Center for Reproductive Health
In Vitro Fertilization (IVF)
What Is IVF?
Ovarian stimulation
- Administering medication for 8-12 days to stimulate multiple follicle development within the ovaries

Oocyte (egg) retrieval
- Aspiration of follicular fluid from individual follicles within the ovaries, performed transvaginally under direct ultrasound guidance

Embryo Transfer
- Replacement or transfer of embryos back into the uterus that are determined to be appropriate for transfer after a discussion between you, your provider and the embryologist
The Ovaries:
Natural Menstrual Cycle Compared to IVF

VS.
IVF: The Process

Preliminary Testing

Blood Testing
- Infectious disease testing
- Hormone Evaluation
- General Health Screen

Uterine Cavity Evaluation
- Saline Sonogram
- Hysterosalpingiogram
IVF: The Process

Preliminary Testing

- Blood Testing
- Uterine Cavity Evaluation

Getting Started

- Birth Control Pills
- Getting Calendar Ready/Consents
Your IVF protocol is unique to you

Determination of your protocol is based on:
- FSH
- Antral follicle count
- Age
- Prior treatment history
Our program works closely with select fertility specialty pharmacies to be able to bring you competitive pricing.

Once you have decided which pharmacy to use, your prescription will be faxed directly from the IVF center.

If you have not heard from a pharmacy representative by the date of your IVF class, please inform the nurse during injection training.

The amount of medication you will need has been estimated.

Monitor your medication supply during treatment to assess need for additional medication.

Review your calendar carefully each day.
### IVF: Medication Protocols

#### “Long Luteal”

<table>
<thead>
<tr>
<th>Birth Control Pills – 21 days +/-</th>
<th>Lupron® ONCE DAILY</th>
</tr>
</thead>
<tbody>
<tr>
<td>GONADOTROPINS – 11 days +/-</td>
<td>hCG</td>
</tr>
</tbody>
</table>

#### “Micro dose Flare”

<table>
<thead>
<tr>
<th>Birth Control Pills – 21 days +/-</th>
<th>Lupron® TWICE DAILY</th>
</tr>
</thead>
<tbody>
<tr>
<td>GONADOTROPINS – 11 days +/-</td>
<td>hCG</td>
</tr>
</tbody>
</table>

#### “Antagonist”

<table>
<thead>
<tr>
<th>Birth Control Pills – 21 days +/-</th>
<th>ANTAGONIST ONCE DAILY</th>
</tr>
</thead>
<tbody>
<tr>
<td>GONADOTROPINS – 11 days +/-</td>
<td>hCG</td>
</tr>
</tbody>
</table>
Prenatal vitamins
- Be sure to take 400 mcg of Folic Acid
- Purchase over-the-counter

Doxycycline OR Azithromycin
- Based on physician preference
- Taken by both patient and partner
- Doxycycline dosage: 100 mg tablets, by mouth, twice daily for 10 days
- Azithromycin dosage: 1000 mg x 1 dose, by mouth

- Do not take herbs or over-the-counter medications without consulting with your physician or case manager first, as these medications can interfere with treatment response
Oral Contraceptives

- Low dose pill
- Length of time on pill varies from patient to patient
  - Take active pill ONLY
    - The last row in the pack of pills are sugar pills - never take these
    - Taken to suppress ovulation
    - allows ovary to rest the month prior to IVF cycle

- Side Effects
  - Spotting (frequently)
  - Severe head aches (rare) → call IVF case manager to report & seek medical attention if necessary
  - Chest pain (rare) → Seek immediate medical attention.
- There will be an overlap of Lupron® and birth control for 7-8 days.
- Ultrasounds are done prior to initiation of medications.
- You should begin a menses after stopping the birth control pills and prior to the start of stimulation medications.
Medication: Lupron® (Leuprolide Acetate)

- All doses are in one bottle
- Store at less than 77 F
- Bottle looks half-full; however, it is usually enough for the entire cycle
- Subcutaneous injection taken once daily in the evening
- Start with 10 units, then reduce to 5 units when directed (refer to calendar)
- Once started, continue daily, unless instructed to stop
- Prevents ovulation
- Potential side effects:
  - Headache
  - Hot flashes
  - Mood swings
  - Nausea
  - Insomnia
- There is no overlap of Lupron® and birth control pills
- Lupron® starts 3 days after stopping the birth control pill
- Injectable medications start 5 days after stopping birth control pill
- You may have spotting or full period after stopping the birth control pill and prior to start of IVF stimulation
Medication: Microdose Lupron®

- Subcutaneous injection taken twice daily
- Store at less than 77 F
- 10 units AM and 10 units PM
- Administer 10 to 12 hours apart
- Stay consistent with the time
- Once started, you will continue daily, unless instructed to stop
- Prevents ovulation
With Birth Control Pills
- There is no overlap with birth control pills

Without Birth Control Pills
- IVF stimulation start is on 2nd day of menses
- Important to call clinic on cycle day 1
- Baseline ultrasound and blood test will be done prior to start of menses
Cetrotide® or Ganirelix®

Prevents premature ovulation

Started halfway through cycle (CD7-10) - provider will let you know when to start

Lead follicles at 12-14mm in size

Taken once daily in addition to stimulation medication

Must be taken every 24 hours or body will begin to supersede medication effects and begin the ovulation process

Store Cetrotide® in the refrigerator
IVF The Process

Center for Reproductive Health
In Vitro Fertilization (IVF)
IVF Injection Class

- Intended for both partners
- Hands on demonstration of injection mixing and administration
- Opportunity to ask questions regarding this presentation
Prior to your IVF cycle, consent forms must be completed.

If not already completed, prepared to sign consent forms during your injection class.

Read each consent form thoroughly prior to class.

Final signatures must be in presence of clinic staff.

- Patient Arbitration Agreement
- In Vitro Fertilization and Embryo Transfer
- (Intra-Cytoplasmic Sperm Injection) ICSI
- Assisted Hatching Procedure
- Cryopreservation of Embryos
- Tissue Storage Agreement
- Reprotech Embryo Transfer Agreement
Consent Forms (Special Consideration)

- If there is Frozen sperm (Partner or Donor)
  - Mark the correct box of the Tissue Storage Agreement
- If the specimen is not stored at Kaiser Permanente, sign
  Transfer In of Cryopreserved Materials
- Transfer Out of Cryopreserved Materials
- Request and Authorization to Discard Tissue
- Reprotech
  - Registration
  - Cryostorage Agreement
  - Transfer to RTL (RTL is Reprotech)
IVF: The Process

Preliminary Testing
- Blood Testing
- Uterine Cavity Evaluation

Getting Started
- Birth Control Pills
- Getting Calendar Ready/Consents

During the IVF Cycle
- Gonadotropins/Ultrasounds
  Blood Testing
Blood testing for Estradiol and Progesterone is required with every ultrasound appointment

- The blue envelope does not give you priority in line
- The blue envelope is used to identify IVF specimens-to allow for same day processing
- All blood testing must be done before 9am

Kaiser Laboratories open at the following times:
- **Fremont**: 7am during the week, 8am on weekends
- **San Ramon**: 7am during the week, 8am on weekends
- **Santa Clara (Homestead/Lawrence)**: 6:30am during the week, 8am on weekends
- **San Francisco**: 6:15 a.m. during the week, 7 a.m. on weekends
- **Oakland**: Hospital Building, Ground floor: 7am during the week, 8am on Saturday, 3701 Broadway, 1st floor 8:30am during the week
Recombinant FSH
- Follistim® and Gonal-F®

Human Menopausal Gonadotropins (FSH with LH)
- Menopur ® and Repronex ®

Encourages recruitment of multiple follicles

Usually use a combination of medications

Given once or twice daily

Possible side effects
- Bruising or swelling at injection sites
- Bloating
Follicle Stimulating Hormones

- Taken in the morning or evening
- Review your calendar for timing and dose
- Please plan ahead
- Review all medication instructions prior to the start of your cycle
- You must reconstitute it just prior to administration
- Usually given in the evening
- Review your calendar for dose
- Try to administer it at the same time every night
Stimulation Day 4

- Last day for vigorous exercise
- No running
- No intercourse
- No aerobic activity

We want to:
- Maximize blood flow to the uterus and ovaries
- Prevent ovarian torsion (twisting of ovary)
Please check your calendar for appointment location

Take the blue envelope with you to the lab

This is the first look at your response to medications

An IVF RN will call you in the afternoon to give you instructions on medication doses

Your medication may be increased or decreased based on your individual response.
Ultrasound Monitoring: Ovary
Stimulation Day 6 through 10

- Stim day(6/7): Ultrasound and blood test
- Remember to bring your blue envelopes
- If you are on an Antagonist protocol, bring 1 Cetrotide® or Ganirelix® to your appointment as you may be directed to start this medication at the clinic
- From now until your egg retrieval, you will have ultrasounds and blood tests every 1 to 3 days to assess growth of follicles
- Mature follicles are approx. 18-20 mm in size
Medication: HCG

- You will be notified when it is time for the one-time dose of Human Chorionic Gonadotropin/HCG
- This provides the final maturation for the eggs within the follicles
- Can be given as a SQ or an IM injection based on physician preference
- It is time specific, usually in the evening
- It is important to take as directed
- If you make an error, please notify us the following morning
- Your egg retrieval is 35-36 hours after this injection is given
Possible Cancellation Reasons

- Development of cysts prior to cycle start
- Poor response to medication
- Over response to medication (OHSS)
- Development of a single dominant follicle
IVF: The Process

Preliminary Testing
- Blood Testing
- Uterine Cavity Evaluation

Getting Started
- Birth Control Pills
- Getting Calendar Ready/Consents

During the IVF Cycle
- Gonadotropins/Ultrasounds Blood Testing
- Egg Retrieval
Day of Egg Retrieval

- You will be asked to eat or drink nothing starting at midnight the day of procedure.
- Arrive 1 hour prior to procedure to begin pre-op assessment.
- An IV will be started.
- There is an anesthesiologist present throughout your procedure.
- Retrieval procedure can take up to 30 min.
- Recovery time following retrieval = 45 min.
Day of Egg Retrieval

- You will need to take the day off of work; most women return to work the next day.

- You will receive written instructions regarding the next 2 weeks.

- Your partner needs to accompany you on the day of your retrieval to:
  - drive you home as you will have had sedative medication
  - provide a fresh semen sample
Retrieval Semen Specimen

- Male partner will be asked to take one dose of Ciprofloxin® 500 mg the evening prior to retrieval.
- Semen specimen is provided the morning of the egg retrieval.
- We ask for 2-5 days of abstinence before retrieval.
- If producing at home, the specimen must arrive at the IVF Center within 45 minutes of production.
- There is a room available in Fremont for collection.
- Having specimen frozen as a back-up may be an option to discuss with your provider.
- Additional questions are answered in the manual.
The Egg Retrieval

- Egg retrieval done using direct ultrasound visualization
- Each individual follicle is gently drained using suction
- As the fluid is drained it is captured in test tubes
- Embryologist search through each tube for the egg that is drained with the follicular fluid
- It is possible that not all follicles will contain an egg
- Begins the day after retrieval
- Oral pill
- **Dose** = 2mg (1 pill), 3x/day **until pregnancy test**
Progesterone Supplementation

- Begins following egg retrieval-your post operative instructions will outline when to start

- Endometrin: Vaginal suppository-taken to support implantation till placenta establishes function between 8 and 10 weeks of pregnancy.

- Dose: 100 mg, three times a day
What Comes After the Retrieval?
Insemination or ICSI and a Transfer Back
What Do We Do with the Eggs Once We Get Them?

Insemination or ICSI
Performing Intracytoplasmic Sperm Injection (ICSI)

- **Performed for known male factor infertility**
  - Low count
  - Low motility (movement)
  - Low morphology (look of each individual sperm)

- In most cases, the need for ICSI is known in advance

- May be done if the specimen is unexpectedly poor on the day of collection
Most women feel well enough to return to work

You may begin taking:
  • Estrace®
  • Endometrin®
  • Instructions will be reviewed with you on the day of retrieval

If started, continue these medications daily, at least until the pregnancy test
Embryo Development

Day 1 Embryo

Day 2 Embryo

Day 3 Embryo

Day 4 Embryo

Day 5 Embryo

Day 6 Embryo
Day 1 for Embryos

- You will receive a call from a procedure room nurse with the number of oocytes that have fertilized
  - Fertilized normally, 2PN
  - Fertilized abnormally, 1PN or poly PN
  - Not fertilized
• Generally, the lab does not observe embryos

• Prefer to leave embryos in controlled environment

• Will occasionally do the embryo transfer on this day
Day 3 for Embryos

- Will receive a call from a procedure room nurse confirming day 3 transfer has been scheduled.
- If you have at least four, good quality, 8 cell embryos, the transfer may be scheduled for day 5.
- In certain cases your provider may recommend taking all embryo’s to day 5 for better selection options.
- Speak to your provider to find out what is best for you.
The outer membrane of the embryo is thinned to aid implantation.

Used routinely for cases of:
- “Mature” maternal age (38 years and greater)
- Thick zona the morning of transfer
- High degree of embryo fragmentation
- Past history of unsuccessful IVF cycles
- Frozen embryos

Laser is used
The number of embryos to transfer is a collective decision between the physician, embryologist, patient, and partner.

We want the best chance of you getting pregnant, without putting you at risk for having a multiple pregnancy.

Below are the recommended national guidelines for day 3 versus day 5 transfer of embryos.

### Day 3 Transfer

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Favorable</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;35</td>
<td>1-2</td>
<td>2</td>
</tr>
<tr>
<td>35-37</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>38-40</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>&gt;=41</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>OD</td>
<td>2 *</td>
<td></td>
</tr>
</tbody>
</table>

### Day 5 Transfer

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Favorable</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;35</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>35-37</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>38-40</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>&gt;=41</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>OD</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

*Age of donor should be considered. Source: ASRM*
Come with full bladder
  • Drink 24-36 oz prior to arrival

Transfer similar to insemination
  • 15-25 min procedure
  • You will receive Valium (Diazapam) at the clinic
  • There is no clinical data to support a long resting phase (in other words, no increased pregnancy rates)
  • Embryos will not “fall out”
  • After the transfer, you should relax for 1-2 days at home
  • Your partner should accompany you to the transfer
  • Continue taking medication you have been prescribed in the phase
What to Expect After the Transfer

- Avoid caffeine, alcohol, tobacco, and medications not approved by your IVF physician
- If you have any questions, call the Center and ask to speak with an IVF advice nurse
- The time between your embryo transfer and pregnancy test can be very stressful
- Allow time to do something nice for yourself
- If you see a physician for treatment un-related to your IVF cycle (e.g. dental work or illness), advise them that you may be pregnant and provide a list of your current medications
- **DO NOT** do a home pregnancy test prior to your blood test at Kaiser
- Continue all medications, and prenatal vitamins
- Avoid intercourse, heavy lifting and high impact exercising until told otherwise
- No intercourse until after OB ultrasound
• All follow up treatment done in each satellite facility

• Spotting and cramping very normal during this phase

• Will seem like an eternity

• Mandatory blood pregnancy test **14 days after** egg retrieval
  • Testing is done Monday through Friday
  • No tests done on Saturday or Sunday

• *Do not stop* **Endometrin** regardless of what you feel or do not feel
Embryos that are not transferred during this cycle may be frozen for future pregnancy attempts.

Generally, only 2 PN’s (day 1) embryos or blastocystcs (day 5 or 6) are frozen.

Your physician will send a final cryopreservation summary to you through your kp.org account.

If you are not registered at kp.org, it will be sent via postal mail.
Pregnancy Test Day

- Done at each of the regional sites
- Results are usually available after 3pm
- An IVF RN will be calling you with the results
- You will receive one of three possible answers:
  - Pregnant → continue all medications → follow up testing
  - Not pregnant → stop all medications
  - Maybe pregnant → continue all medications → additional testing
- If you are pregnant or possibly pregnant, you will be instructed to do a second blood test 2-3 days later
- You may be instructed to repeat the test a third time
Center for Reproductive Health
In Vitro Fertilization (IVF)

Other Items
Discarding Needles and Syringes

Sharps MUST be packaged in approved sharps containers

For information on disposal sites near you:
- Call 1-800-606-6606
- Send an email to HHWSharps@acgov.org
Email your doctor directly
Check your lab results
Receive your embryo cryopreservation summary
Additional non-IVF related benefits
Easy to do…
  Go to kp.org
  • Register to get a user ID
  • Receive access immediately by answering security questions