



# Jadelle®

## Training Manual for Family Planning

### Chapter 8

than 21 days in 89% of the women. Furthermore, use of the COC was significantly better than either 50 pg EE alone ( $p < 0.01$ ) or a placebo ( $p < 0.01$ ). Even when using a high-dose COC (50 pg EE), only 2% of the women were unable to complete the full 20 days of treatment because of gastric upset or nausea. Thus the effectiveness of combined estrogen/progestin treatment of bleeding irregularities in LNG implant users now appears to be adequately documented. Low-dose (30-35 mg EE) COCs were not included in this study but the experience of many clinicians suggests that their use probably is equally as effective and may cause fewer gastrointestinal problems. Low-dose COCs may be preferable because they are more widely available than 50 pg EE COCs and are much less expensive than EE alone.

#### Management of vaginal bleeding problems

Irregular (< 15 day interval) bleeding as well as prolonged spotting or bleeding (8 days or more) are common and expected in LNG

implant users — over 65% experienced this during the first year (Sivin 1988). In addition, moderate menstrual bleeding more than twice as long as a normal menses occurs in 20-30% of implants users during the first 3 to 6 months. For a woman with **prolonged spotting or moderate bleeding**, the **first approach** should be counseling and reassurance. It should be explained that in the **absence of other causes** (e.g., cervicitis or cervical polyp) this type of bleeding is not harmful, even if prolonged for several weeks. Furthermore, these prolonged bleeding or spotting episodes typically become lighter and shorter in succeeding months.

If, after reassurance, the woman is still unhappy with the irregular bleeding, but wants to continue using LNG implants, a short course (1 to 3 cycles) of COCs may be tried using:

- a low-dose COCs (30-35 pg EE) once daily for 21 days (TGWG 1994).

If COCs are not appropriate for personal or medical reasons, try:

- ibuprofen (or another NSAID) up to 800 mg 3 times daily for 5 days (TGWG 1994).

Combined oral contraceptives control or stop bleeding by rebuilding the endometrium while ibuprofen, which blocks prostaglandin synthesis, decreases uterine contractions and blood flow to the endometrium (Angle, Huff and Lea 1991). Combined oral contraceptives, which also contain a progestin, are preferred over estrogens (either 20-50 pg EE or 1.25 mg conjugated estrogens) because they are more effective (Alvarez-Sanchez et al 1996).

**Heavy bleeding** (twice as long or twice as much as normal) is very uncommon with LNG implants but usually can be managed with low-dose COCs (with or without ibuprofen).

If the bleeding is not reduced in 3 to 5 days or is much heavier (1 to 2 pads or cloths per hour):

- Determine whether there are other causes for the uterine bleeding.
- Give 2 low-dose COC pills per day for the remainder of the cycle (at least 3 to 7 days), followed by 1 cycle (1 pill per day) of COCs.

**Note:** Check to be sure vaginal bleeding has decreased within 3 days.

If COCs or estrogens fail to correct the bleeding problem, the implants may need to be removed for medical reasons (excessive bleeding) or due to the client's wishes (TGWG 1994).

Do **not** perform a D&C unless **another** medical condition (e.g., endometrial polyp or incomplete abortion) is suspected. (If uterine evacuation is necessary, manual vacuum aspiration, not D&C, is the preferred method for emptying the uterine cavity.)

For anemia, give nutritional advice on the need to increase iron intake. Use oral iron treatment (one tablet containing at least 100 mg elemental iron, FeSO<sub>4</sub>, daily for 1 to 3 months) if hemoglobin  $\leq 9$  g/dl or hematocrit  $\leq 27$ .



Management of most common adverse effects

The steps in evaluating and managing adverse effects associated with use of the LNG implants Jadelle are outlined below.

Adverse effect	Assessment	Management
<b>Amenorrhea</b> (absence of vaginal bleeding or spotting)	Check for pregnancy (intrauterine or ectopic) by history, checking symptoms and performing a pelvic examination (speculum and bimanual) or a pregnancy test, if indicated and available (see <b>Chapter 4</b> ).	<p>Amenorrhea occurs in about 7% of LNG implants users in the first year and decreases thereafter (USFDA 1990). Amenorrhea for 6 weeks or more, <b>especially</b> after a pattern of regular menses, may signal pregnancy and should be evaluated.<sup>1</sup></p> <p>If <b>intrauterine pregnancy</b> is confirmed, counsel client regarding options. If the pregnancy will be continued, remove rods and assure her that the small dose of LNG to which she was exposed will have no harmful effect on the fetus.</p> <p>If <b>miscarriage</b> (spontaneous abortion) occurs (or pregnancy will not</p>

Adverse effect	Assessment	Management
		<p>be continued), it is <b>not</b> necessary to remove the LNG implants.</p> <p>If <b>ectopic pregnancy</b> is suspected, refer at once for complete evaluation.</p> <p>Do <b>not</b> give hormonal treatment (COCs) to induce withdrawal bleeding. It is not necessary and usually is <b>not</b> successful unless 2 or 3 cycles of COCs are given (TGWG 1994).</p>
<b>Bleeding/Spotting</b> (prolonged spotting or moderate bleeding)  Prolonged spotting: > 8 days  Moderate bleeding: ≥ normal menses, 50-80 ml	<p>Perform pelvic examination (speculum and bimanual) to be sure bleeding is not due to other causes (i.e., genital tract problems such as vaginitis, cervicitis, cervical polyps or uterine fibroids).</p> <p>If pregnancy (intrauterine or ectopic) or incomplete abortion is suspected, examine and perform pregnancy test if indicated and available.</p>	<p>If an abnormality of the genital tract is found, after counseling, treat the problem or refer for further evaluation. Do <b>not</b> remove rods. Advise client to return for additional counseling after management of problem(s).</p> <p>See <b>Amenorrhea</b> (above) for management of pregnancy-related conditions.</p> <p>Reassure client that light, intermenstrual bleeding or spotting occurs in a large percentage of</p>

<sup>1</sup> If pregnancy cannot be confirmed by pelvic exam (and pregnancy test is not available), either refer the client for a pregnancy test or ask her to return in 2 to 4 weeks for repeat examination.



Adverse effect	Assessment	Management
		<p>women using LNG implants (50-80% of women during the first few months of use). It is not serious and usually does not require treatment. Most women can expect the altered bleeding pattern to become more regular after 6 to 12 months (Population Council 1990).</p> <p>If the client is not satisfied after counseling and reassurance, but wants to continue using implants, two treatment options are:</p> <ul style="list-style-type: none"> <li>• a cycle of COCs (30-35 pg EE), or</li> <li>• ibuprofen (up to 800 mg 3 times daily for 5 days) or other NSAID (TGWG 1994).</li> </ul> <p>Be sure to tell the client to expect bleeding during the week after completing the COCs (21-pill pack) or during the last 7 pills if 28-pill pack.</p>
<p><b>Bleeding</b> (prolonged or heavy bleeding) Prolonged bleeding: &gt; 8 days</p>	Perform pelvic examination (speculum and bimanual) to be sure bleeding is not due to other causes (e.g., genital tract problems such as	If an abnormality of the genital tract is found, treat the problem and counsel the client or refer for further evaluation. Do not remove

Adverse effect	Assessment	Management
	vaginitis, cervicitis, cervical polyps or uterine fibroids).	rods. Advise client to re-turn for additional counseling after management of problem(s).
Heavy bleeding: twice as long or twice as much as normal	If pregnancy (intrauterine or ectopic) or incomplete abortion is suspected, examine and perform pregnancy test if indicated and available.	See <b>Amenorrhea</b> above for management of pregnancy-related conditions.
	If no genital tract abnormality noted, check for significant anemia (pale conjunctiva or nail beds, low hematocrit or hemoglobin).	For hemoglobin < 9 g/dl or hematocrit 27, give iron (FeSO <sub>4</sub> , 1 tablet containing at least 100 mg elemental iron, daily for 1 to 3 months) and nutritional counseling. If anemia persists or client requests, remove rods and help client choose another method.



Adverse effect	Assessment	Management
		<p><b>Note:</b> Despite the increased frequency of bleeding in some women, the monthly blood loss in LNG implants users usually is less than with normal menses in noncontracepting women. In some users, hemoglobin levels increase over time. More women have increases than have decreases in hemoglobin (Population Council 1990).</p>
	No other cause found, but client has prolonged bleeding or amount is more than normal menses.	<p>If the client is not satisfied after counseling and reassurance, but wants to continue using implants, two treatment options are:</p> <ul style="list-style-type: none"> <li>• a cycle of COCs (30-35 pg EE), or</li> <li>• ibuprofen (up to 800 mg 3 times daily for 5 days) or other NSAID (TGWG 1994).</li> </ul> <p>Be sure to tell the client to expect bleeding during the week after completing the COCs (21-pill pack) or during the last 7 pills if 28-pill pack.</p>

Adverse effect	Assessment	Management
	<p>No other cause found, but bleeding is:</p> <ul style="list-style-type: none"> <li>• not reduced in 3-5 days, or</li> <li>• much heavier (1-2 pads per hour).</li> </ul>	<p>If client wants to continue using implants, give:</p> <ul style="list-style-type: none"> <li>• 2 COC pills per day for the remainder of the cycle (at least 3-7 days) followed by 1 cycle (1 pill per day) of COCs, or 1.25 mg conjugated estrogen for 14-21 days (TGWG 1994).</li> </ul>
	<p>Take history, perform abdominal and pelvic (speculum and bimanual) examinations.</p> <p>Check vital signs:</p> <ul style="list-style-type: none"> <li>• Pulse</li> <li>• Blood pressure</li> <li>• Temperature</li> </ul> <p>Examine to rule out:</p> <ul style="list-style-type: none"> <li>• Ectopic pregnancy</li> <li>• PID</li> <li>• Appendicitis</li> <li>• Ovarian cysts</li> </ul> <p>Do lab tests for Hb/Hct and pregnancy test if indicated and available.</p>	<p><b>Refer immediately</b> if the client has any of the following:</p> <ul style="list-style-type: none"> <li>• Moderate to severe lower abdominal tenderness (rebound)</li> <li>• Elevated resting pulse (&gt; 100 BPM)</li> <li>• Decreased blood pressure (&lt; 90/60 mm Hg)</li> <li>• Elevated temperature (&gt; 38°C)</li> <li>• Suspected/confirmed pregnancy and acute anemia (e.g., Hb &lt; 9 g/dl or Hct &lt; 27)</li> </ul> <p>In some women with LNG implants, ovarian follicles develop and their shrinkage (atresia) is</p>

# Jadelle®

## Training Manual for Family Planning

### Chapter 8



98

99

Adverse effect	Assessment	Management
<b>Bleeding</b> (prolonged or heavy bleeding) (continued)		sometimes delayed. In these instances, the follicle may continue to grow beyond the size it would attain in a normal cycle. These enlarged follicles cannot be distinguished from ovarian cysts. They usually occur during the first 6 months of use, generally are asymptomatic and often are palpable.
<b>Lower abdominal/pelvic pain</b> (with or without symptoms of pregnancy)		In most cases the enlarged follicles disappear spontaneously and should not require treatment or removal of rods. Rarely, they may twist or rupture, sometimes causing abdominal pain, and surgical intervention may be required.
	Check history for exposure to GTIs and other STDs (e.g., HBV, HIV/AIDS) and examine for vaginitis, purulent cervicitis or beefy red cervix.  Examine saline and KOH wet mounts of vaginal discharge for trichomonas, monilia (Candida) and Gardnerella.	Obtaining an accurate history will facilitate diagnosis and treatment. If cervicitis (mucopus or beefy red cervix), check Gram's stain of cervical discharge.  If saline or KOH wet mounts are positive, treat appropriately for specific organism.

Adverse effect	Assessment	Management
<b>Vaginal discharge</b>	Observe for gram negative intracellular diplococci (GNIDs) and WBC (PMNs).  If Gram's stain negative, obtain GC culture if available.	If positive for GNIDs, treat for gonorrhea. If negative for GNIDs and purulent cervicitis or beefy red cervix, treat for chlamydia.
<b>Weight gain or loss</b> (change in appetite)	Compare weight prior to implants use (if known) and current weight.  Check for pregnancy.  Check that the client is eating and exercising properly.	Counsel client that normal fluctuations of 1 to 2 kg (2 to 4 lbs) may occur.  Review diet if weight change is excessive ( $\pm$ 2 kg or more). If weight gain (or loss) is unacceptable, even after counseling, remove rods and help client choose another method

#### Management of health problems

Clients may present with other problems which may or may not be method-related. The assessment

and management of these problems are presented below.

Adverse effect	Assessment	Management
<b>Acne</b>	Ask how and how often she cleans her face. Ask if she is currently under great stress.	In some women, implants use can make acne worse. Recommend cleaning face twice a day and avoiding use of heavy facial



Adverse effect	Assessment	Management
		creams. Counsel as appropriate. If condition is not tolerable, help client choose another (nonhormonal) method.
<b>Breast fullness or tenderness</b> (mastalgia)	<p>Check for pregnancy.</p> <p>Check breasts for:</p> <ul style="list-style-type: none"> <li>• lumps or cysts, and</li> <li>• discharge or galactorrhea (leakage of milk-like fluid), if not breastfeeding.</li> </ul> <p>If she is breastfeeding and breast(s) is tender, examine for breast infection.</p>	<p><b>If pregnant</b>, manage as described in <b>Amenorrhea</b> (p. 8-3).</p> <p>If <b>not pregnant</b>, do <b>not</b> remove rods unless client requests it after counseling.</p> <p>If physical examination shows lump or discharge suspicious for cancer (e.g., firm, non-tender or fixed and which does not change during menstrual cycle), refer to appropriate source for diagnosis. If no abnormality, reassure.</p> <p>If breast(s) is not infected, recommend a bra that provides additional support.</p> <p>If breast infection, use warm compresses, advise to continue breast-feeding and give antibiotics as appropriate.</p>

Adverse effect	Assessment	Management
		For any of the above conditions, do <b>not</b> remove rods unless client requests it after counseling.
<b>Chest pain</b> (especially if it occurs with exercise)	<p>Assess for possible cardiovascular disease (CVD). Also, check:</p> <ul style="list-style-type: none"> <li>• Blood pressure</li> <li>• Heart for irregular beats (arrhythmias)</li> </ul>	If evidence for CVD, refer for further evaluation. Low-dose progestins do not increase the risk of CVD but if acute venous thrombosis or pulmonary embolism is diagnosed, remove implants and help client choose another (nonhormonal) method.
<b>Depression</b> (mood changes or loss of libido)	Discuss changes in mood or libido.	Depression or loss of libido may be associated with progestins; therefore, if the client thinks her depression has worsened while using LNG implants, help her choose another method.
<b>Excess hair growth (hirsutism) or hair loss</b>	Review history, before and after insertion.	Pre-existing conditions such as excess facial or body hair might be worsened by implants use. Changes usually are not excessive, may improve over time, and do not require rod removal unless client requests it after counseling.

# Jadelle®

## Training Manual for Family Planning

### Chapter 8



102

103

Adverse effect	Assessment	Management
<b>Headache</b> (especially with blurred vision)	<p>Ask if there has been a change in pattern or severity of headaches <b>since</b> insertion of implants.</p> <p>Perform physical examination, measure blood pressure.</p> <p>Examine as appropriate:</p> <ul style="list-style-type: none"> <li>• Eyes (fundoscopic)</li> <li>• Neurologic system</li> </ul>	<p>If headaches are mild, treat with analgesics and reassure. Re-evaluate after 1 month if mild headaches persist.</p> <p>If headaches have changed since starting implants (i.e., numbness or tingling accompanied by loss of speech, visual changes or blurred vision) remove implants and help client choose another (nonhormonal) method.</p>
<b>High blood pressure</b> (> 180/110 mm Hg)	<p>Ask if this is the first time anyone has told her that she has high blood pressure.</p> <p>Allow 15 minutes rest, then repeat BP reading.</p>	<p>Counsel client that a mild increase in blood pressure (&lt; 180/110) does not require removal of implants unless she requests it. If requested, help the client choose another method. In addition, tell her that high BP usually goes away within 1 to 3 months. Take BP monthly to be sure it returns to normal. If after 3 months it has not returned to normal, refer for further evaluation.</p> <p>If BP &gt; 180/110 or she has arterial vascular problems (e.g., heart attack, stroke, kidney failure or</p>

Adverse effect	Assessment	Management
		retinopathy), the implants should be removed. Help her choose another method.
<b>Idiopathic intracranial hypertension, benign</b> (pseudotumor cerebri)	<p>Review history for headache, dizziness or generalized weakness.</p> <p>Examine:</p> <ul style="list-style-type: none"> <li>• Eyes (fundoscopic) for retinal swelling (papilledema)</li> <li>• Neurological system</li> </ul>	<p>No cause and effect relationship has been established. Because of the seriousness of the condition, removal of implants is recommended.</p> <p>Help the client choose another method.</p>
<b>Rod coming out</b>	Check for partial or complete expulsion of rod.	<p>Remove partially expelled rod. Check to determine if remaining rod is in place.</p> <ul style="list-style-type: none"> <li>• If area of insertion is not infected (no pain, heat and redness), replace rod.</li> <li>• If area of insertion is infected: <ul style="list-style-type: none"> <li>• remove remaining rod</li> <li>• insert a new set in the other arm, or</li> <li>• help the client choose another method.</li> </ul> </li> </ul>





Adverse effect	Assessment	Management
Infection at insertion site	Check area of insertion for infection (pain, heat and redness), pus or abscess.	<p>If infection (not abscess), wash area with soap and water and give appropriate oral antibiotic for 7 days.</p> <p>Do <b>not</b> remove rods. Ask client to return after 1 week. If no improvement, remove rods and insert a new set in the other arm or help client choose another method.</p> <p>If abscess:</p> <ul style="list-style-type: none"> <li>• Prep with antiseptic.</li> <li>• Incise and drain.</li> <li>• Remove rods.</li> <li>• Perform daily wound care.</li> <li>• Give oral antibiotics for 7 days.</li> </ul> <p>Insert new set in the other arm or help client choose another method.</p>
"Missing" rods	Usually due to rods being inserted too deep (not palpable) or, rarely, a rod spontaneously expelled and forgotten by the client.	Can almost always be detected by x-ray (see <b>Chapter 9</b> ) or sonography. If regular sonography is used, the focal length needs to be increased to about 15 cm to focus accurately. Rods are best seen in

Adverse effect	Assessment	Management
		cross-section (transverse) as a shadow (echo-free area) underneath each rod. <sup>2</sup> If both rods are present, note this in the client's chart. If removal will be difficult, an expert in LNG implants removal should be consulted.
Jaundice	<p>Acute jaundice occurring <b>after</b> insertion is <b>not</b> method-related.</p> <p>Check for:</p> <ul style="list-style-type: none"> <li>• Active liver disease (hepatitis)</li> <li>• Gall bladder disease</li> <li>• Benign or malignant liver tumors</li> </ul>	<p>Levonorgestrel has little effect on liver function and does not increase the risk of liver tumors. If the client has jaundice due to <b>viral hepatitis</b> and does <b>not</b> want to stop using LNG implants, it is unlikely that they will worsen liver disease and their use is safer than pregnancy (McCann and Potter 1994).</p> <p>If <b>pregnant</b>, manage as above. (See <b>Amenorrhea</b>).</p>
Nausea/Dizziness/Vomiting	Check for pregnancy by checking symptoms, performing a pelvic examination (speculum and bimanual) and a pregnancy test (if indicated and available).	If not pregnant, reassure that this is <b>not</b> a serious problem(s) and usually disappears with time.

<sup>2</sup> If using ultrasound or x-ray as a guide, remove the rod you could not palpate first so the other rod can be used as landmark(s) (American Health Consultants 1995).





Adverse effect	Assessment	Management
Thromboembolic disorders (including blood clots in legs, lungs or eyes)	Assess for <b>active</b> blood clotting problem.	Even if levonorgestrel implants do <b>not</b> increase the risk of blood clotting problems (WHO 1996), remove rods because of serious- ness of these conditions. If there is strong evidence of blood clotting disorder, refer for further evaluation.

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## Chapter 9: Removal

### Background

Unlike insertion, removal of Jadelle rods can be done at any time in the menstrual cycle. As has been stressed throughout other sections of this manual, correct insertion – with the Jadelle rods placed subdermally and properly spaced – makes the removal procedure much easier.

The clinical skills needed to remove Jadelle rods are very similar to those for Norplant capsules. Service providers who are experienced in Norplant removal should be able to learn to remove Jadelle rods with a minimum of additional training. Key differences for removal are that:

- the rods are about 1 cm longer (43 versus 34 mm), and
- they are softer and more flexible.

During the next few years, most clients requesting removal of LNG implants are likely to have Norplant capsules. Thus for service providers who have not had previous experience with either Norplant

or Jadelle, this chapter and **Appendix F** provide instructions for removal of both implants. The general information in this chapter applies to both Jadelle and Norplant.

While all types of clinicians (physicians, nurses and midwives) can be trained to insert and remove Jadelle rods, a clinician **skilled in removal** should be consulted if difficulty in removing the rods is anticipated.<sup>1</sup> Clinicians need to work gently, carefully and patiently when removing the rods. As with insertion, use of the recommended infection prevention practices (see **Chapter 5**) is essential to minimize post-removal infections as well as the risk of disease transmission.

The material presented in this chapter and Appendix F is intended to reinforce practical training and to serve as a ready reference for any problems or questions. It cannot substitute for actual practice, which is absolutely necessary if a clinician is to become proficient in removing LNG implants.

### Jadelle removals

An important reason for the development of Jadelle was the time and difficulty involved with removing the six Norplant capsules. Because Jadelle has only two rods, removal is faster and easier (**Table 1-6**). Studies of removal also show that there are significantly fewer technical problems following Jadelle removal than with Norplant. Because removal of either type of implant involves making a skin incision and varying amounts of soft tissue (blunt) dissection, no differences in bruising, pain and superficial tissue trauma were reported (Leiras 1997).

In the above study, all removals were done using the **standard technique**, which involves using Crile or mosquito forceps to grasp the ends of the rods or capsules. The clinicians were all well trained and experienced.

### Removal methods

The standard technique for removal was developed in the early 1980s for removal of Norplant implants. Since that time, several investigators have reported modifications to the standard technique. Removal clearly requires more patience and skill than insertion, especially with atypically placed rods (i.e., those inserted too deep and/or in an irregular pattern), and is associated with more blood loss than insertion (WHO 1990).

In 1993, Praptohardjo and Wibowo reported a method for removal of Norplant called the "U" technique. According to the authors, this method might be faster and easier to perform as well as easier to learn. It also is useful in removing hard-to-remove rods/ capsules. The major differences between the "U" and **standard** techniques are:

- position of the skin incision, and
- use of the Jadelle-holding forceps.

Because Jadelle rods are about 1 cm longer and are somewhat more flexible (the silicone tubing is thinner) than NORPLANT capsules, removal using the "U" technique is a second option. With the "U" technique the rod is grasped with the Jadelle-holding forceps about 5 mm above its end. With this technique, fewer rods may be broken, especially when providers are learning the procedure (Affandi 1996; Blumenthal et al 1997; Blumenthal et al 1996; Rosenberg et al 1997). Finally use of the "pop-out" method, which was developed by Darney et al (1990) for removal of the stiffer Norplant capsules, may not be as practical for the softer, more flexible Jadelle rods.

The "U" technique for removal is described in detail in **Appendix F**.

### Preparation

It is important that the instruments be in excellent condition (e.g., the scalpel must be sharp and the forceps should have a tight grasp). In

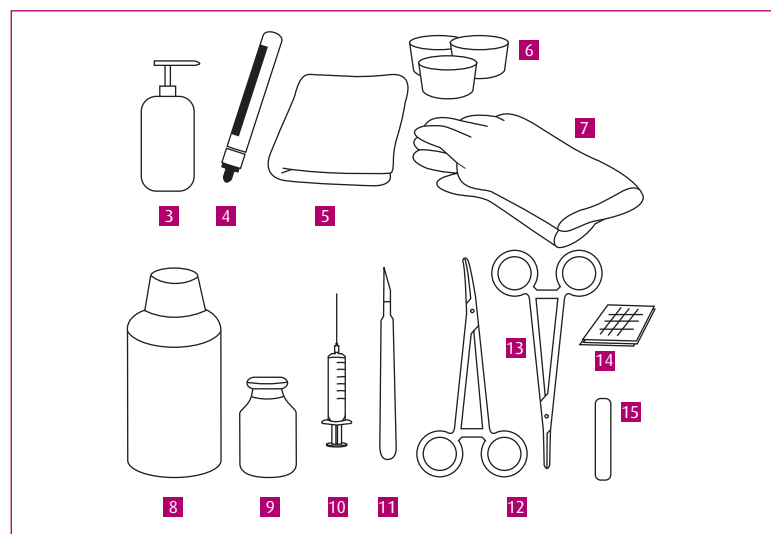
addition, check that all instruments and other items have been sterilized or high-level disinfected (see **Chapter 5** and **Appendix C**).

The following items are needed for removal (**Figure 9-1**):

- 1 examining table for the woman to lie on (optional);
- 2 arm support or side table;
- 3 soap for washing the arm;
- 4 ballpoint pen or marker;
- 5 sterile (or clean), dry surgical drape;
- 6 three bowls (one for the antiseptic solution, one for cotton balls soaked in boiled or sterile water to remove the talc from gloves and one containing 0.5% chlorine solution for decontaminating removed rods);
- 7 pair of sterile (or high-level disinfected) surgical gloves;
- 8 antiseptic solution;
- 9 local anesthetic (1% concentration **without** epinephrine);
- 10 sterile or high-level disinfected syringe (5 or 10 ml) and 2.5 to 4 cm (1-1 1/2 inches) long needle (22 gauge);
- 11 scalpel with #11 blade;

<sup>1</sup> Difficulty in removing rods can be anticipated if the rods are not easily palpable (inserted too deep); or in the case of Norplant if the capsules are not inserted in a fan-like pattern (atypically placed).

**Figure 9-1. Additional equipment for removal**



- 12 1 curved mosquito forceps and 1 Crile forceps;
- 13 1 tissue forceps (optional);
- 14 ordinary Band-Aid or sterile gauze with surgical tape;
- 15 sterile gauze and compresses; and
- 16 epinephrine for anaphylactic shock (readily available for emergency use).

#### Pre-removal counseling

Before removing the rods, talk with the client about her reason for removal and answer any questions. Ask the client which type of LNG implant was originally inserted (i.e., Does she have two rods or six capsules?). Ask the client about her present reproductive goals (e.g., Does she want to continue spacing or limiting births?). If she wants to continue family planning, ask if

she wants another set of Jadelle rods. Briefly describe the removal process and what she can expect both during the removal and afterwards.

**Note:** If the client is having Norplant removed and a set of Jadelle inserted, she will need to be reassured that the two rods (Jadelle) are as effective as the six capsules (Norplant).

#### General procedure

An easy removal depends on correct insertion. Routinely, removals take slightly longer than insertions – usually from 5 to 10 minutes for Jadelle, 10 to 20 minutes for Norplant. If the rods are placed correctly – subdermally in the middle third of the upper arm (Figure 6-3) – they will be easier to remove. If they are placed too deep (in the fascia muscle), removal could be difficult and could potentially damage the nerves or blood vessels in the neurovascular compartment (Figure 6-5 – expanded view).

It is helpful to locate the rods first with ungloved fingers. Most clinicians choose to mark the position of each rod with a ballpoint or marking pen. (When tissue swells during a difficult removal, these marks help identify the location of the rods.) Then, the client's arm is swabbed with an antiseptic before the local anesthetic is injected. The anesthetic should be injected **under** the ends of the rods nearest the incision site; **anesthetic applied over the rods makes them difficult to feel (palpate).**

**Note:** If all capsules or rods cannot be palpated, a provider inexperienced in removal should not begin the procedure. An experienced provider should be consulted.

Generally, only one small incision will be needed through which both rods will be removed. The incision should be no longer than 4 mm. If removal of either rod is difficult (i.e., both rods are not removed in 30 minutes), it may be better to stop the procedure for the client's

comfort. In the event that one rod is left in the arm, the client should be provided with a backup contraceptive method. She should be asked to return when the area is fully healed (in about 4 to 6 weeks) and a second attempt can be made. At that time, hard-to-find rods can be located by soft-tissue x-ray or ultrasound.

#### Step-by-step instructions for removal of Jadelle rods

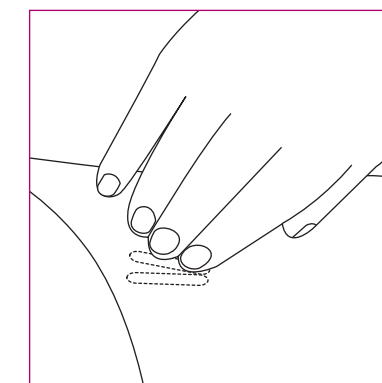
##### Getting ready

**Step 1:** Before starting the procedure, check to be certain the client is not allergic to antiseptic solutions or local anesthetics.

**Step 2:** Check to be sure the client has washed her entire arm with soap and water, and rinsed it thoroughly, being sure to remove all traces of soap. (Residual soap decreases the effectiveness of some antiseptics.) This step is particularly important when client hygiene is poor.

**Step 3:** Help position the client on the table. Ask her to lie down on the table so that the arm with the rods rests on the table or arm support. Her arm should be well-supported and able to be comfortably extended straight or slightly bent,

**Figure 9-2. Palpating the rods**



**Tip:** To make locating the rods easier, moisten fingertips with a small amount of soapy water or antiseptic solution, such as Betadine or Savlon. Doing this decreases friction between the clinician's fingertips and the client's skin and allows the rods to be more easily felt.

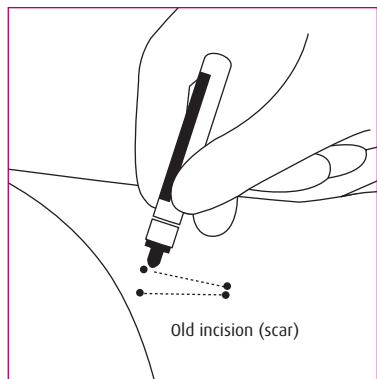
as the clinician prefers.

**Step 4:** Place a clean, dry cloth under her arm.

**Step 5:** Locate the two rods by palpation (Figure 9-2). To gauge where to make the incision, palpate the ends of the rods with bare (ungloved) fingers. (If it is difficult to find the rods, refer to the client's file where the original rod placement should be noted and a diagram may be available.)

**Step 6:** Confirm the position of each rod by making a mark at both

**Figure 9-3.**  
**Marking the Skin over the Rods**



ends of the rods using a ball-point or marking pen (Figure 9-3). If an antiseptic containing alcohol will be used to prep the arm, a pen with permanent ink must be used.

**Step 7:** Prepare an instrument tray and open the sterile instrument pack without touching the instruments and other items.

#### Pre-removal tasks

**Step 1:** Wash hands thoroughly with soap and water and dry them with a clean, dry cloth or air dry.

**Step 2:** Put sterile or high-level disinfected surgical gloves on both hands. (A separate pair of gloves must be worn for each client to avoid cross-contamination.)

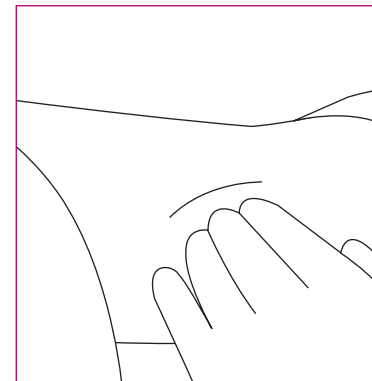
**Note:** Do not use powder with gloves. The tiny granules (talc) may fall into the removal site and cause scarring (fibrous reaction). If gloves are powdered, wipe powder off the glove fingers with sterile gauze soaked in sterile or boiled water.

**Step 3:** Arrange instruments and supplies so that they are easily accessible.

**Step 4:** Apply antiseptic solution to the re-moval site two times. Use the tissue forceps to hold a cotton or gauze swab soaked with antiseptic solution. (If prepping is done with a gloved hand, care must be taken not to contaminate the glove by touching any unprepped skin.) Begin wiping at the incision site and move outward in a circular motion for 8 to 13 cm (3 to 5 inches). If an iodophor (e.g., Betadine) is used, allow to air dry for about 2 minutes before proceeding. (Iodophors require up to 2 minutes contact time to release free iodine.) Wipe off excess antiseptic only if necessary to see the pen marks.

**Step 5:** If a sterile surgical drape with a hole in it is available, it should be used to cover the arm. The hole should be large enough to expose the area where the rods are located. A second option is to cover the arm below where the rods have been inserted with a sterile

**Figure 9-4.**  
**Palpating the rods**

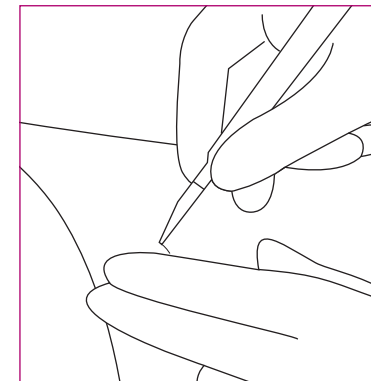


cloth. (Alternatively, a decontaminated, washed and machine- or air-dried drape or cloth can be used.)

**Step 6:** Again, locate the two rods by palpation. (Figure 9-4)

**Step 7:** Inject a small amount of local anesthetic under the ends of the implants that are closer to each other. Anesthetic injected over the implants may obscure their position and make removal more difficult.

**Figure 9-5.**  
**Making an incision**

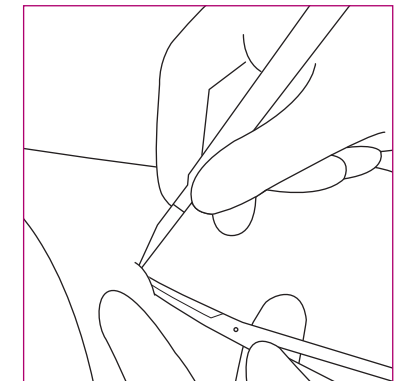


If necessary, more anesthetic can be given in small amounts at a time.

**Step 8:** Make a 4-mm incision with the scalpel close to the ends of the implants. Keep the incision small. (Figure 9-5)

**Step 9:** Push each implant gently with your fingers towards the incision. When the tip is visible in the incision, grasp it with the Mosquito forceps. Use a scalpel to very gently open the tissue capsule around the implant. (Figure 9-6)

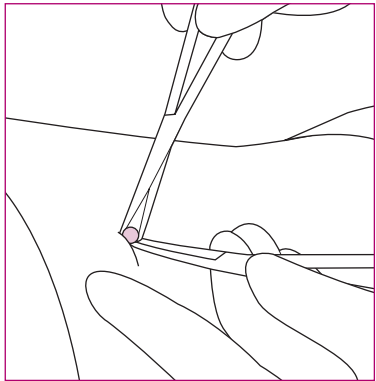
**Figure 9-6. Grasping the rod with mosquito forceps and opening the fibrous sheath with the scalpel**



**Step 10:** Grasp the end of the implant with the second forceps (Crile). (Fig. 9-7)

**Remember:** If additional anesthetic is required, inject it under the ends of rods; anesthetic applied over the rods makes them difficult to feel (palpate).

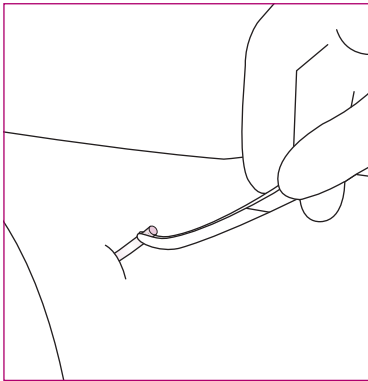
**Figure 9-7.**  
Grasping the rod with  
crile forceps



**Step 11:** Remove the implant gently. Repeat the procedure for the second implant. (Figure 9-8)

Measure the length of the removed implants. The length of Jadelle implants is 43 mm. This will ensure that the patient has had two Jadelle implants and not other contraceptive implants. After the procedure is completed, close the incision and bandage it as after incision. The arm should be kept dry for a few days.

**Figure 9-8.**  
Removing the rod



If the client wishes to continue using Jadelle, see section on **Insertion After Removal**.

### Procedure to follow after removal of rods

#### Covering the incision

- Press down on the incision with a gauzed finger for a minute or so to stop any bleeding. Remove the drape.
- If the client does not want another set of rods, clean the area around the incision site with a small amount of sterile or high-level disinfected water or alcohol ("spirits") applied to a cotton or gauze swab. Use gauze covered fingers to hold the edges of the incision together briefly (10 to 15 seconds). This will help reduce bleeding from the incision.
- Bring the edges of the incision together and close with a Band-Aid or surgical tape with sterile gauze or cotton. **Sutures are not necessary and may increase scarring.**<sup>2</sup>
- Check for any bleeding. Cover the insertion area with a dry

piece of gauze (pressure dressing) and wrap gauze snugly around the arm to be sure there is no bleeding and to minimize the bruising (subcutaneous bleeding).

#### Waste disposal and decontamination

- Before removing gloves, place instruments into a container filled with 0.5% chlorine solution for decontamination (see **Appendix C** for how to make a solution from household bleach). Fill syringe (with needle attached) with 0.5% chlorine solution and either place in solution or dispose of needle and syringe by placing in a puncture-proof container. Soak for 10 minutes. After soaking, rinse metal items **immediately** with clean water to avoid discoloration or corrosion.
- If the scalpel blade will be discarded, remove the scalpel from the chlorine solution. Then take the blade off the scalpel using forceps and place it in a puncture-proof container.

- The surgical drape (if used) must be washed and sterilized before reuse. Place in a dry covered container and remove to the designated washing area.
- While still wearing gloves, place all contaminated objects (gauze, cotton and other waste items) in a properly marked, leak-proof container with a tight-fitting lid or in a plastic bag.
- Immerse both gloved hands in 0.5% chlorine solution. Remove gloves by turning inside out.
- If **disposing** of gloves, place in a leak-proof container or plastic bag.
- If **reusing** surgical gloves, submerge them in the 0.5% chlorine solution for 10 minutes for decontamination.
- Wash hands thoroughly with soap and water and dry with a clean, dry cloth or air dry.
- All waste material should be disposed of by burning or burying.

<sup>2</sup> If removal required extensive blunt dissection, or to minimize bleeding, cover the removal area with a dry compress (pressure dressing) and wrap gauze snugly around the arm.



# Jadelle®

## Training Manual for Family Planning

### Chapter 9

116

117

#### Client care

- Place a note in the client's record indicating the date of removal and specifying any unusual events that may have occurred during removal.
- Instruct the client regarding wound care (see below) and make a return visit appointment, if needed.
- Observe the client for at least 15 to 20 minutes. Check for excessive bleeding from the incision and ask how she feels before sending her home. She should be given written, post-removal care instructions if available and appropriate.

#### Removal tips

##### Rods That Are Difficult to Remove

Occasionally the rods cannot be removed readily at the first visit. If removal of either rod is difficult (i.e., both rods are not removed in 30 minutes), it may be better to stop the procedure for the client's

comfort. In the event that one rod is left in the arm, the client should be provided with a backup contraceptive method. She should be asked to return when the area is fully healed (in about 4 to 6 weeks) and a second attempt can be made. Usually the remaining rod will be readily located and removed at the second visit.

**Remember:** The client should be given a backup contraceptive method to use while waiting to have the remaining rod removed **if she does not wish to become pregnant.**

##### Rods that cannot be palpated

There are two ways to locate rods that have been inserted too deep to feel with the fingers: x-ray and ultrasound. By using a radiopaque object to mark the original incision site, the rods, which are also radiopaque, usually can be detected by x-ray (set at 50-55 kilovolts and 4-5 milliamperes, exposure time 0.03 seconds). Their depth usually cannot be determined by

a single x-ray. Thus, further examination may be required to establish their exact location. With ultrasound, the image caused by the rods can also be detected (i.e., a shadow – echo-free area – will be present under each rod). Special adjustments (positioning of the ultrasound probe) may be necessary to focus the ultrasound image.

##### Rods that are broken

Removal of the rods is more difficult if they are broken during attempts to get them out. Once the rod is damaged, it may break again with each attempt to grasp it with the Norplant-holding or curved forceps. Rarely, removal of a broken rod may require an additional incision at the proximal end of the rod (end nearest the shoulder) so that the remaining piece can be removed more easily.

Because Jadelle rods are highly elastic and do not immediately return to their original length after being stretched, it may be difficult to determine if all pieces of a broken rod have been removed.

To remove remaining pieces of a broken rod through the original incision:

- Repalpate the arm to locate the missing piece(s).
- Inject more anesthesia if necessary.
- Grasp the end of the rod with curved (mosquito or Crile) forceps and gently bring it into the incision.

##### Client instructions for wound care at home

- Keep the area around the insertion site dry and clean for at least 48 hours. The incision could become infected if the area gets wet while the client is bathing.
- Leave the gauze pressure bandage in place for 48 hours and the Band-Aid or surgical tape in place until the incision heals (about 3 to 5 days).
- There may be bruising, swelling or tenderness at the insertion site for a few days. This is normal.
- Routine work can be done immediately. Avoid bumping the area, carrying heavy loads or applying unusual pressure to the site.
- After healing, the area can be touched and washed with normal pressure.
- If signs of infection develop, such as inflammation (redness plus heat and increased tenderness) or pus at the site, or persistent arm pain for several days, return to the clinic.
- The fibrous tissue envelopes that surrounded the rods (tracks where the rods were located) may be felt for some time. This sensation will disappear within a few months.

##### If infection occurs

- Treat infections with appropriate therapy for local wound infections (see Chapter 8).

**Note:** Giving antibiotics before or after removal does not reduce the risk of infection and is not necessary.

##### Key points for successful removals

- An easy removal depends on correct insertion. If the rods were placed correctly, they will be easier to remove. If they were placed too deep, problems can occur.
- Routine removals should take only slightly longer than insertions – usually from 3 to 5 minutes.
- Palpate the area to identify the location of each rod and mark the position of both rods with a pen.

# Jadelle® Training Manual for Family Planning

## Chapter 9

- Use recommended infection prevention practices to avoid infections.
- Inject small amounts of the local anesthetic (usually not more than 1 ml total) under the rod ends nearest the original incision site. If anesthetic is applied over the rods, it will obscure them and make removal more difficult.
- If the rods are positioned correctly, only one small incision (up to 4 mm) should be necessary for removal of both rods.
- Remove the rod that is nearer the point of the incision or closer to the surface of the skin first.
- Add incremental amounts of anesthetic only under the rod ends.
- Control bleeding by applying pressure.
- If removal of either rod is difficult (i.e., both rods are not removed in 30 minutes), it may be better to stop the procedure for the

client's comfort. In the event that both rods are not removed, ask the client to return when the incision site is fully healed (in about 4 to 6 weeks) and try again or refer to a more experienced clinician.

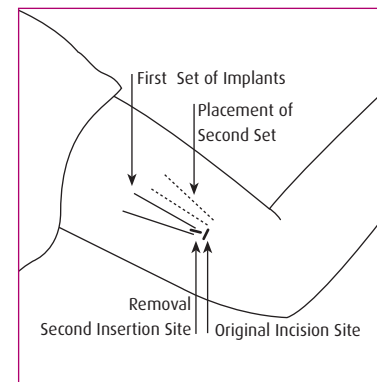
- Finally, and most important, the clinician should work gently, carefully and patiently to avoid injuring the client's arm.

### Insertion of Jadelle after removal of Jadelle or Norplant

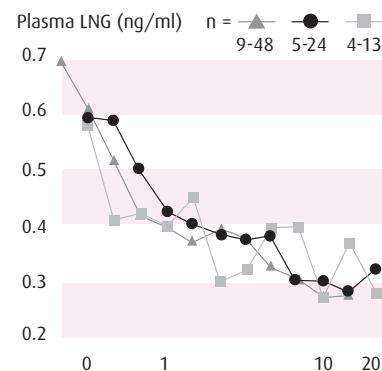
If the client wants to continue using Jadelle, a new set of rods can be inserted at the time the current set is removed. The rods may be placed through the incision used for removal and inserted in the same general direction as the previous set or rotated slightly to the left or right (Figure 9-9). In the unlikely event that the removal site is unsuitable, or at the client's request, the new set can be inserted in the other arm.

When levonorgestrel levels follow-

**Figure 9-9.**  
Placement of second set



**Figure 9-10.**  
Levonorgestrel Plasma Levels after first insertion of LNG implants (●) and after insertion of a second set in the same (▲) or opposite (■) arm.



Adapted from: Croxatto, Diaz and Sivin 1991.

ing the first insertion were compared with those following the insertion of a second set of implants, no significant difference was observed after placement in the same site or in the opposite arm (Figure 9-10).

To reduce the risk of infection, after completing the removal procedure – including decontaminating instruments, gloves and other items and disposing of waste materials:

- cover the incision with a sterile gauze pad;
- remove gloves and wash hands thoroughly with soap and water;
- put on a new pair of sterile or high-level disinfected gloves;
- prep the incision area again, and
- put a drape on the arm (if required).

**Note:** Hands should be washed after removing gloves because the gloves may have invisible holes or tears. In this instance, washing hands protects the provider from any contact with blood.

Because the local anesthetic for removal is injected only in the incision area (i.e., under the ends of the rods), additional anesthetic is needed for an insertion. (See Pre-insertion Tasks Step 7 in Chapter 6).

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