Why Us?

- **Phenomenal Success Rates**
  The CRGH is a leading IVF centre with over 24 years of experience in assisted conception. We have one of the highest success rates in the UK.

- **Individualised Treatment Regimen**
  A lead consultant personalises treatment programmes for each patient optimising individual success.

- **7-day-a-week service**
  Critical procedures such as egg collections and embryo transfers are performed on the most advantageous day thus resulting in better chances of conception.

- **State of the Art Laboratory Techniques**
  The CRGH has the latest technology in the laboratory to perform blastocyst culture, intracytoplasmic morphologically selected sperm injection (IMSI), array CGH and karyomapping.

- **Donor Egg and Sperm banks**
  The CRGH developed the UK’s first donor egg bank.

- **Pre-Implantation Genetic Diagnosis**
  The CRGH leads in the field of PGD and pioneered the diagnosis which led to the first babies in the UK born free of specific cancer genes. We also reported the first pregnancy in Europe using the karyomapping procedure.

- **Centrally Located**

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Open Evenings

The Centre for Reproductive and Genetic Health (CRGH) holds an Open Evening at the unit

Prospective patients will be able to meet members of staff. A presentation will be given by one of our doctors and you will receive information about the various treatments and services available.

If you are interested in attending one of our Open Evenings, please telephone the Centre in advance on 020 7837 2905 to arrange your visit as numbers are limited.

This brochure has been prepared to help you understand the different aspects of assisted conception treatment and to introduce you to the Centre. Further information is available on our website, www.crgh.co.uk and our staff are always happy to answer any queries you may have.
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The Centre for Reproductive and Genetic Health | www.crgh.co.uk 2
The Centre for Reproductive and Genetic Health has been offering a comprehensive range of successful assisted conception treatments since 1990. We are proud of our continued success in this field and our dedicated team works hard to ensure continuity of care for patients whilst giving each individual the maximum chance of achieving a pregnancy.
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INVESTIGATIVE SERVICES
- Semen Analysis
- Hormone tests
- Ovarian Reserve Test
- 3D Saline Infusion Sonography (SIS)
- 3D HyCoSy
- Hysteroscopy
- Laparoscopy
- Post Coital Tests
- Vaginal and abdominal ultrasound scanning
- Follicular Tracking
- Endometrial Assessment
- Reproductive Immunology
- Pregnancy scans
- Harmony test
- Endometrial Receptivity Array (ERA) Test
- Recombine

INFERTILITY SERVICES
- Induction of ovulation
- Intrauterine Insemination (IUI)
- Superovulation and Intrauterine Insemination
- Reversal of Vasectomy

ASSISTED CONCEPTION
- In Vitro Fertilisation (IVF) – Medicated and Natural Cycle
- Intracytoplasmic Sperm Injection (ICSI) – Medicated and Natural Cycle
- IMSI
- Egg and Sperm Donation
- Preimplantation Genetic Diagnosis (PGD)
- Aneuploidy Screening (PGS)
- Egg, Sperm and Embryo Freezing
- Assisted Hatching
- Blastocyst Embryo Transfer
- Embryoscopy
- Percutaneous Epididymal Sperm Aspiration (PESA)
- Micro-Epididymal Sperm Aspiration (MESA)
- Testicular Sperm Extraction
- Testicular Sperm Aspiration
- Surrogacy

The skill and experience of our team of leading Consultants and Scientists has ensured that the Centre is at the forefront of clinical excellence and research.

Our collaboration with the Genetics Team at University College London (UCL Centre for PGD) has led to us being World-Class leaders in the pioneering of new techniques, such as Preimplantation Genetic Diagnosis (PGD).

The Centre was awarded a Millennium Products Award for its creative and innovative G-Test.

Patients can be seen for initial consultation within a short period, usually not more than ten days, following which treatment can commence. Staff will arrange treatment programmes to suit each patient’s individual requirements.

LABORATORY
The Laboratory within the Centre has been set up to include the most up-to-date equipment for handling gametes, freezing sperm, eggs and embryos, intracytoplasmic sperm injection, intracytoplasmic morphology selected sperm injection and embryo biopsy. We have highly accomplished embryologists and a considerable amount of time and effort has been invested in the Laboratory in order to maintain the highest possible standards. We now have one of the most sophisticated air filtration systems in the country. Our excellent success rates reflect this.

THEATRE
Our theatres have been refurbished to the highest standard and now boast the most up-to-date facilities.

APPOINTMENTS
For appointments please ring the Centre for Reproductive and Genetic Health on 020 7837 2905. If applicable, referrals should be made through your General Practitioner or through your Consultant and addressed to:

Mr. Paul Serhal
Consultant Obstetrician & Gynaecologist Medical Director
The Centre for Reproductive and Genetic Health

We offer Skype consultations to both local and overseas patients. To book an appointment call 02078372905.

EMERGENCIES
Outside of our normal hours and at weekends there is always a doctor on call. Should you wish to contact the on-call doctor, the mobile phone number is: 07801079524.

PUBLICATIONS
Senior staff associated with the Centre have published widely in the subject area of infertility and its research. Please see the web site for a full list. Items include the following books:

Good Clinical Practice in Assisted Reproduction

Infertility (the Facts)
Melanie Davies, Lisa Webber and Caroline Overton, Oxford University Press (2008)

Preimplantation Genetic Diagnosis
The Process of Conception

For many people, having a baby and creating a family is the greatest achievement of their lives. So it’s not uncommon for them to plan their families carefully, waiting until the time is just right to fall pregnant.

Most couples assume that once they stop using contraception, pregnancy will happen quickly. In fact about 85% of couples do conceive in the first year. But the reality is that couples experience difficulties in getting pregnant far more often than people realise. At some point in their lives, at least 1 in 6 couples will experience some degree of infertility.

Pregnancy is a complex process that depends on many factors:
- the production of healthy sperm by the man and healthy eggs by the woman;
- unblocked fallopian tubes that allow the sperm to reach the egg;
- the sperm’s ability to fertilise the egg when they meet;
- a genetically healthy embryo; and
- the ability of the embryo to implant in the uterus.

Repeatedly encountering difficulty at any of these steps can lead to infertility. This can be ‘complete’ (also called ‘sterility’), which means you cannot get pregnant without help. Or it can be ‘incomplete’, (also called ‘sub-fertility’), which means that there is no absolute barrier but that the odds are reduced compared with the norm and getting pregnant will take more time - sometimes too much time.

FIRST VISIT

You should allow about one and a half hours for your first visit to the Centre. When you arrive you will be asked to complete a registration form and where appropriate, the male partner will be asked to produce a semen sample for analysis. We have a private room available for the production of semen samples and we would ask that you refrain from sexual intercourse for approximately 2/3 days before your initial consultation so that we can obtain an optimum sample.

On your first visit you will need to bring with you identifying documentation - your passport, driving licence or NHS card - and appropriate means of payment for any fees due that day. It is the Centre's policy that payment for treatment and consultations should always be made in advance.

You will be asked to agree to the disclosure of identifying information about you to our reporting bodies, including the Human Fertilisation and Embryology Authority (HFEA), and to give written consent for our regulators and auditors to have access to your files. You will also be invited to consent to our sharing necessary information with your General Practitioner (GP).

During the consultation that follows, your medical history will be confirmed and you will be examined. The results of the semen analysis will be available during the consultation and an overview of your fertility problem can then be undertaken. During your first visit we will ask you for some background information, i.e. how long you have been living together, how many children you have in this or any other relationship, or whether there are any health problems that might influence a pregnancy or your ability to raise a child. Occasionally, there may be some information you do not wish to share with your partner or GP. Please remember that everything you tell us is strictly confidential.

When your fertility problem has been fully assessed, you will be advised by the Doctor as to the various options for treatment. Following your consultation, the Nurse Co-ordinator will go through your drug regime with you and will organise your care.

Reference is made throughout this brochure to a ‘treatment cycle’. A treatment cycle being one round of treatment usually running over two menstrual cycles.

WELFARE OF THE CHILD

The Centre for Reproductive and Genetic Health is a licensed centre for the treatment of fertility problems, and as such we are required by the Human Fertilisation and Embryology Authority to take all necessary steps to ensure that the welfare of any child who may be born as a result of treatment, and of any other child who may be affected by the birth, is taken into account.

In order to help us fulfil this obligation you will be asked to complete a questionnaire before seeing the Consultant.

HIV AND HEPATITIS B AND C TESTING

In line with regulations from the HFEA on the welfare of the child, it is now the policy of The Centre for Reproductive and Genetic Health to test all patients for HIV and Hepatitis B and C before they undergo treatment.

CONSENT FORMS

Once a recommended mode of treatment has been agreed, you will be taken through the relevant consent form. You will be asked to sign this form only after you have had the chance to read it through carefully. We would suggest that your return visit to the Centre a week or so before the start of your treatment cycle would be an ideal time for this. Signing the consent form does not commit you to anything and you are free to change your mind at any time. All procedures and consent forms are employed in accordance with regulations and legislation.

Under the Human Fertilisation and Embryology Act 2008, the partner of a patient who will be receiving treatment using donor sperm, or embryos created using donor sperm, can be the legal parent of any child born from the treatment. Parenthood is presumed for the partner when the couple are married or in a civil partnership. However, if the couple are not married nor in a civil partnership, then both must give written consent for the partner to be considered the legal parent. This will be possible at the outset of the treatment.

CHAPERONE

Patients will be asked to give verbal consent to all intimate examinations and will be offered a chaperone if undergoing such an examination. You may bring a friend or relative with you if you so wish.
RESEARCH
In an attempt to improve the prospects of pregnancy for couples requiring assisted conception, a certain number of clinical trials and research projects are being undertaken in the Centre. For those entering trials, the quality of care will in no way be reduced and your co-operation would be greatly appreciated.

COUNSELLING
We fully expect that you will have a lot to discuss when you leave the Centre after the initial consultation. We therefore advise that you return to the Centre one or two weeks before your treatment cycle so that any problems, anxieties or queries can be aired and hopefully resolved. Members of staff are always happy to answer questions at all times during the treatment cycle and to provide a support network for you during this stressful time.

A first source of support and advice may be our Nurse Co-ordinators, who are always available to discuss any anxieties or queries that you may have about your treatment.

Needing medical help to conceive can feel like a crisis, often suffered in secrecy. Many usual channels of support may seem unavailable; friends seem to be having babies with ease, parents are wishing to become grandparents; the workplace may not be sympathetic to the frequent absences you will encounter; you and your partner may be finding the stress and anxiety interfere with your usual ways of relating to and supporting each other; sex may have become a timed chore.

You may both have already gone through tests and investigations that intrude into the most private and intimate areas of your bodies and your lives. You may have spent hours, weeks or years waiting.

Taking some private time and space with a trained counsellor is not about ‘not coping’. It is an opportunity to look in the broadest sense at the issues in your lives that have been raised because of the situation you are now facing. You may want to air the anger, grief, desperation, isolation and envy, so these feelings do not get bottled up and then come out in other areas of your life that would not be appropriate or helpful. It is sometimes much easier and feels safer if there is an understanding third party there with you. You might also want to share the excitement, joy and ambivalence, fears and relief of successful treatment.

Counselling is friendly, personal and confidential. It is not being told what to do, feel or think. You are not being judged or assessed. You are taking an active role in a process that so often can leave you feeling frustratingly inactive.

Our independent Counsellors can be contacted directly. Their details are on The CRGH website.

If you are receiving or giving eggs, sperm or embryos, you will be expected to see them and discuss the implications of this decision.
Pre Conception Advice

You can potentially boost your chances of conceiving by making sure your body is healthy enough to become pregnant and support a developing baby.

Both men and women can make lifestyle changes that may make them more likely to conceive. All women who are trying to conceive should have 400 mgm of folic acid daily to prevent the baby from having neural tube defects. In addition to that you should also be immunised for Rubella infection.

**Eat Healthily**
A balanced diet will help ensure your body is healthy enough to become pregnant and can also help to keep sperm production at optimum levels.

**Exercise Regularly**
Regular exercise will keep you fit and help you to maintain a healthy weight. It can also help to reduce your stress levels, in what can be an emotionally draining situation.

**Drink Sensibly**
Alcohol may affect fertility and sperm quality, so aim to limit your drinking to the government guidelines of two to three units a day for women and three to four units a day for men.

**Medication and Drugs**
Some prescription drugs can reduce your chances of conceiving, so if you are taking regular medication ask you GP about suitable alternatives. All illegal drugs should be completely avoided.

**Stop Smoking**
Smoking has been linked to infertility and early menopause in women, and has been shown to reduce sperm quality. It is also a factor in premature low birth-weight babies.

**Keep Cool**
For maximum sperm production, the testes should be a couple of degrees cooler than the rest of your body. It may help to avoid tight-fitting clothing, saunas and hot showers.
Preparation Cycle

**ASSESSMENT OF OVARIAN RESERVE - ORT**

Female fertility is generally accepted to decrease with increasing age and the fall in fertility starts by the age of 35 years. However, fertility is not only related to chronological age, but also to the process of egg depletion and diminished egg quality - factors referred to as ‘ovarian reserve’. It is this potential that declines with age, and which may be manifest in subtle ways, but its onset is highly variable. Ovarian function is unique for each individual, both in the number of years of peak performance and in the onset and progression of its decline. Some women encounter difficulty conceiving whilst still in their late twenties or early thirties. The decline in ovarian function may progress despite seemingly normal regular menstrual cycles and serum progesterone levels.

Until now it has not been possible to define how far individual patients have progressed through the process of depleting their ovarian reserve. Traditionally Gynaecologists have relied on a single parameter to assess the ovarian reserve, which is a measure of the basal Follicle Stimulating Hormone (FSH) levels in the blood in the early follicular stage of the menstrual cycle (days 2-5). However, women with baseline values in the normal range may indeed have diminished ovarian reserves and might be lulled into a false sense of security as to their prospects of starting a family.

The Centre’s innovative ‘G-test’ was developed as a test of the ovarian reserve, which is a measure of the basal Follicle Stimulating Hormone (FSH) levels in the blood in the early follicular stage of the menstrual cycle (days 2-5). However, women with baseline values in the normal range may indeed have diminished ovarian reserves and might be lulled into a false sense of security as to their prospects of starting a family.

We consider that the ORT is indicated for all subfertile women and for those with a family history of early menopause. It is not, however, intended to be used as a guide when deciding whether or not to delay starting a family for women over the age of 35 years. Even with a normal ORT result, we strongly recommend starting a family sooner rather than later.

**DUMMY EMBRYO TRANSFER**

The Dummy Embryo Transfer is a trial run for the process of embryo transfer. This is necessary to establish whether the actual transfer will be likely to encounter difficulties. It also allows us to take measurements and/or note any deviations of the uterus. When the time comes for the actual embryo transfer, this information allows us to proceed with the least amount of trauma to the fragile embryos.

**3D SALINE INFUSION SONOGRAPHY (SIS)**

3D SIS is a procedure often performed in conjunction with the dummy embryo transfer. It allows accurate assessment of the endometrial cavity.

The results can be categorised into good, sub-optimal or poor response.

These tests are now applied clinically at the Centre as a guide for determining the optimal dose of fertility drugs for women undergoing IVF treatment. The ORT, is now performed in the Centre on all patients prior to undergoing IVF treatment, and helps us to:

- Predict the exact dosage and protocol of fertility drugs for a patient;
- Identify excessive responders and therefore reduce the risk of hyperstimulation;
- As a prognostic factor for the treatment of subfertile couples.

“The Staff as a whole make you feel at ease at such a trying time.”

Stratford, London
The IVF and ICSI Cycle

Down-Regulation Medication

After undergoing pre-IVF investigation, the female will start down-regulation in the month of preparation. Down-regulation involves taking medication to prevent the ovaries from forming cysts before stimulation is started.

Stimulation of the Ovaries

In a natural cycle only one egg is produced each month. In IVF and ICSI, the chances of achieving a pregnancy are increased when more than one embryo is obtained, so that we can choose the best embryo to replace into the womb. Hence, IVF drugs are used to stimulate the ovaries to produce more than one egg during the treatment cycle. Different drug regimes are used to stimulate ovulation. The Doctor treating you will explain which regime would be most appropriate, this decision being dependent on various factors, including your age and hormonal status.

A leaflet detailing the specific drug regime will be given prior to the start of the treatment cycle.

Partners are welcome in the Centre at all times and should they wish to be more actively involved, it is possible to teach them to give the injections described above.

Assessing the Growth of Follicles

Each egg grows in a small balloon-like fluid-filled sac called ‘follicle’ in the ovary. With adequate drug stimulation, the follicle will gradually increase in size. The growth is monitored by regular ultrasound scanning. You will usually require four or five scans during a treatment cycle.

Patients will require a blood test for Oestradiol monitoring during stimulation to assess their hormonal response to treatment.

Ovarian Hyper-Stimulation Syndrome (OHSS)

Ovarian Hyper-Stimulation Syndrome (OHSS) is a complication resulting from the use of fertility injections (Gonadotrophins). Over-stimulation of the ovaries is most likely to occur in young women with polycystic ovaries who have plenty of eggs available. An ultrasound scan before starting the treatment can tell whether a woman has polycystic ovaries.

During your treatment cycle you will have scans to monitor your progress. If it looks as though the ovaries are over-responding to the drugs then this will be discussed with you. Depending on the stage of your stimulation, you will be advised either to reduce the dose of the drugs, to go through a coasting period (no further stimulation and daily blood tests) or to cancel the cycle. When a cycle is cancelled the treatment will be stopped and you will be advised not to have intercourse and to avoid pregnancy in that cycle.

The symptoms of ovarian hyper-stimulation are usually experienced after the egg collection and if the treatment is successful and results in pregnancy. In severe OHSS the ovaries become enlarged and leak fluid into the abdomen; this leads to dehydration. Some symptoms you may experience include:

- Nausea, vomiting
- Diarrhoea
- Abdominal bloating
- Thirst
- Thrombosis (blood clot) can be increased during
- moderate OHSS
- Hospitalisation for observation and management. Most
- OHSS is life threatening. The risk of thrombosis (blood clot) can also be increased during
- Primary reason for this is the rise in levels of E2 or the Oestradiol hormone. It is especially important to keep an eye on the Oestradiol levels during the treatment cycle. If the levels are high, the treatment will be stopped.
- Patients following IVF treatment experience mild to moderate OHSS less commonly.
- OHSS occurs before embryo transfer the embryos may need to be frozen.
- Mid OHSS may not usually require hospitalisation for observation and management. Most
- OHSS is life threatening. The risk of thrombosis (blood clot) can also be increased during
- Primary reason for this is the rise in levels of E2 or the Oestradiol hormone. It is especially important to keep an eye on the Oestradiol levels during the treatment cycle. If the levels are high, the treatment will be stopped.
- Patients following IVF treatment experience mild to moderate OHSS less commonly.
The symptoms of ovarian hyper-stimulation are usually moderate and you will be advised not to have intercourse and to avoid pelvic examination. Patient safety follows the treatment cycle. When a cycle is cancelled the treatment will be stopped (no further stimulation and daily blood tests) or to cancel the treatment.

If OHSS occurs before embryo transfer the embryos may be frozen.

Mild OHSS is treated conservatively on an outpatient basis. Moderate and severe hyperstimulation may necessitate hospitalisation for observation and management. Most patients following IVF treatment experience mild to moderate discomfort and/or feeling bloated.

Please contact the Centre for advice on 020 7837 2905. For out-of-hours assistance, or in an emergency please call the on call Doctor on: 07801 079 524.

**ABANDONED CYCLE**

Rarely it becomes necessary to abandon a treatment cycle. The main reasons for this are:

- Failure to produce enough follicles. If only one or two follicles are produced or the rate of follicular growth is poor, then it may be preferable to cancel the cycle and start again at a later date with a modified drug regime.
- Sometimes, the Oestradiol level may be low and this would indicate that although follicular development is taking place, there is not enough of the hormone in your blood stream to ensure that the eggs are developing healthily.
- If there is a higher risk of ovarian hyperstimulation developing.

An appointment will be given for a follow-up consultation to discuss further management.

**Egg and Sperm Collection**

**EGG COLLECTION**

When the ultrasound scan shows that the follicles have reached maturity (i.e. 18mm or more in size) a subcutaneous injection of Human Chorionic Gonadotrophin - hCG is given. The injection is helpful in achieving the final stages of egg maturity. Egg collection is planned 37 hours after the injection has been given. In order to achieve fertilisation in vitro, eggs and sperm need to be made available. Vaginal egg collection is performed under sedation for the majority of patients undergoing in vitro fertilisation. The eggs are collected under ultrasound control by inserting a needle through the vagina and into the ovary where the follicles are present. The contents of the follicle are extracted and examined under the microscope to see if an egg is present. This procedure is done on an outpatient day case basis.

After your egg collection you will be given medication to support a pregnancy.

**SPERM COLLECTION**

On the morning of the egg collection, the male partner will need to be present to sign the necessary consent forms and produce a semen sample via masturbation. Where possible,
samples should be produced in the clinic to ensure they reach the laboratory in optimum condition. The semen samples are washed in the laboratory and the motile sperm are extracted for treatment. On occasion, due to variation in semen samples, a second sample may be requested. In some men who have low or no sperm in their ejaculates, it may be possible to perform a surgical procedure to obtain sperm.

Should you have any worries about being able to successfully produce a sample on the day in the clinic, it is important that you discuss this with the clinical team who may recommend freezing a sample in advance as a back-up. In certain circumstances, special permission may be granted to produce the sample outside of the clinic and have it brought in.

Fertilisation, Embryo Culture and Transfer

Insemination/Sperm Injection (Day 0)
A few hours after egg collection, depending on the quality of the sperm sample, the eggs are either mixed with the sperm preparation in a culture dish (IVF), or each egg is micro-injected with an individual sperm using a micro-injection needle (intracytoplasmic sperm injection - ICSI).

Intracytoplasmic Sperm Injection (ICSI)
IVF has been used for many years to treat subfertility. Success rates, however, have remained low in severe male factor cases, (poor sperm count or poor sperm movement) where the sperm are unable to penetrate the outer shell (zona pellucida) of the egg and therefore fertilisation does not occur. In such cases, ICSI is used to try and achieve fertilisation. This technique is almost the same as IVF (preparation, stimulation, egg collection, etc) except that instead of mixing the eggs and sperm together, a single sperm is injected through the zona pellucida and into the centre of the egg (cytoplasm). The process is carried out under a microscope, using a very fine needle.

ICSI is suitable in any of the following cases:

- Poor sperm parameters e.g. low numbers of sperm, low numbers of motile sperm or poor forward progression of sperm.
- Previous failed or low fertilisation of eggs during conventional IVF.
- A positive semen culture.
- PGD (to ensure no sperm contaminates the genetic results).

The current fertilisation rate using the ICSI procedure is 70%. Please see our leaflet for statistics or visit our web site for up to date success rates at: www.crgh.co.uk.

Where the male partner is a carrier of a Y-chromosome micro-deletion, any male offspring will carry the same deletion and consequently will also be subfertile. It is estimated that up to 6% of patients if the male partner has a chromosome abnormality, there is an increased risk of both miscarriage and chromosome abnormality in any offspring. The incidence of the male partner carrying a chromosome abnormality is in the region of 10-12%. We offer screening for Y-chromosome micro-deletions and chromosome abnormalities for the male partner prior to starting treatment.

If you have any questions about ICSI, or any other aspect of your treatment please do not hesitate to contact one of the clinical staff.

Intracytoplasmic Morphologically Selected Sperm Injection - IMSI
At The CRGH we perform a number of new methods to aid sperm selection. The Vacuolated Spermatozoa IMSI (intracytoplasmic morphologically selected sperm injection) technique uses high power magnification to visualize inside the sperm. This technique can differentiate normal from abnormal sperm, examine the shape of the sperm and the presence of vacuoles. Preliminary data has shown that sperm with an abnormal shape and/or contain vacuoles give a lower fertilization and pregnancy rate. In addition, sperm DNA fragmentation analysis is offered in cases of repeated IVF failure.
FERTILISATION CHECK (DAY 1)
The day after the attempted fertilisation procedure, the eggs are observed microscopically for signs of fertilisation. On average approximately 70% of eggs fertilise normally, however this number varies from patient to patient with many factors including egg quality, egg maturity and the ability of the sperm to bind to the egg.

On rare occasions, no eggs will show signs of fertilisation. This is termed ‘failed fertilisation’. There are many factors that can contribute to this, although the exact cause is often difficult to pinpoint. Failure of sperm binding to the eggs, poor sperm survival or an infection in the culture dish are detectable causes, yet sometimes there is no evidence of these and the cause may be an underlying intrinsic problem in the sperm or eggs, undetectable microscopically.

Should failed fertilisation occur after IVF, in any future cycles, ICSI would be recommended as the mode of treatment. However, ICSI cannot always overcome the underlying problem and repeated failed fertilisation is unfortunately still possible.

EMBRYO DEVELOPMENT
The CRGH laboratory team prides itself in their strict attention to detail in maintaining the environment surrounding the embryos and their visual assessment in order to maximise chances of pregnancy. Scientific literature is constantly reviewed in order to make use of the most recent embryological research to further improve success. The laboratory has installed the most up-to-date electronic monitoring systems. Our embryology team are on 24 hour alert to track incubator conditions to ensure that the embryos are maintained at their optimum. The embryos are cultured in the laboratory for up to 6 days and you will be telephoned by our embryologists each day to update you on the progress of your embryos and when the most suitable day of transfer might be. The diagram on the left explains how embryos develop over these days.

EMBRYO TRANSFER (DAY 2-6)
The embryology team will advise you about the most appropriate day for embryo transfer based on their daily observations of your embryos. This therefore means that you will often only be informed of the day of transfer on the morning of the procedure. When the embryologists are able to select which are the best embryos from the group, then this is the most appropriate day for embryo transfer. For example, if on day 3 of development there are 2 embryos clearly superior in quality to the others then, providing you are a suitable candidate to receive 2 embryos, it is best to transfer them back into the natural uterine environment on this day. If there are a selection of embryos developing well then blastocyst transfer is recommended.

ASSISTED HATCHING (DAY 3)
The early embryo consists of a ball of cells surrounded by a protective outer shell called the zona pellucida. In order to implant into the lining of the uterus the embryo needs to break out of this shell by a process called ‘hatching’. It has been suggested that in some cases failure to reach pregnancy may be caused by the embryo being unable to break out of the zona pellucida to complete this process. The technique of Assisted Hatching aims to facilitate the hatching process by creating a small hole in the zona pellucida on day 3 by which, a few days later, the subsequent blastocyst will be able to hatch out of the shell.

Who is Assisted Hatching recommended for?
- Patients whose embryos show thickening of the zona pellucida.
- Patients of advanced maternal age.
- Patients with elevated FSH.
- Patients with history of repeated IVF failure.
- Patients having treatment using frozen eggs.

BLASTOCYST TRANSFER (DAY 5-6)
The developing embryo has stage specific nutritional requirements, and developments in this stage specific culture media have enabled embryologists to successfully grow embryos up to the blastocyst stage. Blastocyst refers to the structure the human embryo is expected to reach on day 5-6 of development, where a central fluid filled cavity has formed and 2 differing cell lines can be observed in the embryo. Culturing the embryos to day 5 or 6 to observe blastocyst formation before embryo transfer is called ‘blastocyst transfer’.
Performing the embryo transfer at the blastocyst stage has several benefits. One of the causes of failure of IVF treatment is believed to be the arrest of the embryos after transfer to the uterine cavity. By growing the embryos further we are able to benefit by gaining diagnostic information on how many of your embryos are able to form a blastocyst and assessing the quality of those that develop. It can also help to increase pregnancy rates in patients who have a good number of embryos developing well by refining the selection process so that only the most viable embryo(s) get transferred. By the blastocyst stage the embryo has already survived a number of developmental obstacles and consequently has a higher chance of implanting. Some patients, however, are not recommended to have blastocyst transfer and will actually benefit from embryo transfer at earlier stages of development (day 2-4).

Who is Blastocyst transfer recommended for?
• Patients with multiple seemingly good embryos on day 3 of development.
• Patients with a history of repeated IVF failure.
• Patients who are considering the transfer of only a single embryo to reduce the risks of a multiple pregnancy.
• Patients with no quality embryos and a large number of poorer quality embryos.

How Many Embryos will be Transferred?
The number of embryos to be transferred must take into account the following:

Guidelines laid down by the Human Fertilisation and Embryology Authority (HFEA).
Relative risk of multiple pregnancy in each individual patient.

In the past, often two embryos were transferred to patients and occasionally three embryos. The most common complication in IVF is multiple pregnancy. All patients should consider the risks a multiple pregnancy carries such as risk of blood pressure problems, poor growth rate of the fetus, increased incidence of operative delivery, or premature birth and subsequent impact on the survival and health of the babies.

These risks and the likelihood of a multiple pregnancy will be discussed at length prior to the embryo transfer, taking into account your own circumstances and sufficient time will be given for you to consider all the implications before you reach a decision.

Elective Single Embryo Transfer
Some people feel that replacing a single embryo will reduce their chances of having a baby. This is potentially true if embryos are of sub-optimal quality or development, but if you have good quality embryos the best embryo can be selected for transfer and any remaining good quality embryos can be frozen for transfer at a later date. The effective way to avoid multiple pregnancy is an elective single embryo transfer. If you are under 38 years old, have no history of a failed IVF, have a normal endometrium and have two good quality blastocysts, we will recommend single embryo transfer. We also recommend single embryo transfer in cases of frozen/thawed embryo replacement. At The CRGH our data shows that the pregnancy rate in these cases is not significantly different from a double embryo transfer, but the multiple pregnancy rate is significantly reduced with single embryo transfer.

The Embryo Transfer Procedure
Embryo transfer to the uterus is generally a very simple procedure performed without the need for sedation. At The CRGH, we feel this is a critical point at which great care must be taken to deposit the embryos smoothly in the correct position in the uterine cavity, minimising trauma to the embryos and uterine lining in order to maximise the chances of pregnancy. A fine catheter is passed through the neck of the womb through which the embryos are deposited in a minute drop of culture medium. Abdominal ultrasound guidance allows easy positioning and visualisation of the catheter, therefore a full bladder is required for the procedure.

After Embryo Transfer
Understandably, women are nervous after the embryo transfer and they are usually worried as to what they can or cannot do. Several studies have shown that the rate of implantation is not influenced by physical activity therefore there is no need to be confined to bed. We simply recommend taking life gently for the first 2-3 days post-transfer, avoiding sexual intercourse, swimming and bathtubs until the pregnancy test. You may wish to plan 48 hours off work after the transfer.

Chances of Pregnancy
Pregnancy is greatly influenced by the cause of infertility, maternal age and whether you have been pregnant before. Our most recent statistics are enclosed and also available on our website at www.crgh.co.uk.
Cryopreservation (freezing) of Embryos

All embryos remaining after the embryo transfer will be observed until day 6 to see if they have the ability to form a good quality blastocyst. The policy at The CRGH is to freeze at the blastocyst stage for all standard IVF and ICSI patients. This means that only good quality embryos are frozen and embryos destined to arrest their growth prior to the blastocyst stage are selected out. Our laboratory has had excellent success rates for many years freezing at the blastocyst stage, with survival rates superior to freezing embryos at earlier stages and improved success rates post transfer. Approximately 40-50% of embryos form a blastocyst in patients under 40 and therefore the number of embryos to freeze is highly dependent on the number of eggs collected and embryos available. Lower blastocyst formation rates have been reported in women over the age of 40.

Vitrification
The CRGH prides itself on being at the forefront of developments and in 2007, the chosen method of freezing at the Centre changed to vitrification. Many UK IVF clinics have continued to take up vitrification. The CRGH has run workshops helping to train other Embryologists in the technique.

Vitrification is a rapid freezing technique used instead of the traditional slow freezing process. When freezing embryos, damage can occur due to formation of ice crystals in the cells.

Vitrification reduces the incidence of ice crystal formation within the embryo and many studies report improved post-thaw survival and higher pregnancy and implantation rates from frozen embryo transfer cycles, compared to embryos frozen through slow freezing.

The freezing technique has been shown to harden the shell of the embryo so we also perform assisted hatching on all frozen-thawed embryos to ensure the best success rates. Our results at the CRGH with vitrification are excellent (see our website www.crgh.co.uk for further details).

Post-Treatment Care

Approximately 16 days after your treatment you will need to perform a urine pregnancy test at home and telephone us with the results.

If the result is positive, a blood test will be required to assess pregnancy hormone levels. This can be performed by our own nurses or by your GP. A few weeks later an ultrasound scan will be performed to detect the presence and number of fetal heart beats. Further ultrasound scans may be carried out during the early part of your pregnancy to confirm viability of the fetus before you are referred back to your GP who will arrange for antenatal care at your preferred or local hospital.

Harmon Test
The Harmony Test is a non-invasive prenatal test that analyses the DNA circulating in the pregnant mother’s blood from 10 weeks gestation. It is a new option in prenatal screening for Down syndrome (trisomy 21), Edwards syndrome (trisomy 18),
Patau’s Syndrome (trisomy 13) and also common chromosomal conditions associated with X and Y chromosome. This test can be requested for any singleton or twin pregnancies, including in vitro fertilization (IVF) pregnancies with egg donors. However, in the twin pregnancies the chromosomal conditions associated with X and Y chromosomes cannot be screened. The Harmony Test is now the most accurate non invasive screening for the most common aneuploidies. Please contact the unit to book your appointment.

**RECURRENT IVF FAILURE**

The most common cause of a failed IVF treatment is an abnormal chromosome complement in the embryo. This can be tested for by preimplantation genetic screening. Recent evidence suggests that in some patients, the immune system may be rejecting the pregnancy, either preventing implantation or when the pregnancy is in its early stages (see recurrent miscarriage below). There are a number of tests that can be carried out, including natural killer cell activity. When indicated, we offer treatment using intralipid and/or steroids.

**ENDOMETRIAL RECEPTIVITY ARRAY (ERA)**

ERA is a novel diagnostic technique which allows us to evaluate the endometrial receptivity status of a woman with recurrent implantation failures. The expression of 238 genes involved in endometrial receptivity are analysed. The data collected classifies the endometrium as “receptive” or “non receptive”. The embryo transfer procedure is timed based on these results.

**MISCARRIAGE AND ECTOPIC PREGNANCY**

There are risks inherent in IVF and other treatment which are no different from those facing couples who have conceived by natural means. There is always the possibility of miscarriage and ectopic pregnancy.

A miscarriage is when you lose a pregnancy during the first 23 weeks. The majority of sporadic miscarriages are secondary to chromosomal abnormalities, yet other reasons must be ruled out in cases of recurrent miscarriages.

Ectopic pregnancy is a condition in which a fertilized egg settles and grows in any location other than the inner lining of the uterus. The vast majority of ectopic pregnancies (98%) occur in the fallopian tube. The major health risk of ectopic pregnancy is rupture leading to internal bleeding. Such a condition must be brought to an end (medically or surgically) as soon as it is discovered, since it constitutes a danger to the health of the woman when this occurs.

**RECURRENT MISCARRIAGE**

When a miscarriage has happened three or more times, it is called recurrent miscarriage. In some patients, there is a specific reason for the miscarriage. These include advanced maternal age, genetic factors, abnormal embryos, autoimmune factors, uterine abnormalities, blood conditions leading to abnormal blood clotting and more recently there is some evidence that the immune system can reject the pregnancy. At The CRGH, we have a comprehensive programme for the diagnosis and treatment of recurrent miscarriage. Most couples with recurrent miscarriage still have a good chance of a successful birth in the future.

**Frozen-Thawed Embryo Transfer (FT/ET)**

Often after a cycle of IVF, ICSI or IMSI. There are embryos of a suitable quality that can be frozen and stored for future use. Whether your fresh cycle was successful or unsuccessful, frozen embryo replacement gives you the chance of a pregnancy. Our current data shows that our success rates with frozen/thawed embryos are as good as our success rates with fresh embryos. In a frozen/thawed cycle, it is sometimes easier to prepare the womb for the embryo than in a fresh cycle which may lead to more success.

**Intrauterine Insemination (IUI)**

Intrauterine insemination is totally different from in vitro fertilisation. With this procedure the eggs are not collected but partner or donor sperm (which have been washed) are passed directly into the womb using a fine plastic tube. The other term that is also used for this procedure is artificial insemination. IUI can
also be performed following a course of ovarian stimulation with tablets or injections in order to increase the chances of pregnancy. The female has to have at least one open fallopian tube to do IUI.

### Sperm Freezing

Storing your sperm may enable you to use them for treatment in the future. You may consider freezing if the quality of your sperm is deteriorating or you have difficulty producing a sample on the day of treatment or you are facing medical treatment that may affect your fertility.

### Surgical Sperm Retrieval

Lack of sperm in the ejaculate can occur as a result of a variety of circumstances. If this condition, called ‘azoospermia’, is diagnosed then an appointment with a Urology specialist will be arranged to investigate further.

Depending on the likely cause, different techniques can be used to attempt to retrieve sperm from the testicles or epididymis*, which can then be frozen or used fresh in conjunction with ICSI treatment. Sperm obtained using any of these methods are usually poor in motility and therefore microinjection of a single sperm into each egg (ICSI) is required in order for fertilisation of an egg to take place. Further information on ICSI is outlined on page 10.

* the epididymis is a channel through which sperm travel after they are made in the testicles. During this transit they undergo a level of maturation and are stored.

### Micro-epididymal sperm aspiration (MESA)

MESA is carried out under general anaesthetic as a day case and requires a few hours operating time. A small incision is made in the scrotum (the skin around the testicle). The epididymis is then exposed and microsurgical aspiration of fluid microdroplets is then undertaken through a minute incision in the epididymal tubules. The fluid is analysed for the presence of sperm. The number of tubules excised is very much dependent on the amount of sperm retrieved and their motility.

**Who is suitable?**
- Patients with congenital absence of the vas deferens (the vas is the channel that carries sperm from the epididymis to the penis).
- Patients with failed reversal of vasectomy.
- Patients with epididymal obstruction.

### Percutaneous epididymal sperm aspiration (PESA)

PESA is a minimally invasive technique that is used to extract sperm from the epididymis under local anaesthesia with a fine needle. If sperm cannot be retrieved using this method then the patient may have to proceed to TESE.

**Who is suitable?**
- Patients with congenital absence of the vas deferens (the vas is the channel that carries sperm from the epididymis to the penis).

### Testicular sperm extraction (TESE)

TESE is a procedure where samples of the testicular tissue are retrieved and examined for the presence of sperm. It can be performed under local or general anaesthesia via a relatively non-invasive gun biopsy, or by more invasive open surgical biopsy thereby allowing larger amounts of tissue to be sampled and, if suitable, frozen for future use.

**Who is suitable?**
- Patients with failed reversal of vasectomy.
- Patients with epididymal obstruction.
- Patients showing absence of sperm in the ejaculate with no evidence of an obstruction as the cause.
- Patients where the alternative techniques of MESA or PESA have failed to retrieve sufficient viable sperm for treatment.

### Vasectomy reversal

The major factors that will alter the success of this procedure are the time between the initial vasectomy and its reversal and the amount of vas that was removed. Using the operating microscope with a magnification of x20, allows for accurate placement of small stitches to enable an improved result. Patients are admitted as a day-case and the operation is performed under general anaesthetic and takes about two hours. The success rate depends on the duration from the vasectomy with potential pregnancy rates as follows:
- Less than two years: Patency 95%  Pregnancy 80%
- 3 - 5 years: Patency 85%  Pregnancy 75%
- 6 - 10 years: Patency 75%  Pregnancy 55%
- More than 15 years: Patency 60%  Pregnancy 40%

At the time of the vasectomy reversal, fresh sperm can be collected and immediately used in IVF or ICSI cycles, or frozen for subsequent use.

The expected pregnancy rate can be enhanced with the use of IVF and ICSI, where there are no known complicating factors for the female partner. It therefore offers an ideal opportunity for patients who wish to maximise the chance of a pregnancy to combine vasectomy reversal with these procedures.

### Sperm Donation Programme

Treatment using donor sperm for certain infertile couples has been practised in this country for many years. The treatment can take different forms, either a simple insemination treatment called Intra-uterine Insemination (IUI-D) or In Vitro Fertilisation (IVF-D). These methods are the same as IVF and IUI treatments with partner sperm, except that donor sperm is used.

This section aims to highlight unique aspects that treatments using donor sperm involve, such as selecting a donor and legal status of paternity. Further information on the exact process of IUI and IVF are described elsewhere in the brochure and on our website. Your Doctor will discuss with you which treatment is most appropriate for you.

**Who is suitable for treatment with donor sperm?**
- Couples, where the male partner has no sperm
SELEcTING A DONOR
All donors are carefully screened and selected through medical history, semen analysis and extensive blood and urine testing for HIV, Hepatitis B and C, sexually transmitted diseases and certain genetically inherited conditions. They are required to be fit and healthy and must undergo full implications counselling before proceeding with donations. The Government has introduced new regulations to remove anonymity from Sperm, Egg and Embryo donors (see ‘Telling your child’, below). Since this change on 1st April 2005 the number of sperm donors in the UK has fallen and availability of samples is lower.

We do, however, have a selection of donors and we try as far as possible to use a donor who has the same physical characteristics as the male partner, e.g. skin colour, eye colour, hair colour, body build and blood group. This, however, requires a large and constant panel of donors and this might limit the availability of donors in certain ethnic groups.

Occasionally, you may be required to change to an alternative donor if your first choice is not available on commencing a second treatment cycle.

CAn I BRING MY OWN DONOR?
If you have a friend or family member who is interested in donating samples for your use, then they should first attend the clinic for a consultation. A full medical questionnaire and initial semen analysis will be performed to see if they are suitable.

It is possible that during screening we may pick up an abnormality in respect to their medical health, a genetic disorder or infertility. Not only would this mean that they are unsuitable to become a sperm donor, but there may be medical implications now and/or in the future. Before undergoing full screening, donors must attend a session with one of our independent counsellors.

Following consultation and counselling, donors can commence full screening. If you are bringing a donor whose samples are only to be used by yourself, you will be responsible for all of the costs of the screening process, and it is therefore a more expensive method of donor sperm treatment. Freezing of samples for donation is only commenced after full screening and counselling visits are complete.

PREGNANCY FOLLOWING DONOR SPERM TREATMENT
The progress and outcome of pregnancy are not different to treatments whereby partner sperm has been used. All pregnancies are subject to risks; miscarriage, ectopic pregnancy and babies born with congenital or genetic defects are still possible.

LEGAL PARENTAGE OF CHILDREN
Couples who are not legally married who undergo treatment with donor sperm, need to sign special consent forms if they present in the ejaculate and further investigations show no spermatogenesis (the process of making sperm) in the testicles.

Couples, where the male partner has low levels of sperm in the ejaculate, storage ducts or testicular tissue but the female partner is not suitable to undergo IVF/ICSI treatment.

Men carrying certain inherited genetic disorders.

Single women.

Lesbian couples.
wish to name the male partner as the legal father. Both the female and male partner must sign individual forms in order for the arrangement to be legally acknowledged. The same law applies to same sex couples who are not in a civil partnership. The partner not receiving treatment must sign a consent if she wishes to be acknowledged as the second legal parent. The partner undergoing treatment will also need to sign a separate consent accepting this. For married couples and lesbian couples in a civil partnership, the partner not receiving the treatment will automatically be presumed as the legal parent. Nevertheless a consent form will be invited from this partner to avoid doubt as to their intentions.

Forms for the withdrawal of consent are required should any partner wish to remove his/her consent to be the father/second legal parent.

TELLING YOUR CHILD - CONFIDENTIALITY
You may wish to think carefully about whether you will be telling your child about his or her origins. If you do so, you should be aware that when the child reaches the age of 18, they may choose to seek identifying information from the Human Fertilisation and Embryo Authority about the donor. As of the 1st April 2005, the government introduced new regulations giving children the right to apply for any such information. People over the age of 16 can also check whether or not they may be related to the person they intend to marry, as a consequence of donated egg or sperm.

SUCCESS RATE
At least 50% of couples achieve a pregnancy following treatment with donor sperm. Most women who become pregnant do so within six treatment cycles.

RISKS OF INFECTION
This is unlikely as all donors are carefully screened and each semen sample is checked before use. We screen for the AIDS virus, Hepatitis B, Hepatitis C, Gonorrhoea, Chlamydia, Syphilis and CMV.

Egg Donation Programme

WHO IS IT FOR?
Some couples are infertile because the woman is unable to produce eggs, which can occur for several reasons: her ovaries may not have developed properly (e.g., Turner’s Syndrome); she may have ovarian failure (premature menopause); or surgery or chemotherapy has caused her to be sterile. For these couples, IVF using donated eggs offers their only chance of achieving a pregnancy. This approach is also appropriate for women who are carrying a genetic disorder, who do not wish to undergo genetic testing (either prenatal or Preimplantation Genetic Diagnosis).

WHAT IT INVOLVES
The donated eggs are fertilised by the recipient’s partner’s sperm (where appropriate) and the couple are given the chance of having a healthy child. In order to match donors and recipients, consideration is given to physical characteristics and ethnic origin and you will be counselled through the implications of receiving donated eggs. As with egg donors, recipients are
tested for HIV, Hepatitis B and C, Gonorrhoea, Chlamydia and CMV.

There is usually a waiting list for donor eggs and potential recipients can discuss the current duration of this with the nurse co-ordinator at the Centre. Donors are regularly recruited through various avenues, e.g. friends and relatives, or by responding to media attention highlighting the need for donors.

WHAT DOES THE PROCESS INVOLVE FOR AN EGG RECIPIENT?

On the day that eggs are collected from the donor, (or thawed from the egg bank) the male partner will, where appropriate, be asked to provide a semen sample so that the eggs can be fertilised. The endometrium (lining of the womb) must be prepared so that a suitable environment is created to encourage implantation of the embryos. Medication is given and the relevant drug regime will be prescribed by the doctor and discussed with you. Regular ultrasound scans will be performed to check the growth of the endometrium and when the desired state is achieved, the embryos will be introduced to the womb by means of a fine catheter (tube). The drugs are continued until a pregnancy test is performed sixteen days later and will continue for several more weeks if pregnancy is achieved.

Treatment and research using donated eggs is licensed and regulated by the Human Fertilisation and Embryology Authority.

EGG BANK

We were the first unit in the UK to have an egg bank. The donated eggs can be vitrified and kept in our egg bank for future use by a suitable recipient. In this way, patients requiring treatment with donor eggs can have treatment without the need to synchronise their cycle with another woman.

Egg Freezing

Egg freezing involves freezing the eggs directly after retrieval from the woman’s ovaries without exposing them to any sperm so that no embryos have yet been created. Freezing and thawing of eggs has been reported to have a hardening effect on the protective shell surrounding the eggs through which the sperm must penetrate in order for fertilisation to take place. Consequently, the preferred method of fertilising these eggs is through intracytoplasmic sperm injection (ICSI), whereby a single sperm is mechanically micro-injected into the egg. Good fertilisation rates are achieved with this method. With the increasing use of a method of freezing called vitrification very promising results are emerging.

Vitrification is a rapid freezing technique used instead of the traditional slow freezing methods. It reduces the incidence of ice crystal formation within the egg or embryo and as such has shown improved post-thaw survival rates and higher pregnancy and live birth rates, as referred to earlier in this brochure. All egg and embryo freezing at The CRGH is now performed using vitrification.

WHO MIGHT CONSIDER EGG FREEZING?

Women due to undergo chemotherapy, radiotherapy or certain types of surgery who may be at risk of losing ovarian function.

Women with severe endometriosis which can affect
both ovaries and impair ovarian function. Women at risk of premature menopause. Women postponing childbearing for any reason, including those without a partner presently. Women undergoing IVF or ICSI when it has not been possible to retrieve sperm from her partner on the day of egg collection.

WHAT ARE THE CHANCES OF SUCCESS?
We have the largest series of live births using frozen eggs in the UK.

CONSENT AND STORAGE
Parliament set a limit of 10 years on the storage of sperm and eggs however in certain circumstances it can be extended. We will ask you to complete the necessary consent forms indicating what you wish to happen to the sperm or eggs in the event of your death during their time in storage. You may withdraw your consent to storage of the sperm or eggs at any time.

Pre-Implantation Genetic Diagnosis (PGD)
Pre-implantation Genetic Diagnosis (PGD) was developed to help couples at high risk of passing on a specific genetic disorder to their children. The aim was to enable them to start a pregnancy knowing that it was unaffected with the disorder. This provides an alternative to standard prenatal diagnosis that is carried out in an established pregnancy; a positive result in this case means that the couple has to make an agonising decision regarding pregnancy termination. It is only used for couples that are carrying a known genetic or chromosomal disorder.

To make use of PGD, the couple has to go through routine IVF procedures so that several embryos can be tested. At The CRGH, we perform the biopsy on day 5 ie at the blastocyst stage. A few cells are removed from the embryos and these cells are used for the diagnosis. The diagnoses is usually performed by an accredited PGD laboratory. The embryos will then be frozen post biopsy. Unaffected frozen/thawed embryos are replaced in a future cycle.

There are three main techniques used for the diagnosis. A new technology called array comparative genomic hybridization (array - CGH) is used to perform the diagnosis of chromosomal disorders. Karyomapping is a novel technique which allows rapid diagnosis of single gene defects without long workup times. Another technique of diagnosing single gene defects is by the polymerase chain reaction (PCR).

Preimplantation Genetic Screening (PGS)
The techniques performed in PGD have been used for certain groups of IVF patients in a technique called Preimplantation Genetic Screening (PGS). It has been used for patients of advanced maternal age (over 40 years), repeated IVF failures and repeated miscarriages. The aim of PGS is to determine if their embryos have a normal set of chromosomes. Chromosomal abnormalities are a major cause of failure of embryos to implant and of miscarriage. The procedure involves removing some of the cells from the embryo and analysis of the chromosomes. At The CRGH we are now performing PGS using blastocyst biopsy and array Comparative Genomic Hybridization (CGH).

DEVELOPMENT OF PREIMPLANTATION GENETIC DIAGNOSIS (PGD)
PGD was developed in the UK in the late 1980s and the senior staff that run UCL Centre for PGD were involved from the very beginning. The Centre continues to operate at the cutting-edge of innovative scientific applications. We were instrumental in developing the FISH technique to apply to human embryos and carried out the very first diagnoses of embryo sex (to avoid X-linked disease) and for chromosome translocations. Our Centre has developed and carried out the first diagnoses in the UK for genes that confer a high lifetime risk of cancer. These have included a rare form of retinal cancer in young children (retinoblastoma), familial colon cancer (due to polyposis coli) and a gene for breast and ovarian cancer (BRCA). We have been able to celebrate the first births of babies known to be free of some of these inherited disorders.

KARYOMAPPING
We are the first clinic in Europe to report a clinical pregnancy using this comprehensive and swift technique for Preimplantation Genetic Diagnosis. This method tests for genetic and chromosomal disorders at the same time and has hence, revolutionized the PGD treatment. The workup time is under 2 weeks as against several months with the older method of testing. This is especially important since a woman’s fertility may decline rapidly with time.

“Our beautiful twin girls were born in Cambridge in May and my wife and I want to thank you and your great team from the bottom of our hearts for making this possible.”
Huntingdon, Cambridge
## Pregnancy Statistics 2014

### IVF - In Vitro Fertilisation

<table>
<thead>
<tr>
<th>AGE</th>
<th>&lt;35</th>
<th>35-37</th>
<th>38-39</th>
<th>40-42</th>
<th>43-45</th>
</tr>
</thead>
<tbody>
<tr>
<td>PR/ET</td>
<td>57/81 (70%)</td>
<td>46/77 (60%)</td>
<td>30/53 (57%)</td>
<td>25/58 (43%)</td>
<td>4/24 (17%)</td>
</tr>
<tr>
<td>CPR/ET</td>
<td>51/81 (63%)</td>
<td>43/77 (56%)</td>
<td>27/53 (51%)</td>
<td>18/53 (31%)</td>
<td>3/24 (13%)</td>
</tr>
</tbody>
</table>

### ICSI - Intracytoplasmic Sperm Injection

<table>
<thead>
<tr>
<th>AGE</th>
<th>&lt;35</th>
<th>35-37</th>
<th>38-39</th>
<th>40-42</th>
<th>43-45</th>
</tr>
</thead>
<tbody>
<tr>
<td>PR/ET</td>
<td>42/71 (61%)</td>
<td>36/62 (58%)</td>
<td>21/39 (54%)</td>
<td>16/34 (47%)</td>
<td>1/8 (17%)</td>
</tr>
<tr>
<td>CPR/ET</td>
<td>37/71 (52%)</td>
<td>33/62 (53%)</td>
<td>20/39 (51%)</td>
<td>14/34 (41%)</td>
<td>1/8 (17%)</td>
</tr>
</tbody>
</table>

### IMSI - Intracytoplasmic Morphologically selected Sperm Injection

<table>
<thead>
<tr>
<th>AGE</th>
<th>&lt;35</th>
<th>35-37</th>
<th>38-39</th>
<th>40-42</th>
<th>43-45</th>
</tr>
</thead>
<tbody>
<tr>
<td>PR/ET</td>
<td>19/28 (68%)</td>
<td>13/20 (65%)</td>
<td>4/7 (57%)</td>
<td>7/16 (47%)</td>
<td>2/3 (67%)</td>
</tr>
<tr>
<td>CPR/ET</td>
<td>18/28 (64%)</td>
<td>12/20 (60%)</td>
<td>3/7 (43%)</td>
<td>5/16 (31%)</td>
<td>2/3 (67%)</td>
</tr>
</tbody>
</table>

### Natural Cycle IVF / ICSI / IMSI

<table>
<thead>
<tr>
<th>AGE</th>
<th>&lt;35</th>
<th>35-37</th>
<th>38-39</th>
<th>40-42</th>
<th>43-45</th>
</tr>
</thead>
<tbody>
<tr>
<td>PR/ET</td>
<td>9/21 (43%)</td>
<td>11/20 (55%)</td>
<td>4/20 (20%)</td>
<td>6/28 (17%)</td>
<td>0/14 (0%)</td>
</tr>
<tr>
<td>CPR/ET</td>
<td>9/21 (43%)</td>
<td>11/20 (55%)</td>
<td>4/20 (20%)</td>
<td>4/28 (14%)</td>
<td>0/14 (0%)</td>
</tr>
</tbody>
</table>

### FET - Frozen Embryo Transfer

<table>
<thead>
<tr>
<th>AGE</th>
<th>&lt;35</th>
<th>35-37</th>
<th>38-39</th>
<th>40-42</th>
<th>43-45</th>
</tr>
</thead>
<tbody>
<tr>
<td>PR/ET</td>
<td>102/166 (60%)</td>
<td>99/126 (60%)</td>
<td>60/96 (63%)</td>
<td>66/123 (45%)</td>
<td>9/29 (20%)</td>
</tr>
<tr>
<td>CPR/ET</td>
<td>85/166 (54%)</td>
<td>79/126 (62%)</td>
<td>60/96 (63%)</td>
<td>46/123 (37%)</td>
<td>6/29 (21%)</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Egg Recipient</th>
<th>PGD</th>
<th>PGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPR/ET</td>
<td>27/40 (67.5%)</td>
<td>25/54 (46%)</td>
</tr>
</tbody>
</table>

**PGD** - Preimplantation Genetic Diagnosis  
**PGS** - Preimplantation Genetic Screening  
**PR/ET** - Pregnancy Rate / Embryo Transfer  
**CPR/ET** - Clinical Pregnancy Rate / Embryo Transfer
General Information

HFEA
The Centre for Reproductive and Genetic Health is licensed by The Human Fertilization and Embryology Authority (HFEA) to provide all treatments set out in this booklet. The HFEA levy a charge on The Centre for Reproductive and Genetic Health for every licensed treatment carried out. This fee will appear on the invoice for your treatment cycle.

SUGGESTIONS AND COMMENTS
If any patient is not happy about any aspect of their treatment they should initially discuss this with the centre manager. In addition, our clinicians are always available for consultation upon request.

We welcome comments about the facilities available at the centre, or suggestions on ways in which we can improve the service we offer. We also welcome any ideas you might have to make your treatment experience less stressful and more successful. In addition, we carry out periodic patient surveys to assess the level of patient satisfaction in an effort to improve our standards of patient care.

COMPLAINTS
Any complaint regarding the service provided or the treatment received should be directed to the centre manager. Your complaint will be dealt with immediately in accordance with our Complaints Procedure (copy available upon request). You may also write to the HFEA or to the Care Quality Commission.

SUPERVISION OF CHILDREN
You should be aware that, should you attend the clinic on your own, no member of staff will be able to care for or supervise any child brought to the clinic.

YOUR MEDICAL RECORDS
You may view your records by arrangement with The Centre for Reproductive and Genetic Health. If you wish to have a copy of your records, please put your request in writing to the Centre.

How To Get Here

The Centre is about a one minute walk from Great Portland Street underground station.

Address:
230-232 Great Portland Street
London
W1W 5QS

PARENTAL RESPONSIBILITY
Unmarried couples should be aware that in order for them to have equal parental responsibility, it is required that both parents register the birth of the baby together. It will also be appropriate to sign formal consents at the outset of the treatment.

OUTCOME OF PREGNANCY
All licensed assisted conception units in the UK are required by law to report the outcome of treatments to the HFEA. It is important therefore to keep us informed of the progress of any pregnancy and the final outcome. It is also important for you to let us know if you are not pregnant.

OVERSEAS PATIENTS
Overseas patients should not make travel arrangements until they have confirmed well in advance with the Nurse Co-ordinator at the Centre that they can be accommodated in a particular cycle.

INTERPRETER
If you require someone to translate for you, it will be necessary for you to bring your own interpreter.

CONFIDENTIALITY
We are legally required to maintain the confidentiality of all our patients. This means that our staff will not discuss or provide details about your treatment to relatives or friends without your specific permission.

ISO 9001 ACCREDITATION
The Centre is accredited to the internationally recognised standard for quality management of businesses. This means The CRGH has been externally assessed and found to have a consistency of approach in developing, implementing and improving the effectiveness of a quality management system that enhances customer satisfaction by meeting customer requirements.