UCSF Center for Reproductive Health

Introduction to Fertility Preservation

UCSF Center for Reproductive Health

Welcome

Welcome to the UCSF Center for Reproductive Health! We are so happy you have chosen us for your care and are looking forward to working with you.

Our mission at CRH is to combine the best elements of an academic practice – leadership within the field of reproductive medicine and cutting-edge research programs – with personalized and compassionate care of our patients.

Included in this booklet is introductory information about the structure of our practice, details about individual members of your Care Team, and an overview of diagnostic testing and treatment basics.

Thank you for letting us be a part of your fertility care.

Your CRH Team

Table of Contents

Starting Your Care at UCSF Center for Reproductive Health

Your Team

Fertility preservation can be complex, so each doctor at CRH works closely with a dedicated team that helps coordinate different aspects of your care. Each team member's role is outlined below:

Patient Coordinator (PC): Your primary point person to help schedule labs and ultrasounds, book appointments, answer logistical questions, and make sure that your checklist is complete before you start treatment.

Nurse Coordinator: Your nurse works closely with you and your doctor to help guide you through the treatment process itself. This involves creating a treatment cycle schedule, ordering medications, discussing your protocol and, along with your doctor, answering questions and concerns that may arise during treatment.

Financial Navigator (FN): Your dedicated point of contact for all matters related to financial aspects of fertility treatment. Your Navigator can assist you in understanding your insurance coverage, estimating any out-of-pocket cost, and providing costs of fees for services. Please direct all financial or insurance-related questions to your Financial Navigator rather than other members of your team.

Biller: Works closely with your Financial Navigator to perform insurance verifications, submit authorization requests, and communicate insurance-related matters directly to your Financial Navigator.

Surgery Schedulers: Assist with scheduling specific imaging tests such as hysterosalpingogram (HSG), CT scans and MRIs. Schedule and determine insurance coverage for any required surgical procedures, such as hysteroscopy and laparoscopy.

Genetic Counselor (GC): Provide risk assessment, education and support to patients at risk for inherited conditions, those considering genetic testing of embryos in an IVF cycle, and those with known genetic disorders. GCs also assist in interpreting genetic testing results.

Reproductive Psychologist: Provide supportive counseling, assistance with treatment decision-making, introduce effective skills for managing distress, and provide referrals in the community for ongoing mental health care. Additionally provide psychoeducational counseling for people considering family building with the help of egg donation, sperm donation, or surrogacy.

Medical Assistants (MAs): Our MAs work directly with the providers and guide you through your visit which includes, rooming, taking your vital signs, drawing your blood if needed and assisting the provider with any procedures/ultrasounds.

Your Path

We recognize that each patient is at a different point in their journey when they first see us. Highlighted below are potential steps as you move forward:

1. New Patient Visit

2. Completing Your Checklist

- Basic Evaluation
  - Ovarian reserve testing: AMH, AFC, FSH
  - Semen analysis (embryo freeze only)
  - Genetic carrier screening (embryo freeze only)
- Financial Consultation
- Additional consultations if indicated

3. Deciding on a Treatment Plan

- Your primary doctor will create a treatment plan based on your specific history and fertility workup.

4. Starting Treatment

- Creating a treatment schedule
- Ordering medications
- .Scheduling appointments
- Managing your treatment cycle

5. Finishing Treatment

- Meet with your doctor to review your cycle
- Discuss further treatment, if necessary

Lifestyle Recommendations While Undergoing Fertility Preservation

Acupuncture

- Acupuncture is fine throughout treatment.
- Recommend stopping herbal preparations as these are not regulated and may contain hormones or other agents that can interfere with treatment medications.

Alcohol

- Moderate alcohol use leading up to and during fertility preservation treatment does not affect treatment outcomes.
- Women*: 1 glass of wine/beer a day is fine.
- Men*: 1-2 glasses of wine/beer a day is fine.

Body Weight

- Goal BMI <25 for all patients.
- BMI >25 can negatively impact sperm and oocyte quality.

Caffeine

- No adverse effects of moderate caffeine use leading up to or during fertility preservation treatments.

Diet

- Decrease foods with a high glycemic index (processed foods, sugars, simple carbohydrates).
- Increase intake of whole grains.
- No evidence that dairy or animal protein negatively impacts fertility, though these typically contain higher levels of environmental contaminants.
- No evidence that gluten negatively impacts fertility (except in individuals with celiac disease).
- Some evidence that a Mediterranean diet is associated with higher sperm quality.

* Please note that the CRH believes gender to be expansive, however, for ease of explanations in this document we may occasionally refer to patients assigned female at birth as "Women" and patients assigned male at birth as "Men."

Exercise

- Exercise is encouraged as part of an overall healthy lifestyle.
- During fertility preservation treatment, moderate exercise is fine (walking, hiking, biking, light weights). Avoid high-intensity exercise from start of ovarian stimulation stimulation until next period.

Hot Tubs/Jacuzzis

- Women: no restrictions.
- Men: limit use as prolonged exposure to heat can negatively impact sperm quantity and motility.

Medications

- Medications to avoid or limit after cycle day 5 of ovarian stimulation:
  - NSAIDs (ibuprofen (Advil®, Motrin®), naproxen (Aleve®))
  - Aspirin (in IVF cycles only, unless otherwise instructed by your doctor)
  - Anti-histamines (Benadryl®, Claritin®, Zyrtec®, Allegra®, etc)
- Medications considered SAFE during treatment and can help manage side effects:
  - Pain: Tylenol
  - Gas/Bloating: Simethicone (Mylanta® gas, Gas-X®), Tums®
  - Constipation: Docusate sodium (Colace®), senna, Miralax®
  - Nausea: Ginger, acupuncture
  - Yeast infection: Monistat cream®, fluconazole (Diflucan®)
  - Allergies/colds: Saline rinses (Neti-pot), nasal steroids (fluticasone (Flonase®), Nasonex®), Sudafed®, Mucinex®, Robitussin®
  - Cough: Guaifenesin
  - Headache: Tylenol®, caffeine

Vaccinations

- Flu vaccine is recommend for patients undergoing fertility preservation treatment during flu season.

Vitamins/Supplements

- For women:
  - o Folic acid (400-800mcg per day; included in prenatal vitamins)
  - o May be beneficial but not necessary (studies are limited):
    - DHEA 50-75mg per day
    - Coenzyme Q10/ubiquinol 200-600mg per day
    - Melatonin 2-4mg per day (at bedtime)
- For men:
  - o Folic acid (5mg per day)
  - o Zinc
  - o Antioxidants may improve sperm quantity and quality.
  - o Antioxidants can be found in dietary sources as well as supplements.
    - Dietary sources:
      - Vitamin C: papaya, bell peppers, strawberries, broccoli, pineapple, kiwi, oranges, cantaloupe, kale, cauliflower
      - Vitamin E: spinach, swiss chard, sunflower seeds, almonds, asparagus, bell pepper, papaya, kale, tree nuts (almonds, walnuts, brazil nuts, hazelnuts)
      - Zinc: spinach, mushrooms, organic lamb, organic beef, scallops, sesame seeds, pumpkin seeds, oats
      - Selenium: halibut, tuna, cod, shrimp, sardines, salmon, turkey, barley
    - Supplements: Arginine, Carnitines, Coenzyme Q10/Ubiquinol, Folic acid, Glutathione, Lycopene, N-acetylcysteine, Selenium, Vitamin A, Vitamin E, Zinc

Insurance Coverage FAQs

Insurance coverage for fertility care ranges from non-existent to comprehensive, and understanding your options can make a difference when navigating treatment options with your doctor. This guide is intended to help you start the process of understanding your fertility benefits.

Insurance terms are confusing. What do they mean?

- PPO plans (Preferred Provider Organization) typically do not require any referral but it is important to call the plan prior to any initial consultation/treatment to check with them regarding this issue.
- HMO plans (Health Maintenance Organization) ALWAYS require a pre-authorization from your Primary Care Physician (PCP) for a specialist visit.
- EPO plans can be either Managed Care or not. Please check with your plan to make sure any registration or pre-authorization/certification issues have been resolved prior to your initial consultation.
- FSA (Flexible Spending Account) is also known as a health saving account. It essentially moves the full burden of costs to you, the patient. If you do not spend any money on health care, you get to save the money in a special tax-free account. If you do utilize any health care services, you pay for the cost yourself.
- Co-payment is the amount due for an office visit (i.e. consult, follow-up visit, etc.). This fee is due at the time of service and is a pre-determined amount set by your health plan.
- Co-insurance is the percent of patient financial responsibility pre-specified by your health plan.
- Deductible is the pre-determined amount (or percentage) of expenses that must be paid.

Does insurance cover fertility preservation treatments?

- The answer to this question is not a simple yes or no
- You will need to contact your insurance directly to find out whether your employer has purchased fertility benefits and the extent of the fertility coverage

“Common” services that may be considered fertility-related and thus may not be covered:

- Diagnostic testing
- Surgery
- In Vitro Fertilization with embryo cryopreservation
- Egg cryopreservation

Whom should I speak to regarding insurance coverage?

- Your first call should be to your health plan's member services department
- You can also call your employee benefits office within the HR department
- Your HR representative should be able to walk you through your options

What information do I need before contacting my insurance or employer?

- Name of the insured person
- Employee/Patient ID number or SSN
- Employer name
- Insurance plan name
- Group number
- Patient's name and DOB

Questions for your insurance provider:

- What are the specific fertility benefits in my plan?
- Will I have to meet a deductible before coverage begins? If so, how much?
- What is my level or percentage of coverage once my deductible has been satisfied?
- Is there a maximum payment or cycle cap on fertility treatment or on specific procedures?
- Are my fertility medications covered? If so, is the medication benefit separate from my fertility dollar or cycle maximum?
  - o Please note that we do not dispense or bill for medications. Once you have a finalized medication protocol, please contact the outside specialty pharmacy of your choice to request a financial quote.
- Are there any exclusions or restrictions on my policy?
  - o"Is there an age limit?"
- Are there any criteria that must be met before you can access your benefits?
  - o"Are there any required lab tests that I must complete prior to accessing my fertility benefit such as FSH or E2 (estradiol)? If so, how often must I complete these labs?"
- Which blood draw labs/pharmacies are contracted with my insurance carrier?

Questions for your employer:

- Does my current health plan cover fertility treatments?
- If my current plan does not cover fertility treatment, is there another plan available that provides benefits? If so, what is the cost difference between the two plans? How and when can I change plans?
- Is there any required waiting period before I can start fertility treatment for pre-existing conditions?

What if I'm not covered?

- We offer a self-pay discount for patients that do not have insurance coverage or may have a limited benefit. Kindly note that you may not submit receipts or claims to insurance for reimbursement for self-paid services. The codes used to reflect this discounted rate are not recognized by insurance payers.
- Additionally, due to the nature of our self-pay packages, you are not able to self-pay for certain portions of an IVF cycle while billing insurance for others. The decision to self-pay or bill insurance must be made prior to the start of each treatment cycle.
- Additional resources for financing fertility treatment can be found through RESOLVE (www.resolve.org) and through ARC (www.arcfertility.com).

Fertility Preservation with Egg Freezing

Normal Menstrual Cycle

The Menstrual Cycle

The menstrual cycle is a rhythmic sequence of events reflecting communication between the brain, ovary and uterus. This is called the hypothalamic-pituitary-ovarian (HPO) axis. Hormones produced in the hypothalamus and pituitary gland (brain) and follicles (ovary) coordinate the cycle events.

Understanding the menstrual cycle unlocks a better understanding of why your doctor gives you certain medications to promote fertility. Disorders of the menstrual cycle can also contribute to infertility.

On average, a menstrual cycle is 28 days long, but can range from 25-35 days. The cycle length is measured from the first day of bleeding in one cycle (CD1, cycle day 1) to the first day of bleeding in a subsequent cycle. There are two main phases of the menstrual cycle, the follicular phase and the luteal phase. Ovulation occurs approximately 14 days before the onset of the next menstrual period. For example, in a 28 day cycle, ovulation typically occurs around day 14; in a 26 day cycle it occurs around day 12, and in a 30 day cycle it occurs around day 16. Ovulation demarcates the transition from the follicular phase to the luteal phase.

The Follicular Phase

The follicular phase begins with the first day of bleeding (CD1). It is called the follicular phase because this is when the ovarian follicles, fluid filled structures containing one egg each, grow. Follicular growth is driven by the appropriately named follicle stimulating hormone (FSH) which is produced by the pituitary gland.

In a typical menstrual cycle, communication between the brain and ovary leads to the development of a single “dominant follicle”, which will ultimately release its egg at ovulation. As the dominant follicle grows under the influence of FSH, it starts to produce increasing levels of estrogen.

Estrogen has two basic functions in the menstrual cycle. One is to develop the uterine lining, which increases in thickness during the follicular phase. The second is to trigger the surge of another hormone, luteinizing hormone (LH), which is released from the pituitary gland when estrogen levels are at their highest, prior to ovulation. This LH “surge” leads to ovulation of the egg (oocyte) from the dominant follicle. LH is also the hormone that is picked up by home ovulation predictor kits.

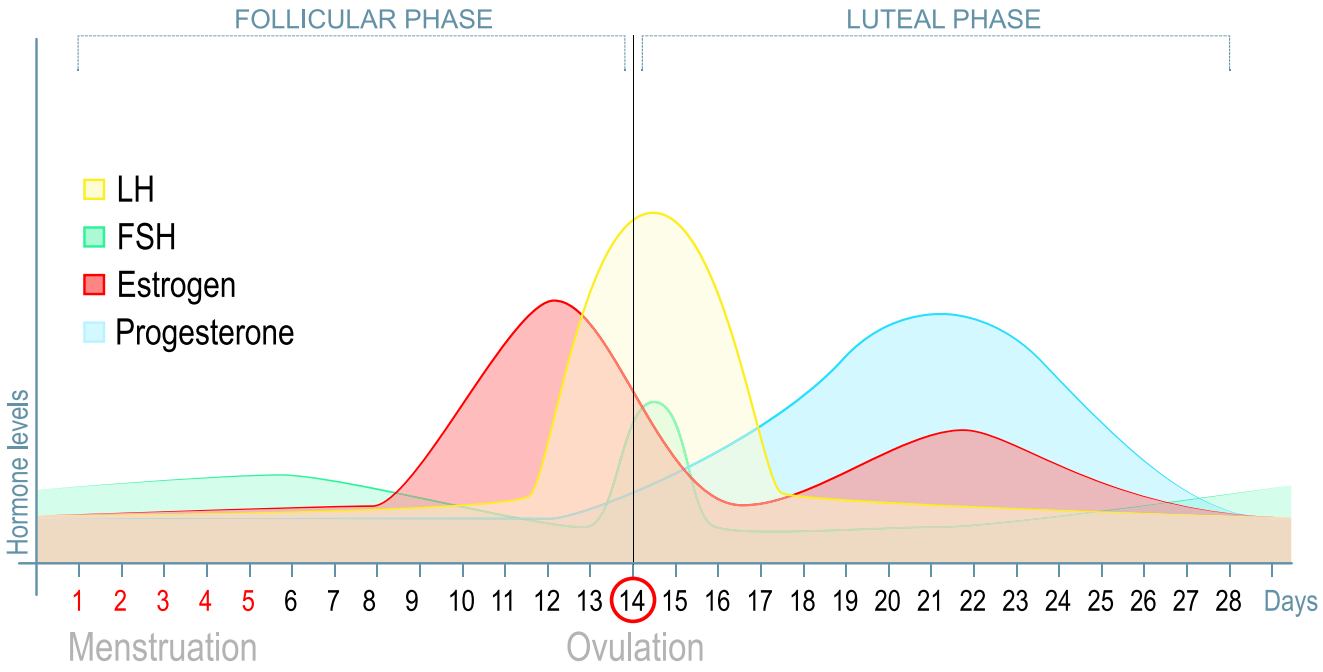
The most fertile period is from the three days leading up to ovulation through the day of ovulation. This is the also called the “fertile window.”

The Luteal Phase

After ovulation, the luteal phase begins. It is called the luteal phase because the ruptured follicle that released the egg turns into a new endocrine organ called the corpus luteum. The corpus luteum produces the hormone progesterone. Progesterone causes the uterine lining to mature and become supportive for implantation of an embryo, and is also necessary to sustain an early pregnancy once implantation has occurred.

If pregnancy occurs, the uterine lining is maintained and progesterone levels stay elevated as the embryo develops.

If pregnancy does not occur, there is a drop in progesterone levels, which results in shedding of the endometrial lining and transitioning into the next menstrual cycle.



Ovarian Reserve Testing

An assessment of the eggs inside the ovaries is an important part of a fertility preservation evaluation. Women are born with all of the eggs they will ever have and lose these eggs slowly over time. At birth, the ovaries contain several million eggs, at the onset of puberty there are approximately 200,000-400,000 eggs, and by the time menopause occurs, it is more like 1,000. The number of eggs present depends on largely on age, but can vary widely from person to person.

The purpose of ovarian reserve testing is to estimate the number of eggs present. This information can be used to determine which type of treatment is most appropriate, and to predict the response of the ovaries to fertility medications.

Ovarian reserve testing can include one or more of the following:

- An ultrasound to determine the **antral follicle count (AFC)**
  - o A follicle is simply an egg surrounded by supporting cells. Antral follicles are eggs in their latest stages of development, and are visible on ultrasound as small dark circles within the ovary. The AFC is the total number of antral follicles present in both ovaries.
- A blood test for **anti-Mullerian hormone (AMH)**
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It is important to note that while ovarian reserve testing gives us information about the *quantity* of eggs, it does not tell us about the *quality* of eggs.

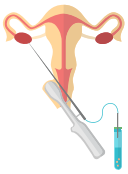
Egg quality refers to the ability of an egg to create a viable embryo and pregnancy. This is something that is determined primarily by age, and is NOT elated to the number of eggs a person has. There is no "test" for egg quality. We use your age to estimate egg quality, and use that to determine the number of eggs or embryos a person needs to freeze in order to have a high likelihood of using them successfully in the future.

Overview of Egg Freezing

Freezing your eggs is a process that involves growing multiple eggs (also known as oocytes) at once, removing them from the ovaries by a procedure known as an egg retrieval, and then freezing them for future use. There are a variety of different medication protocols that can be used in order to get eggs to grow. Your doctor will determine which approach is best for you. Regardless of the details of your protocol, there a few consistent stages to an egg freezing cycle that are detailed below:

Ovarian Stimulation

The ovarian stimulation phase generally begins with the onset of menses (although there are certain protocols in which this is not the case). The simulation involves taking 2-3 injections per day of medications known as follicle stimulating hormone (FSH) and luteinizing hormone (LH). These medications cause the ovarian follicles (fluid filled structures containing one egg each) to grow and mature. The ovarian stimulation lasts an average of 9-12 days, during which time you come to clinic for 5-6 ultrasounds and blood tests to monitor the progress of follicular growth. The last step in the stimulation phase is known as the trigger, which gets the eggs inside the follicles ready for retrieval. The next step, the egg retrieval, typically occurs 36 hours after the trigger.

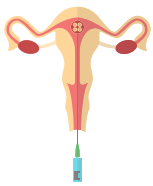


Egg Retrieval

The egg retrieval is a minimally invasive procedure done at CRH clinic. The procedure is done using IV sedation administered by anesthesiologist, so you are asleep but breathing on your own. An REI physician performs the procedure, which involves using a transvaginal ultrasound to guide a thin needle into each follicle to retrieve the egg inside. The procedure takes about 30 minutes, and you should be on your way home about 1-2 hours afterwards. Please plan to take the rest of the day off as you may be quite sleepy from the anesthesia.

Egg Freezing

Our state-of-the-art embryology lab is located on-site at our clinic and staffed by a team of highly trained embryologists. Once your eggs are retrieved, an embryologist will examine them under the microscope to determine which eggs are “mature”. Mature eggs are those that are capable of being fertilized by sperm – on average, this is approximately 75% of the total number of eggs that are retrieved. These mature eggs are then frozen using a process called vitrification.



Fertilization and Embryo Culture

When you are ready to use your frozen eggs, they will be thawed and fertilized with sperm to create embryos. Embryos are grown in the lab for 3-6 days, at which point one or more embryo(s) can be transferred back into your uterus, and the remaining embryos are frozen. Alternatively, all embryos can be frozen for transfer at a later date.

Fertility Preservation with Embryo Freezing

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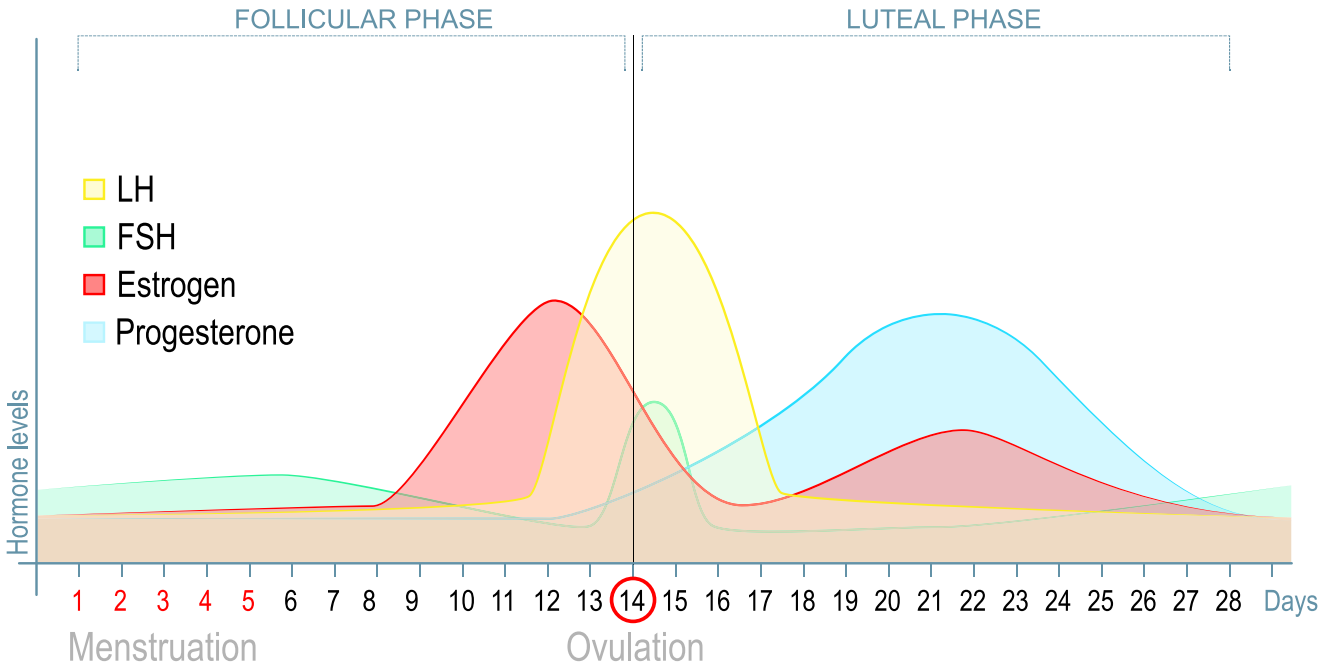

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Genetic Counseling at CRH

What is a genetic counselor?

Genetic counselors are healthcare professionals with specialized graduate degrees and experience in the areas of both medical genetics and counseling. Genetic counselors work as members of a healthcare team, providing risk assessment, education and support to individuals and families as they navigate genetic testing options or their risk for inherited conditions. Genetic counselors also interpret genetic test results, provide supportive counseling, and serve as patient advocates.

When should I speak with a genetic counselor?

Patients often speak with one of our genetic counselors for one of the following indications:

- All patients: to discuss questions about risk for genetic disorders based on personal and/or family medical history
- Patients considering Embryo Freezing: to review the option of preimplantation genetic testing in an IVF cycle
- Patients using donor eggs or sperm: to review the donor's family history and genetic screening results

You may speak with a genetic counselor once or over time based on indication and treatment plan.

If you and your doctor think a genetic counseling consult is appropriate for you, it will be scheduled by your Care Team.

What does a genetic counseling consult entail?

The genetic counselor will collect your family health history and discuss a risk assessment based on the information you share. During the consult, the genetic counselor will complete a thorough review of the genetic testing option(s) that are applicable for you.

What if I have other questions?

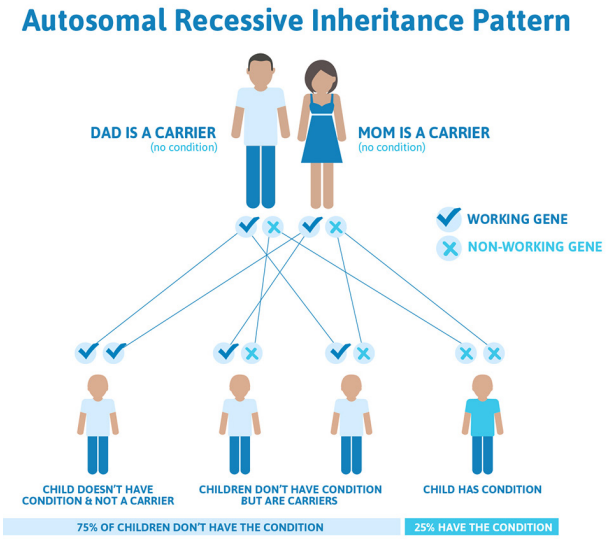
If you would like more information about whether a genetic counseling consult may be appropriate or of benefit to you, please discuss this with your primary doctor. If you have a specific question for our genetic counselors, you may contact them by sending a message to the "Genetics" team in the CRH patient portal.

What is carrier screening?

Carrier screening is a type of genetic test that can determine if a person or couple carry genetic variation that could lead to increased risk for a genetic condition in a child. Most genetic conditions included in screening are inherited in an "autosomal recessive" manner. This means that there is a 1 in 4, or 25%, chance for a child to have a genetic condition when both parents are carriers of it. Carrier screening also includes X-linked conditions. These conditions are most often passed from a carrier mother to a son who has the condition, but both sexes may show signs and symptoms of the condition. Carrier screening involves a blood draw or collection of a saliva sample.

What do carrier screening results mean?

- *POSITIVE*: A positive result means that the screening detected a genetic variation in your DNA that is associated with being a carrier for one or more of the conditions included on the screening panel. As most of the screened conditions are "recessive", knowing the carrier status of your reproductive partner or donor is important to estimate the chance of having a child with the condition.
- *NEGATIVE*: A negative result means that the screening did not detect a genetic variation that is associated with being a carrier for one of the conditions on the list. This reduces, but does not eliminate, the chance that you are a carrier of one of the conditions included on the screening panel.



What if the results show that there is an increased risk?

If you and/or your reproductive partner or donor have carrier screening results that show increased risk, your Care Team will provide you information on how to schedule a phone consult with a Myriad genetic counselor. Based on this consult, it may be recommended for you to follow up with your physician and/or a genetic counselor at CRH to discuss what options may be available to you, including preimplantation genetic testing of embryos for the condition in question. Apart from preconception testing, other options could include prenatal testing—with an invasive procedure (chorionic villus sampling or amniocentesis)—or testing after birth.

Should I complete carrier screening now, or is it fine to wait until pregnancy?

When carrier screening is performed prior to pregnancy, it can allow for different options if there is an increased risk based on the results. Results from carrier screening may change the fertility treatment plan. For example, preimplantation genetic testing of embryos for the condition—performed as part of an IVF cycle—is possible in many cases.

I have no family history of a genetic condition. Does that mean I do not need to complete carrier screening?

Recessive conditions do not present in a family until two people who carry the same condition have a child together. This means that most children with inherited conditions are born to parents with no known family history.

What is the cost of carrier screening?

Myriad, the default carrier screening laboratory for CRH, can complete a billing investigation to determine potential coverage for testing if you elect for CRH to submit your insurance information with your sample. Myriad follows up with a personalized cost estimate, by email and text message. If you do not have insurance coverage for carrier screening, or if there is a high associated cost based on your plan, Myriad offers a self-pay cost of $349. For additional information, please contact Myriad by calling (888) 268-6795.

Where can I go for more information about carrier screening?

If you would like general information about the carrier screening panel offered at CRH, please navigate to the following website: https://myriadwomenshealth.com/patient/foresight-carrier-screen/. If you have specific questions or would like to discuss carrier screening in more detail, please contact the genetic counseling team at CRH by writing to the “Genetics” team in the CRH patient portal.

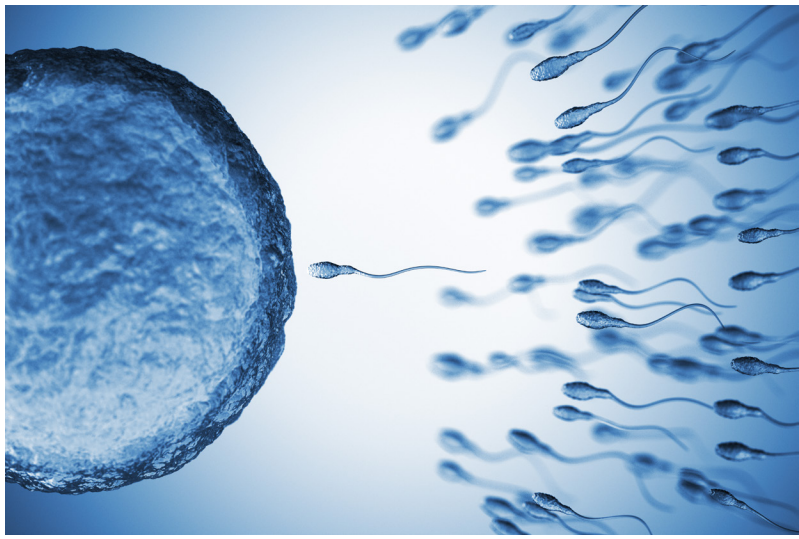
How do I schedule an appointment to complete carrier screening?

If you would like to complete carrier screening, please contact your Care Team. You may either schedule a blood draw at CRH or receive a saliva sample collection kit shipped to your home address.

What if I will be creating embryos with contribution from a sperm or egg donor?

Carrier screening for sperm donors
Sperm banks use different carrier screening panels from different testing labs. It is important that you review any genetic carrier screening results for your donor in his profile. If you or your chosen donor is identified to be a carrier of a genetic condition, please notify your Care Team. The CRH genetic counselors can help review the results and coordinate for you to complete the same carrier screening panel as your chosen donor, if needed, to clarify any reproductive risk based on carrier status.

Carrier screening for egg donors
Whether you are planning to proceed with an egg donor through CRH or an agency, you will review any prior carrier screening completed for your donor in a “match consult” appointment with a CRH genetic counselor. At this time, the genetic counselor will share a risk assessment with you based on results. If your donor carries a genetic condition that the male contributor has not been screened for, the genetic counselor can coordinate carrier screening at that time.



Semen Analysis

A semen analysis is an important part of a basic work-up prior to embryo freezing. The results of this test helps your doctor determine the optimal course of treatment for you.

Before the Semen Analysis

At CRH, we perform semen analyses on-site in our andrology lab. Semen analysis appointments can be made Monday through Friday, and will be scheduled by your Care Team. Prior to your appointment, please abstain from ejaculation for 2-4 days. Please let your doctor know if you are a frequent hot tub or sauna user, have had a fever of > 100°F or illness in the past 2-3 months, smoke cigarettes or marijuana, or are taking any medication regularly.

What to Expect

Detailed instructions will be sent to you when your appointment is scheduled. Your appointment will take place at the CRH office. You will check in at the front desk with a photo ID and will be taken to a private room for the semen collection. You will be provided with a specimen cup and label and shown where to leave the cup when collection is complete.

You also have the option to collect the specimen at home and bring it in to the CRH. If you choose to do this, we will still need to schedule you for a specific time to drop off the sample so that we can process it. You must also be able to bring the specimen to our clinic from your home within 1 hour. Please contact your Care Team for further instructions if you prefer this option.

The Semen Analysis Report

The semen analysis report includes the following:

Volume: Normal range > 1.5 mL
A semen sample is composed of seminal fluid, which is produced by several different glands in the male reproductive tract, and sperm, which is produced in the testicles. A low volume can be caused by several different factors, including retrograde ejaculation (semen going into the bladder instead of out of the body) or a blockage in one of the ducts of the reproductive tract.

Concentration: Normal range > 15 million/mL
This measures the total number of sperm in the sample. Low sperm counts can be caused by decreased production of sperm in the testicles, or by blockage in the reproductive tract that prevents the sperm from being released out of the body.

Motility: Normal range > 40%
This measures the percentage of sperm that are moving in the sample. Motility is important in allowing the sperm to travel through the cervix, uterus and fallopian tubes to reach the egg, and in penetrating through the egg to fertilize it. Part of the evaluation of motility includes an assessment of progression, which can range from 0 (non-motile) to 4 (moving in a fast, forward direction).

Morphology: Normal range > 4%
This measures what percentage of sperm have a normal shape. Morphology is most important in determining what method to use to fertilize eggs in an IVF cycle. Morphology is not predictive of chances of natural conception or pregnancy in an IUI cycle.

If any of the above parameters are abnormal, your doctor may ask you to repeat the semen analysis and may order additional bloodwork. If appropriate, we will refer you to a reproductive urologist for evaluation.

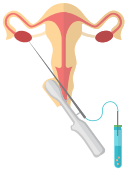
Overview of Embryo Freezing

In vitro fertilization, or IVF, is a process used to create embryos outside of the body. This treatment involves growing multiple eggs (also known as oocytes) at once, removing them from the ovaries by a procedure known as an egg retrieval, and fertilizing them with sperm in the IVF laboratory. An egg that has been fertilized by a sperm is known as an embryo. Embryos are grown for several days outside of the body, and are then frozen for future use.

There are a variety of different protocols used for embryo freezing. Your doctor will determine which approach is best for you. Regardless of the details of your protocol, there are a few consistent stages of an IVF cycle that we will review here.

Ovarian Stimulation

The ovarian stimulation phase generally begins with the onset of menses (although there are certain protocols in which this is not the case). The simulation involves taking 2-3 injections per day of medications known as follicle stimulating hormone (FSH) and luteinizing hormone (LH). These medications cause the ovarian follicles (fluid filled structures containing one egg each) to grow and mature. The ovarian stimulation lasts an average of 9-12 days, during which time you come to clinic for 5-6 ultrasounds and blood tests to monitor the progress of follicular growth. The last step in the stimulation phase is known as the trigger, which gets the eggs inside the follicles ready for retrieval. The next step, the egg retrieval, typically occurs 36 hours after the trigger.

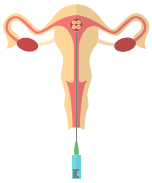


Egg Retrieval

The egg retrieval is a minimally invasive procedure done at CRH clinic. The procedure is done using IV sedation administered by anesthesiologist, so you are asleep but breathing on your own. An REI physician performs the procedure, which involves using a transvaginal ultrasound to guide a thin needle into each follicle to retrieve the egg inside. The procedure takes about 30 minutes, and you should be on your way home about 1-2 hours afterwards. Please plan to take the rest of the day off as you may be quite sleepy from the anesthesia.

Fertilization and Embryo Culture

Retrieved eggs are combined with sperm to create embryos. Our state-of-the-art embryology lab is located on-site at our clinic and staffed by a team of highly trained embryologists. Embryos are grown in the lab for 3-6 days, at which point embryo(s) are frozen for transfer at a later date.



Embryo Transfer

When you are ready to use your frozen embryos, an embryo transfer is performed. During the embryo transfer, a speculum is placed and a small catheter is used to place the embryo(s) at the top of the uterine cavity under ultrasound guidance. At the CRH, our transfer rooms are equipped with monitors so that you are able to visualize the embryo(s) and watch as they are transferred into the uterus. A blood test is done 10-14 days after the transfer to determine if you are pregnant.

Fertility Preservation FAQs

How do I decide between egg and embryo freezing?

This is a highly individualized decision taking into account your age, ovarian reserve testing, social circumstances and family-building goals. Your doctor will give you all of the information necessary to assist you in making the right decision for you. Additionally, the CRH has reproductive psychologists who are available to you for a consultation if you feel it would be helpful.

Who is a candidate for egg freezing?

At the CRH, we see patients of all ages and social circumstances to discuss egg freezing. Because of the natural decline in the quantity and quality of eggs that occur as women get older, egg freezing may be less successful for women in their early 40s. However, at the CRH we regularly see patients in this age group to discuss the pros and cons of egg freezing, as well as other options for fertility preservation and future conception.

How many eggs do I need to freeze?

The number of eggs to freeze depends on several factors, the most important of which is age. As people get older, the number of eggs recommended to freeze increases. This is because egg "quality", or the ability of an egg to create a viable pregnancy, decreases with increasing age. Your doctor will review this in detail with you and make recommendations for the number of eggs to freeze. Based on your individual ovarian reserve testing, your doctor will also be able to estimate whether or not you will need more than one egg retrieval cycle in order to reach this number.

Can I test my eggs for their quality? Can I test embryos for quality?

There is no way to test an egg for its quality – instead, we estimate this based on your age. When embryos are created (either for fertility preservation, or when frozen eggs are thawed and fertilized), a process called pre-implantation genetic testing, or PGT-A, can be used to determine which embryos are most likely to create a viable pregnancy. These embryos are then preferentially selected for transfer back into the uterus.

What are the chances that I will be able to use my frozen eggs successfully?

Freezing your eggs can give you more reproductive freedom and increase the chances that you will be able to build your family in the future. However, the idea that egg freezing is an "insurance policy" is a misconception – it is not a guarantee that all women who freeze eggs will ultimately be able to use them for a successful pregnancy. Furthermore, the number of people returning to use their frozen eggs is still relatively low – only about 10-15% nationwide – and therefore outcomes data are still lacking, particularly for women who freeze eggs over the age of 38.

How long can eggs be frozen? How long can embryos be frozen?

Based on the available data, eggs can be frozen safely for 5-10 years, and likely longer. Embryos can be frozen for 10 years or more and still be used for a successful pregnancy.

UCSF Center for Reproductive Health