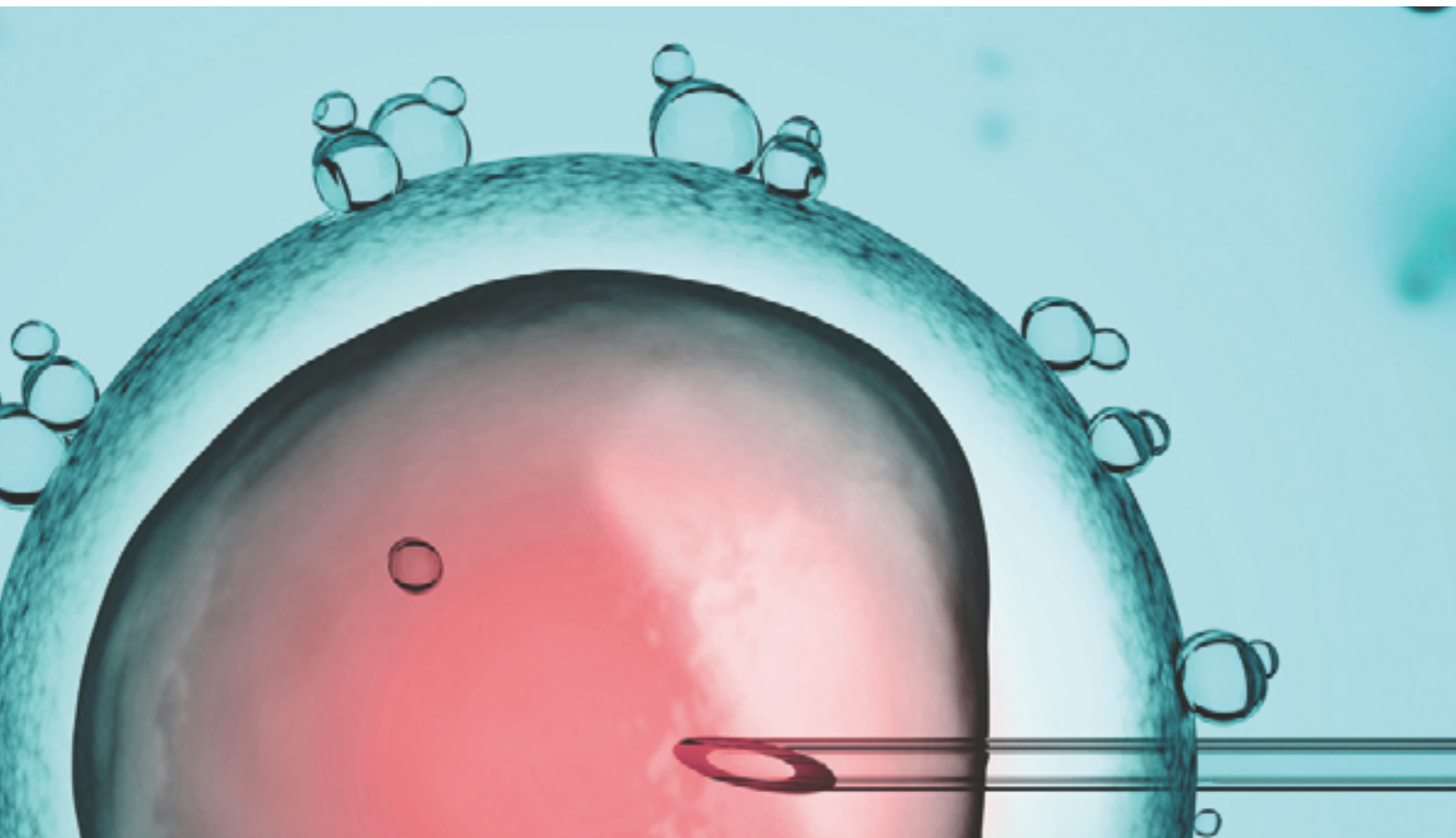


# MEDICALLY ASSISTED PROCREATION CENTRE

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## GENERAL INFORMATION



### CHIREC HOSPITAL GROUP

Chirec - Braine-l'Alleud - Waterloo Site

Chirec - Delta Site



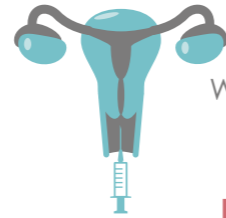
Centre de Procréation Médicalement Assistée

[www.chirec.be](http://www.chirec.be)

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# MORE THAN 30 YEARS OF INNOVATION



With the spouse

**INTRA-UTERINE  
INSEMINATION**

With a donor  
Sperm bank  
**(Anonymous donation)**

**ICSI AND  
TESTICULAR BIOPSY**

**CULTURE UNTIL  
5<sup>TH</sup> DAY :  
BLASTOCYST**  
*First centre in Belgium*

IntraCytoplasmic  
Sperm Injection (ICSI)

**1995**

Birth of the first baby  
after vitrification of morulae  
and blastocysts

**VITRIFICATION**

a new concept in cryopreservation  
avoiding the formation of crystals

**1996**

First baby  
**In Vitro Fertilisation**  
*Edwards - Steptoe - UK*

**1978**



**2011**

**SURROGATE  
MOTHERHOOD**



**1984**

First baby  
from frozen embryos  
*Zeilmaker -NI*

**1986**

Opening of the Edith Cavell  
MAP (Medically Assisted Procreation) centre

**2009**

IMSI (Intracytoplasmic Injection of Morphologically  
Selected Spermatozoa)  
Detailed selection of spermatozoa  
First use in Belgium

**CYCLES OF IN VITRO  
FERTILISATION**

**2008**

ISO 9001  
Certification

**2007**

Law on the MAP

**2003**

Reimbursement of laboratory  
procedures (B4)

Association with the  
Braine-l'Alleud-Waterloo Hospital

**1999**

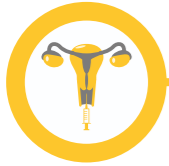
First publication demonstrating the  
beneficial effect of artificial reduc-  
tion of the blastocoelic cavity prior  
to vitrification.

**2008**

First publication on the development  
of aseptic vitrification and its appli-  
cation for all stages of embryonic  
development.

**2011**

First birth in Belgium after vitrification  
of oocytes.



## MEDICALLY ASSISTED PROCREATION CENTRE

### Chirec has two MAP centres

#### ACTIVITY ?

The internationally recognised Chirec Centre for Medically Assisted Procreation (MAP), opened more than 30 years ago, covers all the advanced technologies of In Vitro Fertilisation.

MAP centres consist of physicians specialised in reproductive medicine, nurses, midwives, secretaries and embryologists. They have broad areas of expertise, ranging from reproductive endocrinology to andrology.

The team works in close collaboration with patients' gynaecologists and other specialists (psychologists, geneticists, radiologists, anatomopathologists, endocrinologists, haematologists, obstetricians, ...) in the framework of multidisciplinary medicine aiming to provide optimal care to patients.

Chirec's collaborations enable it to cover broader requirements such as preimplantation diagnosis, preservation of ovarian tissue or the management of patients with positive serologies.

#### OVERALL CARE

- Comprehensive examinations of the male and female reproductive systems.
- Endometrial receptivity assessment.
- Ovarian reserve assessment.
- Reproductive ovarian stimulation.
- Intrauterine insemination of spermatozoa.
- Sperm capacitation.
- In Vitro Fertilisation (IVF).
- Intracytoplasmic Sperm Injection (ICSI).
- Intracytoplasmic Injection of Morphologically Selected Spermatozoa (IMSI).
- Cryopreservation of embryos by vitrification.
- Cryopreservation of female and male gametes.
- Hatching.
- Oncofertility (multidisciplinary management of fertility in cancer patients).
- Pre-implantation diagnosis, cryopreservation of ovarian tissue, positive serology (in academic collaboration).

#### SPECIFIC INTERVENTIONS

- Direct or anonymous oocyte donations.
- Embryo donations.
- Sperm donations.
- Social freezing (oocyte freezing for non-medical reasons).
- Preservation of oocytes or spermatozoa for medical reasons (cancer, decreased ovarian reserve).
- Testicular biopsies.
- Surrogate motherhood (SM).

#### PERSONALISED CARE

A medical consultant specialised in MAP will take care of you throughout your treatment: creation of your dossier, supervision of the stimulation phase, collection of gametes, embryo reimplantation and supervision of the progestative phase.

We take into account your private and professional activities and offer a wide range of consultation times (early morning or early evening </650).

#### SPECIAL CASES

If you are unable to attend your first consultation, the MAP Centre gives you the opportunity to establish a first contact by video conference with a medical consultant who will listen to you and answer your questions.

For more information, do not hesitate to pay a virtual visit to the MAP Centre on [www.chirec.be](http://www.chirec.be)

#### SOME NUMBERS

This year, the MAP Centre has performed:

- More than 1,700 intrauterine inseminations.
- Approximately 900 IVF and ICSI.

123...



## ACCESSIBILITY CRITERIA

### For Medically Assisted Procreation

#### ACCESS TO FERTILITY TREATMENTS

##### After the finalisation of:

- Comprehensive examinations of the male and female reproductive systems.
- Endometrial receptivity assessment.
- Ovarian reserve assessment.

##### We offer:

- Ovarian stimulation.
- Intrauterine insemination of spermatozoa.
- Sperm capacitation.
- In Vitro Fertilisation (IVF).
- Intracytoplasmic Sperm Injection (ICSI).
- Intracytoplasmic Injection of Morphologically Selected Spermatozoa (IMSI).
- Cryo-preservation of embryos by vitrification.
- Cryo-preservation of female and male gametes.
- Hatching.
- Oncofertility (multidisciplinary management of fertility in cancer patients).
- Oocyte donation (direct or anonymous).
- Embryo donation.
- Anonymous sperm donation.
- Social freezing (oocyte freezing for non-medical reasons).
- Preservation of oocytes or spermatozoa for medical reasons (cancer, decreased ovarian reserve)
- Testicular biopsies.
- Surrogate motherhood (SM).

#### ELIGIBILITY

- Not under the age of 18 (except for special medical exceptions).
- Same sex couples from the age of 18 years.
- Single women from the age of 25 years.
- Oocyte collection allowed up to 45 years of age.
- Oocyte stimulation and reimbursement of laboratory costs to 42 years of age (if the accessibility criteria are in order).
- Embryo transfer allowed up to 47 years of age.
- Men accepted up to 70 years of age.
- Consultations with the child psychiatrist or the psychologist in certain requests.

#### RECIPIENTS



- Heterosexual couples with infertility problems
  - 23% of female origin
  - 30% of male origin
  - 21% of mixed origin (both)
  - 26% idiopathic reasons
- Homosexual couples and single women.
- Women in the context of oncofertility (fertility and cancer).
- Women in the context of social freezing.
- Men in the context of oncofertility.

#### CONDITIONS

- Full investigation of all the genitors, with serology of less than 3 months.
- Visit to a child psychiatrist or psychologist, compulsory
- Serology of less than 3 months at the first attempt of treatment.
- Serology of less than one year for the following treatments.
- Signing of consent for all members of the parental project.



## SPERM DONATION

Sperm donation = gift of life

### WHAT IS SPERM DONATION?

Sperm donation is a practice of Medically Assisted Procreation that consists in the use of sperm from a man other than the one involved in the parental project, either because the latter cannot conceive with his own sperm or because there is no man in the initial parental project (single women, female couples).

### WHO IS THIS TYPE OF TREATMENT FOR?

**Sperm donation may be suitable:**

- For couples in which the man does not have sperm (azoospermia), has too few sperm cells (oligospermia) or sperm of too poor quality (teratospermia) to achieve a pregnancy despite access to In Vitro Fertilisation treatments.
- If the man has a serious genetic disease that could be transmitted to the child if using his own sperm.
- For single women who wish to have a child.
- For female couples who wish to have a child.

### BELGIAN LAW

Sperm donation is allowed for heterosexual couples, but also for single women and female couples. Anonymous donation is permitted as is directed donation resulting from a direct agreement between the donor and the recipient couple or the recipient. Sperm of the same donor may not lead to births in more than 6 different women (or female couples). The trade in sperm is prohibited. Once made, the donation is irrevocable and the donor has no legal right to or duty towards the child.

### WHO ARE THE SPERM DONORS

**Sperm donors are:**

- Either voluntary anonymous donors who wish to be able to help another couple to conceive. Donation is altruistic and donors are not paid. They receive only a small compensation for the loss of wages caused by the time required to donate.
- Or direct donors; it is usually a close friend of the couple who will give sperm directly to a woman or a couple, which will allow the child later to have access to its origins.

### WHAT ARE THE TESTS PERFORMED ON DONORS?

Anonymous donors must be between 18 and 45 years old. They will be received in consultation by a child psychiatrist or a psychologist, and by a physician specialising in reproductive medicine who will conduct a thorough questioning in order to evaluate their motivations and medical history and ensure that there is no risk of disease transmission to the child. A blood test will be carried out to detect sexually transmitted diseases, the most common genetic diseases (such as cystic fibrosis) and certain chromosome abnormalities via a karyotype.. The same tests are performed in directed donors.





## SPERM DONATION

Sperm donation = gift of life

### HOW IS THE TREATMENT PERFORMED IN PRACTICE?

- Sperm donors produce a sperm sample by masturbation. The sperm is then treated in the laboratory and frozen in straws. It is quarantined for the time required to ensure the absence of risk of sexually transmitted diseases.
- The donor sperm whose physical characteristics provide the best match is selected for treatment.
- If the woman does not have a fertility problem, the treatment consists of intrauterine insemination. At the time of ovulation, the sperm is thawed, then prepared and deposited inside the uterine cavity using a thin catheter.
- In some situations, it is necessary to resort to In Vitro Fertilisation (blocked tubes, severe endometriosis...). In this case, the woman's oocytes are collected and fertilised in the laboratory with the donor's sperm. The embryo(s) thus formed will then be transferred to the woman's uterus where they can attach and continue to develop.

### WHAT ARE THE RESULTS?

- The success of the pregnancy during the sperm donation procedure varies according to the age of the patient, the possible pathology and the quality of the embryo formed if an In Vitro Fertilisation is performed.

### WHAT IS THE COST OF THIS TYPE OF TREATMENT?

- The use of a sperm straw from a donor amounts to 175 euros. This cost is not covered by social security and is entirely borne by the couple or the woman.

### WHAT ARE THE RISKS?

- Sperm donation pregnancies are no different from pregnancies resulting from normal sexual intercourse. The rates of miscarriage or congenital malformations are identical.





## OOCYTE DONATION

Oocyte donation = gift of life

### WHAT IS IT?

Where a woman cannot or can no longer make a baby with her own oocytes, she can use an oocyte donation. Oocytes are then collected from another woman called «donor»; the oocytes are fertilised with the spermatozoa of the spouse or sperm donor and the embryos thus formed can then be transferred to the uterus of the «recipient», where they attach and continue to develop.

### WHO IS THIS TYPE OF TREATMENT FOR?

- Le don d'ovocytes peut être indiqué quand :**
- The woman has no more oocytes (premature ovarian failure or advanced age).
  - The woman has few oocytes and/or of poor quality, which makes pregnancy impossible despite In Vitro Fertilisation techniques.
  - The woman carries a serious genetic disease that could be transmitted to the child if she uses her own oocytes.

### BELGIAN LAW

The request for oocyte donation must be made before the age of 45. The transfer of donated embryos is possible up to the age of 47 years. The donation can be either directed (or known) from a donor introduced by the woman who needs it, or anonymous.

### WHO ARE THE OOCYTE DONORS?

In the case of a directed donation, it is most often a sister or close friend who wishes to help the recipient to have a child. In the case of an anonymous donation, it is most often an altruistic gesture in order to help a couple to have the blessing of becoming parents. In Belgium it is forbidden to trade in oocytes.

### WHAT ARE THE TESTS PERFORMED ON DONORS?

Oocyte donors must be of age and under 35 in case of anonymous donation and under 38 in case of direct donation. They are received in consultation by a child psychiatrist or a psychologist and by a doctor specialising in reproductive medicine; the latter will conduct a thorough questioning to verify their motivations and medical history and to ensure that there is no risk of transmission of diseases to the child. A blood test will be carried out to detect sexually transmitted diseases, the most common genetic diseases (such as cystic fibrosis) and certain chromosome abnormalities via a karyotype. The same tests are performed in directed oocyte donors.





## OOCYTE DONATION

Oocyte donation = gift of life

### HOW IS OOCYTE DONATION PERFORMED IN PRACTICE?

- The oocyte donor undergoes ovarian stimulation to increase several follicles and enable collection of several mature oocytes.
- This treatment is done by subcutaneous injections and lasts an average of two weeks. Response to treatment must be monitored by ultrasound and blood tests.
- At the end of this treatment, the oocytes are taken under general anaesthesia and fertilised with the sperm of the spouse or possibly that of a donor.
- The embryos thus obtained develop in the laboratory and are placed in the uterus of the recipient at 2 to 5 days of development. The number of embryos replaced is determined by law. The recipient will have received an oral treatment to prepare her endometrium to accommodate them.
- If other embryos have developed well, they may be kept frozen and subsequently given to the recipient if necessary.

### WHAT ARE THE RESULTS?

- The results of oocyte donation are good and are essentially dependent on the age of the donor. On average, more than 60% of recipients may be considered pregnant at the end of their third transfer.

### WHAT IS THE COST OF THIS TYPE OF TREATMENT?

- In the case of directed oocyte donation, the laboratory cost is borne by the recipient's mutual insurance if she meets the general criteria for IVF reimbursement. Drugs needed to treat the oocyte donor are not reimbursed. Costs associated with a directed oocyte donation amount to around 1,800 euros. These costs include the assessment, the stimulant medication and the donor oocyte collection, as well as the embryo transfer. If the recipient is more than 43 years old or has already used her 6 reimbursed IVF attempts, the cost is about 3,200 euros.
- In case of anonymous oocyte donation, the cost is about 4,000 euros if the recipient receives a reimbursement from her mutual insurance for laboratory costs and 5,500 euros if not.

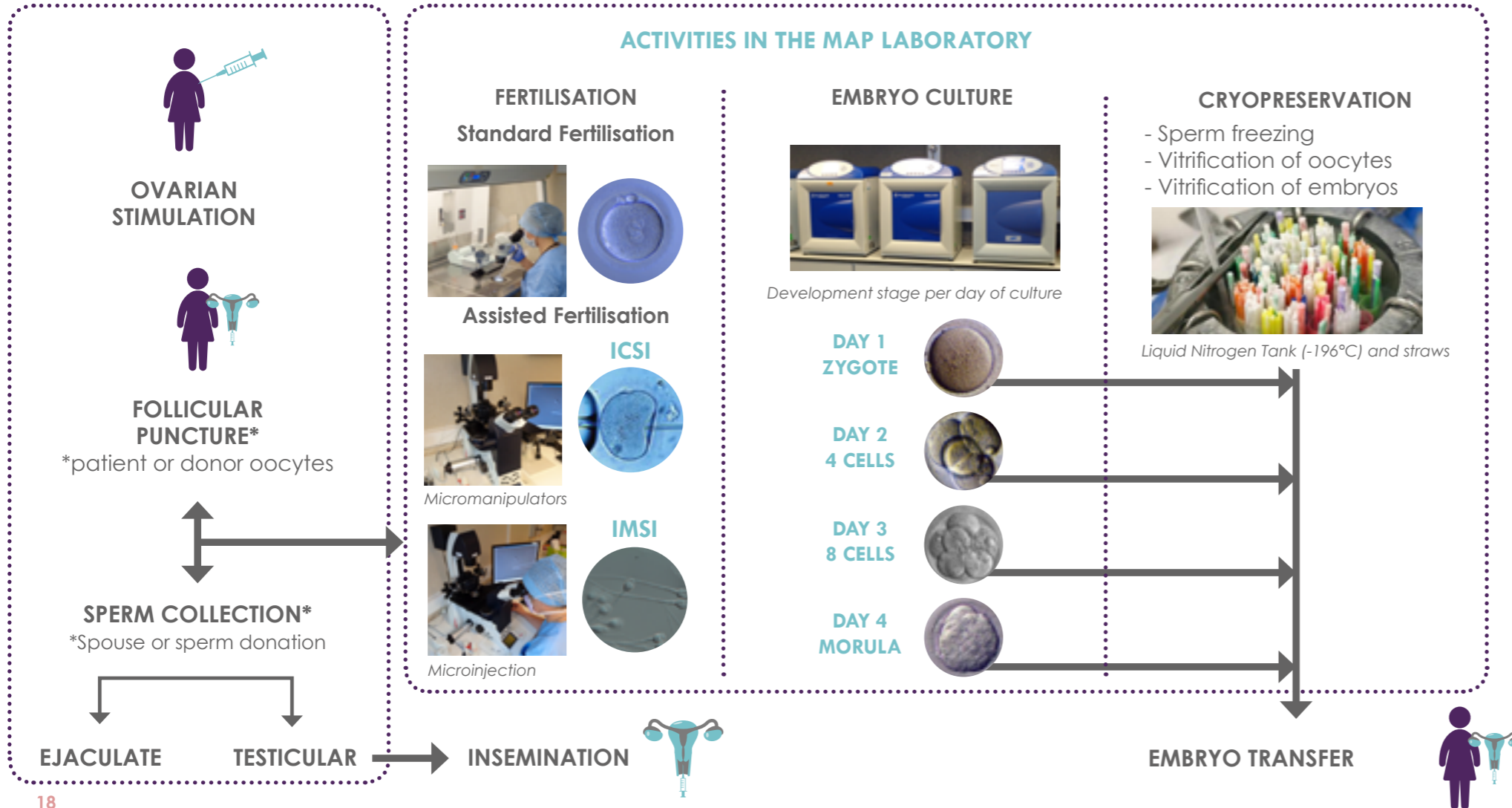
### WHAT ARE THE RISKS?

- Pregnancies obtained after an oocyte donation carry a little more risk. There is indeed a higher rate of hypertension, pre-eclampsia, foetal growth retardation and pregnancy diabetes. This is increasingly the case the older the recipient is at the time of pregnancy. A closer pregnancy follow-up is therefore proposed to the pregnant patient following an oocyte donation.



# IN VITRO FERTILISATION LABORATORY TECHNIQUES

## IVF & INSEMINATION CYCLE



## FOR WHOM?



Heterosexual couple



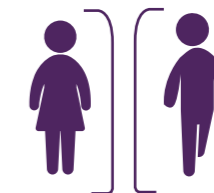
Single parent couple



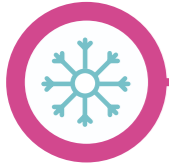
Female couple



Male couple (SM)



Co-Parenting



## SOCIAL FREEZING

*Today, the age of first pregnancy is increasingly late. Due to this social phenomenon, long studies or lifestyle choices with demanding professional priorities, more and more women are opting for social freezing.*

### WHAT IS SOCIAL FREEZING?

- Social freezing is the technique for freezing oocytes without a medical reason for later use. The term social freezing is used to distinguish it from the conservation of oocytes as part of gonadotoxic treatment (destruction of ovarian tissue). In that case we speak of oncofertility.
- The term social freezing is sometimes replaced by the term AGE «Anticipation of Gametes Exhaustion». It is therefore a prevention of age-related infertility, but it does not offer an absolute guarantee of maternity.

### STATISTICS

The best chances of becoming pregnant are before the age of 35, whether in a natural way or with in Vitro Fertilisation (including social freezing).

For social freezing, the chances of pregnancy with mature oocytes taken before age 35 is estimated at about 5%. Thus it is best to freeze about 20 oocytes to allow pregnancy.

These numbers decrease further with age. This is why the freezing of oocytes is not proposed in patients over 40 years of age.

There is currently no reimbursement provided by mutual insurance in the context of social freezing.

The laboratory costs of Medically Assisted Procreation, stimulation drugs and oocyte conservation remain the responsibility of the patient.

### HOW DOES IT WORK?

- Social freezing is carried out in the same way as standard In Vitro Fertilisation treatment with stimulation by daily drug injections under the skin for about 11 days.
- The oocytes are then removed by the vaginal route under local or general anaesthesia during a day hospitalisation..
- When the patient decides, she asks for her oocytes to be thawed for a fertilisation with the sperm of her companion or the sperm of a donor. Once the embryos are obtained, they are transferred according to the maximum number prescribed by law.



## ONCOFERTILITY

### Cancer and fertility

Some treatments used for cancers have negative effects on the future fertility of female (and male) patients. Treatments such as chemotherapy or radiotherapy can have toxic effects on the ovarian reserve (the gamete stock in the ovaries).

The age at the time of diagnosis and at the beginning of cancer treatment is therefore crucial for reproductive medicine specialists to know which techniques, in agreement with the oncologists, to propose to their patients to preserve their fertility.

Multidisciplinary management of fertility at the time a cancer is found can be defined as oncofertility.

#### SEVERAL TECHNIQUES ARE THEN AVAILABLE TO PATIENTS DEPENDING ON THE ANTI-CANCER TREATMENTS PROPOSED:

##### - Cryopreservation of ovarian tissue:

Cryopreservation of ovarian tissue is the technique used for laparoscopic removal of a fragment of an ovary under general anaesthesia. This technique can only be proposed to patients under 36 years of age where urgent chemotherapy treatment is required. It is the only way to preserve fertility in prepubertal patients. Part of the removed tissue is analysed to ensure the absence of malignant cells, the rest is frozen.

After the chemotherapy, if the patient does not regain normal periods, the previously frozen tissue is grafted by the same laparoscopic technique.

##### - Freezing of oocytes and embryos:

The patient may not necessarily have met the father of her future children at the time her cancer is found. It is possible in this case to cryopreserve oocytes for a legal period of 10 years.

If the couple is already formed and desires pregnancy, it is possible to freeze embryos. In this case the preservation period is 5 years.

Oocyte collection is performed as a straightforward In Vitro Fertilisation collection under local or general anaesthesia (with or without stimulation).

Where oocytes are frozen, after the patient has healed and if she so desires, the oocytes are thawed and fertilised with the sperm of a partner or sperm donor.

Where embryos are frozen, after healing and when the couple so desires, the embryos are thawed and transferred to the uterus (legal maximum of 2 embryos transferred at a time).

##### - In vitro maturation:

This technique makes it possible to recover oocytes at an immature stage as during a standard follicular puncture, but with specific technical modifications used.

The oocytes are then matured in the laboratory to a set stage when they can be frozen or fertilised with spermatozoa. This technique can also be used when collecting ovarian tissue.

As with the freezing of oocytes and embryos, the use is possible as soon as the patient is cured.

During all these treatments it is possible to use ovarian stimulation as in In Vitro Fertilisation. In view of the hormone-sensitive nature of some cancers, anti-oestrogen medications may be added so as not to limit the use of different fertility preservation techniques.

The choice of these treatments is made with the patient or the couple, in agreement with a multidisciplinary team of oncologists, radiotherapists, psychologists and specialists in reproductive medicine.

In the case of male patients, one or more sperm samples are produced by masturbation and then treated in the laboratory, to finally be frozen in straws.

#### MORE INFORMATION ON :

<http://www.family-hope.be/fr/>



## FERTILITY AND ENVIRONMENT

Tobacco, GSM waves, age, obesity, endocrine disruptors...

### TOBACCO AND FERTILITY

- Tobacco has a negative impact on fertility at different levels:
- **Tobacco and spermatozoa:**
  - Decrease in sperm quality parameters.
- **Tobacco and ovarian reserve:**
  - Decreased ovarian reserve.
  - Earlier menopause.
- **Tobacco and In Vitro Fertilisation:**
  - Fewer oocytes obtained.
  - Fewer live births?
  - More miscarriages.
  - More extrauterine pregnancies
- MAP failure rates are therefore higher in patients who smoke.

### MOBILE PHONE AND FERTILITY

- **Impact of mobile phone exposure on spermatozoa**
- In vitro and in vivo studies suggest a negative effect of human exposure to mobile phone on sperm quality. Mobile phone exposure might be associated with an 8% decrease in sperm mobility and a 9% decrease in their survival. Meta-analyses are still needed to validate all of these data.
- **Mobile phone exposure on female reproductive cells**
- Studies appear to show a decrease in follicle reserve in groups exposed to electromagnetic waves.

#### • Risk of miscarriages

• Studies show a link between mobile phone exposure and early miscarriages.

#### • Fertility of our children and the mobile phone

• It's important to educate adolescents about the potential dangers of mobile phone impact on their future fertility.

• This fact is still little known but could cause deleterious effects on our future generations.

### AGE AND FERTILITY

- In Western countries, for societal reasons, the age of the first pregnancy gradually increases. However, optimal fertility is between 18 and 31 years of age and decreases with time. This decline is accentuated around 35 years and plummets around the age of 40.
- Reduced chances with MAP
- In Vitro Fertilisation may not always be an answer to decreased ovarian quality. The quality and quantity of the oocyte reserve decreases with the woman's age.

### OBESITY AND FERTILITY

#### • Male obesity

• The Body Mass Index (BMI) has an impact on sperm quality. Male obesity = decreased quality of sperm parameters.

#### • Female obesity

• An excessive BMI is responsible for a decrease in the In Vitro Fertilisation pregnancy rate, a decrease in live births, an increase in miscarriages and an increase in the time needed to conceive.



## FERTILITY AND ENVIRONMENT

Tobacco, GSM waves, age, obesity, endocrine disruptors..

### ENDOCRINE DISRUPTORS AND FERTILITY

#### What is an endocrine disruptor?

It is an exogenous substance (or mixture) that impairs the function of the endocrine system and, therefore, has adverse effects on the health of an intact organism, on its offspring.

#### Which are the endocrine disruptors?

##### In industry:

- Dioxins, Polychlorinated biphenyls (PCBs).
- Nonylphenols.

##### In agriculture:

- Pesticides, insecticides: DDT, Lindane, Methoxychlor.
- Herbicides, fungicides: Atrazine, Vinclozolin.
- Phytoestrogens: Genistein, Coumestrol.

##### In the home:

- Plastics: Phthalates.
- Resines, plastics: Bisphenol A.
- Insulation: Polybrominated biphenyls.
- Cosmetics: Parabens.
- Contraception: synthetic oestrogens

#### What is the impact of endocrine disruptors on our fertility?

##### In men:

- Decreased fertility and sperm quality with considerable geographical variations.
- **If the baby is a boy:** increased hypospadias, cryptorchidism and testicular cancer. This triad is called gonadal dysgenesis syndrome, probably due to an early deficit of androgenisation.
- Foetal life represents a window of sensitivity to the effects of endocrine disruptors on spermatogenesis.
- Increased risk with sedentary lifestyle and obesity.

##### In women:

- Puberty seems increasingly early. The increase in early puberty may be due to endocrine disruptors.
- In humans, there is still little evidence of an effect of endocrine disruptors on folliculogenesis (follicle development) whereas data in rodents suggest such effects.

### CAFFEINE AND FERTILITY

Too high caffeine intake in women during peri-conception causes an increase in the rate of miscarriage.

Caffeine consumption in the future father may also be associated with an increase in the rate of miscarriage.







# THE CHIREC HOSPITAL LANDSCAPE

## OUR HOSPITAL SITES BRUSSELS



### DELTA Site

Boulevard du Triomphe, 201  
1160 Brussels



### STE-ANNE ST-REMI Site

Boulevard Jules Graindor, 66  
1070 Brussels

## BRABANT WALLON



### BRAINE-L'ALLEUD - WATERLOO Site

Rue Wayez, 35  
1420 Braine-l'Alleud

## OUR ONE-DAY HOSPITAL SITES BRUSSELS



### BASILIQUE Clinic

Rue Pangaert, 37 - 47  
1083 Brussels



### EDITH CAVELL Medical Centre

Rue Général Lotz, 37  
1180 Brussels

## OUR MEDICAL CENTRES BRUSSELS



### PARK LEOPOLD Medical Centre

Rue Froissart, 38  
1040 Brussels



### EUROPE - LAMBERMONT Medical Centre

Rue des Pensées, 1-5  
1030 Brussels



### CITYCLINIC CHIREC Louise

Avenue Louise, 235B  
1050 Brussels

## BRABANT WALLON



### JEAN MONNET Medical Centre

Avenue Jean Monnet, 12  
1400 Nivelles