



MEDICATIONS SECTION

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MEDICATIONS

Just as no two people are identical, no two infertility treatment protocols are either. At some point during your treatment cycle, you will receive an individualized medication protocol designed specifically for you, the details of which will be reviewed with you several times throughout the course of your cycle. The overall design of the protocol will depend on your selected type of treatment (i.e. timed intercourse, insemination, IVF, etc.). Although protocols are quite similar, the type and quantity of medications, number of injections, and administration times will vary greatly from patient to patient. The information provided below is designed to familiarize you with the basic types of infertility medications, their functions, brand names, and typical route of administration.

Clomiphene Citrate (ie. Clomid, Serophene)

- **Description**

This is an oral medication commonly administered in order to induce ovulation by acting upon several sites within the female reproductive system. First, it acts at the level of the hypothalamus in order to increase GnRH secretion. GnRH in turn stimulates the cells in the pituitary gland that make FSH and LH. In addition, it acts directly on the pituitary gland itself in order to increase FSH and LH secretion. The increased FSH then acts upon the ovary in order to stimulate follicular growth.

- **Indications**

This medication is prescribed to treat infertility or recurrent miscarriage related to absent ovulation, irregular menstrual cycles, luteal phase deficiency, or unexplained infertility.

- **Side Effects**

Because more than one follicle may develop (potentially releasing more than one egg during ovulation), multiple pregnancy is a possible complication. Additional side effects may include increased frequency of headaches, visual changes, mood swings, ovarian cysts, or hot flashes.

Gonadotropins

FSH (Follicle Stimulating Hormone) (ie. Gonal-F, Follistim, Bravelle)

HMG (Human Menopausal Gonadotropins) (ie. Repronex, Menopur)

- **Description**

These medications are administered as a subcutaneous injection to stimulate follicular development within the ovaries. In similar fashion to natural FSH and LH made by the pituitary gland, these medications, once injected are absorbed into the circulatory system. They then travel to the ovary where they directly stimulate the granulosa cells to encourage follicular growth and development. As these cells grow, the follicle continues to enlarge by filling with follicular fluid. This follicular growth is monitored carefully through the use of transvaginal ultrasound and measurement of blood estradiol levels.

- **Package Styles**

Vials, cartridges, pens

- **Indications**

These medications are prescribed for patients undergoing ovulation induction and/or IVF.

- **Side Effects**

Because all of these medications act directly on the ovary and induce development of more than one follicle, multiple pregnancy is a possible complication. However, with careful monitoring and low-dose medication, the frequency of multiples is decreased. As previously indicated, these medications result in the development of multiple follicles. While large follicles can be expected to ovulate, the smaller follicles that do not will continue to grow in response to the HCG injection. This activity may result in ovarian hyperstimulation syndrome. Other adverse effects may include dizziness, nausea, abdominal discomfort, ovarian cysts, and breast tenderness. You may experience pain, redness and itching at the injection site. Generally, patients experience less discomfort if it is administered subcutaneously in the abdomen.

- **Important Notes**

- The FSH and HMG medications (whether alone or in combination with each other) can be administered intramuscularly if severe discomfort occurs during subcutaneous administration.
- The FSH and HMG medications can be combined together and administered as a single injection.
- If ordering Follistim from a mail order pharmacy, you will be supplied with the actual “pen.” If ordering from a local pharmacy, you will only receive the cartridges of medication and needles. Let us know and we can provide the pen for you.

HCG (Human Chorionic Gonadotropin) (ie., Pregnyl, Novarel, HCG 10,000iu)

- **Description**

Human chorionic gonadotropin (HCG) is an injectable medication that is commonly administered subcutaneously or intramuscularly to induce ovulation (usually 36-40 hours after administration) in preparation for egg retrieval. HCG is structurally very similar to the LH produced by a woman’s pituitary gland. It acts on the ovary in a manner similar to a woman’s own LH. When a developing follicle reaches maturity, it secretes a large amount of estrogen. This estrogen signals the hypothalamus and the pituitary gland to release a large amount of LH (the LH surge). This LH travels to the ovary where it stimulates the follicle to release the egg.

- **Indications**

These medications are prescribed for patients undergoing ovulation induction and/or IVF.

- **Side effects**

When given by itself, there are few adverse effects associated with HCG. When given in conjunction with either clomid or gonadotropins, however, HCG can contribute to ovarian hyperstimulation syndrome (OHSS). Some patients also experience the following generalized side effects: headache, nausea, breast tenderness, fatigue.

Ovidrel (Recombinant Chorionic Gonadotropin)

- **Description**

Ovidrel[®] is an injectable medication administered subcutaneously to induce ovulation for timed intercourse, insemination, or egg retrieval.

- **Indications**

This medication is prescribed for patients undergoing ovulation induction and/or IVF.

- **Side effects**

As with other hCG preparations, side effects can occur with the use of Ovidrel[®]: discomfort at the injection site, stomach pain, nausea and vomiting have been reported. Contact your doctor immediately if you experience severe pain or bloating in the stomach or pelvic area, severe upset stomach, vomiting, or weight gain. These may be symptoms of a rare but serious condition called ovarian hyperstimulation syndrome (OHSS). Severe OHSS occurred in less than 1% of patients during clinical trials.

Progesterone (i.e. progesterone in oil, Prometrium, Endometrin, Crinone 8%)

- **Description**

Progesterone is a hormone that is naturally produced by the corpus luteum during the second half of the menstrual cycle. Progesterone prepares the lining of the uterus for implantation of the fertilized egg. Once an embryo implants, progesterone is required to maintain pregnancy. The placenta will take over progesterone production at around 8-9 weeks of pregnancy.

- **Indications**

Progesterone is administered in a variety of ways: sublingual (under the tongue), oral capsules, vaginal suppositories/ capsules, intramuscular injection. Your physician will determine the best route of administration for your specific treatment.

- **Side effects**

Dizziness, mood swings, weight gain, breast tenderness, insomnia, local irritation at injection site (it is normal to have some redness or irritation at site due to loculation of oil; massaging the area, applying hot packs to the area before and after injection to help relieve these symptoms).

If taking progesterone in oil notify the clinic immediately if hives or rash develops. Do not use if allergic to peanut or sesame oil.

Luprolide Acetate (GnRH agonist) (i.e. Lupron)

- **Description**

Lupron is an injectable medication that is administered subcutaneously, used to improve follicular development and control ovulation. If ovulation were to occur prematurely, the cycle would need to be cancelled. No serious side effects have been reported. If any reactions occur, please notify us. Discard any remaining Lupron after 30 days.

- **Side effects**
Mood swings, headache: uncommon if taken in conjunction with oral contraceptives.
Occasional irritation at site of injection.

Ganirelix Acetate or Cetrotide (GnRH Antagonist)

- **Description**
Ganirelix Acetate or Cetrotide acts by blocking the GnRH receptors in the pituitary. It produces a rapid, reversible suppression of gonadotropin (FSH and LH) secretion, therefore preventing ovulation from occurring while follicles are maturing to desired state. These medications are given by subcutaneous injection.
- **Side effects**
Occasional irritation at site of injection.

Dexamethasone

- **Description**
Oral medication may be used for replacement therapy in case of adrenal insufficiency. Dexamethasone is usually given at a low dose for elevated DHEA and/or Testosterone levels. This medication is discontinued once possible conception has occurred.
- **Side effects:**
Small doses given to lower androgen levels rarely cause side effects.

Medrol (Methylprednisolone)

- **Description**
Oral medication that has a marked anti-inflammatory effect because of its ability to inhibit prostoglandin synthesis. It also has an immunosuppressant effect which modifies the bodies immune responses. Patients should increase fluid intake while taking Medrol to prevent dehydration.
- **Side effects**
Short-term treatment (4 days) rarely cause side effects.

Estrace (Estradiol)

- **Description**
Oral or vaginal estrogen used in frozen embryo transfer or donor recipient embryo transfer protocols for the purpose of helping build the endometrial lining. Estrace is also used for patients undergoing a fresh IVF retrieval cycle to supplement the bodies natural estrogen production.
- **Side effects**
Migraines, nausea, abdominal cramps, bloating, mood swings

Multivitamin

- **Description**
Oral vitamin given to supplement your diet by providing you with the necessary vitamins and minerals. This vitamin contains the recommended amount of folic acid (400mcg).
- **Side effects**
Constipation, nausea, darkening of the stools due to iron contained in the vitamins.
Drink plenty of water as well as include fiber in your diet to help counteract these effects.

Valium/Diazepam

- **Description**
Oral medication given prior to embryo transfer to decrease anxiety and relax skeletal muscles.
- **Side effects**
Dizziness and drowsiness. Patients may not operate motor vehicles while under influence of valium.

Provera (Medroxyprogesterone)

- **Description**
Provera is an oral medication given only if ovulation has not occurred. A blood progesterone level will determine if ovulation has occurred. The endometrium is primed with estrogen prior to ovulation. By giving Provera the endometrial lining will shed and cause a bleed (or induced menses). If no bleeding or spotting occurs within 14 days of the last Provera tablet, estrogen production may also be inadequate and the clinic should be notified.
- **Side effects**
None

Oral Contraceptives (OCP)

- **Description**
Oral contraceptives act by inhibiting ovulation caused by an inhibition of LH and FSH which are required for the development of ova (eggs). They also alter cervical mucus, render the endometrium less suitable for implantation, and inhibit enzymes required by sperm to enter the ovum.
- **Indications**
Oral contraceptives are used to aid in scheduling procedures, regulating menstrual cycles, and for the treatment of cysts that occasionally occur following ovulation induction.
- **Side effects**
Break through spotting/bleeding, headaches, nausea, breast tenderness, fatigue. Break through bleeding is quite common. It is important to take at the same time every day.

Notify clinic immediately if pain in legs or chest, severe headaches, dizziness or blurred vision. Decrease caffeine intake and DO NOT smoke while taking oral contraceptives.

Parlodel (Bromocriptine)

- **Description**
Oral medication effective in treating elevated prolactin levels when the elevation of these levels is not caused by medication or thyroid disease. Parlodel can shrink pituitary tumors which elevate prolactin. Elevated prolactin causes “inappropriate” milk secretion and interferes with normal ovulation. The medication is usually started at bedtime to reduce side effects. When prolactin levels return to normal, ovulation usually returns and chances of pregnancy normalize.
- **Side effects:**
Nausea and vomiting, lightheadedness, nasal stuffiness and constipation

Doxycycline

- **Description**
Doxycycline is used to prevent bacterial infection between partners and also to prevent infection during egg retrieval since the vaginal wall will be penetrated. Doxycycline is an oral antibiotic given to patient and spouse during onset of IVF stimulation.
- **Side effects**
Nausea (take with meals or light snack), esophageal burn (drink a glass of water with each dose) and sun sensitivity. Even short exposures to the sun can cause an irritation and rash. Be cognizant of this when planning outdoor activities.

Flagyl (Metronidazole)

- **Description**
Prescribed for IVF patients for treatment of bacterial infections of female genital system (i.e., bacterial vaginosis), or in combination with Doxycycline for endometritis.
- Interactions:** Avoid alcohol during and for 3 days after use.
- **Side effects**
Nausea, abdominal discomfort, constipation or diarrhea, headache, metallic taste, yeast infection.

Heparin and Lovenox

- **Description**
Heparin and Lovenox are anticoagulants used for some women who have had repeated spontaneous abortions. They are delivered as a subcutaneous injection.
- **Side effects**
Allergic reactions may include chills, fever, dermatitis, asthma and anaphylactic shock.

- **Administration**

Because Heparin is an anticoagulant, you may experience bruising. If bruising becomes excessive, please contact the office. To help prevent bleeding at the injection site, place an ice cube on injection site 15 seconds prior to administration.

Metformin/Glucoophage

- **Description**

Metformin increases the sensitivity of muscle cells to insulin. Insulin is the hormone that delivers glucose into your cells to be burned as fuel, or stored. Women with PCOS frequently have “insulin resistance”, a condition where excessive amounts of insulin are required in order to get blood glucose moved into cells where it belongs. Metformin helps your body transport glucose with relatively less insulin, thus lowering your insulin levels. Chronically high levels of either glucose or insulin in your blood contributes to obesity, heart disease, infertility and certain cancers as well as the development of diabetes.

- **Side effects**

Side effects include nausea, bloating and diarrhea. Avoidance of alcohol is recommended to reduce the impact of the medications on the liver. Your liver functions will be monitored periodically while taking this medication.

Baby Aspirin

- **Description**

Low dose aspirin treatment has been shown to enhance blood flow to the uterus and ovaries. As a result of this improved responsiveness to gonadotropins, increased implantation and pregnancy rates have been noted.

- **Side effects**

Aspirin can cause indigestion and should be used with caution, if at all, in somebody prone to heartburn or indigestion. It is best to use aspirin after food. Skin rashes occur in some people and sometimes there is dramatic swelling of the face and mouth to include difficulty breathing (anaphylactic reaction).

Cabergoline

- **Description**

Cabergoline blocks the action of VEGF, a compound secreted in excess during ovarian hyper stimulation syndrome (OHSS). The Cabergoline prevents increased vascular permeability and helps to decrease risk of OHSS.

- **Side Effects**

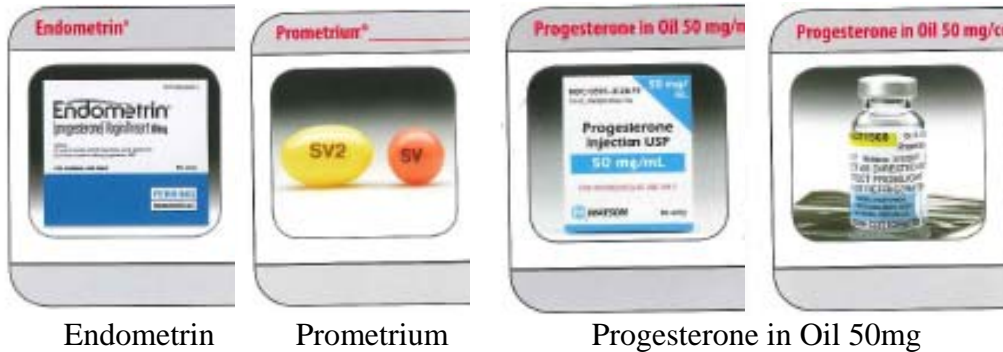
Most common side effects are nausea, constipation, abdominal pain, indigestion, headache, dizziness, fatigue. Notify your physician if you develop shortness of breath, persistent cough, difficulty breathing when lying down, or swelling in your extremities.

- **Indications**

To help prevent onset of OHSS.

IMPORTANT INFORMATION

When you receive your medications, you may have received the following:



Endometrin

Prometrium

Progesterone in Oil 50mg

Please take these medications and place them in a separate zip-lock baggie until given instructions on when to start. Taking these medications too soon will cause the cycle to be cancelled.



PATIENT'S FACT SHEET

Side Effects of Gonadotropins

Gonadotropins are fertility medications given by injection. They contain follicle-stimulating hormone (FSH), which is produced naturally by the pituitary gland, alone or combined with luteinizing hormone (LH), also produced by the pituitary gland. A related medication is human chorionic gonadotropin (hCG) which is structurally similar to LH and which simulates the natural LH surge that causes ovulation at midcycle.

Gonadotropins are used to induce follicular development and ovulation in women who do not ovulate. They also are used to induce development and ovulation of multiple follicles in women undergoing advanced reproductive therapies such as in vitro fertilization or superovulation and intrauterine insemination. HCG is commonly used to trigger ovulation once follicles have developed to maturity. There are a variety of gonadotropins commercially available and others in various stages of research and development. Careful monitoring of patients is required when gonadotropins are used in order to minimize the risk of side effects:

1. Ovarian Hyperstimulation Syndrome (OHSS). OHSS is characterized by enlarged ovaries and fluid accumulation in the abdomen after ovulation or egg retrieval. It can be either mild or severe. The mild form occurs in 10% to 20% of cycles and results in some discomfort but almost always resolves without complications. The severe form occurs approximately 1% of the time. The chance of OHSS is increased in women with polycystic ovarian syndrome and in cycles resulting in pregnancy. When severe, it can result in blood clots, kidney dysfunction, twisting of an ovary (torsion), fluid collections in the chest and abdomen, and rarely even death. In severe cases, hospitalization is required for monitoring but the condition is transient, usually lasting only a week or two. Occasionally, draining the excess fluid is needed to decrease symptoms. Most patients who are at high risk for severe OHSS are identified by closely monitoring ovulation induction cycles with the daily use of ultrasounds and/or serum estradiol levels. When serum estradiol levels are rising rapidly and/or are too high, or excessive numbers of ovarian follicles develop, one strategy for prevention of severe OHSS is to withhold further gonadotropin stimulation and delay hCG administration until estradiol levels plateau or decline. Alternately, hCG can be withheld so that ovulation fails to occur, thereby preventing severe OHSS. In some IVF cycles in which OHSS is felt to be a high likelihood, a recommendation may be made to administer hCG, retrieve oocytes, but cryopreserve all embryos for use in future cycles.

2. Multiple Gestation. Up to 30% of pregnancies which result from cycles involving gonadotropin stimulation are multiple, in contrast to a rate of 1% to 2% without fertility medications. The risk of multiple gestation is dependent upon the number of mature eggs released in an ovulation induction cycle and the number of embryos transferred in an IVF cycle. While most of these pregnancies are twins, a significant percentage (up to 5%) are triplets or higher. Compared to singletons, twins and high order (more than two) multiple gestation pregnancy are associated with an increased risk of pregnancy loss, premature delivery, infant abnormalities, handicap due to the consequences of very premature delivery, pregnancy induced hypertension, hemorrhage, and other significant maternal complications. In general, the risk of severe complications increases as the number of gestations increases. There is a suggestion in some studies that the number of low birth weight in infants may be increased in even singleton pregnancies.

3. Ectopic (Tubal) Pregnancies. While ectopic pregnancies occur in 1% to 2% of spontaneous pregnancies in the general population, in gonadotropin cycles the rate is slightly increased. Ectopic pregnancies can be treated with medications or surgery. Occasionally a tubal pregnancy occurs at the same time as an intrauterine pregnancy; this condition is known as heterotopic pregnancy and may be difficult to diagnose.

4. Adnexal Torsion (Ovarian Twisting). In less than 1% of gonadotropin cycles the stimulated ovary can twist on itself, cutting off its own blood supply. Surgery is required to untwist or remove the ovary.

5. Gonadotropins and Ovarian Cancer. Although early studies suggested that the risk of ovarian cancer might be increased in women exposed to medications for ovulation induction, more recent studies have not shown any such relationship. It is generally felt that gonadotropin therapy does not increase the risk of ovarian cancer.

6. Adverse Pregnancy Outcomes. Although the vast majority of pregnancies are entirely normal, recent studies suggest the possibility that complications during pregnancy may be increased slightly. Pregnancy-associated hypertension and abruption of the placenta may be increased. It is not clear if the risks are related to the gonadotropin therapy or are related to the infertility.

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MEDICATION STORAGE FACT SHEET

MEDICATION NAME	STORAGE
Bravelle 75 IU Vial	Room temperature or refrigerated
Cetrotide 3.0 mg	Room temperature
Cetrotide 0.25 mg	Refrigerated
Crinone 8% Vaginal Gel	Room temperature
Endometrin	Room temperature
Ganirelix Acetate 250 mcg/0.5 ml	Room temperature
Follistim AQ Vial (75 IU, 150 IU)	Store refrigerated until expiration date or at room temperature for three months or until expiration date, whichever occurs first.
Follistim AQ Cartridge (300 IU, 600 IU, 900 IU)	<i>Before first use</i> - store refrigerated until expiration date or at room temperature for three months, or until expiration date, whichever occurs first. <i>After first use</i> - you have up to 28 days at either room temperature or refrigerated to use remaining medication.
Gonal-f 75 IU Vial	Room temperature or refrigerated
Gonal-f RFF Pen (300 IU, 450 IU, 900 IU)	<i>Before first use</i> - up to one month at room temperature or until expiration date, whichever occurs first, or, refrigerate until expiration date. <i>After first use</i> - you have up to 28 days at either room temperature or refrigerated to use remaining medication.
Gonal-f Multi-Dose Vial 450 IU, 1050 IU	Store at room temperature or refrigerated until expiration date. After first use - store up to 28 days either at room temperature or refrigerated.
HCG 10,000 Units	Room temperature
Leuprolide Acetate 2-Week Kit	Room temperature. <i>After first use</i> - refrigerate up to 30 days
Lupron 2-Week Kit	Room temperature. <i>After first use</i> - refrigerate up to 30 days
HCG Low-Dose	Refrigerated
Micro-Dose Lupron/Leuprolide	Refrigerated
Luveris 75 IU Vial	Room temperature or refrigerated
Menopur 75 IU Vial	Room temperature or refrigerated
Novarel 10,000 Units	Room temperature
Ovidrel 250 mcg/0.5 ml	Room temperature or refrigerated. To be stored at room temperature for no more than 30 days.
Pregnyl 10,000 Units	Room temperature
Progesterone in Oil 50 mg/ml	Room temperature
Progesterone Vaginal Suppository	Refrigerated
Repronex 75 IU Vial	Room temperature



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LIFESTYLE / ACTIVITY

Exercise / Activity: You will be advised by either a member of the nursing staff or your RMIA physician as to what type of exercise is permissible during your infertility treatment. High impact aerobic activity, such as jogging or weight lifting is generally not recommended, as it poses certain medical risks. However, moderate exercise, such as walking or swimming is often encouraged, especially when the patient is undergoing ovarian stimulation treatment. (Note: Prior to the start of an IVF cycle and throughout subsequent treatment, neither patient nor partner should use hot tubs or saunas.)

Diet: Healthy eating habits are strongly recommended during infertility treatment; therefore any diet you may be contemplating must be approved by an RMIA physician. Caffeine consumption should also be minimal or avoided altogether.

Smoking: At least one month prior to initiation of any treatment cycle, all couples **MUST** stop smoking. Cessation of smoking is a prerequisite for any couple seeking treatment at RMIA.

Alcohol: During treatment, alcohol consumption should be severely limited by the patient and must be discontinued altogether once pregnancy is possible.

Medications: If you are currently taking any prescription medications, please be certain to inform the RMIA medical staff. It is imperative that your prescribing physician be made aware of your current infertility treatment as he/she is the most qualified person to determine the need to discontinue or change your current medications. Over the counter medications, such as Tylenol, and Sudafed may be taken during the course of your infertility treatment. If you are uncertain as to which medications you may safely take during your treatment, please contact a member of RMIA's nursing staff. We strongly discourage the use of herbal remedies during any portion of your treatment or early pregnancy.

INJECTION TRAINING INFORMATION



- ❖ **SYRINGE TYPES**
- ❖ **INJECTION SITES**
- ❖ **GIVING AN INJECTION**

**If you have any questions regarding this information,
please contact a nurse at 651-222-6050.**

SYRINGE TYPES & INJECTION SITES

❖ *SUBCUTANEOUS INJECTION*



- 3 mL syringe with 27 gauge, 5/8 inch needle (small needle) or orange capped insulin syringe.
- Insulin syringe is calibrated in units – conversion to mL or cc listed:
 - 100 units = 1.0 ml = 1.0 cc
 - 50 units = 0.5 ml = 0.5 cc
 - 10 units = 0.1 ml = 0.1 cc
 - 5 units = 0.05 ml = 0.05 cc
- Needle is designed to deliver medication below the skin surface directly into the tissue
- Subcutaneous injections are given at a 45 degree angle
- Subcutaneous injections are given in the abdomen or outer thigh, see diagram.

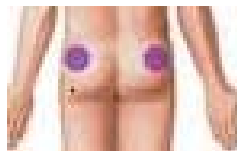


Subcutaneous Sites

❖ *INTRAMUSCULAR INJECTION*



- 3 mL syringe with 22 gauge, 1 ½ inch needle (large needle)
- Calibrated in common volumes of mL or cc
 - 2.0 ml = 2.0 cc
 - 1.0 ml = 1.0 cc
 - 0.5 ml = 0.5 cc
- Needle is designed to deliver medication deeply through the skin directly into the muscle
- Intramuscular injections are given at a 90 degree angle.
- Intramuscular injections are given in the hip/outer buttocks, see diagram.



Intramuscular Site

GIVING AN INJECTION

❖ SUPPLIES

- rubbing alcohol and cotton balls OR prepackaged alcohol pads
- small gauze pads
- antibacterial hand soap
- subcutaneous or intramuscular syringe(s) and needle(s) for injection
- Q-cap (if applicable)
- appropriate medication(s) and quantity(s) for injection
- sharps container or a disposable puncture-proof plastic container for disposal of used injection supplies. See “Safe Disposal of Needles and Syringes” handout.

❖ PREPARATION OF INJECTION

1. Clean off work space (i.e. kitchen counter) with alcohol and allow to air dry.
2. Wash hands thoroughly with antibacterial soap and dry with a clean towel.
3. Set out as many vials of powdered medication as your injection calls for, and one vial of diluent. (If your medication is pre-mixed, simply set out the medication itself.)
4. To open the vials, you need only snap off the plastic flip-cap(s) and clean the tops of all rubber stoppers with alcohol.
5. Draw/pull back on plunger of syringe so appropriate amount of air is left in the syringe. (Air should equal ordered amount of diluent/medication).
6. Remove the needle sheath from the needle, taking care not to touch the needle in any way. (If using a Q-cap for mixing, remove the needle from the syringe and twist the Q-cap onto the syringe). With the vial of diluent (or premixed medication) in one hand and the syringe in the other, pierce the needle tip or Q-cap straight through the rubber stopper and inject air into vial.

Note: Be Careful when positioning the needle tip prior to drawing up the fluid – since the needle is very fine, it could bend or break if excess pressure is applied while manipulating the syringe.

7. Invert the vial and syringe at the same time, holding the vial with one hand and the syringe with the other. Hold the vial securely on the end opposite the rubber stopper.
8. By gently pulling the plunger, SLOWLY withdraw the appropriate volume of diluent* or medication into the syringe. To avoid drawing excess air into the syringe, make sure the needle tip is completely immersed IN the liquid while the

syringe is filling. Once the desired volume has been reached, remove the syringe from the vial.

Note: *If preparing 1, 2, or 3 vials of powdered medication
use 0.5 mL of diluent TOTAL

*If preparing 4, 5, or 6 vials of powdered medication
use 1.0 mL of diluent TOTAL

*Exception – if preparing 1 ½ vials of powdered medication
use 1 mL of diluent, as you will be reconstituting 3 vials and
dividing the dose in half to use for two separate injections.

9. Remove any air bubbles by holding the syringe with the needle pointing up, gently flick the syringe with your finger to dislodge the bubbles, then slowly pressing the plunger until the bubbles are expelled through the needle and your desired volume has been reached. Be careful not to expel the medication while attempting to expel air bubbles.

Note: If you are working with a premixed medication and not diluent, you may proceed directly to step 14.

10. Slowly inject all of the diluent into the first vial of powdered medication. Gently agitate the vial to dissolve the powder, but do not shake it vigorously. The powder should dissolve fairly quickly, and the resulting mixture should be clear.
11. Slowly withdraw all of the medication from the first vial and expel any air bubbles following the basic procedures in step 9. Since you are now working with actual medication as opposed to just diluent, you want to be sure to withdraw as much as you possibly can from the vial, and be extra careful when expelling air bubbles so as not to lose any medication. Since a small amount of diluent is absorbed by the powder during the reconstitution process, expect to lose approximately 2 units of volume per vial of powder diluted. If your dose calls for one vial of medication, proceed directly to step 14. For more than one vial proceed to step 12.
12. Slowly inject all of the medication into the second (or third, etc...) vial of powder, mix gently by rolling the vial between your fingers and withdraw. Repeat step 12 for as many vials as your dose requires. When you have diluted your last vial of powder, withdraw the final volume into the syringe and carefully expel any air bubbles.
13. If using a Q-cap carefully remove and replace with the appropriate needle or sheath the needle and set aside.
14. You are now ready to prepare the injection site and administer the medication. Once you have selected your injection site, clean the site thoroughly using an alcohol pad or cotton ball saturated with alcohol. Start at the planned point of injection and clean in a circular motion outward to avoid dragging bacteria from

your skin back and forth across the site. Allow site to dry completely before proceeding. Follow the appropriate instructions below for subcutaneous or intramuscular injections.

❖ *SUBCUTANEOUS INJECTION (Sub-Q)*

Injection sites:

- *Thigh*: fleshy area just off the midline of the thigh (toward the outside, NOT the inside), midway between knee and hip
- *Abdomen*: fleshy area in the lower portion of the stomach (“tummy roll”) on either side, at least one inch from the belly button



- *Important Notes*
 - the abdomen is generally the preferred location for subcutaneous injection since the stomach is not used nearly as much as the legs during normal day-to-day activities
 - this type of injection may be administered alone

Once syringe is ready for injection:

1. Unsheathe the needle and hold the syringe like a dart or pencil, approximately one inch away from the point of injection. Using your free hand bunch or “pinch” the area of the skin surrounding the injection site.
2. Using a quick, dart-like motion (“flick of the wrist”) inject the needle into the skin at a 45 degree angle, ensuring that the entire length of the needle has penetrated the skin surface. If any part of the needle remains exposed, you will need to manually push the syringe until the needle has penetrated the skin all the way to the hub.
3. Once you have determined that the needle has been positioned correctly, place your forefinger at the very end of the syringe and depress the plunger all the way until the entire dose of medication has been administered. Do not inject too quickly or too slowly – a steady moderate rate is best.
4. Pull the entire syringe straight out, release the skin, and apply gentle pressure to the site with a gauze pad. There should be no appreciable bleeding, but if you are more comfortable, feel free to cover the site with a band-aid.
5. Discard all used injection supplies into your waste container. Paper, gauze, cotton, etc. can be disposed of in your normal household trash. When all of your injections have been completed for the cycle, be sure to properly dispose of your container. See “Safe Disposal of Needles and Syringes” for further instructions.

❖ INTRAMUSCULAR INJECTION (IM)

Injection site:

- *Hip/Upper Outer Buttocks*: visualize division of either buttock into four equal quadrants, then further division of the upper and outer quadrant into four equal quadrants – the site will be in the uppermost, outermost quadrant (following the second division) – if you desire, nurse will draw “targets” to ensure proper injection site



WARNING: stay away from the middle of each buttock itself, as there is a major blood vessel and sciatic nerve in that location that you must avoid

- *Important Notes*
 - hip/upper outer buttock injection requires a second person for administration.
 - when injecting onto the upper outer hip, it is best for the muscle to be relaxed. In order to do this have your partner (the patient) bend at the waist and relax arms on a counter or chair and center weight on the opposite leg as the injection OR she can lay stomach down on the bed and point her toes inward.

Once syringe is ready for injection:

1. Unsheathe the needle and hold the syringe like a dart or pencil approximately one inch away from the point of injection. Using your free hand spread the area of skin surrounding the injection site.
2. Using a quick, dart-like motion (“flick of the wrist”) inject the needle into the skin at a 90 degree angle ensuring that the entire length of the needle has penetrated the skin surface. If any part of the needle remains exposed, you will need to manually push the syringe until the needle has penetrated the skin all the way to the hub.

Note: If penetration is not complete, the needle will not be in the muscle and the medication will not work.

3. At this point, stabilize the syringe with one hand and pull back gently on the plunger with the other hand. If you see blood enter the syringe, continue with step 4, otherwise, if no blood enters the syringe, proceed directly to step 6.

4. Do not panic and do not inject medication! Pull the entire syringe straight out and cover the injection site with gauze. Apply pressure until the bleeding stops, and then cover with a band-aid.
5. Pull back on the plunger to ensure that all of the medication has been pulled out of the needle and back into the syringe. Even though the medication is tinged with blood, you can reuse it (since it is your own blood, you will not be introducing anything new to yourself when it is reinjected. Also, the presence of blood will not affect the efficacy of the medication in any way). For sterility purposes, you will need to change the needle on the end of the syringe with a new 22 gauge 1 ½ inch needle. Once the new needle is in place gently push on the plunger until the air that you pulled into the syringe earlier is expelled. Repeat steps 1, 2 and 3 using the opposite buttock for your second attempt.

Note: If for some reason you hit blood on the second attempt, repeat steps 4 and 5.

6. Place your forefinger at the very end of the syringe and depress the plunger all the way until the entire dose of medication has been administered. Do not inject too quickly or too slowly – a steady moderate rate is best.
7. Pull the syringe straight out, release the skin, and apply gentle pressure to the site with a gauze pad. If any bleeding occurs, apply pressure with gauze pad until bleeding stops and cover the site with a band-aid.
8. Discard all used injection supplies into your waste container. Paper, gauze, cotton, etc., can be disposed of in your normal household trash. When all of your injections have been completed for the cycle, be sure to properly dispose of your container. See “Safe Disposal of Needles and Syringes” for further instructions.

Note: For either type of injection, if excessive soreness occurs, be sure you are alternating between left and right sides of chosen site, and/or sites themselves. You may also try warm packing the site with a warm washcloth prior to and following the injection procedure.

MIXING MEDICATION: SUBCUTANEOUS INJECTIONS



Syringe

❖ **Lupron**

* 1cc = 1ml

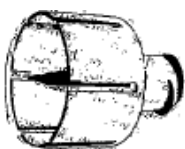
You will be using 5, 10 or 20 units on the insulin syringe based on your prescription

❖ **Gonadotropins (Repronex, Bravelle and Menopur)**

For mixing 1, 2 or 3 vials of medication: draw up 0.5ml (1/2ml) on the 3ml luer lock syringe.

- **1 VIAL:** Inject 0.5ml of diluent into vial #1, gently swirl until drug is completely dissolved, withdraw contents from vial #1 and prepare for injection.
- **2 VIALS:** Inject 0.5ml of diluent into vial #1, gently swirl until drug is completely dissolved, withdraw contents of vial #1 and inject into vial #2, dissolve, withdraw and prepare for injection.
- **3 VIALS:** Inject 0.5ml of diluent into vial #1, gently swirl until drug is completely dissolved, withdraw contents of vial #1 and inject into vial #2, dissolve, withdraw and inject into vial #3 dissolve, withdraw and prepare for injection.
- **4 or more VIALS:** use 1ml of diluent following same procedure.

NOTE: Volume will decrease slightly after mixing medications.



Q-Cap



For mixing 1 ½ VIALS: You will be using 1ml of diluent with the 3cc Luer lock syringe. Inject diluent into vial #1- swirl until drug is completely dissolved, withdraw and inject into vial #2- dissolve, withdraw and inject into vial #3- dissolve. Withdraw 0.5ml (1/2 ml) from vial #3 and prepare for injection. With a new needle or luer lock syringe withdraw remainder from vial #3, recap and refrigerate for next injection time.

When using the Q Cap device for mixing: you will be using the 3ml Luer lock syringe. If the syringe comes with a needle, twist it counterclockwise to remove. (You will NOT be using a needle to draw up the medication with the Q Cap device.) Twist the Luer end of the Q Cap onto the end of the syringe. Follow the above steps for mixing. Unscrew Q Cap and replace with needle before making injection.

❖ **HCG**

- Ovidrel 250mcg – Remove cap and inject subcutaneously
- For HCG 10,000 units, mix 1ml of diluent with vial of HCG (10,000 units). Swirl until drug is completely dissolved, withdraw 1ml and inject subcutaneously.
- For HCG 15,000 units, mix 2 ml of diluent with vial #1 of HCG (10,000 units), dissolve, withdraw **1 ml** and inject into vial #2 of HCG (10,000 units), dissolve, withdraw **1ml** and inject subcutaneously.
- For 3333 units, mix 3ml of diluent with 10,000u bottle of HCG.
For 5000 units, mix 2ml of diluent with 10,000u bottle of HCG.
For 6666 units, mix 1.5ml of diluent with 10,000u bottle of HCG.
For 7500 units, mix 1.3ml of diluent with 10,000u bottle of HCG.
Then, withdraw 1cc and inject subcutaneously.



HCG 10,000 units



3 cc Luer lock Syringe

FOLLISTIM and GONAL-F PENS

❖ Follistim Pen

- Remove cap and unscrew yellow barrel
- Place cartridge over wand and place yellow barrel back on.
- Remove paper backing from needle and screw on to the end of the yellow barrel. Remove both safety caps from needle.
- Turn yellow knob on the end of the pen counterclockwise to dial in appropriate dosage. The dose should be in the center of the magnified window.
- Prepare skin for injection (abdomen or outer thigh)
- Make injection. Remove needle from pen and dispose in sharps container.
- You may leave cartridge in pen until gone. Remember to use a fresh needle every time an injection is made.

***REMEMBER: Follistim cartridges will be overfilled.**



❖ GONAL F

- Remove cap and screw needle to end of pen.
- “Prime” the pen by lining up **37.5** with the black arrow at the end of the pen and pulling out the end of the plunger as far as it will go.
- Hold the pen upright, tap the medication reservoir to allow any air bubbles to rise to the top, and push the plunger. A couple of drops of medication should come out. If not, then repeat.
- Turn dial to line up prescribed dose and pull plunger out to “lock in” dose
- Prepare skin for injection (abdomen or outer thigh)
- Make injection, keep needle in skin for 5 seconds after injection button stops clicking. Remove needle from pen. Dispose needle in sharps container.
- Use the same pen until medication is gone. Change the needle each time an injection is made.

***REMEMBER: Each “click” represents 37.5 units**



SAFE DISPOSAL OF NEEDLES AND SYRINGES

1. *RMIA does not take back needles and syringes from patients.*
2. Below are the Minnesota Department of Health requirements* for safely disposing of used needles and syringes. Note that your local waste hauler may have additional requirements. *Please call your city department or waste hauler for local requirements.*

- a. Get a hard plastic container that:

- ✓ is hard to puncture (clear plastic bottle is the best)
- ✓ has a lid or cap (screw on lids should be used)
- ✓ don't use these containers:
 - Aluminum beer or pop cans
 - Glass bottles
 - Coffee cans or metal cans



- b. Tape a label on the container stating: "Do Not Recycle: Household Sharps"



- c. Put used needle or syringe into container
 - ✓ Container can be 1/2 full of needles before disposal
 - ✓ Keep the container out of reach of children
 - ✓ Keep the cap on container when not putting in needles
 - ✓ Tape the lid shut

- d. Place the sealed container in your garbage bag and seal it shut.



- e. Never place your needles or syringes in a recycling bin!

* Information provided by the Minnesota Department of Health