

MUHC Reproductive Centre

Treatment Information for In Vitro Fertilization (IVF)



What is In Vitro Fertilization?

In vitro fertilization (IVF) is the fertilization of eggs by sperm outside the body.

In IVF, eggs are removed from the ovaries and are fertilized with the sperm in the laboratory to create embryos. The best embryo can then be transferred a few days later to the uterus.

Who Needs IVF?

Your physician has suggested an IVF treatment for you based on your medical history and your baseline investigation results. In general, IVF is used for patients with:

- ▶ Damage or absence of the fallopian tubes
- ▶ Severe male factor infertility
- ▶ Severe endometriosis
- ▶ History of previous failed infertility treatments
- ▶ Advanced age

IVF Process

- 1. HORMONE THERAPY**
2. Ultrasound monitoring
3. Trigger Shot
4. Egg retrieval
5. Fertilisation of the Eggs
6. Embryo transfer
7. Pregnancy test
8. Viability ultrasound

Why Take Hormones?

In order to prepare your body to do IVF, you will need to take hormones for several days before eggs can be retrieved.

Without hormones, the body usually produces only one mature follicle per month. To increase your chance of conceiving, hormones called Gonadotropins will stimulate the ovaries to produce many mature eggs (instead of just one) and other hormones will help prevent premature ovulation before we collect your eggs.

Additional hormone therapy and other medication is given after the egg retrieval, in order to help implantation of the embryo and to support the possible pregnancy.

Which Hormones will I Take?

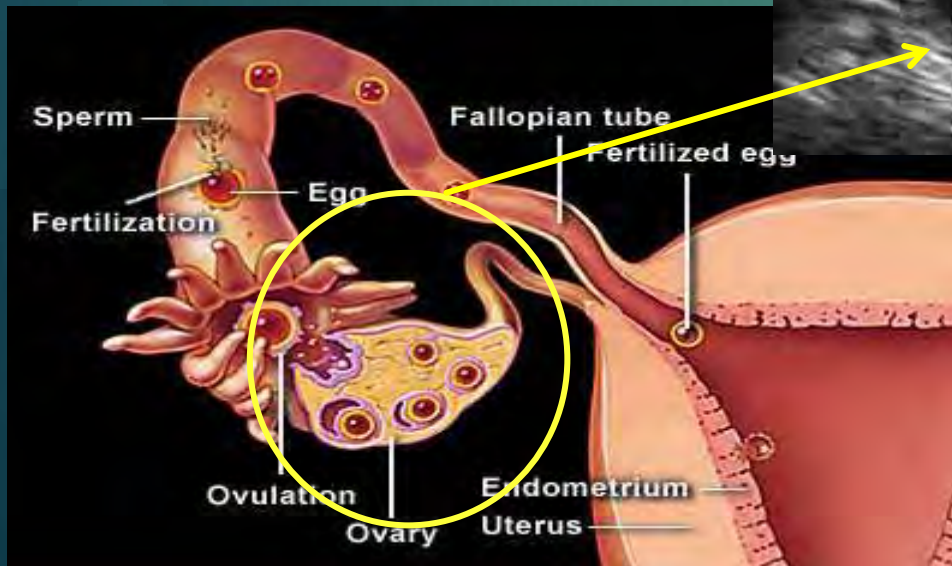
Sometimes other types of medication such as oral contraceptives can be used in combination with hormones in the process of IVF.

The choice of medications is based on the couple's test results and unique medical history*.

*Once you are ready to start IVF process, a nurse will send you the prescription along with instructions on medications that were prescribed to you.

Ovarian Stimulation

The number of mature eggs will depend on the woman's ovarian reserve, age and medical history.



A follicle is a fluid-filled sac that contains an egg



The hormone are in the form of injections.

A nurse will teach you how to do the injections yourself in the subcutaneous tissue (in the fat) of either your abdomen, thighs or on the back of your arm if your partner is giving you the injections.

Side Effects of Medications

These medications can have some side effects such as:

- ▶ Fatigue
- ▶ Headaches
- ▶ Breast tenderness
- ▶ Redness at injection site
- ▶ Bloating
- ▶ Mood changes
- ▶ Decreased libido

Side effects are usually mild and of short duration. You may contact your pharmacist if you have any concerns about your medication.

Persistent leg/calf pain, shortness of breath, rash all over body or feeling of wanting to hurt yourself or others is NOT NORMAL: contact emergency services immediately

Fertility Drugs

Private insurance

All insurance plans must cover a minimum of 63% (or more) of most of your prescribed fertility drugs . Once you paid and reached approximately 1117\$ *(cost of fertility drugs NOT covered) the medication might be covered at 100% for the rest of the year.**

* amount for 2020, it changes every year

**call your insurance company for more details

Or

RAMQ coverage : you will have to pay out a deductible per month ~93\$* The remaining amount should be covered.

*amount for 2020, it changes every year

Progesterone and prenatal vitamins are usually not covered by either plans.

Where to Buy the Fertility Drugs?

Only a few pharmacies will carry the fertility drugs or are more familiar with the specific forms needed for reimbursement by your private insurance company or RAMQ.

We will provide you a list of pharmacies.

IVF Process

1. Hormone therapy
2. **ULTRASOUND MONITORING**
3. Trigger Shot
4. Egg retrieval
5. Fertilisation of the oocytes (eggs)
6. Embryo transfer
7. Pregnancy test
8. Viability ultrasound

Different IVF Protocols

There are different protocols (combinations of medications) that can be used to stimulate the ovaries and control ovulation. The treatment plan is based on the couple's test results and unique medical history*. These are the most common protocols:

- ▶ Antagonist (takes 2-3 weeks)**
- ▶ Microdose Flare (5-6 weeks)**
- ▶ Pill protocol (6 weeks)**
- ▶ IVM/natural (2-3 weeks)** *used rarely*

*Once you are ready to start IVF process, a nurse will send you detailed instructions on the specific protocol and medications that were prescribed to you

**estimated time it takes from day 1 of your menstrual cycle to embryo transfer



IVF Ultrasounds

- ▶ Done early in the morning.
- ▶ You might be at the clinic for 1-2 hrs each time.
- ▶ The vaginal ultrasounds (2 to 3 u/s on average per treatment cycle) are done to monitor the growth of your follicles.
- ▶ First ultrasound: usually no blood test required.
- ▶ Following ultrasounds: blood test* will be done each time to monitor the level of estradiol released by your follicles – it helps determine your response to the treatment.
- ▶ You can have breakfast before your appointment.

** depending on protocol*

Ultrasound Days

- ▶ **Bring your treatment consent and Covid-19 Consent COMPLETED**
- ▶ Please be on time for your appointment.
- ▶ Take a number when you come in to register.
- ▶ Ultrasound → Blood test → nurse for teaching and verification of file.
- ▶ Afterwards you can go back to work/ home*.
- ▶ Later that day, the doctor reviews your file and places a medical order.
- ▶ A nurse will call you the same day (between 1 pm to 5 pm) to inform you of the plan (what medication(s) to take, when you need to return for your next ultrasound and blood test, or when your egg retrieval will be).
- ▶ Go to your pharmacy to purchase medications (if needed).

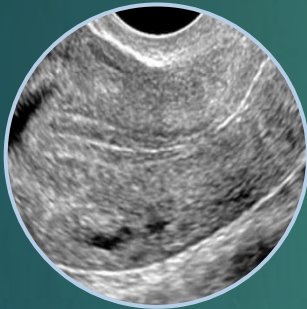
* You live far away from hospital? We suggest you stay nearby until you receive the call.

Ultrasound Days

Bring your
treatment
consent +
Covid-19
Consent



Register



Ultrasound



Blood Tests



Teaching



Medical
order



Call from
nurse



Pharmacy



Make sure we can reach you !

It is important to give us the phone number where you can be reached later that day, if it is different from the one in your file.

IVF Process

1. Hormone therapy
2. Ultrasound monitoring
3. **TRIGGER SHOT**
4. Egg retrieval
5. Fertilisation of the eggs
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The Trigger Shot

- ▶ On average, it takes 8-12 days of gonadotropin injections (hormones) before your follicles reach the optimal number and size (16-22mm). You will then be asked to take one last injection called the Trigger Shot.
- ▶ The Trigger Shot will cause eggs to undergo the final stage of maturation in preparation for egg retrieval (it replaces the natural surge of luteinizing hormone in your body).
- ▶ The timing of Trigger shot is VERY IMPORTANT. Unlike the other hormones that can be done more or less at the same time each day, the Trigger Shot must be done at the EXACT TIME you have been told by the nurse.
- ▶ It is usually done 36 hours before your egg retrieval.

Failure to follow these instructions may likely cause the cancelation of cycle or a suboptimal result for your IVF treatment.

The Trigger Shot

There are different medications that can act as a Trigger Shot

- ▶ HCG
- ▶ Ovidrel
- ▶ Suprefact

36 hours before egg retrieval

(unless otherwise indicated by physician)

IVF Process

1. Hormone therapy
2. Ultrasound monitoring
3. Trigger shot
4. **EGG RETRIEVAL**
5. Fertilisation of the eggs
6. Embryo transfer
7. Pregnancy test
8. Viability ultrasound

Day of Egg Retrieval

- ▶ You must be fasting from midnight the night before.
- ▶ Arrive at the clinic at 7:30 or 8:00 am (as per instructions).
- ▶ If applicable, your partner should arrive at the same time with the semen sample produced at home.
- ▶ Part of the preparation involves insertion of an IV line and taking your vital signs.
- ▶ The egg retrieval lasts approximately 15-20 min.
- ▶ You can go home on average 1 hour after the procedure – ACCOMPANIED - you cannot leave by Taxi/Uber/public transportation without someone else.
- ▶ You should rest at home.

No driving or alcohol x 24 hrs

Day of Egg retrieval Male Partner



The sperm sample must be produced the morning of egg retrieval.

- ▶ Your partner will need his Medicare card or ID card with picture.
- ▶ His hospital card.

Using donor sperm? Make sure it is delivered at our clinic **before starting your IVF treatment.**

For Your Partner, on the Day of your Egg Retrieval

Partners are welcome in the procedure room during egg retrieval (*except for Sundays for safety reasons*)

Partners are asked to **sit** next to their spouse during the procedure. Unfortunately, it's not possible to be standing for safety reasons.



Day of Egg Retrieval



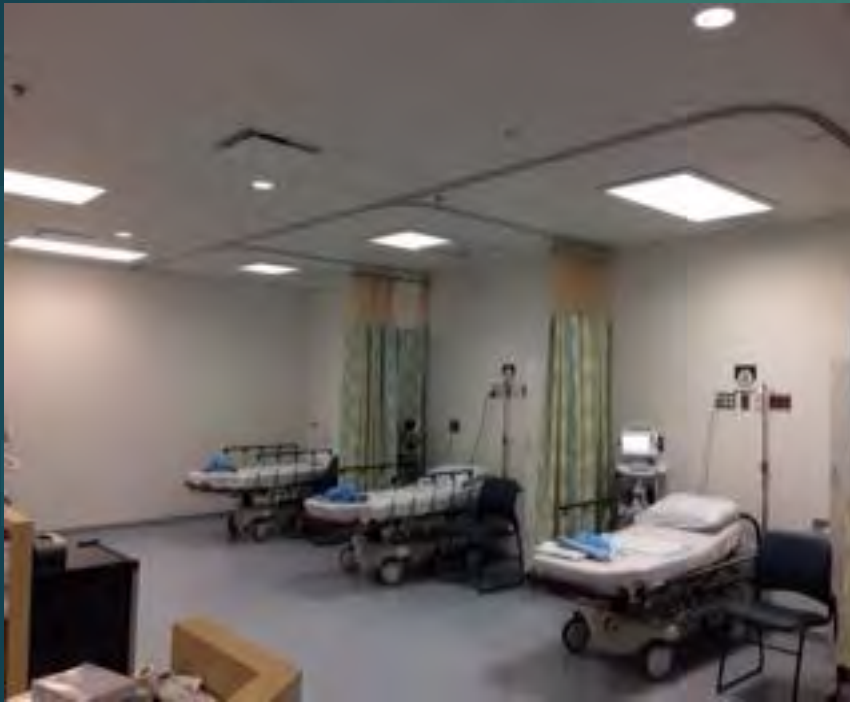
If you know that your partner or the person accompanying you is not comfortable in a medical environment, please let us know in advance. It would be preferable to wait outside the procedure room.

We love children, but
please don't bring them

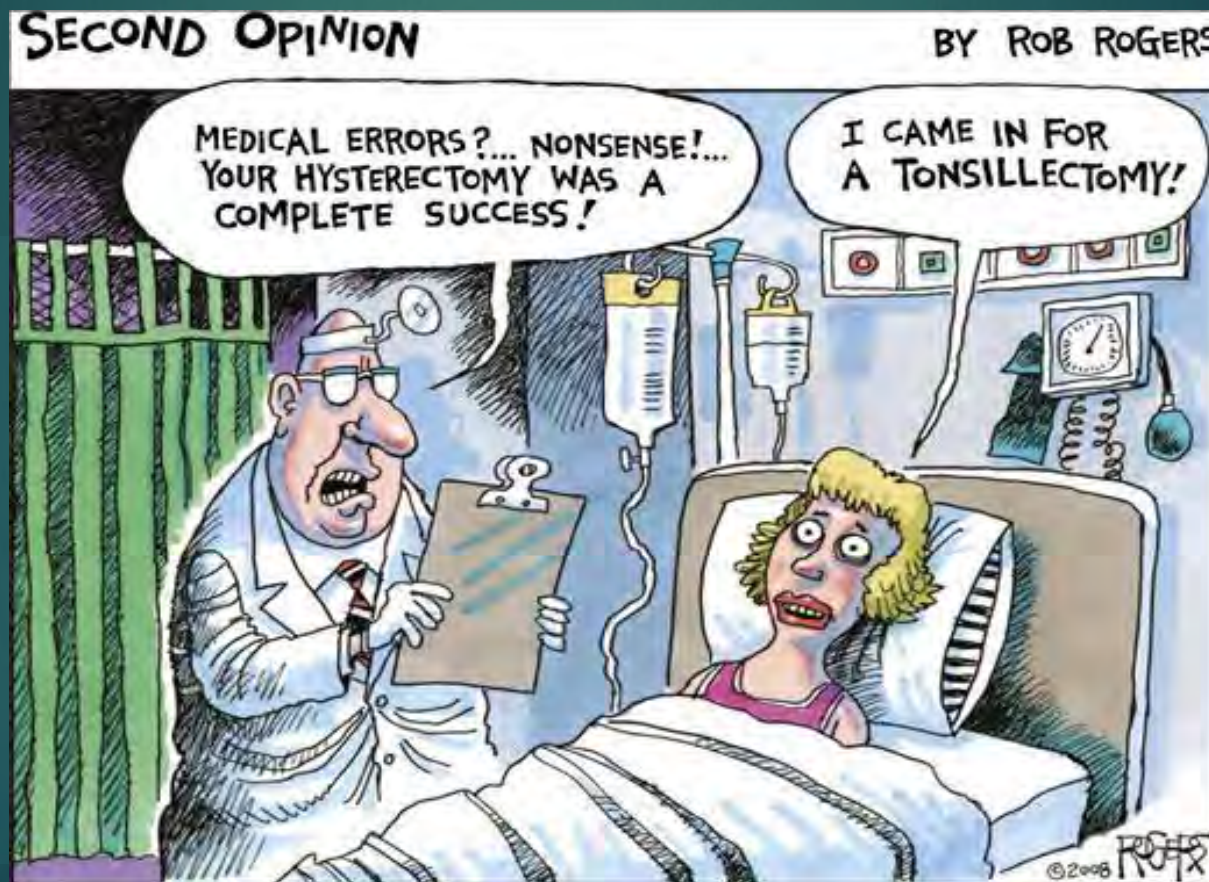


Babysitting at HOME
please

Our Recovery Room and Procedure Room

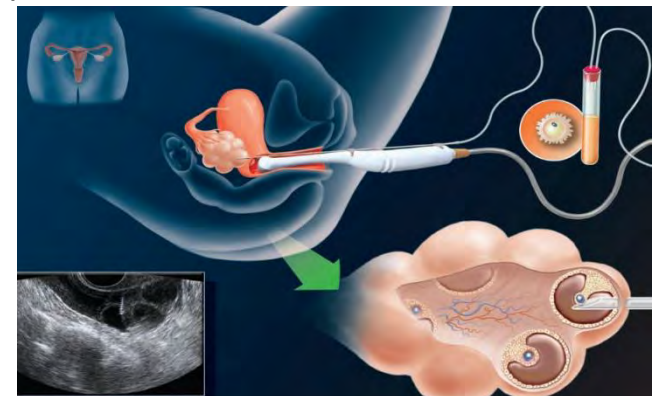


Before starting the procedure, we will ask you to confirm your name, date of birth, any allergies, and the reason for being there(egg retrieval)



Egg Retrieval Procedure

- ▶ A speculum will be inserted in your vagina to 'clean' inside and inject a local anaesthesia (freezing) in the vagina area.
- ▶ Then, a needle attached to the vaginal probe (same as during your IVF monitoring ultrasound) will be inserted in the vagina to retrieve your eggs from the follicles.
- ▶ The fluid collected in the test tube is given to the embryologist to find your eggs under a microscope.
- ▶ You will be able to see 'live' (on a TV monitor) the work of the embryologist as he/she is searching for your oocytes.



Local Anesthesia and Sedation

After asking you a few standard questions, the physician will start the preparation for your egg retrieval.

Medication such as Midazolam and Fentanyl will be administered intravenously for a mild sedation and pain control.

The procedure is not pain-free but tolerable with the sedation given.

Remember: no alcohol or driving x 24 hours

IVF Process

1. Hormone therapy
2. Ultrasound monitoring
3. Trigger Shot
4. Egg retrieval
5. **FERTILISATION OF THE EGGS**
6. Embryo transfer
7. Pregnancy test
8. Viability ultrasound

The oocytes (eggs) retrieved will be put in contact with sperm following the egg retrieval.
2 methods of fertilization exist, your physician will determine which one is recommended for you

IVF

- ▶ eggs are mixed directly with the sperm
- ▶ maturity and fertilization are assessed the following day

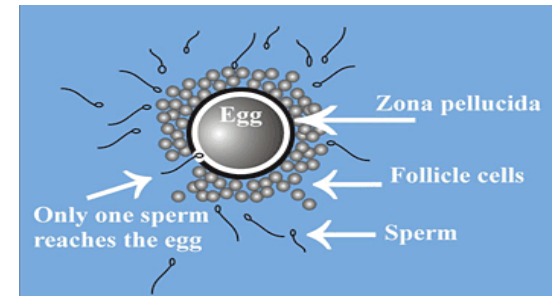
ICSI

- ▶ cells surrounding the eggs are removed to assess egg maturity
- ▶ Only mature eggs can be inseminated or frozen
- ▶ One sperm is directly injected into one egg

IVF

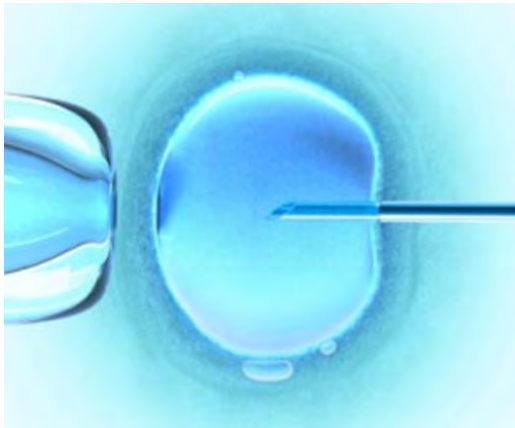
- ▶ The embryologist takes approximately 100 000 sperm X number of oocytes (10 oocytes = 1 million sperm) and places it in the petri dish where eggs are waiting to be fertilized.
- ▶ This method is good if there is no concern about the sperm quality, quantity, or morphology (shape).
- ▶ The dish is then placed in the incubator hoping that the sperm fertilizes as many oocytes as possible. On average, 60-80% will get fertilized. However, there is no guarantee. In very rare cases, there is no fertilization and 'Rescue ICSI'* may be attempted in those circumstances.

▶ *ICSI: see next page



ICSI

ICSI or Intra Cytoplasmic Sperm injection is a procedure where a single selected sperm is injected into each egg in order to achieve fertilization.

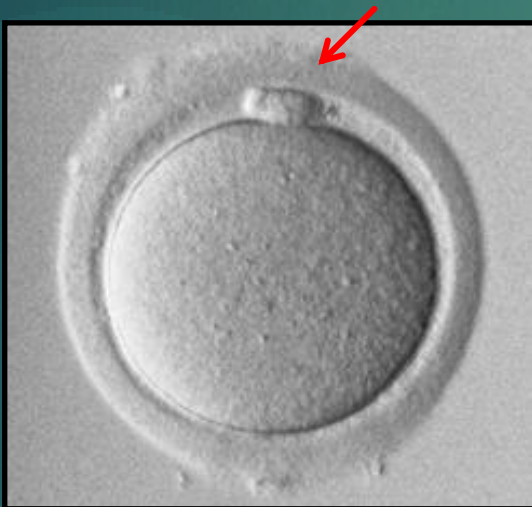


Embryo - day 1

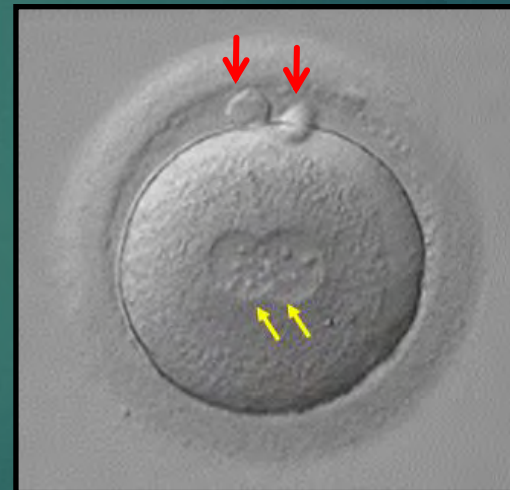
- ▶ A mature egg looks like the egg in Figure A
- ▶ A successfully fertilized egg should look like the one in Figure B
- ▶ There are 2 signs of fertilization, indicated by the arrows seen in Figure B

At this point, embryo quality is still unknown

A



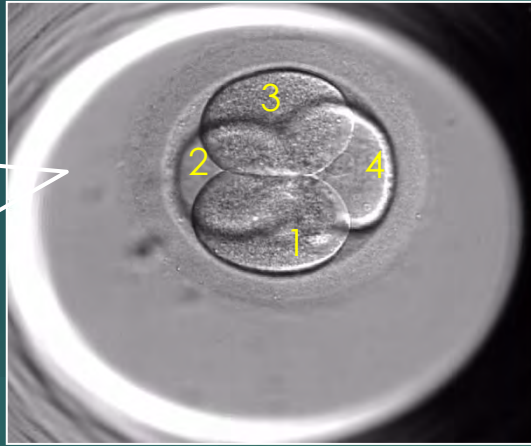
B



The day after your egg retrieval, you will receive a call from the embryology lab to inform you on how many eggs were fertilized

Embryo – days 2-3

On day 2 the embryo should be 2-4 cells



On day 3 the embryo should be 6-9 cells



- ▶ On day 2 it is possible to assess the embryo quality which is based on the % of fragmentation, the cell number and size.
- ▶ This will help determine whether the transfer or freezing will be performed on day 3 or day 5.



On day 2 you will receive a call from the embryology lab with an update.

Days 5 and 6

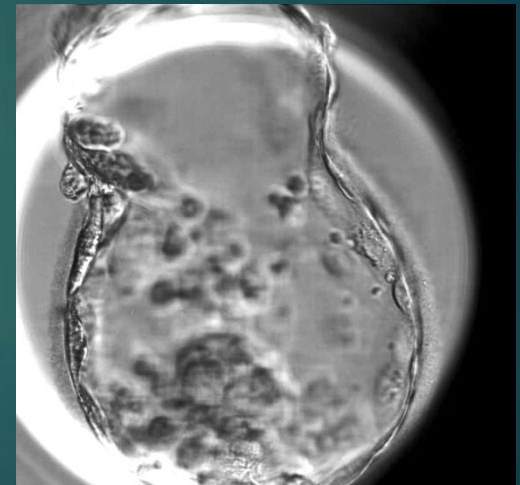
- ▶ On day 5, embryos should have reached the blastocyst stage and be ready to transfer.
- ▶ Only a few embryos will make it to the blastocyst stage.
- ▶ The ones that did not can sometimes be cultured one more day and be frozen for future use if they are of sufficient quality.



A
Early blastocyst



B
Expanded blastocyst



C
Hatching blastocyst

Culture of Embryos in the Lab

- ▶ The embryologist needs to monitor daily the development of your embryo(s) from the time of fertilization until your embryo transfer.

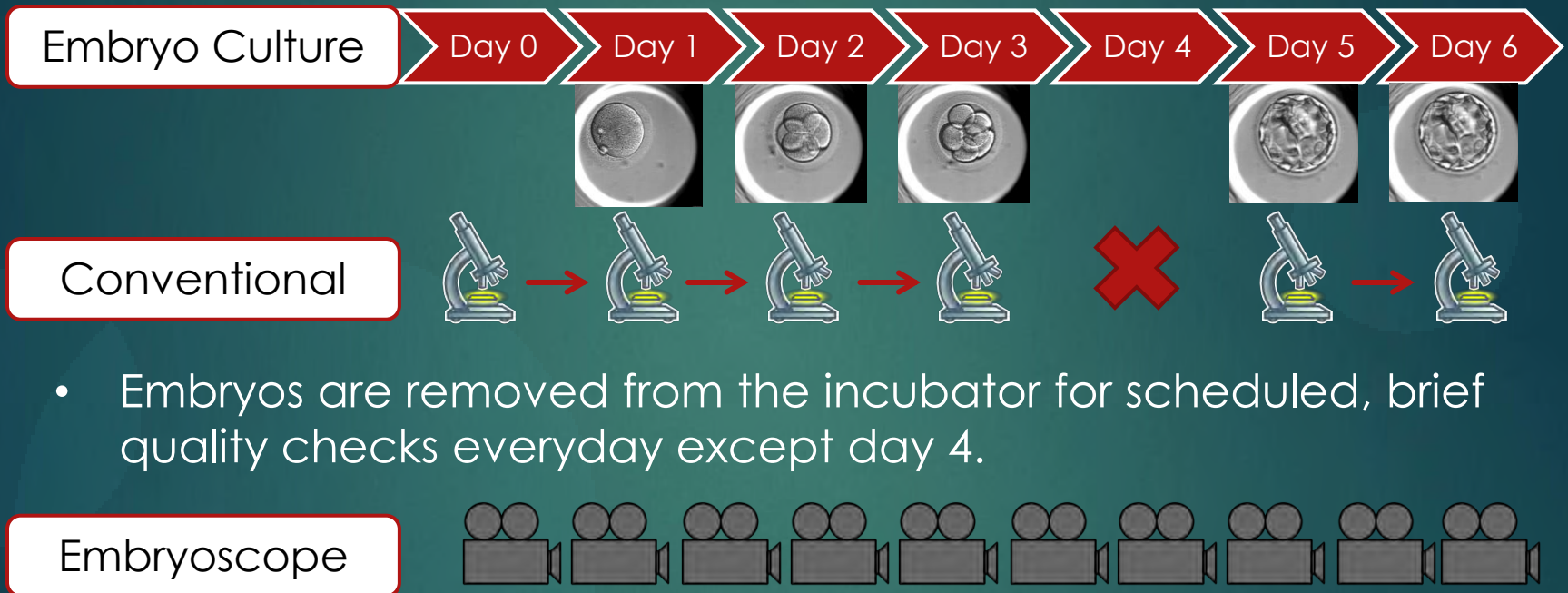
2 methods are used:

Conventional vs Embryoscope

The use of Embryoscope is not routine and there are extra fees. You should discuss this with the medical team.

<https://www.vitrolife.com/ivf-journey/evaluation/time-lapse/>

Conventional Embryo Culture vs Embryoscope



- Embryos are removed from the incubator for scheduled, brief quality checks everyday except day 4.

- With Embryoscope there is a continuous, uninterrupted observation of embryo development.

Preimplantation Genetic Screening (PGT-A)

- ▶ Preimplantation genetic testing (PGT) is a technique in which one or more cells are taken from an embryo for testing to provide information about the genetic make-up of the rest of the cells in that embryo.
- ▶ PGT-A can check for extra or missing chromosomes called aneuploidy. This test can find conditions like Down syndrome.
- ▶ The biggest advantage of PGT-A is to identify embryos with a higher likelihood of resulting in a successful and healthy pregnancy.
- ▶ Your physician will have discussed this with you if you need it.

IVF Process

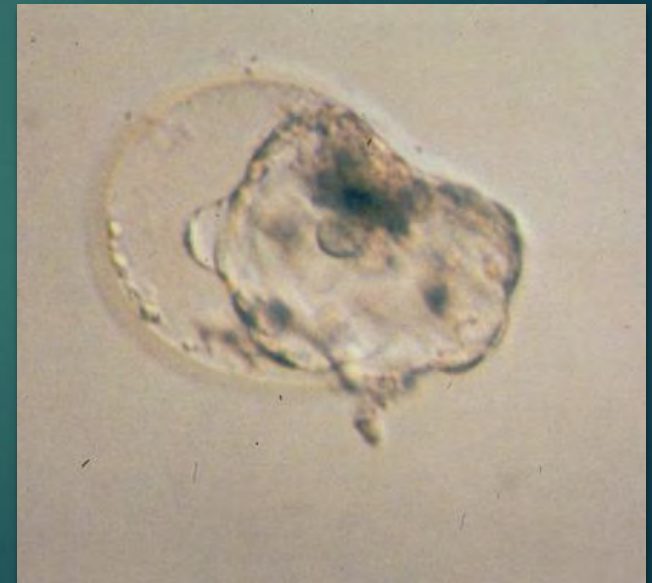
1. Hormone therapy
2. ultrasound monitoring
3. Trigger Shot
4. Egg retrieval
5. Fertilisation of the eggs
- 6. EMBRYO TRANSFER**
7. Pregnancy test
8. Viability ultrasound

Embryo Transfer

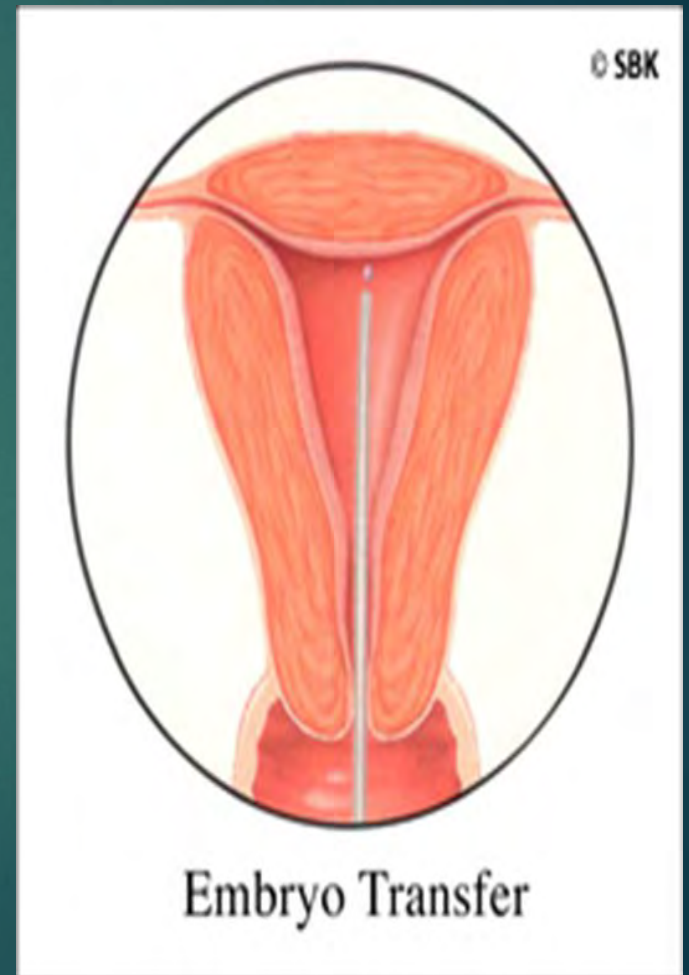
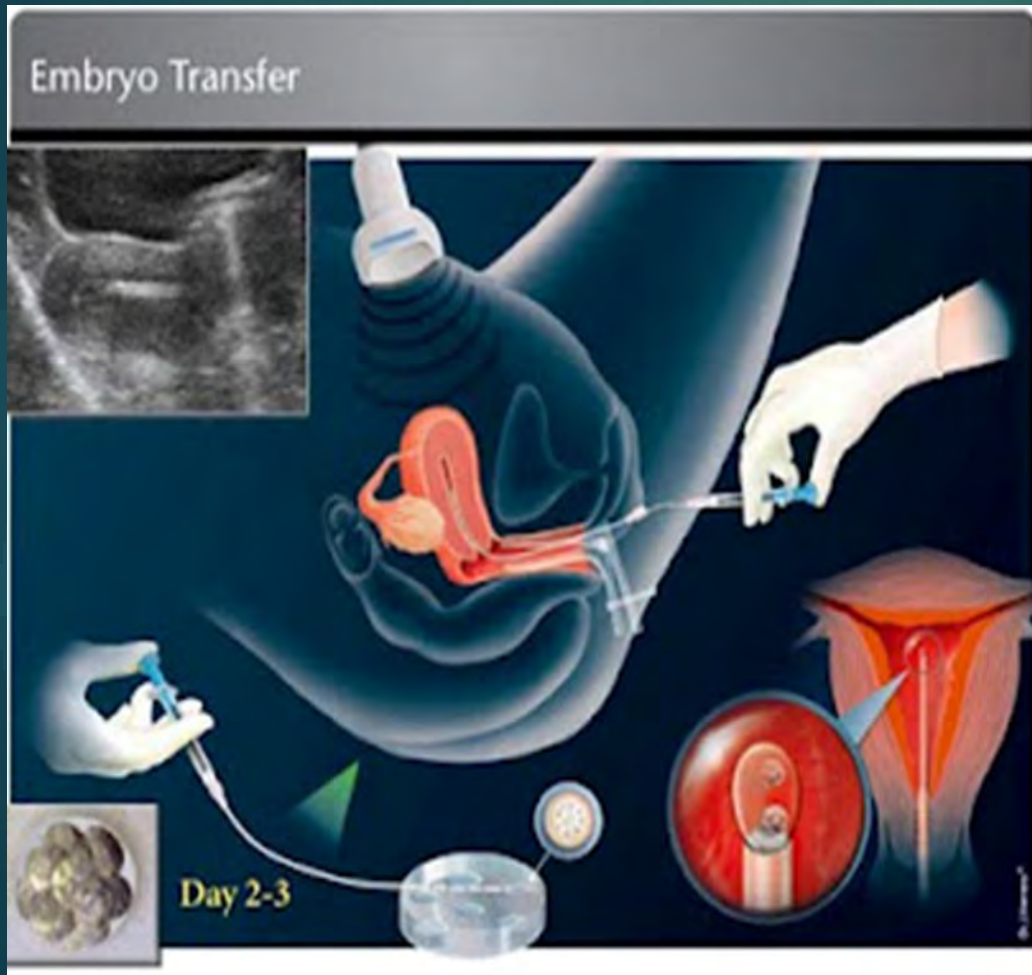
- ▶ Occurs 2-5 days after the egg retrieval.
- ▶ The best embryo is selected for transfer.
- ▶ When there are many embryos, waiting longer, until day 5, may help identify the “best” embryo (because poorer embryos will not survive until then).
- ▶ The decision about when to transfer the embryo is made on an individual basis and depends on the number and quality of embryos.
- ▶ The procedure (10-15 min) is not painful but may be uncomfortable due to the need of having a full bladder and a speculum inserted.
- ▶ The doctor can give you a “time off letter” from the day of transfer until the day of your pregnancy test.

Assisted Hatching

- ▶ The embryo naturally breaks out of this shell as it grows.
- ▶ Occasionally, the doctor may ask the laboratory to make a small “crack” in the outer shell of the embryo right before it is placed into the woman’s body (assisted hatching).
- ▶ The hope is that assisted hatching might help the embryo expand, implant into the uterine wall, and finally lead to a pregnancy.



Embryo Transfer



How Many to Transfer?

- ▶ As per the regulation of the Quebec Government, only 1 embryo will be transferred in all cases if you are under the age of 37.
- ▶ On RARE occasions, if you are over the age of 37 AND there are other medical reasons, 2 embryos may be transferred.
- ▶ Your treating physician will be the one to suggest the number of embryos to transfer based on your situation and the regulations.

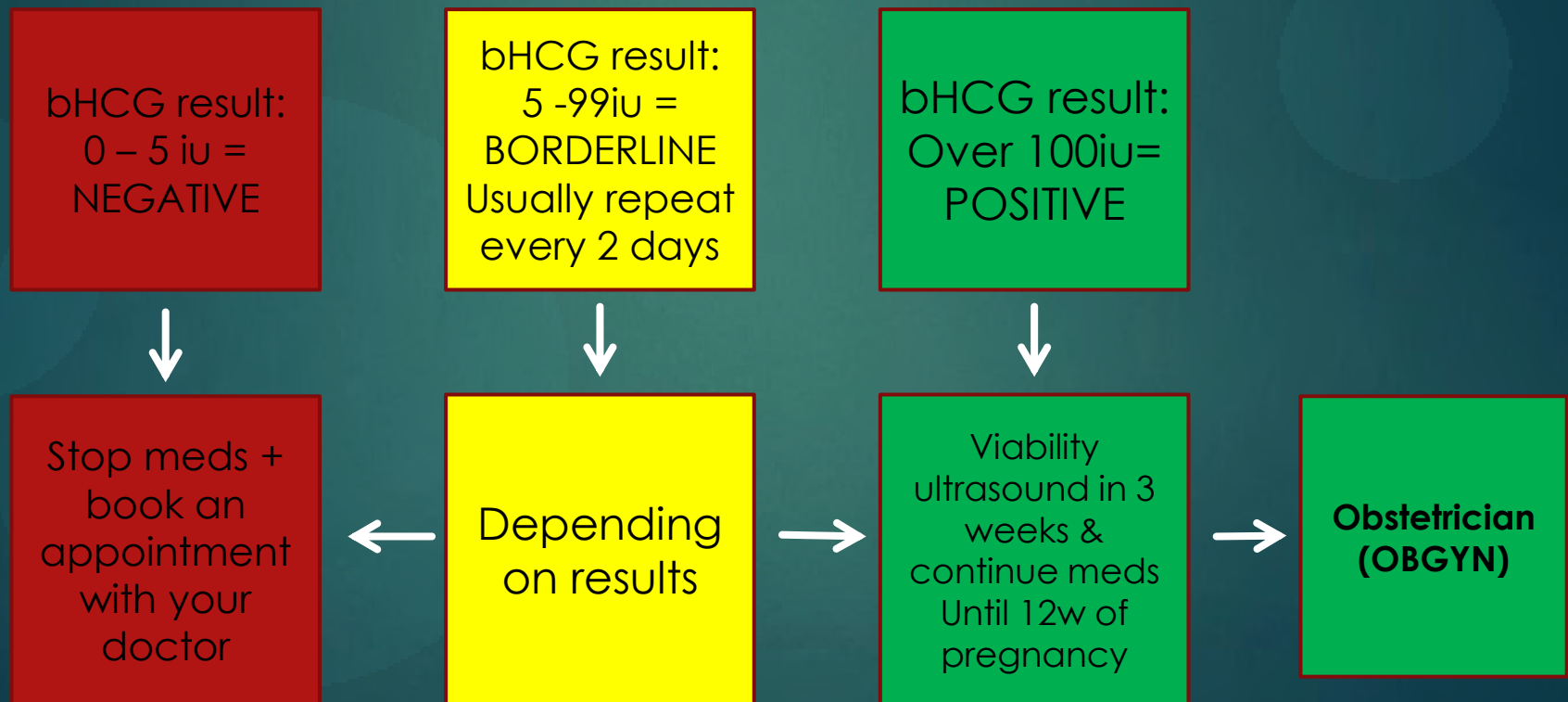
Embryo Cryopreservation (Freezing)

- ▶ Good quality surplus embryos remaining after transfer may be frozen for future use.
- ▶ Success rates with frozen embryo cycles are similar to fresh cycles.
- ▶ Rarely embryos do not survive freezing and thawing.
- ▶ Embryos can be kept into storage for many years (although if you want to use your embryos after 45 years old, you will need to undergo further evaluation).



Pregnancy Testing

Pregnancy blood test is done 16 days after your egg retrieval.



Viability Ultrasound

This ultrasound examination is done vaginally around the 7th week of pregnancy at our Center (3 weeks after your positive pregnancy test).

Purpose:

- ▶ Confirm location in the uterus (to rule out ectopic pregnancy).
- ▶ Determine the baby's gestational age (size corresponding to embryo transfer date).
- ▶ Determine single or multiple pregnancy.
- ▶ A heartbeat (flickering) can usually be seen on ultrasound at this stage.

This is the end of the journey through an IVF cycle. The next step will be to call your obstetrician. He/she will follow you for the rest of the pregnancy. We can provide you a referral as needed.

Risks of IVF treatment

The risks associated with an IVF treatment are low.

- ▶ Bleeding
- ▶ Infection
- ▶ Ovarian hyperstimulation (OHSS)
 - 1% of IVF cycles
 - May need to freeze all embryos and transfer at later date
- ▶ Ovarian torsion
- ▶ Blood clots
- ▶ Premature delivery / low birth weight
- ▶ Miscarriage
- ▶ Ectopic pregnancy

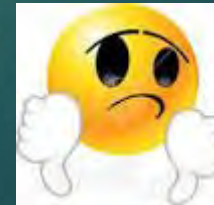
Lifestyle with IVF

(for both partners)

- ▶ Light to moderate exercise
- ▶ Eating well
(Nutritionist available)
- ▶ Relaxation technics



- ▶ Recreational drugs
- ▶ Smoking
- ▶ Excessive alcohol intake
- ▶ Overweight/underweight



Prices

IVF is not covered by RAMQ,
please refer to our price list under
Fees and Policies on our web site
or attached with this document.

Nursing Info-Line

A nurse is available to answer your questions concerning your treatment.

- ▶ Monday – Friday , call 514 843-1650 option 4.
- ▶ Have your hospital card ready.
- ▶ This service is not for scheduling appointments or renewing prescriptions.
- ▶ The nurse is not authorized to give medical results, only pregnancy test results.

Are you Immune to Rubella and Varicella?

- ▶ Part of the basic investigation we do at MUHC Reproductive Center are the tests to check for the woman's immunity against Rubella and Varicella.
- ▶ Vaccination for Rubella and Varicella is recommended for all women of reproductive age whose tests indicate a lack of antibodies*.

▶ [Read about Rubella screening before pregnancy](#)

▶ *we follow recommendations of the '*protocole d'immunization du Québec*' PIQ

Folic Acid

- ▶ Don't forget your folic acid
- ▶ 0,4 -1 mg every day
- ▶ Start 3 months before treatment if possible, don't stop.

[Read about folic acid supplements and pregnancy](#)



Research

- ▶ As part of the MUHC, we are committed to integrating excellence in patient care, teaching and research.
- ▶ You may be approached and invited to participate in a specific research study. You do not have to agree and it will not affect your care. As with most university ethically approved studies, there is usually no financial incentive.

Good Luck!

