FACULTY OF SEXUAL & REPRODUCTIVE HEALTHCARE

ROYAL COLLEGE OF OBSTETRICIANS & GYNAECOLOGISTS

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Intrauterine Contraception

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FSRH Guidance (November 2007) Intrauterine Contraception

(Date of planned revision 2013)

Purpose and scope

This Guidance provides evidence-based recommendations and good practice points for clinicians on the use of intrauterine methods of contraception as a long-term option. Intrauterine methods include the copper-bearing intrauterine device (Cu-IUD), framed and unframed devices and the levonorgestrel-releasing intrauterine system (LNG-IUS). Recommendations on the use of a Cu-IUD as emergency contraception are covered in separate Faculty of Family Planning and Reproductive Health Care (FFPRHC) [now Faculty of Sexual and Reproductive Healthcare (FSRH)] Guidance.[1] This document will focus primarily on the use of intrauterine methods as contraceptives but will briefly cover other uses. This Guidance updates and combines the two previous FFPRHC Guidance documents on intrauterine methods.[2,3] Recommendations from the National Institute for Health and Clinical Excellence (NICE) clinical guideline on long-acting reversible contraception (LARC) are included.[4]

This document is not intended to serve alone as a standard of medical care, as this should be determined individually based on available clinical information. This Guidance has been systematically developed using the standard methodology outlined in the Appendix to this document.

Which women are eligible to use intrauterine contraception?

UK Medical Eligibility Criteria for Contraceptive Use

The World Health Organization *Medical Eligibility Criteria for Contraceptive Use* (WHOMEC)[5] and the UK version (available on the Faculty website at www.fsrh.org)[6] provide evidence-based recommendations to ensure couples can select the most appropriate method of contraception without imposing unnecessary restrictions on use.

The definitions of the UKMEC categories used in this Guidance document are summarised in Table 1. For most women intrauterine contraception is a safe option. There are few circumstances where UKMEC recommends that the theoretical or proven risks outweigh the advantages of using the method (UKMEC 3) or that use of intrauterine methods represents an unacceptable health risk (UKMEC 4) (Table 2).

1 Health professionals should be familiar with *UK Medical Eligibility Criteria for Contraceptive Use* recommendations for intrauterine contraceptive use (Good Practice Point).

What should clinicians assess when a woman is considering intrauterine contraception?

Clinical assessment

A clinical history (including sexual history) should be taken before providing intrauterine contraception (Box 1).[7–9] An infection screen may be required for some women in advance of intrauterine contraceptive insertion. A sexual history should identify women at risk of sexually transmitted infections (STIs) for whom an infection screen is appropriate.[10] Women should be involved in considering their own risk of STIs. Women are deemed at *higher risk* if they are sexually active and aged <25 years, or if they are aged >25 years if they have a new sexual partner or more than one sexual partner in the last year, or if their regular sexual partner has other sexual partners.[11,12] Following this assessment, appropriate screening for STIs should be offered to those at higher risk or to those who request it. The Clinical Effectiveness Unit (CEU) supports the LARC clinical guideline,[4] which recommends that women at risk for STIs and having intrauterine contraception inserted may be tested for *Chlamydia trachomatis, Neisseria gonorrhoeae* or all STIs if requested by the woman.

Table 1 Definitions of *UK Medical Eligibility Criteria* for Contraceptive Use categories[6]

UKMEC Category	Definition of category
1	A condition for which there is *no restriction* for the use of the contraceptive method.
2	A condition for which the *advantages of using the method generally outweigh the theoretical or proven risks.*
3	A condition where the *theoretical or proven risks usually outweigh the advantages* of using the method.[a]
4	A condition which represents an *unacceptable health risk* if the contraceptive method is used.

[a]The provision of a method to a woman with a condition given a UKMEC Category 3 requires expert clinical judgement and/or referral to a specialist contraceptive provider since use of the method is not usually recommended unless other methods are not available or not acceptable.

Table 2 A summary of the *UK Medical Eligibility Criteria for Contraceptive Use* where a copper intrauterine device (Cu-IUD) and the levonorgestrel-releasing intrauterine system (LNG-IUS) are given the same UKMEC categories and highlighting where categories differ between the Cu-IUD and the LNG-IUS[6]

UKMEC Category 1 (Unrestricted use)	UKMEC Category 2 (Benefits outweigh risks)	When a Cu-IUD and the LNG-IUS are given different UKMEC categories
Age ≥20 years Parous and nulliparous >4 weeks postpartum or [a]after first-trimester abortion Past ectopic pregnancy or history of pelvic surgery	Menarche to age <20 years [a]After second-trimester abortion	**UKMEC Category 1 is given for a Cu-IUD but a Category 2 is given for the LNG-IUS due to the progestogen content for the following medical conditions:**
Smoking, obesity, or hypertension, history of high blood pressure during pregnancy Family history of VTE in first-degree relative any age. Major surgery without prolonged immobilisation, minor surgery without immobilisation or immobility (unrelated to surgery) (e.g. wheelchair use, debilitating illness) Superficial venous thrombosis (varicose veins or superficial thrombophlebitis) Uncomplicated valvular and congenital heart disease	Complicated valvular and congenital heart disease	Multiple risk factors for cardiovascular disease, vascular disease, a history of VTE, major surgery with prolonged immobilisation, known thrombogenic mutations, initiation of LNG-IUS in women with new history of ischaemic heart disease, stroke, known hyperlipidaemias
Non-migrainous headaches Epilepsy Depressive disorders		Migraine without aura at any age or with a past history of aura; or initiation of LNG-IUS in a woman with aura at any age Cervical intraepithelial neoplasia
Irregular vaginal bleeding patterns without heavy bleeding Benign ovarian tumours (including cysts) Gestational trophoblastic neoplasia when serum hCG concentration is normal Cervical ectropion Benign breast disease or a family history of breast cancer Uterine fibroids without distortion of the uterine cavity Infections including past PID with subsequent pregnancy, schistosomiasis (uncomplicated or with fibrosis of the liver), non-pelvic tuberculosis or malaria History of gestational diabetes or thyroid disorders History of pregnancy-related cholestasis Carriers of viral hepatitis Inflammatory bowel disease (including Crohn's disease and ulcerative colitis) Raynaud's disease primary or secondary without lupus anticoagulant Drugs which affect liver enzymes and non-liver enzyme-inducing antibiotics	Continuation of intrauterine methods when unexplained vaginal bleeding occurs Continuation of the method in women with cervical cancer awaiting treatment or with endometrial or ovarian cancer Anatomical abnormalities not distorting the uterine cavity Past PID without subsequent pregnancy Continuation of intrauterine methods in women with current PID or purulent cervicitis Use in women at increased risk of STIs (including HIV, HIV infected or with AIDS and using HAART) or with current infection (excluding HIV and hepatitis) or vaginitis (*Trichomonas vaginalis* or bacterial vaginosis) Using HAART	Undiagnosed breast mass or carriers of gene mutations (e.g. BRCA1) Diabetes with non-vascular disease, nephropathy, retinopathy, neuropathy, other vascular complications of >20 years duration Symptomatic gallbladder disease History of COC-related cholestasis Mild (compensated) cirrhosis Secondary Raynaud's disease with lupus anticoagulant **UKMEC Category 2 is given to a Cu-IUD and a Category 1 is given to the LNG-IUS for the following medical conditions:** Heavy or prolonged bleeding for Cu-IUD or continuation of LNG-IUS; endometriosis; severe dysmenorrhoea Anaemias (thalassaemia, sickle cell disease, iron deficiency anaemia)
UKMEC Category 3 (Risks outweigh benefits)	**UKMEC Category 4 (Unacceptable risk)**	**When a Cu-IUD and LNG-IUS are given different UKMEC categories**
Between 48 hours and <4 weeks postpartum Current VTE (on anticoagulants) Initiation of method in women with ovarian cancer Continuation of intrauterine methods in women with known pelvic tuberculosis	Pregnancy, puerperal sepsis, septic abortion *Initiation* of the method in women with unexplained vaginal bleeding Gestational trophoblastic neoplasia when serum hCG concentrations are abnormal Initiation of the method in women with cervical cancer awaiting treatment or with endometrial cancer Uterine fibroids or uterine anatomical abnormalities distorting the uterine cavity Initiation of intrauterine methods in women with current PID or purulent cervicitis Initiation of intrauterine methods in women with known pelvic tuberculosis	**UKMEC Category 1 is given for a Cu-IUD and a Category 3 is given for the LNG-IUS due to the progestogen content for the following medical conditions:** *Continuation* of LNG-IUS if a new diagnosis of ischaemic heart disease is made or if new symptoms of migraine with aura occur at any age [b]Past history of breast cancer with no recurrence in last 5 years Active viral hepatitis, severe decompensated cirrhosis or liver tumours (benign or malignant) **UKMEC Category 1 given for a Cu-IUD and a Category 4 is given for the LNG-IUS due to the progestogen content for the following medical conditions:** [b]Current breast cancer

[a]Ideally intrauterine contraception should be inserted within 48 hours of termination of pregnancy or after 4 weeks, however this may put some women at risk of pregnancy. If other contraceptive methods are unacceptable and the woman wishes to use intrauterine contraception this can be inserted by experienced clinicians any time after the termination if there are no concerns the pregnancy is ongoing.
[b]There is some evidence that the LNG-IUS has a protective effect on the endometrium against the stimulatory effects of tamoxifen. If other contraceptive methods are unacceptable the use of the LNG-IUS may be considered after counselling.
NB. *Liver enzyme-inducing drugs are not thought to reduce the contraceptive efficacy of a Cu-IUD or the LNG-IUS. The UKMEC does not include Wilson's disease. No evidence was identified in the literature. It may be that in view of lack of evidence and potential toxic effect of copper the use of a Cu-IUD in a woman with Wilson's disease is not recommended.*
COC, combined oral contraceptive; Cu-IUD, copper intrauterine device; HAART, highly active antiretroviral therapy; hCG, human chorionic gonadotrophin; LNG-IUS, levonorgestrel intrauterine system; PID, pelvic inflammatory disease; STI, sexually transmitted infection; VTE, venous thromboembolism.

There is no indication to routinely test for or treat other lower genital tract organisms (such as Group B streptococcus or bacterial vaginosis) in *asymptomatic* women considering intrauterine contraception.[2]

The real risk of pelvic infection following insertion of intrauterine contraception, even in the presence of infection, is unknown.[13] Nevertheless, screening for STIs in advance of insertion (when indicated or requested) will allow infection to be treated before or at the time of insertion. If results are unavailable before insertion then prophylactic antibiotics should be considered for women at higher risk of STIs.[4] The antibiotic regimen chosen should treat *C. trachomatis*. In addition, if local prevalence of *N. gonorrhoeae* is high then the regimen should also treat this infection.

Women with *symptomatic* pelvic infection should be tested, treated and insertion delayed until symptoms resolve. Appropriate counselling and provision of alternative contraception should be provided until the intrauterine method can be inserted.

2 A clinical history (including sexual history) should be taken as part of the routine assessment for intrauterine contraception to assess suitability for use of the method and identify those at *higher risk* of STIs (i.e. those aged <25 years, or >25 years with a new sexual partner or more than one partner in the last year, or if their regular partner has other partners) (Grade C).

3 In advance of intrauterine contraceptive insertion women who are either at *higher risk* of STI or who request swabs should be tested for *C. trachomatis* (as a minimum) and *N. gonorrhoeae* (if deemed necessary from the history) (Good Practice Point).

4 For women at *higher risk* of STIs, if results are unavailable before insertion prophylactic antibiotics (at least to cover *C. trachomatis*) may be considered (Good Practice Point).

5 In *asymptomatic* women attending for insertion of intrauterine contraception there is no indication to test or treat other lower genital tract organisms or delay insertion until the results of tests are available (Good Practice Point).

Antibiotic prophylaxis for intrauterine contraception

Transient bacteraemia following removal and replacement of intrauterine contraception has been identified in a small number of women but does not necessarily indicate a risk for endocarditis.[14] One case report was identified that reported bacterial endocarditis in a woman with valvular heart disease following insertion of an IUD.[15] A UK collaborative contraception and sexual health and adult congenital heart disease clinic recommends antibiotic prophylaxis for women with small ventricular septal defects, heart valve lesions or patent ductus with no history of endocarditis.[16] Recommendations from the British Society for Antimicrobial Chemotherapy[17] and the American Heart Association[18] suggest that antibiotic prophylaxis is not required for insertion or removal of intrauterine contraception even in women with cardiac abnormalities or at risk of endocarditis.[17] NICE is in the process of developing guidelines on antibiotic prophylaxis for endocarditis.

As clinicians' opinions are conflicting, good evidence is scarce, and in view of the potential seriousness of endocarditis, the CEU continues to recommend intravenous antibiotic prophylaxis for insertion and removal of intrauterine contraception in women with a prosthetic heart valve or a history of bacterial endocarditis.[2] The CEU considers that *British National Formulary (BNF)* guidance should be adopted. There is no advice specifically relating to intrauterine contraceptive use. For gynaecological procedures, the *BNF*[19] recommends antibiotic prophylaxis only for women with prosthetic valves or who have had endocarditis previously. In these circumstances an intravenous regimen is advised. In the absence of specific guidance, the CEU considers that such prophylaxis should be used for both insertion and removal. [NB. These recommendations will be reviewed after the publication of the NICE guidelines.]

6 Women with previous endocarditis or with a prosthetic heart valve require intravenous antibiotic prophylaxis to protect against bacterial endocarditis during intrauterine contraception insertion or removal (Grade C).

7 When prophylaxis against bacterial endocarditis is required, clinicians should refer to the *BNF* for the most up-to-date regimen and ensure the intrauterine contraceptive procedure takes place in an appropriate setting (Good Practice Point).

What information should be given to women when counselling them about intrauterine contraception?

Mode of action

As copper is toxic to ovum and sperm a Cu-IUD works primarily by inhibiting fertilisation.[20–22] In addition, the endometrial inflammatory reaction has an anti-implantation effect and alterations in the copper content of cervical mucus inhibit sperm penetration.[23–25] Use of non-steroidal anti-inflammatory medication (NSAIDs) does not reduce contraceptive efficacy.[26] A Cu-IUD is not abortifacient.[8,27,28]

Most of the contraceptive effect of the LNG-IUS is mediated via its progestogenic effect on the endometrium which prevents implantation.[22,29] Within 1 month of insertion, high intrauterine concentrations of levonorgestrel induce endometrial atrophy.[30–34] In addition, changes in the endometrial stroma,[29] an increase in endometrial phagocytic cells[29,31,35] and a reduction in sperm penetration through cervical mucus contribute to the contraceptive effect.[23,36] The LNG-IUS has little effect on the hypothalamic-pituitary-ovarian axis,[37] serum estradiol concentrations are not reduced (>100 pg/ml)[37] and the majority of women (>75%) continue to ovulate.[38,39]

8 Women should be informed that the primary mode of action of a Cu-IUD is prevention of fertilisation (Grade B).

9 Women should be informed that the LNG-IUS works primarily by its effect on the endometrium preventing implantation. In addition, effects on cervical mucus reduce sperm penetration (Grade B).

Contraceptive efficacy

Many factors may be important in determining efficacy of intrauterine contraception such as sexual activity, age and parity. Failure rates for most intrauterine contraceptives are very low (1–2%) at 5 years.[4] Cochrane reviews provide information on contraceptive efficacy from many different studies.[40–43] One Cochrane review, which included 35 randomised controlled trials (18 comparisons of 10 different Cu-IUDs), concluded that the TCu380A and TCu380S appear to be more effective than other Cu-IUDs.[40]

The TCu380A is a banded device in that it has copper sleeves on the horizontal arms. The TCu380S has copper sleeves at the ends of the horizontal arms, embedded into the arms. The TCu380A (T-Safe380A®) is no longer available in the UK and has been replaced by the TCu380S (TT380 Slimline® and T-Safe 380A QuickLoad®).

Two large trials compared TCu380S and TCu380A for 4 and 5 years of use.[44,45] There tended to be fewer pregnancies with TCu380S after the first year, which was statistically significant in the fourth year (rate difference –1.6, 95% CI –3.0 to –0.2).

Three large multicentre trials[46–48] found that the TCu380A was more effective than the Multiload® Cu375 throughout the 10-year duration of use, although the rate difference was small, 1.5% at 6 years (95% CI 0.1–3.0). The TCu380A has been shown to be highly effective up to 12 years of use.

The Nova-T® 380 has been compared to the TCu380S over 5 years.[49] There were twice as many pregnancies with the Nova-T 380; as the trial was small the difference was statistically significant at the end of the first year of use only. The rate difference at 5 years was 2.3% (95% CI –0.6 to 5.2).[49]

The Flexi-T® 300 has been compared to the TCu380A in one small randomised trial with 3 years of follow-up.[45] This trial was too small to adequately compare efficacy. There were more pregnancies with the Flexi-T 300 and the rate difference at 3 years of use was 1% (95% CI –3.1 to 5.1). The Flexi-T® 380 has not been assessed in randomised controlled trials.[40]

Two smaller versions of framed IUDs are available in the UK, the MiniTT380 Slimline® (a smaller version of the TT380 Slimline) and a shorter version of the Multiload Cu375. Neither have been adequately assessed.

The placement of copper on the arms of framed devices (banded devices such as TCu380A and TCu380S) improves efficacy.[50] The banded TCu380A is more effective at preventing pregnancy than other Cu-IUDs and the most effective Cu-IUDs contain 380 mm^2 of copper.[4,40]

A Cochrane review (including more than 23 180 years of use) identified comparable failure rates for a framed (TCu380A) and a frameless device (GyneFix®)[41] but the efficacy of the frameless device may be compromised by an increase rate of expulsion. A retained GyneFix is particularly effective for up to 5 years of use.

A Cochrane review found that the failure rates for the LNG-IUS to be similar to that for TCu380A.[42,43] However, preliminary results from the WHO trial suggests that the LNG-IUS may be more effective at 5 years of use.[42]

10 Women should be advised of low failure rates for intrauterine contraception at 5 years use: less than 2% with TCu380A and TCu380S and less than 1% with the LNG-IUS (Grade C).

11 The TCu380S and the LNG-IUS are the most effective intrauterine devices available (Grade A).

Duration of use

Intrauterine devices with the longest duration of use are generally preferred as they reduce the risk of infection, perforation and expulsion associated with reinsertion. All Cu-IUDs are licensed for at least 5 years of use and some are recommended for longer use (Table 3).[19,40,51,52] The TCu380A is effective for up to 12 years of use. The TSafe 380A has been licensed for 8 years of use, but the CEU recommends use to 10 years. The TCu380S (TT380 Slimline and T-Safe 380A QuickLoad) has been studied to 5 years of use but because of the clinical performance compared to the TCu380A it is licensed for 10 years of use. The LNG-IUS is licensed for 5 years of use as contraception and for idiopathic menorrhagia and licensed for 4 years to provide endometrial protection.[53]

In the UK it is accepted practice that a Cu-IUD inserted when a woman is 40 years or over can be retained until the menopause is confirmed.[2,54] This is usually 1 year after the last menstrual period if this occurs after the age of 50 years and for 2 years if this occurs before the age of 50 years.

The LARC guideline recommends that women who have the LNG-IUS inserted at or after the age of 45 years and are amenorrhoeic may retain the LNG-IUS until the menopause.[4] Randomised trials show that the LNG-IUS provides effective contraception for up to 7 years[55,56] and the CEU has recommended this duration of use in women aged 45 years or over at insertion.[57] Amenorrhoea with LNG-IUS use does not reliably indicate anovulation. The

Table 3 Intrauterine contraceptive devices currently available in the UK

Devices currently available in the UK	Copper content (mm^2)	Recommended duration of use (years)
Levonorgestrel-releasing (Mirena®)	Not applicable	5 years *(contraception and idiopathic menorrhagia)* 4 years *(endometrial protection)*
Copper devices (framed)		
Copper sleeves		
TCu380S[a]		
TT380 Slimline®[b]	380	10
TCu380A QuickLoad®[c]	380	10
MiniTT® 380 Slimline[d]	380	5
Flexi-T® 380[e]	380	5
Copper in stem only		
Multiload® 375	375	5
UT® 380	380	5
UT® 380 Short[d]	380	5
Nova-T® 380	380	5
Neo-Safe® T380	380	5
Multiload® Cu375[d]	375	5
MultiSafe® 375	375	5
MultiSafe® 375 Short Loop	375	5
Flexi-T® 300[d]	300	5
Copper devices (frameless)		
GyneFix®[d]	330	5

[a]Recommended device of first choice for all women opting for a Cu-IUD. These devices have copper sleeves on the horizontal arms.
[b]The TT380 Slimline® is marketed as a replacement for the Ortho Gynae® T380 which is no longer available in the UK. Women already using Ortho Gynae T380 may continue to use it for its 10-year duration.
[c]The TCu380A (T-Safe® 380A) is no longer available in the UK. The replacement is the T-Safe 380A QuickLoad®.
[d]These devices can be used when the uterine cavity on sounding is less than 6.5 cm.
[e]Data on the Flexi-T 380 are limited and it cannot be recommended for 10 years of use as for other banded devices.

CEU recommends that women aged 45 years or more at the time of LNG-IUS insertion be counselled about the likely contraceptive efficacy and the risks of removal and replacement. Women may opt to continue with the LNG-IUS until no longer required or until the menopause can be confirmed.

12 TCu380A and TCu380S can remain in place for 10 years and other Cu-IUDs for 5 years (Grade C).

13 TCu380S is recommended as a first-choice Cu-IUD to minimise the established risks associated with reinsertion (Grade C).

14 After counselling (about declining fertility, risks associated with insertion and contraceptive efficacy) women who have a Cu-IUD inserted at the age of 40 years or over can retain the device for 1 year after the last menstrual period if aged over 50 years (or 2 years if under 50 years) or until contraception is no longer required (Grade C).

15 Women should be informed that the LNG-IUS is licensed for 5 years of use as a contraceptive (Grade C).

16 Women who have the LNG-IUS inserted at the age of 45 years or over for contraception can retain the device until the menopause is confirmed or until contraception is no longer required (Good Practice Point).

Perforation

The rate of uterine perforation associated with intrauterine contraceptive use is low (0–2.3 per 1000 insertions).[4,58–60] No significant differences were identified in the perforation rates with different framed Cu-IUDs.[40] Perforation rates with TCu380A and GyneFix were similar.[41] The rate of perforation reported with the LNG-IUS in a large observational cohort study was 0.9 per 1000 insertions.[61] A randomised trial comparing the LNG-IUS and a TCu380A reported similarly low perforation rates at 7 years.[62]

17 Women should be informed that uterine perforation associated with intrauterine contraception is up to 2 per 1000 insertions (Grade B).

Expulsion

Expulsion of intrauterine contraception occurs in approximately 1 in 20 women and is most common in the first 3 months after insertion and often during menstruation.[4,59] A Cochrane review found a small excess in expulsions with Multiload Cu375 compared to TCu380A in the fourth and subsequent years. There was a tendency towards more expulsions with the TCu380S compared to the TCu380A, which was statistically significant at the end of 1 year of use only.[40] A recent trial found no difference in expulsion rates between Nova-T 380 and TCu380S.[49]

The expulsion rate for a frameless Cu-IUD was higher than the TCu380A at 1 year.[41] Early expulsions with a frameless device (GyneFix) are common.[41,63]

In general, rates of expulsion for the LNG-IUS are similar to those of framed Cu-IUDs.[2,42,43,64–67]

18 The risk of expulsion with intrauterine contraception is around 1 in 20 and is most common in the first year of use, particularly within 3 months of insertion (Grade B).

19 In general, there are no differences in the rates of expulsion between different Cu-IUDs and between Cu-IUDs and the LNG-IUS (Grade A).

Risk of ectopic pregnancy

Intrauterine methods are such effective contraceptives that the absolute risk of pregnancy (intrauterine and ectopic) while using these methods is very low. A previous ectopic pregnancy is not a contraindication to the use of intrauterine contraception.[6] Contraceptives that inhibit ovulation will reduce the risk of ectopic pregnancy to a greater degree. A meta-analysis of case-control studies showed no increased risk of ectopic pregnancy with current Cu-IUD use (adjusted odds ratio 1.06; 95% CI 0.91–1.24).[68] The annual ectopic pregnancy rate for Cu-IUD users was 0.02 per 100 woman-years (0.3–0.5 per 100 woman-years for those not using contraception).[69–71] Similar rates of ectopic pregnancy are reported for the LNG-IUS and Cu-IUDs.[43,55,62,71]

20 Women should be informed that the overall risk of ectopic pregnancy is reduced with use of intrauterine contraception when compared to using no contraception and no particular device is associated with a lower rate of ectopic pregnancy (Grade A).

Return to fertility

Evidence suggests that the use of intrauterine contraception does not result in a delay in return to fertility after removal.[4,72] A case-control study suggested that previous Cu-IUD use (nulliparous women) did not increase the risk of tubal occlusion and infertility.[73] A cohort study compared parous Cu-IUD users and non-users and showed no difference in fertility after discontinuation of contraception.[74] Data for nulliparous women suggested that long-term Cu-IUD use was associated with fertility impairment.[75] However, this could be explained by bias (IUD users differed from non-IUD users in that they were older, had higher rates of previous miscarriage, termination and ectopic pregnancy) or confounding (STIs may have accounted for these findings rather than the method itself).[76] The mean time to pregnancy following Cu-IUD removal is 3 months,[77,78] which is comparable with LNG-IUS users.[77,79]

21 Women may be advised that there is no delay in return to fertility after removal of intrauterine contraception (Grade B).

Pelvic infection

Pelvic inflammatory disease (PID) among IUD users is most strongly related to the insertion procedure and to the background risk of STIs. A review of 12 randomised and one non-randomised trial (22 908 insertions and more than 51 399 woman-years of follow-up) identified low rates of PID (1.6 per 1000 woman-years).[80] After adjusting for confounding factors, although a six-fold increase in the risk of PID occurs in the 20 days after insertion, the overall risk is low. After this time the risk is low and remains low

unless there is exposure to STIs. No significant differences in discontinuation rates due to PID are seen between different Cu-IUDs or when the LNG-IUS has been compared to Cu-IUDs in randomised trials.[62,81]

22 Women should be advised there may be an increased risk of pelvic infection in the 20 days following insertion of intrauterine contraception but the risk is the same as the non-IUD-using population thereafter (Grade B).

Bleeding patterns and pain

In general, Cu-IUDs do not have any effect on ovulation. Nevertheless, a shorter luteal phase (post-ovulation)[82] with earlier onset of menstruation has been documented.[82,83] Spotting, light bleeding, heavier or longer periods are common in the first 3 to 6 months following Cu-IUD insertion.[7,8] These bleeding patterns are not harmful and usually decrease with time.

The etiology of bleeding associated with the LNG-IUS is complex.[32,84,85] Amenorrhoea or light bleeding is common (65%) after the first year of LNG-IUS use.[86] Amenorrhoea is more common with the LNG-IUS than a Cu-IUD.[43,64] No significant differences were identified between the LNG-IUS and a Cu-IUD (CuT380A) in the incidence of prolonged bleeding at 3 and 36 months of use.[64] Discontinuation rates due to amenorrhoea were 25% at 5 years among LNG-IUS users and 1% among Cu-IUD users.[4,43]

Menstrual bleeding and pain are the most common reasons for discontinuation of intrauterine contraception.[4,59,87] Discontinuation due to bleeding and pain is similar for different types of framed Cu-IUDs.[40] No differences were identified in rates of removal (for bleeding and/or pain) between a frameless (GyneFix) or a framed device (TCu380A).[41] Discontinuation rates for the LNG-IUS and Cu-IUDs are similar.[42] There are no reliable data on the effects of different Cu-IUDs on removals for bleeding and pain in nulliparous women.[40,41,50]

23 Women should be informed that spotting, light bleeding, heavier or prolonged bleeding are common in the first 3 to 6 months of Cu-IUD use (Grade C).

24 Women can be informed that discontinuation due to bleeding and pain are similar for different types of framed and unframed Cu-IUDs (Grade A).

25 Women should be informed that irregular bleeding and spotting is common in the first 6 months after insertion of the LNG-IUS but by 1 year amenorrhoea or light bleeding is usual (Grade B).

Hormonal side effects

From the limited evidence available no clinically significant differences in side effects (acne, headaches, breast tenderness, nausea, mood and libido, prolonged bleeding or weight gain) were identified between women using the LNG-IUS or a Cu-IUD.[4,43,62,71]

26 Women considering the LNG-IUS can be informed that systemic absorption of progestogen occurs, however rates of discontinuation due to side effects (such as acne and headache) are not significantly different from Cu-IUD users (Grade C).

Ovarian cysts

One randomised trial found a higher incidence of ovarian cysts in LNG-IUS users compared to Cu-IUD users.[43] This is not supported by an earlier randomised trial.[71] No correlation was identified between the presence of ovarian cysts, age or bleeding patterns. Most ovarian cysts are asymptomatic and resolved spontaneously. Ovarian pathology should be considered in the differential diagnosis of abdominal pain in LNG-IUS users.[88]

27 Women may be informed that although ovarian cysts may occur when using the LNG-IUS they are rarely a clinical problem (Grade B).

Non-contraceptive benefits

The LNG-IUS is effective in reducing menstrual blood loss[89–93] and providing endometrial protection from the stimulatory effects of estrogen.[94,95] A randomised trial found a significant reduction in dysmenorrhoea and bleeding with the LNG-IUS when compared to a Cu-IUD.[96] There is some evidence that the LNG-IUS may be effective in treating pain associated with endometriosis.[97,98] A systematic review of case-control studies found that use of a Cu-IUD may be associated with a reduced risk of endometrial cancer (relative risk 0.51, 95% CI 0.3–0.8).[99]

28 The LNG-IUS can be used in the management of idiopathic menorrhagia and/or to provide endometrial protection in conjunction with estrogen therapy (Grade B).

Information about the insertion procedure

Women should be given information about the insertion procedure. Women may be informed that insertion can be uncomfortable, although 50% of women experience no or little pain at insertion.[100] Pain relief should be discussed with women in advance of insertion; however, a randomised trial found no reduction in pain experienced by women taking oral ibuprofen prior to IUD insertion.[100] Women may choose to take oral analgesia prior to insertion.

29 Discomfort during and/or after intrauterine contraceptive insertion should be discussed with women during counselling (Good Practice Point).

Choice of device

After counselling, women with no ineligibility criteria may choose between a Cu-IUD and the LNG-IUS. Choosing between a Cu-IUD and the LNG-IUS will usually be determined by the likely effects on menstrual bleeding pattern and duration of use. If a Cu-IUD is the method of choice then a device with the lowest failure rate and longest duration of use should be used first-line, namely TCu380S (TT380 Slimline and T-Safe 380A QuickLoad).[4,40]

If at insertion this device cannot be inserted because the cervical os is too tight then another 380 mm^2 Cu-IUD is appropriate, although randomised evidence does not point to any device being easier to insert. If the uterine length at sounding is less than 6.5 cm, Cu-IUDs with a shorter stem or a frameless device may be used, but there is no evidence to suggest they are less likely to give problems. Table 3 lists most intrauterine contraceptives

currently available in the UK. There are no reliable data comparing the use of different devices by nulliparous women and the TCu380S is the preferred Cu-IUD for these women.[40,41,50]

30 Health care professionals should enable women to choose an intrauterine method based on medical eligibility and the woman's preference (Good Practice Point).

31 If women choose a Cu-IUD the TCu380S is recommended as it is the most effective and has the longest duration of use (Grade A).

When can intrauterine contraception be safely inserted?

Clinicians should consider the woman's convenience and safety when considering the timing of intrauterine contraceptive insertion. Recommendations on insertion of intrauterine contraception in specific circumstances (e.g. postpartum, post-abortion and when switching from other methods of contraception) are outlined in Table 4.

A Cu-IUD can be inserted any time in the menstrual cycle if reasonably certain the woman is not pregnant. Due to the toxic effect of copper, a Cu-IUD is effective immediately after insertion. Therefore, even if there has been unprotected sex and there is a risk of conception, a Cu-IUD can be inserted if this is performed before implantation (i.e. inserted up to 5 days after the first episode of unprotected sex or up to 5 days after the earliest predicted date of ovulation).

The LNG-IUS takes 7 days to provide effective contraceptive protection. Unless the LNG-IUS is inserted within the first 7 days of the onset of menstruation, an additional method of contraception (such as condoms or abstinence) is advised for the next 7 days. If there has been a risk of conception it would be inappropriate to insert the LNG-IUS as implantation may have occurred.

Advice on insertion of intrauterine contraception following medical or surgical abortion of pregnancy has been to insert the device within the first 48 hours or delay until 4 or more weeks postpartum.[6] By waiting until ≥4 weeks post-abortion some women may be at risk of pregnancy. No evidence has been identified that there is an increased risk of perforation with intrauterine contraceptive insertion in the weeks following abortion. The CEU recommends that after counselling and when intrauterine contraception is the preferred method, this may be inserted by an experienced clinician any time after abortion if there is no suspicion that the pregnancy is ongoing.

32 A Cu-IUD can be inserted at any time in the menstrual cycle if it is reasonably certain the woman is not pregnant (Grade C).

33 The LNG-IUS can be inserted at any time in the menstrual cycle if it is reasonably certain the woman is not pregnant and the clinician is reasonably certain there has been no risk of conception (Good Practice Point).

Table 4 Recommendations for timing insertion of intrauterine contraception as a long-term contraceptive option

Circumstances when intrauterine contraception can be inserted	Recommendations for timing of insertion
In all circumstances	A Cu-IUD can be inserted at *any time in the menstrual cycle* if it is reasonably certain[a] the woman is not pregnant. A Cu-IUD is effective immediately The LNG-IUS can be inserted at *any time in the menstrual cycle* if it is reasonably certain[a] the woman is not pregnant and the clinician is reasonably certain there is no risk of conception. Condoms or abstinence should be advised for 7 days after inserting the LNG-IUS unless inserted in the first 7 days of the cycle
Postpartum *(including post-Caesarean section and breastfeeding)*	Insert from 4 weeks postpartum as above
Following abortion	Ideally insert at the time of a first- or second-trimester surgical abortion for immediate contraceptive effect Following medical or surgical abortion ideally insert within the first 48 hours or delay until 4 weeks postpartum. However, waiting until 4 or more weeks post-termination may put women at risk of pregnancy. After counselling and when intrauterine contraception is the preferred method it can be inserted by an *experienced clinician at any time post-abortion* if there is no concern that the pregnancy is ongoing
Switching from another method of contraception	Intrauterine contraception can be inserted at any time if another method of contraception has been used consistently and correctly. Insert any time if it is reasonably certain[a] that the woman is not pregnant. There is no need to wait for the next menstrual period or withdrawal bleed A Cu-IUD is effective immediately. Condoms or abstinence may need to be advised for 7 days after inserting the LNG-IUS unless the current contraceptive method is still effective (e.g. <12 weeks since last progestogen-only injection; within 3 years of insertion of a subdermal implant; no later than Day 1 of the hormone-free interval for pills or patch)

[a]A provider can be reasonably certain a woman is not pregnant if she has no symptoms or signs of pregnancy and meets any of the following criteria:
- Has not had intercourse since last normal menses
- Has been correctly and consistently using a reliable method of contraception
- Is within the first 7 days after normal menses
- Is within the first 7 days post-abortion or miscarriage
- Is fully or nearly fully breastfeeding, amenorrhoeic, and less than 6 months postpartum.[6]

Cu-IUD, copper intrauterine device; LNG-IUS, levonorgestrel intrauterine system.

34 After counselling, and when intrauterine contraception is the preferred method, it may be inserted by an experienced clinician any time after abortion if there is no suspicion that the pregnancy is ongoing (Good Practice Point).

How can safe insertion of intrauterine contraception be facilitated?

Training

To ensure clinicians are able to maintain competence they should be inserting at least one intrauterine method per month.[4] Clinicians fitting fewer than 10 devices over a 6-year period have higher rates of perforation than clinicians fitting between 10 and 100 devices.[101] For revalidations the FSRH requires a log of at least 12 insertions in 12 months or six in 6 months using at least two different types of device in unanaesthetised patients. Training requirements for doctors and nurses wishing to obtain the Letter of Competence in Intrauterine Techniques (LoC IUT) can be found on the Faculty website (www.fsrh.org.uk) or on the Royal College of Nursing website (www.rcn.org.uk).[102,103]

35 Clinicians who insert intrauterine contraception should be appropriately trained, maintain competence and attend regular updates in dealing with emergencies (Grade C).

Informed consent

Women should be given appropriate information about the contraceptive method and the procedure in order to give valid consent to both pelvic examination and intrauterine device insertion.[104] Obtaining this consent orally is acceptable.

36 Informed consent should be given by women prior to insertion of intrauterine contraception (Good Practice Point).

Assistants and chaperones

An appropriately trained assistant (who can monitor the condition of the woman and assist in a clinical emergency) should be present during the insertion procedure.[105] Women may in addition request a chaperone, who need not be a trained health professional and may be a friend or relative.

37 An appropriate trained assistant who can monitor the condition of the patient and assist in an emergency should be present during insertion of intrauterine contraception (Good Practice Point).

Pain relief

Around 50% of women experience some degree of pain at intrauterine contraceptive insertion. Pain is greatest among nulliparous women, women aged over 30 years, those for whom it is more than 6 months since their last pregnancy and women who are not breastfeeding.[100] Pain can be related to expected pain and cervical resistance.[106] A recent high-quality randomised trial shows that pre-emptive analgesia with ibuprofen 400 mg is ineffective in preventing insertion-related pain.[100] Ibuprofen was equally ineffective in subgroups of women who had not had children.[100] Topical lidocaine gel has been shown in small randomised studies to reduce pain caused by tenaculum placement.[107] In a survey, topical gel was the most commonly used method of anaesthesia for IUD insertion.[108] Evidence on the use of pain relief (analgesia or intracervical anaesthesia) for intrauterine contraceptive insertion is limited. The minority of women who experience pain after insertion can be offered NSAIDs such as ibuprofen, although evidence suggests that this treatment regimen is unlikely to improve discontinuation rates in women who cite pain as a reason for removal.[109]

38 The need for pain relief during insertion of intrauterine contraception should be discussed with the woman in advance and administered when appropriate (Good Practice Point).

Emergency management for problems at intrauterine device insertion

The FSRH Service Standards for Resuscitation in Sexual Health Services[105] recommends training and regular updates in resuscitation for all staff dealing with emergencies that may arise during intrauterine contraceptive device insertion (i.e. instrumentation of the cervix or uterus, insertion of the device or collapse where there is an anaphylactic response to medications or provoking agents such as latex gloves or local anaesthetic). The recommendations for emergency equipment are summarised in Table 5.[105]

- All staff should be trained in Basic Life Support.
- A named individual should be responsible for maintaining emergency equipment and drugs, and for facilitating training in resuscitation.
- All staff should know how to contact the emergency services and emergency numbers should be displayed clearly.
- A risk assessment should be performed in all clinical situations specific to insertion of intrauterine contraception.
- An appropriately trained assistant should be available during the procedure.
- All significant adverse clinical events should be recorded and reported according to local policies, and should be discussed with individuals and a process put in place for the whole team to learn from them.

39 Emergency equipment must be available in all settings where intrauterine contraception is being inserted and local referral protocols must be in place for women who require further medical input (Grade C).

Practical procedures for intrauterine insertions

Bimanual examination

A bimanual pelvic examination should be performed prior to inserting intrauterine contraception to allow clinicians to assess the position, size, shape and mobility of the uterus and exclude pathology.

40 A bimanual pelvic examination should be performed on all women before inserting intrauterine contraception (Grade C).

Table 5 Emergencies and insertion of intrauterine contraception: resuscitation measures and contents of an emergency pack (adapted from *Service Standards for Resuscitation in Sexual Health Services*, 2006)[105]

Basic resuscitation measures	Equipment	Medication
Display clear algorithms regarding emergency procedures and emergency telephone numbers	**Essential**	**Essential**
	Sphygmomanometer	Atropine for intravenous use (0.6 mg/ml) for the management of persistent bradycardia
Adequate training of all staff in Basic Life Support	Pocket mask and one-way valve	
	Appropriate selection of needles and syringes, tape, latex-free gloves, sharps box, scissors, saline flush	Adrenaline for intramuscular use 1:1000 (1 mg/ml) for the management of anaphylaxis
Abandon procedure, lower head and/or raise legs	**Desirable** (accessible if available)	**Desirable**
	Oxygen mask with reservoir bag	
The intrauterine device may need to be removed	Automated external defibrillator	Diazepam
Assistant to monitor pulse and blood pressure	Suction	
Ensure clear airway	Adjustable couch with easy access	
Arrange transfer if no improvement		

Measurement of pulse rate and blood pressure

Practice in the UK varies around the measurement of pulse rate and blood pressure before and after insertion of intrauterine contraception. The CEU recommended previously that pulse rate should be documented after insertion.[2] The clinical picture should guide clinicians in the appropriate measurement and documentation of pulse rate and blood pressure before, during and/or after inserting intrauterine contraception.

41 Pulse rate and blood pressure should be assessed and documented when appropriate and depending on the clinical situation when inserting intrauterine contraception (Good Practice Point).

Cervical cleansing

The effect of cleansing the cervix before fitting intrauterine contraception has not been assessed. Nevertheless, many (94%) family planning doctors clean the cervix prior to intrauterine contraceptive insertion.[108] No evidence was identified that cleansing the cervix reduces post-insertion pelvic infection. None of the standard cleansing agents are effective bacteriologically against *C. trachomatis* or *N. gonorrhoeae*. Clinicians may choose to remove any mucus or debris from the cervix before insertion.

42 Cleansing the ectocervix prior to insertion of intrauterine contraception has no proven benefit (Good Practice Point).

Sterile gloves

Gloves should be worn on both hands for pelvic examination.[111] There is no recommendation regarding the use of sterile gloves when fitting intrauterine contraception. If a 'no touch' technique is used (i.e. one whereby anything that is to be inserted into the uterine cavity is held only by the handle) sterile gloves are unnecessary. Gloves should be changed after the pelvic examination and before proceeding to uterine instrumentation to avoid contaminating other surfaces.

43 A 'no-touch' technique should be used when sounding the uterine cavity and inserting intrauterine contraception. If this technique is used then sterile gloves are not required (Good Practice Point).

Use of forceps and assessment of the uterine cavity

The use of forceps (Allis or tenaculum) to stabilise the cervix and an assessment of the length of the uterine cavity is recommended to reduce the risk of perforation and ensure fundal placement of the intrauterine method.[110,111]

44 During insertion of intrauterine contraception clinicians should stabilise the cervix with forceps and assess the length of the uterine cavity to facilitate fundal placement and reduce the risk of perforation (Grade C).

Documentation

Recommendations from the FSRH for record keeping specific to intrauterine insertion are summarised in Box 1.[112]

45 Documentation should be made in the case notes to record appropriate pre- and post-insertion counselling, the insertion procedure and the type of device inserted (Grade C).

What information should be given to women about ongoing use of intrauterine contraception and follow-up?

Information about the device

Women should be informed what device has been inserted and when it needs to be removed and/or replaced. Women should be given written information to back up oral information such as fpa leaflets on intrauterine contraception.[113,114]

46 Women should be given information (oral and written) about the device inserted and the expected duration of use (Good Practice Point).

Checking threads and device

A woman should be offered instruction on how she (or her partner) can check for threads or the intrauterine method after each menstruation (or alternatively at regular intervals). If threads are present and menstruation has not been missed or has not changed from the usual pattern, an intrauterine method can be assumed to be normally placed. If threads are not present (or if the stem is palpable) women should be advised to use condoms or abstain from intercourse until the site of the device can be confirmed (Table 6). Hormonal emergency contraception may be indicated if there is a risk of pregnancy.

47 Women should be offered instruction on how to check for the intrauterine contraceptive and its threads and advised that if they are unable to feel them it may be that the device has been expelled. Alternative contraception should then be used until they seek medical advice (Good Practice Point).

Reducing the risk of STIs

Intrauterine contraception does not provide protection against STIs and women using this method should be informed about safer sex.

48 If a woman chooses intrauterine contraception and is at higher risk of STIs (i.e. aged <25 years, or aged >25 years with a new sexual partner, or more than one partner in the last year, or if their regular partner has other partners) she should be advised to use condoms in addition to the intrauterine method (Good Practice Point).

Symptoms requiring medical attention

Women should be advised to be on the look out for symptoms of pelvic infection, especially in the 3–4 weeks following insertion of intrauterine contraception.[7,8] In addition, women should be advised of symptoms associated with pregnancy or uterine perforation that warrant medical attention.

49 Women should be advised to seek medical assistance at any time if they develop symptoms of pelvic infection, pain, persistent menstrual abnormalities, missed period, non-palpable threads or can feel the stem of the intrauterine device (Grade C).

Routine follow-up

A follow-up visit after the first menses (or 3–6 weeks) after Cu-IUD insertion is recommended to exclude infection, perforation or expulsion.[7,8] Similar follow-up is recommended for women using the LNG-IUS, although longer follow-up of bleeding patterns may be appropriate when used in the management of menorrhagia. A woman should be advised to return at any time to discuss problems or if she wants to change her contraceptive method.[7,8] Annual follow-up visits are not routinely recommended.[7,8]

50 A routine follow-up visit should be advised after the first menses following insertion of intrauterine contraception or 3–6 weeks later (Grade C).

Box 1: Appropriate information to document when inserting intrauterine contraception (adapted from *Service Standards for Record Keeping*, 2006)[112]

DOCUMENTATION REQUIRED WHEN INSERTING INTRAUTERINE CONTRACEPTION

Medical history and clinical assessment

- Age
- Menstrual history (including date of last menstrual period)
- Previous contraception used (including difficulty in IUD/IUS insertion)
- Obstetric history (including ectopic pregnancy)
- Past medical history (relevant cardiovascular disease, past gynaecological history/cervical surgery, including treatment to the cervix, history of sexually transmitted infections (STIs) and pelvic inflammatory disease, relevant medical history and conditions, allergies)
- Coital history
- Sexual history to identify risk of STIs

Information advice and counselling

- Contraceptive choices discussed
- Risks/benefits/uncertainties discussed
- Mode of action and efficacy of IUDs, choice of devices and duration of use
- Effects on bleeding pattern
- Risk of spontaneous expulsion and perforation
- Risk of post-insertion pelvic infection
- Explanation of insertion procedure, consent obtained, leaflets given including manufacturer's patient information
- Thread check and teaching

Details of insertion procedure

- Name of assistant
- Any tests undertaken
- Bimanual examination and speculum findings
- Analgesia/local anaesthesia if used
- Tenaculum/Allis forceps application, uterine sounding/uterocervical length, use of 'no-touch' technique, problems encountered, if any, and actions taken
- Type of device inserted/removed and date for removal

Post-insertion follow-up advice

- Other treatment if any (e.g. antibiotics; special instructions if any, such as postcoital IUD)
- Follow-up if any problems or cannot feel threads

Details of removal

- Reason for removal
- Coital history (since last menstrual period) to identify risk of pregnancy
- Alternative contraception method advised/provided if any
- Technique of removal used; problems encountered, if any, and actions taken

When considering routine removal

Women should be advised that if they wish to have the intrauterine method removed and avoid pregnancy they should attend either in the first few days after the onset of menstruation or abstain from intercourse or use another method of contraception for at least 7 days before removal. If women wish to achieve a pregnancy they can be given pre-pregnancy advice (e.g. about the use of folic acid and checking rubella status) and can have the intrauterine method removed at any time.

Managing problems associated with intrauterine contraception

Recommendations and good practice points for managing problems associated with intrauterine contraception are summarised in Table 6. Additional information to that found in Table 6 is summarised here.

Table 6 Managing common problems associated with intrauterine contraception

Problems associated with intrauterine contraception	Management
Suspected perforation at the time of insertion	The procedure should be stopped and vital signs (blood pressure and pulse rate) and level of discomfort monitored until stable An ultrasound scan and/or plain abdominal X-ray to locate the device if it has been left *in situ* should be arranged as soon as possible
'Lost threads'	Advise women to use another method (condoms or abstinence) until medical review. Consider the need for emergency hormonal contraception If no threads are seen and uterine placement of the intrauterine method cannot be confirmed clinically, an ultrasound scan should be arranged to locate the device and alternative contraception recommended until this information is available If an ultrasound scan cannot locate the intrauterine method and there is no definite evidence of expulsion, a plain abdominal X-ray should be arranged to identify an extrauterine device If the intrauterine method is not confirmed on an ultrasound scan clinicians should not assume it has been expelled until a negative X-ray is obtained (unless the woman has witnessed expulsion) Hysteroscopy is not readily available in all settings but can be useful if the ultrasound scan is equivocal. Surgical retrieval of an extrauterine device is advised
Abnormal bleeding	Gynaecological pathology and infections should be excluded if abnormal bleeding persists beyond the first 6 months following insertion of intrauterine contraception Women using the LNG-IUS who present with a change in pattern of bleeding should be advised to return for further investigation to exclude infections, pregnancy and gynaecological pathology For women using a Cu-IUD, non-steroidal anti-inflammatory drugs can be used to treat spotting, light bleeding heavy or prolonged menstruation. In addition antifibrinolytics (such as tranexamic acid) may be used for heavy or prolonged menstruation
Pregnancy	Most pregnancies in women using intrauterine contraception will be intrauterine but an ectopic pregnancy must be excluded Women who become pregnant with an intrauterine contraception *in situ* should be informed of the increased risks of second-trimester miscarriage, preterm delivery and infection if the intrauterine method is left *in situ*. Removal would reduce adverse outcomes but is associated with a small risk of miscarriage If the threads are visible, or can easily be retrieved from the endocervical canal, the intrauterine contraceptive should be removed up to 12 weeks' gestation If there is no evidence that the intrauterine method was expelled prior to pregnancy it should be sought at delivery or termination and, if not identified, a plain abdominal X-ray should be arranged to determine if the intrauterine method is extrauterine
Suspected pelvic infection	For women using intrauterine contraception with symptoms and signs suggestive of pelvic infection appropriate antibiotics should be started. There is no need to remove the intrauterine method unless symptoms fail to resolve within the following 72 hours or unless the woman wishes removal All women with confirmed or suspected PID should be followed up to ensure: resolution of symptoms and signs, their partner has also been treated when appropriate, completion of the course of antibiotics, STI risk assessment, counselling regarding safer sex and partner notification
Presence of actinomyces-like organisms (ALO)	Intrauterine contraceptive users with ALO detected on a swab who have no symptoms should be advised there is no reason to remove the intrauterine method unless signs or symptoms of infection occur. There is no indication for follow-up screening. If symptoms of pelvic pain occur women should be advised to seek medical advice. Other causes of infection (in particular STIs) should be considered and it may be appropriate to remove the intrauterine method

ALO, actinomyces-like organisms; Cu-IUD, copper intrauterine device; LNG-IUS, levonorgestrel intrauterine system; PID, pelvic inflammatory disease; STI, sexually transmitted infection.

Perforation at insertion

Most uterine perforations associated with intrauterine contraception occur during insertion.[58] A previous Caesarean section appears to be a risk factor for perforation.[115] There is no evidence to provide guidance on the time interval after which it would be appropriate to repeat an attempt at insertion following uterine perforation but the CEU suggests a 6-week interval. An outline of the management of women with suspected perforation is outlined in Table 6.

'Lost threads'

If no threads are visible on speculum examination and uterine placement of the intrauterine method cannot be

confirmed clinically many clinicians will prefer to refer women for an ultrasound scan to locate the device (Table 6). An experienced clinician may consider using a uterine sound to identify if the device is lying within the endocervical canal or uterine cavity but the accuracy of this procedure is unknown. If the intrauterine method is confirmed to be intrauterine it can be retained. If replacement is considered then the benefits must be weighed against the risk of infection, expulsion and perforation. If no threads are seen then thread retrievers (such as Retrievet® or Emmett®) or Spencer Wells forceps can be used to assist in thread retrieval.[116] Care must be taken following this procedure to ensure that the intrauterine device stem has not been moved to lie within the endocervical canal.

The CEU could find no published evidence on efficacy of intrauterine contraception if the device is within the uterine cavity but not fundally placed.

Abnormal bleeding

All causes of abnormal bleeding should be considered (i.e. the type of intrauterine method used, concurrent gynaecological pathology, pregnancy, infection and STIs). A short course of NSAIDs, taken during the days of bleeding, can be used to treat spotting or light bleeding with a Cu-IUD.[8] Heavier and longer menstrual bleeding can be treated with NSAIDs or antifibrinolytics (tranexamic acid). These regimens are supported by small clinical trials.[117–119]

Although not specific to women using intrauterine contraception, guidance on the management of menorrhagia suggests investigation if menorrhagia persists despite medical management.[120] Women using the LNG-IUS with persistent bleeding may warrant re-examination and an assessment of the uterine cavity (e.g. ultrasound scan and endometrial biopsy).[120]

Pregnancy

The site of the pregnancy should be determined by ultrasound scan and advice given regarding appropriate removal of the intrauterine method where possible before 12 weeks' gestation (Table 6).

Suspected pelvic infection

The removal of intrauterine contraception if PID is suspected is not routinely recommended.[7,8] This differs from advice from the British Association for Sexual Health and HIV (BASHH),[121] which is based on evidence from a single, small, poor-quality trial[122] comparing the diagnosis of PID made on clinical signs and symptoms. In this trial, follow-up was limited and therefore was unable to identify whether there might be differences in the long-term sequelae of PID such as infertility or ectopic pregnancy. The CEU supports the continued use of intrauterine contraception and appropriate antibiotic treatment if PID is suspected (Table 6).

Presence of actinomyces-like organisms (ALO)

Actinomyces israelii is a commensal of the female genital tract.[123–126] These actinomyces-like organisms (ALO) have been identified in women with and without[127–131] intrauterine contraception. The role of ALO in infection in women using intrauterine contraception is unclear (Table 6).[132,133] If women using intrauterine contraception, who have ALO identified by swabs, present with symptoms of pelvic pain then removal of intrauterine contraception may be considered. Other more common causes of pain (including STIs) should be excluded. There is no need to remove intrauterine contraception in asymptomatic women with ALO.

Timing the removal of intrauterine contraception

Advice regarding the removal of intrauterine contraception varies depending on the reason for removal and if there is any wish to continue to avoid pregnancy (Table 7). Most women using intrauterine contraception will continue to ovulate and this is relevant when considering the timing of removal without risking implantation of a fertilised ovum. If pregnancy is to be avoided, women should be advised to attend in the first few days after the onset of menstruation or use condoms or abstain from intercourse for 7 days before

Table 7 Recommendations for removal of intrauterine contraception

Reason for removal	Recommendations for removal
For a planned pregnancy	Remove at any time in the menstrual cycle (offer pre-pregnancy advice regarding folic acid, rubella immunity)
When removal and replacement is *at the end of the licensed* duration of use	Remove at any time in the menstrual cycle. If pregnancy is to be avoided remove in the first few days after the onset of menstruation or advise condoms or abstinence from sexual intercourse for at least 7 days before the procedure in case re-insertion is not possible
When removal and replacement is *outside the licensed* duration of use	**Postmenopausal removal** A Cu-IUD inserted at or after the age of 40 years can be retained until 1 year after the LMP if this occurs when the woman is over the age of 50 years A Cu-IUD inserted at or after the age of 40 years can retained until after the LMP but if this occurs under the age of 50 years the device should be retained for a further 2 years The LNG-IUS can continue to be used as contraception for 7 years if inserted at or after the age of 45 years. Use beyond this time can be discussed with individual patients **Management of menorrhagia** If the LNG-IUS is being used in the management of menorrhagia (and not for contraception or with estrogen-replacement therapy) it can be retained beyond the 5-year licensed duration of use if bleeding patterns are acceptable

Cu-IUD, copper intrauterine device; LMP, last menstrual period; LNG-IUS, levonorgestrel intrauterine system.

removal of intrauterine contraception, even when reinsertion is planned. When intercourse has occurred in the preceding 7 days, the need for removal and use of emergency hormonal contraception should be discussed (Table 7).

The cost effectiveness of intrauterine contraception

Increasing the uptake of LARC methods such as Cu-IUDs or the LNG-IUS can reduce the number of unintended pregnancies.[4] The long-term use of intrauterine contraception is highly cost effective.[4] Intrauterine contraception is more cost effective than combined oral contraception (even at 1 year of use) or progestogen-only injectables.

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APPENDIX: DEVELOPMENT OF CEU GUIDANCE

This Guidance was developed by the Clinical Effectiveness Unit (CEU) (**Dr Susan Brechin**, Unit Director, **Ms Gillian Stephen** and **Ms Lisa Allerton**, Research Assistants) on behalf of the Faculty of Sexual and Reproductive Healthcare (FSRH) with a multidisciplinary group of health professionals comprising: **Dr Urszula Bankowska** (Consultant and Associate Director of Governance and Quality, The Sandyford Initiative, Glasgow); **Dr Jo Bibby** (FSRH Council Member and Consultant in Contraceptive and Sexual Health, Swansea NHS Trust); **Dr Ellie Birtley** (Associate Specialist in Contraception and Sexual Health, Ella Gordon Unit, St Mary's Hospital, Portsmouth); **Dr Caroline Boorer** (Lead Associate Specialist, Northumberland Care Trust); **Ms Kathy French** (Sexual Health Advisor, Royal College of Nursing, London); **Mrs Maggie Gormley** (Nurse Specialist in Contraception, London); **Dr Anja Guttinger** (Research Fellow, Reproductive Health Care, Dean Terrace Family Planning Clinic, Edinburgh); **Dr Sarah Hughes** (Consultant in Sexual and Reproductive Health Care, Victoria Health Centre, Nottingham); **Dr Meera Kishen** (Consultant in Family Planning and Reproductive Health Care, North Liverpool NHS and President of the FSRH); **Dr Noel Mack** (General Practitioner and Staff Grade Family Planning Doctor, Kemnay Medical Centre and Square 13, Aberdeen); **Dr Paul O'Brien** (Consultant, Westminster PCT, Westside Contraceptive Services, Raymede Clinic, London); **Dr Victoria Pickles** (Surgeon in Gynaecology and Reproductive Health, London); **Dr Karen Piegsa** (Consultant in Reproductive Health, Contraception Service, Carnegie Clinic, Dunfermline); **Dr Joanne Protheroe** (General Practitioner, National Primary Care Research and Development Centre, University of Manchester, Manchester); **Dr Sam Rowlands** (Freelance Specialist in Contraception and Reproductive Health and Visiting Senior Lecturer, Warwick Medical School, Warwick University); **Dr Alison Scott** (Consultant in Sexual and Reproductive Health Care, Dean Terrace Family Planning Clinic, Edinburgh); **Dr Fiona Sizmur,** Lead Associate Specialist, Department of Sexual Health, Winchester); **Dr Alison Vaughan** (Lead Associate Specialist, Bournemouth and Poole PCT, Dorset and FSRH Education Committee representative). Written feedback was received from our user representative, **Ms Toni Belfield** (Director of Information, fpa, London); from the FSRH Clinical Effectiveness Committee; and from two independent peer reviewers, **Dr Ian Milsom** (Professor and Consultant Gynaecologist, The Institute of Clinical Sciences, The Shalgrenska Academy, Göteburg University, Sweden) and **Dr Pekka Lahteenmaki** (Director, Microbicide Clinical Trials, Population Council, USA).

No competing interests were noted by members of the multidisciplinary group. Administrative support to the CEU team was provided by Mrs Tracey Chiverton.

CEU Guidance is developed in collaboration with the Clinical Effectiveness Committee of the FSRH. The CEU Guidance development process employs standard methodology and makes use of systematic literature review and a multidisciplinary group of professionals. The multidisciplinary group is identified by the CEU for their expertise in the topic area and typically includes clinicians working in family planning, sexual and reproductive health care, general practice, other allied specialities, and user representation. In addition, the aim is to include a representative from the FSRH Clinical Effectiveness Committee, the FSRH Education Committee and FSRH Council in the multidisciplinary group.

Evidence is identified using a systematic literature review and electronic searches are performed for: MEDLINE (CD Ovid version) (1996–2007); EMBASE (1996–2007); PubMed (1996–2007); The Cochrane Library (to 2007) and the US National Guideline Clearing House. The searches are performed using relevant medical subject headings (MeSH), terms and text words. The Cochrane Library is searched for systematic reviews, meta-analyses and controlled trials relevant to intrauterine contraception. Previously existing guidelines from the FSRH (formerly the FFPRHC), the Royal College of Obstetricians and Gynaecologists (RCOG), the World Health Organization and the British Association for Sexual Health and HIV, and reference lists of identified publications, are also searched. Similar search strategies have been used in the development of other national guidelines. Selected key publications are appraised using standard methodological checklists similar to those used by the National Institute for Health and Clinical Excellence (NICE). All papers are graded according to the Grades of Recommendations Assessment, Development and Evaluation (GRADE) system. Recommendations are graded as in the table below, using a scheme similar to that adopted by the RCOG and other guideline development organisations. The clinical recommendations within this Guidance are based on evidence whenever possible. Summary evidence tables are available on request from the CEU. An outline of the Guideline development process is given in the table on the inside back cover of this Guidance document. Feedback on Guidance documents should be directed to the CEU via e-mail (ceu.guidance@abdn.ac.uk).

Level of evidence	Evidence
Ia	Evidence obtained from meta-analysis of randomised trials
Ib	Evidence obtained from at least one randomised controlled trial
IIa	Evidence obtained from at least one well-designed controlled study, without randomisation
IIb	Evidence obtained from at least one other type of well-designed quasi-experimental study
III	Evidence obtained from well-designed non-experimental descriptive studies, correlation studies and case studies
IV	Evidence obtained from expert committee reports or opinions and/or clinical experience of respected authorities

	Grades of Recommendations
A	Evidence based on randomised controlled trials
B	Evidence based on other robust experimental or observational studies
C	Evidence is limited but the advice relies on expert opinion and has the endorsement of respected authorities
✓	Good Practice Point where no evidence exists but where best practice is based on the clinical experience of the multidisciplinary group

SUMMARY POINTS: INTRAUTERINE CONTRACEPTION

CLINICAL ASSESSMENT

- A clinical history (including sexual history) should be taken as part of the routine assessment for intrauterine contraception to assess suitability for use of the method.
- Women at *higher risk* of STIs (i.e. aged <25 years, or >25 years with a new sexual partner or more than one partner in the last year, or if their regular partner has other partners) should be tested for *Chlamydia trachomatis* (as a minimum) in advance of insertion. If results are unavailable before insertion then prophylactic antibiotics (at least to cover *C. trachomatis*) may be considered.

NB. There is no indication to test or treat other lower genital tract organisms or delay insertion in asymptomatic women attending for insertion of intrauterine contraception.

POINTS TO COVER WHEN COUNSELLING PATIENTS

Health care professionals should counsel women to enable them to choose an intrauterine method based on medical eligibility and the woman's preference.

- **Mode of action** of a Cu-IUD is to primarily to prevent fertilisation and the LNG-IUS is to prevent implantation.
- **Failure rates** at 5 years' use are low: less than 2% for Cu-IUDs (380 mm^2) and less than1% for the LNG-IUS.
- **Uterine perforation** is uncommon (up to 2 per 1000 insertions).
- **Expulsion** occurs in around 1 in 20 women, is most common in the first year of use and particularly within 3 months of insertion.
- **Risk of ectopic pregnancy** is reduced when using intrauterine contraception when compared to using no contraception.
- There is no **delay in return to fertility** after removal of intrauterine contraception.
- There is a six-fold increase in risk of **pelvic infection** in the 20 days following insertion of intrauterine contraception but risk is the same as in the non-IUD-using population thereafter.
- **Bleeding and pain** are common causes of discontinuation. Spotting, light bleeding, heavy or prolonged bleeding is common in the first 3–6 months of Cu-IUD use. Irregular bleeding and spotting is common in the first 6 months after insertion of the LNG-IUS. By 1 year after LNG-IUS insertion amenorrhoea or oligomenorrhoea is usual.
- **Hormonal side effects** can be due to due to systemic absorption of progestogen but few women discontinue use of the LNG-IUS for this reason and discontinuation rates are not significantly different from Cu-IUD users.
- **Insertion procedure** and likely discomfort during and after intrauterine contraceptive insertion should be discussed with women and oral analgesia can be advised before insertion.

TIMING OF INSERTION

- A Cu-IUD can be inserted *at any time in the menstrual cycle* if it is reasonably certain the woman is not pregnant. A Cu-IUD will provide immediate contraceptive protection.
- The LNG-IUS can be inserted *at any time in the menstrual cycle* if it is reasonably certain the woman is not pregnant and the clinician is reasonably certain there has been no risk of conception. Unless the LNG-IUS is inserted within the first 7 days of the menstrual cycle, condoms or abstinence is advised for 7 days after insertion.

PROCEDURES FOR INSERTION

- Clinicians who insert intrauterine contraceptive methods should be appropriately trained, maintain competence and attend regular updates in dealing with emergencies.
- Emergency equipment must be available in all settings where intrauterine contraception is being inserted and local referral protocols must be in place for women who require further medical input.
- An appropriate trained assistant should be present during insertion of intrauterine contraception.
- A bimanual pelvic examination should be performed before inserting intrauterine contraception.
  - Cleansing the ectocervix prior to insertion of intrauterine contraception has no proven benefit.
  - A 'no-touch' technique can be used when sounding the uterine cavity and inserting intrauterine contraception. If a 'no-touch' technique is used sterile gloves are not required.
  - The cervix should be stabilised with an appropriate forceps to allow assessment of the length of the uterine cavity and to ensure fundal placement of the device.
- The case notes should included appropriate documentation on pre- and post-insertion counselling, the insertion procedure and the type of device inserted.

ONGOING MANAGEMENT

- Women should be given information (oral and written) about the device inserted and duration of use.
- Women should be instructed on how to check for the intrauterine contraceptive and its threads and advised that if they are unable to feel them it may be that the device has been expelled. Alternative contraception should then be used until medical advice is sought.
- Women should be advised to seek medical help at any time if they develop symptoms of pelvic infection, pain, persistent menstrual abnormalities, missed period, non-palpable threads or if they can feel the stem of the device.
- A follow-up visit after the next menses or 3–4 weeks after insertion is recommended. Annual follow-up is not routinely recommended and women should attend if problems arise at any time.

NB. Intrauterine methods do not protect against STIs and therefore women at higher risk of STIs (i.e. those aged <25 years, or aged >25 years with a new sexual partner, or more than one partner in the last year, or if their regular partner has other partners) should be advised to use condoms in addition to the intrauterine method.

CHOICE OF DEVICE

- After counselling most women can choose between a Cu-IUD or the LNG-IUS since this choice is usually determined by the likely effects on menstrual bleeding pattern and duration of use.
- If a woman chooses a Cu-IUD then a device with the lowest failure rate and longest duration of use should be used first-line, namely the TCu380S (TT380 Slimline® or T-Safe TCu380A QuickLoad®) is the suggested device of choice.
- If at insertion the TCu380S cannot be inserted because the cervical os is too tight another 380 mm^2 Cu-IUD is appropriate.
- If the uterine length at sounding is less than 6.5 cm, Cu-IUDs with a shorter stem or a frameless device may be used.
- There is no evidence comparing the use of different devices in nulliparous women and the TCu380S is the preferred IUD for these women also.
- A Cu-IUD inserted at age 40 years or over or an LNG-IUS inserted at age 45 years or over can be retained until 1 year after the last menstrual period if the woman is aged over 50 years (and for 2 years if she is aged under 50 years) or until contraception is no longer required.

Discussion Points for Intrauterine Contraception

The following discussion points have been developed by the FSRH Education Committee.

Discussion Points

1 A patient attending for an early medical termination of pregnancy requests that a levonorgestrel intrauterine system (LNG-IUS) is fitted for her future method of contraception. What issues would you specifically need to discuss with her surrounding the timing of the insertion?

2 Discuss how you would explain the differences to a patient between a copper-bearing intrauterine device (Cu-IUD) and a LNG-IUS to a patient..

3 What are the key issues to discuss and record in the notes of a woman who wishes to have a Cu-IUD inserted?

Questions for Intrauterine Contraception

The following questions and answers have been developed by the FSRH Education Committee.

Indicate your answer by ticking the appropriate box for each question	***True***	***False***
1 A Cu-IUD or LNG-IUS can be fitted at any time in the menstrual cycle if the clinician can be reasonably certain that there is no risk of pregnancy.	☐	☐
2 A first-line Cu-IUD for contraceptive use should contain <300 mm^2 copper.	☐	☐
3 Cu-IUDs primarily work by preventing implantation.	☐	☐
4 A Cu-IUD or LNG-IUS user who is asymptomatic and who has actinomyces-like organisms (ALO) on her smear should have her Cu-IUD or LNG-IUS removed.	☐	☐
5 Prior to insertion all women having a Cu-IUD/LNG-IUS fitted should have screening tests for sexually transmitted infections.	☐	☐
6 LNG-IUS use in a woman with previous breast cancer is UKMEC Category 3.	☐	☐
7 An LNG-IUS fitted in a woman aged over 45 years can be left *in situ* for 7 years.	☐	☐
8 The LNG-IUS can be used first-line for the treatment of dysmenorrhoea.	☐	☐
9 A woman changing from a Cu-IUD to the LNG-IUS should be advised not to have sexual intercourse in the 7 days prior to insertion.	☐	☐
10 The LNG-IUS is not suitable for women with epilepsy on liver enzyme-inducing drugs.	☐	☐

Answers

1 True
2 False
3 False
4 False
5 False
6 True
7 True
8 False
9 True
10 False

STEPS INVOLVED IN THE DEVELOPMENT OF CEU GUIDANCE

STEP	TIME TAKEN
Formulation of **key clinical questions** by the Clinical Effectiveness Unit (CEU). **Systematic literature review** involving searching electronic, bibliographic databases by CEU researchers. **Obtaining and reviewing** copies of the full papers of all relevant publications identified through the searches. **Formal, critical appraisal** of key papers and development of short evidence tables.	This process must be completed in a maximum of 8 weeks.
Draft One Guidance document is written, providing recommendations and good practice points based on the literature review.	The CEU has overall responsibility for writing the Guidance document. The Multidisciplinary Group and other peer reviewers should highlight inconsistencies and errors or where the text is incomprehensible.
Multidisciplinary Group Meeting comprising stakeholders and including service user representation, representation from the Faculty of Sexual and Reproductive Healthcare (FSRH) Education Committee and, where possible, representation from the FSRH Clinical Effectiveness Committee (CEC) and FSRH Council.	A one-day meeting held in Aberdeen with the Multidisciplinary Group to discuss the Draft One Guidance document.
. **Preparation of Draft Two Guidance document** based on discussion at the Multidisciplinary Group.	The Multidisciplinary Group meeting is held at least 2 months before the Guidance deadline to allow time for development of further drafts.
Peer Review of Draft Two Guidance document by the Multidisciplinary Group and the FRSH CEC.	
All **written feedback on the Draft Two Guidance document** is tabulated and the CEU response to these comments outlined.	
Draft Three Guidance document is prepared based on written feedback and is sent to the Multidisciplinary Group and the FSRH CEC. In addition, two independent peer reviewers are identified by the CEC to provide feedback at this stage.	Only minor comments can be accepted at this stage.
The Final Guidance document is published by the FSRH.	Proofreading of the Guidance document is then performed by three members of the CEU team independently and comments collated and sent back by the Unit Director. A pdf version of the Guidance is available on the FSRH website.

COMMENTS AND FEEDBACK ON PUBLISHED GUIDANCE

All comments on published Guidance can be sent directly to the Clinical Effectiveness Unit (CEU) via e-mail (**ceu.guidance@abdn.ac.uk**).

You will receive an automated acknowledgment on receipt of your comments. If you do not receive this automated response please contact the CEU by telephone [+44 (0) 1224 553623] or e-mail (**ffp.ceu@abdn.ac.uk**).

The CEU is unable to respond individually to all feedback. However, the CEU will review all comments and provide an anonymised summary of comments and responses which, after review by the Clinical Effectiveness Committee, will be posted on the Faculty website (**www.fsrh.org**).