 12 months after their index delivery.

Conclusions: Most women reporting a plan to use IUC post-partum did not actually have a device placed by 3 months postpartum. Women who desire IUC in the post partum period might face multiple barriers to placement, many of which are modifiable. (McGuire et al., 2010, Abstract)


“Objectives: To evaluate the acceptance of postpartum intrauterine contraceptive devices (PPIUCD) among the inhabitants of Assiut governorate, Egypt and to study the factors that influence this acceptance.

Subjects and methods: Contraceptive counseling was given to 3,541 clients: 1,880 and 1,661 during the antenatal visits and postpartum hospitalization, respectively. Acceptors during antenatal counseling were to receive IUCDs via postplacental insertion in the case of vaginal delivery or transcesarean insertion in case of abdominal delivery. The clients who refused PPIUCD and chose interval IUCD insertion were referred to the Family Planning Clinic after the end of puerperium. Among postpartum counselees, PPIUCD acceptors received predischarge insertion within 48 h of delivery and the interval IUCD were referred to have IUCD inserted after the end of puerperium. The acceptance rate of both PPIUCD and interval IUCD and the percentage of actual insertions were recorded. The causes of both
acceptance and refusal were also recorded.

Results: Of the 3,541 clients, 1,024 (28.9%) accepted the use of IUCD after delivery. Acceptance was approximately the same during antenatal and postpartum counseling: 26.4 and 31.8%, respectively. Verbal acceptance was higher among women with formal education than among illiterate women. Planning another pregnancy in the near future, preference for another contraceptive method, namely lactational infertility, and complications from previous use of IUCD were the most common reasons for refusing the use of IUCD. Of the 1,024 verbal acceptors, only 243 (23.7%) had the actual insertion of IUCD.

Conclusion: Both the acceptance and actual insertion of IUCD were low probably because the use of IUCD is a new concept in the community. For these women, the only opportunity to receive information about contraceptives is during childbirth when they are in contact with medical personnel. Hence, it is suggested that family planning should be integrated with maternal and child-care services in order to effectively promote the use of contraceptive devices in these women who otherwise would not seek the use of such a device” (Mohamed et al., 2003, abstract).


Background: The purpose of this pilot project was to test the feasibility of a technique designed to place a copper intrauterine device (IUD) through the hysterotomy incision of an elective cesarean delivery to minimize possible contamination and to guarantee that tailstrings were visible in the vagina for easy removal should complications occur.

Study Design: Women were monitored in the hospital for signs of infection or excessive blood loss. At the time of hospital discharge and at 2 and 6 weeks postpartum, they were examined to determine the status of the tailstrings. The position of the IUD was assessed by ultrasound at week 6.

Results: All seven of the subjects had successful placement. The sutures tied to the IUD strings were visible on vaginal examination in each case. The original tailstrings were visible in the vagina at 6 weeks and each IUD was fundally positioned.

Conclusion: Successful intraoperative placement of Copper T-380A IUDs through incision at the time of cesarean birth is possible (Nelson, Chen & Eden, 2009, abstract).


OBJECTIVE: The objective of this study was to determine the proportion of postpartum women at the University of New Mexico who choose an IUD for contraception, the number who actually obtain one and the barriers to postpartum IUD insertion.

METHOD: We conducted a retrospective chart review of 1627 postpartum women who delivered at the University of New Mexico. Those women who indicated at hospital discharge that they desired an IUD comprised the study group of 193 women. Medical records were reviewed to identify the timing of IUD placement. If an IUD was not inserted, we attempted to determine the reason by reviewing clinic records.
RESULTS: Twelve percent of postpartum women requested an IUD. Records were available for 114 women. Of these, only 69 (60%) actually obtained an IUD. Barriers to postpartum IUD insertion included provider advice against the IUD, patient failure to return for a postpartum visit and early repeat pregnancy.

CONCLUSION: We conclude that postpartum women desiring an IUD may have difficulty obtaining one.


Objective: To explore the feasibility of competency-based training of Zambian nurse–midwives in postplacental and postpartum intrauterine device (PPIUD) insertion and to estimate learning curves for this procedure.

Methods: A pilot service-delivery project was conducted, involving 9 nurse–midwives who participated in a 10-day PPIUD insertion training course at the University Teaching Hospital, Lusaka, Zambia. US and Zambian clinicians taught the didactic and practical curriculum. Checklists were used for standardization and a pelvic model was developed to achieve PPIUD insertion competency in the classroom before moving to clinical practice. Patients were recruited during prenatal visits, in early labor, and postpartum. Informed, voluntary consent was obtained. All clinical PPIUD insertions were supervised or performed by experienced trainers.

Results: All 9 nurse–midwives achieved competency on the pelvic model after 3 attempts. During the training period, 38 PPIUDs were inserted in postpartum women; no complications occurred. By the end of training, 4 of the nurse–midwives were deemed competent to independently insert PPIUDs. On average, 4 PPIUD insertions were needed to achieve clinical competency. Conclusions: Concentrated, competency-based training in PPIUD insertion is feasible in an African setting. Replication of such training could increase the popularity and prevalence of PPIUD use among African women.


Objective: to evaluate safety and effectiveness of the intrauterine device Multiload Cu375 with the TCu 380A inserted in the postpartum period

Methods: In a randomized comparative study carried out in the National Perinatology Institute, intrauterine devices ML Cu 375 and TCu 380A were inserted in 157 patients who voluntarily accepted, and previously signed informed consent. There were four instances for the intrauterine device insertion: within 10 minutes after vaginal delivery, during cesarean section (immediate postplacental insertion) and postpartum-postcesarean insertion (in the time range of 10 minutes to 48 hours). All insertions were made with ring forceps. From 1 h to 24 h later, abdominal ultrasound examinations
were performed to assess the distances between the upper part of the device to the fundus of the uterine cavity. Follow-up visits were scheduled at 3, 6, 9, and 12 months. Net cumulative life table event rates of discontinuation were estimated at one year.

**Results:** The expulsion rates were 10.4 for the ML 375 and 7.7 for the TCu 380A and they were not influenced by the moment of the intrauterine insertion, not by cervical dilatation neither by the distance of the uterine device to the fundus of the uterine cavity. The removal for bleeding and pain were 4.9 and 4.8, the removal for non-medical reasons were 3.7 and 4.9 respectively. There was one case of genital infection in the ML 375 group. There were no pregnancies nor uterine perforation. The one year continuation rates were 77.1 and 82.6 respectively. There were no statistical significant differences in the comparative rates.

**Conclusion:** the ML 375 is as safe and effective as the TCu 380A when inserted in the postpartum period.


**Objective:** Evaluate safe-motherhood interventions suitable for resource-poor settings that can be implemented with current resources.

**Methods:** Literature review to identify interventions that require minimal treatment/infrastructure and are not dependent on skilled providers. Simulations were run to assess the potential number of maternal lives that could be saved through intervention implementation according to potential program impact. Regional and country level estimates are provided as examples of settings that would most benefit from proposed interventions.

**Results:** Three interventions were identified: (i) improve access to contraception; (ii) increase efforts to reduce deaths from unsafe abortion; and (iii) increase access to misoprostol to control postpartum hemorrhage (including for home births). The combined effect of postpartum hemorrhage and unsafe abortion prevention would result in the greatest gains in maternal deaths averted.

**Discussion/conclusions:** Bold new initiatives are needed to achieve the Millennium Development Goal of reducing maternal mortality by three-quarters. Ninety-nine percent of maternal deaths occur in developing countries and the majority of these women deliver alone, or with a traditional birth attendant. It is time for maternal health program planners to reprioritize interventions in the face of human and financial resource constraints. The three proposed interventions address the largest part of the maternal health burden.

OBJECTIVE: To examine the hospital and state costs of offering the option of a postpartum intrauterine device (IUD) to an underinsured population of recent immigrants to the United States with Emergency Medicaid (EM) insurance coverage only.

STUDY DESIGN: This study is a retrospective cohort study comparing the costs of offering a reversible long-acting method of contraception (IUD) postpartum to women with EM and the current policy of covering the obstetrical delivery only. A cost-benefit analysis from the perspective of both the hospital and the state was conducted. A database of EM obstetrical patients from 2002 to 2006 was created from hospital billing records to calculate mean pregnancy costs and revenue, as well as the probability of repeat pregnancy and pregnancy outcome. Probability of IUD uptake and continuation was obtained from hospital records and the literature.

RESULTS: A postpartum IUD program is not cost beneficial from the hospital's perspective, losing 70 cents per dollar spent on the program. However, the state government would save $2.94 for every dollar spent on a state-financed IUD program.

CONCLUSION: Considering only the direct costs associated with a repeat pregnancy, a program offering the option of postpartum IUD placement to underinsured women would significantly reduce state expenditures on subsequent pregnancies.

OBJECTIVE: To model rates of pregnancy and repeat abortion among women choosing intrauterine contraception after an abortion when the intrauterine device (IUD) is inserted immediately after the procedure or at a follow-up visit.

METHODS: We created an evidence-based decision model of women desiring to avoid pregnancy for the 12 months after an abortion. Base case assumptions were pregnancy rates of 0.5% with an IUD and 20% without an IUD, 1-year IUD continuation rate of 80%, an additional 5% risk of IUD expulsion with immediate insertion, and a 35% risk of not returning for a follow-up visit for IUD insertion. Sensitivity analyses and Monte Carlo simulation were performed.

RESULTS: Immediate IUD insertion after abortion prevented 52 pregnancies over the following year for every 1,000 women modeled by using base case assumptions. Sensitivity analyses show the model to be most dependent on the rate of expulsion in the immediate-insertion group and the proportion not returning in the delayed insertion group. Monte Carlo analysis showed that immediate insertion resulted in fewer pregnancies than delayed insertion in 91% of scenarios, with an absolute mean difference of 28 pregnancies per 1,000 women in the initial year after abortion. If 20% of U.S. women undergoing abortion opted for immediate insertion, an estimated 20,000 repeat abortions would be prevented in the first year.
CONCLUSION: Women who have an IUD inserted immediately after an abortion are expected to have fewer pregnancies and repeat abortions than women scheduled for insertion of an IUD at a follow-up visit. LEVEL OF EVIDENCE: II


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OBJECTIVE: The objective of the study was to determine the rate of return for repeat abortion in relation to postabortion contraceptive method choice 24 months onward from an intervention study.

STUDY DESIGN: This was a prospective cohort study involving a hospital note search for 510 women 24 months after an abortion.

RESULTS: Women using long-acting reversible contraceptive (LARC) methods (intrauterine device [IUD] and depot medroxyprogesterone acetate) had significantly lower return rates for repeat abortion (6.45%; 95% confidence interval [CI], 4.0-9.8) than non-LARC users, of whom 14.5% returned (95% CI, 9.9-20.2). A Cox proportional hazard analysis showed that the postabortion method choice was significantly related to the likelihood of returning for a repeat abortion (P = .002), controlling for major demographic factors and previous pregnancy history. Using the pill as a reference group for risk of repeat abortion, the IUD hazard ratio (HR) was 0.36 (95% CI, 0.17-0.77), the depot medroxyprogesterone acetate HR was 0.55 (95% CI, 0.21-1.45), and the HR for all other methods was 1.8 (95% CI, 0.83-3.92).

CONCLUSION: This study provides strong support for the promotion of immediate postabortion access to LARC methods (particularly intrauterine devices) to prevent repeat abortion.


OBJECTIVE: To compare intrauterine device (IUD) use at 6 months in women randomized to receive an intrauterine copper contraceptive 1 week compared with 1 month after medical abortion.

METHODS: We recruited women undergoing medical abortion with mifepristone and misoprostol and choosing the copper IUD for contraception. We randomly assigned participants to “immediate” insertion 1 week after mifepristone or “delayed” insertion 4–6 weeks later. We followed rates of IUD insertion, 6-month utilization, expulsion, removal, and pregnancy. Participants recorded bleeding in a diary for 4 weeks.

RESULTS: We randomized 156 participants. We inserted an IUD in 97% of participants in the immediate group and 76% in the delayed group (P<.001). At 6 months, 69% of participants in the immediate group used the IUD compared with 60% in the delayed group (P=.24). Expulsion rates were comparable; 12% (8 of 69) in the immediate group compared with 11% (7 of 65) in the delayed group. Removals occurred in 14% (10 of 69) of immediate and 8% (5 of 65) of delayed group participants (P=.21). Four pregnancies
occurred in delayed group participants who did not return for IUD insertion ($P_{.09}$). The immediate and delayed groups reported a median of 20 and 19 bleeding or spotting days, respectively ($P_{.15}$). We detected no cases of serious infection, uterine perforation, or hemorrhage.

**CONCLUSION:** Immediate insertion increased uptake of the IUD without increasing expulsions or bleeding.

**CLINICAL TRIAL REGISTRATION:** Clinicaltrials.gov, www.clinicaltrials.gov, NCT00737178. LEVEL OF EVIDENCE: I


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**BACKGROUND:** This review was conducted to evaluate the evidence regarding the safety and effectiveness of intrauterine device (IUD) insertion immediately following spontaneous or induced abortion.

**STUDY DESIGN:** We searched MEDLINE databases for all articles (in all languages) published in peer-reviewed journals from January 1966 through March 2010 for evidence comparing immediate postabortion IUD insertion with either no IUD insertion, insertion at a different time, insertion following first-trimester compared with second-trimester abortion or copper IUD insertion compared with hormone-releasing IUD insertion postabortion. We used standard abstraction forms to summarize and assess the quality of the evidence.

**RESULTS:** The search strategy identified a total of 990 articles, of which 19 met our inclusion criteria for this review. Studies comparing immediate postabortion IUD insertion with no IUD insertion found that both groups experienced similar rates of pain and infection and a similar number of bleeding days, but one study reported that women with copper IUD insertion experienced a greater amount of bleeding than women without IUD insertion after abortion. Results from studies comparing immediate postabortion IUD insertion and insertion at a time not associated with pregnancy did not report differences between the two groups in the duration of bleeding, pain, expulsions or pelvic inflammatory disease (PID). One study however reported a greater amount of bleeding and another reported more removals for medical reasons among women with postabortion IUD insertion. Evidence from studies that examined immediate vs. delayed postabortion insertion reported minimal differences in bleeding, pain, expulsion and PID between groups. Studies comparing immediate IUD insertion after first- vs. second-trimester abortion reported no difference in removals for pain and bleeding, and an increased risk of expulsion among those women who had insertions after second-trimester abortion. In addition, women with insertions immediately after abortions occurring later in the first trimester had higher expulsion rates than those with insertions after early first-trimester abortions. Studies examining women using a copper IUD compared with a hormone-releasing IUD reported inconsistent results, with one paper reporting more bleeding days in the copper IUD group and another finding higher rates of removal for bleeding in the progesterone-releasing IUD group.

**CONCLUSION:** Intrauterine device insertion immediately after abortion is not associated with an increased risk of adverse outcomes compared with use of other contraceptive methods or with no IUD insertion after abortion and compared with IUD insertion at times other than immediately after abortion. Intrauterine device expulsion rates, while generally low, were higher with insertions that
occurred after later first-trimester abortion compared with after early first-trimester abortion and higher with IUD insertion after second-trimester abortion compared with after first-trimester abortion.


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**BACKGROUND:** The objective of this study was to determine the feasibility of postpartum levonorgestrel intrauterine system (LNG-IUS) placement on the postpartum ward.

**STUDY DESIGN:** This case-series study took place in a teaching hospital in North Carolina. Women were followed for 6 months, and data on method satisfaction, study design satisfaction and expulsion were collected. Descriptive statistics were used.

**RESULTS:** Forty women enrolled. Twenty-nine women (73%) received the LNG-IUS at a median of 20 h (range 7-48 h) after delivery, and all reported that they would recommend this method of contraception to a friend. Eleven women had a spontaneous expulsion (38%; 95% confidence interval 21, 58).

**CONCLUSION:** Placement of LNG-IUS more than 6 h postpartum was acceptable to women in this study. The expulsion rate of 38% had statistical instability and should be interpreted with caution. However, our report may assist with individual counseling of women interested in postpartum LNG-IUS placement, or in future study designs.


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**BACKGROUND:** Many professional organizations recommend intrauterine device (IUD) use in adolescents, but data on performance of currently available devices in US teens are scant. We describe IUD continuation, side effect and pregnancy rates in parous adolescents.

**STUDY DESIGN:** Between 2002 and 2008, a cohort of 136 young mothers from an adolescent pregnancy/postpartum program received either a CuT380A or LNG-IUS for contraception. A minimum of 2 years postplacement, IUD status was ascertained by records review and phone interviews. Discontinuation, side effect and pregnancy rates by IUD type were calculated and compared.

**RESULTS:** Mean and median survival times were 25.1 and 14.1 months, respectively, and did not differ by IUD type. Twelve-month continuation was 55%. Of the 87 removals, the most common reasons were expulsion (14.2%), pain (12.2%), bleeding (7.4%), pregnancy desire (6.8%) and pregnancy (4.7%), and rates did not differ significantly by IUD type. First-year pregnancy rates with IUD in situ was 6.2% for the CuT380A and 3.7% for the LNG-IUS (p=.5). Rates of removal for bleeding and pain were similar for both devices.
CONCLUSION: Over half of parous adolescents who choose IUDs keep them for at least 1 year. Expulsion rates and pregnancy rates are higher than reported in the general population.


OBJECTIVE: To track outcomes of women in three cohorts—those who requested postpartum tubal ligation and received the procedure (postpartum tubal ligation [PPTL] YES), those who requested postpartum tubal ligation but did not receive the procedure (PPTL NO), and a control group (those who did not request postpartum tubal ligation)—for 1 year postpartum.

METHODS: This was a record review evaluating women who delivered a live born singleton between December 2007 and May 2008 at the University of Texas San Antonio. Those in the case group were monitored until 1 year post-delivery. The primary outcome was pregnancy within 1 year of the index delivery among women in the control group compared with those in the PPTL NO group. Secondary outcomes included birth control requested at obstetric-admission discharge, attendance at a postpartum or other gynecology visit, contraceptive use between delivery and the postpartum visit, and request for contraception at the postpartum visit among the three cohorts.

RESULTS: During the observation period, 429 of 1,460 women requested postpartum tubal ligation; 296 (69%) received the procedure and 133 (31%) did not. Within 1 year of the index delivery, 46.7% of women in the PPTL NO group became pregnant compared with 22.3% of those in the control group (P<.001). Attendance at the postpartum visit was lowest for women in the PPTL YES group (12.8%; P=.004) compared with the similarly low attendance among those in the PPTL NO (18.8%) and control groups (20.3%; P=.73). Women in the PPTL NO group and those in the control group selected similar methods of postpartum contraception at hospital discharge.

CONCLUSION: Women who did not receive a requested postpartum tubal ligation were more likely to become pregnant within 1 year of delivery than were those in the control group (women not requesting permanent sterilization). (Thurman and Janecek, 2010, Abstract)


Objective: to assess the incidence of excessive bleeding and endometritis among users of PPIUCDs.

Methods: compare the incidence of excessive bleeding and endometritis in 145 women who accepted post-placental insertion of a copper T380A intrauterine device (IUD) to the incidence of excessive bleeding and endometritis of 157 postpartum women who did not accept the insertion of the IUD. The subjects delivered at the Maternidade da Encruzilhada, Recife, Brazil in the period from March 30, 1994, to December 15, 1995. A blood sample for hemoglobin was collected before placental expulsion and 10 days after labor. The IUD was inserted up to 10 min after the expulsion of the placenta.
Results: There was no difference between the groups in the incidence of excessive bleeding, neither regarding mean hemoglobin concentration before placental expulsion (t = 0.039; p = 0.83) nor at day 10 postpartum (t = 1.04; p = 0.29). There were 5 cases of clinically diagnosed endometritis among the 145 subjects with placental-IUD (3.4%) and 7 cases among the 157 women without IUD (4.6%) (p = 0.40).

Conclusions: Post-placental insertion appears to be a convenient approach to IUD initiation, with no observed increase in the incidence of excessive bleeding or endometritis.


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OBJECTIVE: We assessed barriers and facilitators to uptake of the intrauterine device (IUD) among primiparous African American adolescent mothers.

STUDY DESIGN: Twenty participants who expressed IUD desire completed 4-5 qualitative interviews during the first postpartum year as part of a larger longitudinal study. Transcripts were analyzed for salient themes using a grounded theory approach to content analysis.

RESULTS: Twelve participants did not obtain IUDs and instead used condoms, used no method, or intermittently used hormonal methods, resulting in 3 repeat pregnancies. Outdated IUD eligibility requirements, long wait times, lack of insurance coverage, and fear of IUD-related side effects precluded or delayed uptake. Facilitators to IUD uptake included strong recommendations from providers or family members, planning for IUD during pregnancy, and perceived reproductive autonomy.

CONCLUSION: Postpartum adolescents may reduce their risk of rapid repeat pregnancy by using IUDs. Providers and members of adolescents' support networks can be instrumental in method adoption.


Division of Reproductive Health, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, Atlanta, GA, USA.

OBJECTIVE: The purpose of this study was to estimate US rates of postpartum intrauterine device (IUD) insertion and postpartum tubal sterilization.

STUDY DESIGN: Data from the 2001-2008 Nationwide Inpatient Sample were used to identify delivery hospitalizations with IUD insertion or tubal sterilization procedure codes.

RESULTS: Estimated rates of postpartum IUD insertion and postpartum tubal sterilization were 0.27 and 770.67 per 10,000 deliveries, respectively. Although the rate of IUD insertion was similar across age
groups, the rate of tubal sterilization increased with age. Nonetheless, 15% of tubal sterilizations occurred among women who were ≤ 24 years old. IUD insertion was more likely among women who delivered at teaching hospitals (odds ratio, 3.02; 95% confidence interval, 1.43-6.37); tubal sterilization was more likely among women without private insurance (odds ratio, 2.04; 95% confidence interval, 1.97-2.11).

**CONCLUSION:** Among US postpartum women, IUD insertion occurs considerably less frequently than tubal sterilization, even among younger women for whom poststerilization regret is a concern.