Assisted Human Reproduction:
Getting a Clearer Picture

Fédération du Québec pour le planning des naissances

Assisted Human Reproduction:

Getting a Clearer Picture

Fédération du Québec pour le planning des naissances

Research and writing: Manon Sabourin

Content editing: Nathalie Parent

Graphics: Louise-Andrée Lauzière

Cover page: Anne Côté

This 2008 English edition was made possible by the Canadian Women's Health Network.

Production coordination and proofreading: Susan White

Translation: Patricia Kealy

Advisor: Abby Lippman

The FQPN would like to express warm thanks to the members of our board of directors and the members of the committee supervising the training project on assisted reproductive technologies for their valuable comments and suggestions:
Abby Lippman, Professor, Department of Epidemiology, Biostatistics, and Occupational Health, McGill University
Louise Vandelac, Professor, Department of Sociology and Institute of Environmental Sciences, UQÀM
Irène Demczuk, Development Agent, Community Services, UQÀM

This brochure was produced with financial assistance from the Women's Program of Status of Women Canada and the Fonds des services aux collectivités du ministère de l'Éducation du Québec, and the assistance of the Service aux collectivités de l'UQÀM (protocole UQÀM/Relais-femmes).

ISBN 978-2-9802393-9-7
(Original edition: ISBN 978-2-9802393-8-0, FQPN, Montréal)

Available online at: www.fqpn.qc.ca and www.cwhn.ca

Également disponible en français.

Fédération du Québec pour le planning des naissances
514 866-3721
info@fqpn.ca
www.fqpn.qc.ca

PREFACE

The appearance of assisted reproductive technologies in the 1980s and the many requests for information from women interested in taking advantage of them prompted the *Fédération du Québec pour le planning des naissances* (FQPN) to take a look at these technologies. As the only organization in Quebec to concern itself with the issue of sexual and reproductive health from the perspective of feminism and health promotion, the FQPN began doing research, critically analyzing literature on the subject, and debating with its members, its partners and the women's movement the risks and issues raised by assisted reproduction.

This exercise led us to the belief that scientific, commercial and medical interests were taking precedence over the interests of women individually and of human beings collectively. More than a question of individual choice, assisted reproduction involves issues that affect the entire community. Thus, the FQPN rapidly became concerned about the consequences of motherhood driven by technology, science upending the natural rules of reproduction, the impact of these practices on the health of women and children, the instrumentalization and commodification of human reproductive material and women's bodies, and the threat that eugenics could result from these practices and technologies.

Despite recent efforts by the federal and provincial governments to ensure supervision of assisted reproduction, the FQPN remains concerned about the many issues that it raises which have not been the subject of real public debate. Thus, the goal of this brochure is to raise collective awareness of the issues involved with these technologies in terms of health, certainly, but also in terms of social, economic and ethical issues.

To this end, the brochure starts from a different point of view and takes a critical approach to some common misconceptions about assisted reproductive technologies. However, this brochure is not the "last word" on the issue of assisted reproduction. Rather, it is intended to encourage discussion and debate and to interest all individuals and groups who want to delve further into this subject.

Table of Contents

Introduction

Assisted reproduction refers to a group of technologies and medical procedures aimed at overcoming certain physiological, psychological, socioeconomic and sexual problems that prevent or delay conception. They also include technologies for diagnosing the health of an embryo in the uterus (in utero) or outside a woman's body (ex utero, although this is sometimes called “in vitro”).

Often represented as a medical "miracle," these technologies hold a real fascination for some people and are a cause of concern for others. Assisted reproductive technologies have been advancing for more than 25 years and all indications are that their use will continue to increase. They have also been the subject of a great deal of media coverage, and as a result they have been trivialized, their effects and the issues they raise have been obscured, and a number of myths about them have arisen.

This brochure has two sections. The first describes and then challenges each of nine common misconceptions about infertility, the effectiveness of the technologies, the science behind them and the health risks they pose. The second part describes the principal assisted reproductive technologies now in use by the medical establishment in an annotated glossary that readers can refer to as needed.

MYTH 1

THE NUMBER OF INFERTILE PEOPLE IS INCREASING.

It is estimated that one in twelve couples in Canada has trouble conceiving a child.[1] Although this rate seemingly has not changed much over the last few decades, the number of couples and individuals turning to assisted reproductive technologies has increased markedly, and this gives the impression that the number of infertile people has also increased. However, with a better understanding of infertility and the various interpretations of this notion, we can put this assertion in perspective.

Infertility can be defined in a number of ways. First we should distinguish the notions of sterility and infertility, which are often confused. *Sterility* is the inability to conceive or to bring to term a first or subsequent pregnancy due to a problem with the reproductive system of one or both partners. *Infertility* is not necessarily the inability to conceive; rather it refers to difficulty conceiving a child or the failure to conceive over an extended period.

From a feminist perspective, infertility may mean the state of not being a mother—or not being a mother again—which in itself is not necessarily a problem. To be considered infertile, this state must be associated with a desire, since a woman who does not want to have offspring is not concerned if she does not have a child. Moreover, infertility means the desire to become a mother must be thwarted by some obstacle, and this usually means that conception fails to occur despite a number of months of unprotected intercourse and that the situation eventually feels intolerable.

A couple, not just an individual, may also be infertile, in which case the couple's relationship is part of the equation. For example, a person could be fertile with one partner and not with another, or sometimes two partners might not succeed in conceiving a child together for physiological or psychological reasons. Infertility also has a social dimension, in which case difficulty conceiving a child for single women or lesbian couples is connected to context or sexual orientation and is not a medical problem.

THIS REDUCTION IN THE WAITING PERIOD HAS RESULTED IN AN INCREASED NUMBER OF PEOPLE WHO MAY BE DIAGNOSED AS "INFERTILE."

The notion of infertility is flexible and variable and it also involves the notion of time, which can vary and may be arbitrary. For example, as defined by the World Health Organization and France, if a child is not conceived after two years of unprotected sexual intercourse with the same partner, there may be an infertility problem.[2] Until 1968, Canada also used this two-year period as a criterion for administering fertility tests.[3]

Today, there is no question that the availability of assisted reproductive technologies and scheduled childbirth explains the fact that this period has been reduced to one year or even six months. The one-year definition of infertility is the one now accepted by the medical community. This reduction in the waiting period has resulted in an increased number of people who may be diagnosed as "infertile," and this explains the increase in fertility clinic clients and the number of people wishing to try assisted reproduction.

Under normal conditions, about 84 percent of couples in the general population will conceive within one year if they do not use contraception. Of those who do not conceive in the first year, half will do so in the second year. Moreover, 94 percent of women over 35 and 77 percent of those over 38 will conceive after three years of trying.[4]

If a waiting period of two years of unprotected sex was required before turning to assisted reproductive technologies, many people would be spared the strong emotional involvement in and financial stress of a physically demanding process that often poses health risks and that has a very debatable success rate, as we will see later in this brochure.

MYTH 2

ASSISTED REPRODUCTIVE TECHNOLOGIES ARE

SAFE AND POSE NO HEALTH RISKS.

The promotion of assisted reproductive technologies and the fact that doctors have been using them for more than twenty-five years give the impression that they are safe, technically proven and effective. However, an increasing number of studies throughout the world are showing that some of these technologies pose significant risks to the health of women and children.

For example, it is now recognized that ovarian stimulation, a procedure used with donor insemination and in vitro fertilization, can cause significant health problems, including pulmonary embolism and stroke, and can lead to ovarian hyperstimulation syndrome[5] (OHSS) in up to 6 percent of women undergoing this procedure.[6] In its milder form, OHSS is generally characterized by nausea, vomiting, diarrhoea and abdominal pain.[7] Over time these symptoms can become more acute and may include rapid weight gain, fluid accumulation in the abdomen, respiratory difficulties, etc. In its severe form, ovarian

hyperstimulation syndrome requires hospitalization. It can result in haemorrhaging from burst ovaries, respiratory distress, kidney damage, risk of thromboembolism,[8] sterility and, in rare cases, death.[9]

In addition, the possibility of links between drugs used in ovarian stimulation and ovarian cancer has been raised. Rigorous, long-term studies are therefore needed to get a clear picture of the risks to which women are exposed. Nearly half of the patients who turn to assisted reproduction do so because of infertility problems in the male partner. Therefore, these procedures are often performed on fertile, perfectly healthy women who are exposing themselves to significant health risks.

Procedures used in assisted reproduction also cause a significant increase in the number of multiple pregnancies, and this poses a serious risk to the health of both mother and children. While the multiple pregnancy rate for the general population is approximately 2 percent, in Canada in 2003, 31 percent of live births resulting from in vitro fertilization were multiple births.[10] Of these multiple pregnancies, 95 percent were twins and 5 percent were triplets or more. The risk of premature birth increases significantly in multiple pregnancies—50 percent with twins and 90 percent with triplets—and this can cause major health problems in newborns, such as cerebral palsy, deafness, blindness, chronic respiratory problems, hyperactivity, learning and behavioural problems, etc.[11]

WHILE THE MULTIPLE PREGNANCY RATE FOR THE GENERAL POPULATION IS APPROXIMATELY 2 PERCENT, IN CANADA IN 2003, 31 PERCENT OF LIVE BIRTHS RESULTING FROM IN VITRO FERTILIZATION WERE MULTIPLE BIRTHS.

Multiple pregnancies are also linked to significant complications for the mother, such as increased risk of haemorrhage, gestational diabetes, instrumental delivery, transfusion, eclampsia, Caesarean section and death. Multiple pregnancies can also cause other types of problems, such as depression, separation or divorce, due to the difficulties involved in caring for several infants at once.[12]

Some studies also report increased risks of serious congenital defects—such as urogenital, cardiovascular or musculoskeletal malformations—in children conceived using assisted reproductive

technologies. The rate of congenital defects diagnosed in a child's first year is 4.2 percent for naturally conceived babies and 9 percent, more than double, for babies conceived by in vitro fertilization.[13] Other studies report neurological problems and major physical disabilities occurring much more frequently in children produced by in vitro fertilization or microinjection of sperm than in comparison populations.[14]

Although assisted reproductive technologies have made it possible for many people to become parents, they have also resulted in costs for both families and society. In particular, health risks to women and children related to ovarian stimulation and in vitro fertilization are a cause for great concern, especially in view of the fact that no mechanism for long-term evaluation of the impact of these technologies has yet been put in place in Quebec or in Canada.

MYTH 3

ASSISTED REPRODUCTIVE TECHNOLOGIES ARE

THE SOLUTION TO FERTILITY PROBLEMS.

The high profile of assisted reproductive technologies over the years has contributed in no small part to the idea that these technologies represent the ultimate solution for couples having problems conceiving. But in fact, assisted reproductive technologies provide neither a solution nor a treatment for infertility and sterility.

In vitro fertilization, for example, does not open blocked fallopian tubes. After donor insemination, spermatozoa that are too slow will not be faster. In other words, these technologies do not constitute a "treatment" for infertility because they do not tackle the source of the problem. They are, however, a means of *circumventing* fertility problems.

It would be equally untrue to claim that assisted reproductive technologies represent the only hope for couples having trouble conceiving. Nearly 25 percent of infertility cases remain unexplained,[15]

NEARLY 25 PERCENT OF INFERTILITY CASES REMAIN UNEXPLAINED.

and when infertility can be explained, we see that many factors can have an impact on fertility.

Indeed, the known causes of infertility are quite varied. They may be connected to stress, being overweight or underweight, tobacco consumption, excess consumption of alcohol, use of certain drugs, workplace exposures and conditions, etc.[16] They may also be connected to the environment or the effects of certain pollutants.[17]

THESE TECHNOLOGIES DO NOT CONSTITUTE A "TREATMENT" FOR INFERTILITY BECAUSE THEY DO NOT TACKLE THE SOURCE OF THE PROBLEM.

Furthermore, delaying the first pregnancy to an age when natural fertility begins to decline contributes significantly to women's use of assisted reproductive technologies. In Canada in 2003, 48 percent of women who gave birth were age 30 or older, whereas that figure was 25 percent two decades ago.[18] The fertility rate in women slowly begins to decline between the ages of 30 and 35 and declines more rapidly after that,[19] whereas fertility in men begins to decline later and more slowly, beginning at age 40.[20]

According to the World Health Organization, the effects of sexually transmitted infections, in particular gonorrhoea and chlamydia, are the main cause of sterility in developed countries.[21] In Quebec, the large increase in such infections—a 39 percent increase in gonorrhoea between 2000 and 2005, and an 82 percent increase in chlamydia between 1998 and 2003[22]—is alarming, especially since chlamydia has no symptoms and is often diagnosed too late.

And yet these are factors that could easily be dealt with upstream to prevent infertility problems. Some measures include, for example:

- Investing in prevention and detection of sexually transmitted infections helping to prevent one of the main known causes of sterility in women
- Setting up sex education programs in the schools, helping students to better understand how the menstrual cycle works and how to protect their fertility

- Promoting research on the impact of environmental pollutants on fertility
- Improving socioeconomic conditions for young people who want to start a family rather than pushing them to continually postpone their plans because of job insecurity or debt

Granted, assisted reproductive technologies do give hope to many couples. But at what cost, when we know that at the end of the journey, the majority of them will be in debt, psychologically and physically drained, and often with no baby? As a result, it would be better collectively to devote more effort to achieving a greater understanding of fertility problems than to improving methods of circumventing them. It is also essential to concentrate on prevention rather than to experiment continually with new assisted reproductive technologies and expose people to highly medicalized procedures that are risky for the health of the population and for the human race as a whole.

AT THE END OF THE JOURNEY, THE MAJORITY OF [COUPLES] WILL BE IN DEBT, PSYCHOLOGICALLY AND PHYSICALLY DRAINED, AND OFTEN WITH NO BABY.

ASSISTED REPRODUCTIVE TECHNOLOGIES ARE EFFECTIVE.

ALMOST FOUR OUT OF FIVE PEOPLE, 78.8 PERCENT, WHO HAVE AVAILED THEMSELVES OF A FERTILITY CLINIC HAVE NOT SUCCEEDED IN HAVING A CHILD.

Assisted reproductive technologies are often characterized as scientific "breakthroughs" and "successes." These successes have been heavily promoted and often overstated in the media in order to attract clients and obtain research funding,[23] and there is no question that all this promotion has given the impression that these techniques are far more effective than they really are.

In the wake of widespread criticism that success rates were being manipulated, France has taken significant steps to standardize calculation methods and obtain more reliable statistics. Canada and Quebec, on the other hand, still have no independent public registry to monitor the effectiveness of the various assisted reproductive technologies. As a result, the success rates of the various techniques are measured by the main stakeholders—private fertility clinics—and the evaluation method used and the dissemination of the data are left entirely to their discretion.

Given this state of affairs, care must be exercised in interpreting published success rates. Indeed, because these rates vary according to a number of criteria—such as women's ages, the diagnosis of infertility and the technique used, and the overall results for all women who have made use of these services—they cannot provide a clear and accurate picture of reality. These data are of different types and should therefore be separated into distinct analytical categories in order to evaluate the actual effectiveness of a technique according to established parameters.

To add to the confusion around issues of effectiveness is the variation in how success rates are expressed, with the number of cycles of ovarian stimulation, the number of transferred embryos that were implanted, or the pregnancy rate all being used at different times. Moreover, pregnancy itself can be defined in several ways: as a biochemical pregnancy*, a clinical pregnancy** or a live birth pregnancy. Clearly, depending on the criterion chosen, the success rates obtained will be very different. However, leaving aside the various ways of presenting results, the only thing that really interests people who turn to assisted reproduction is their chance of having a living, healthy child, and on this they need reliable, unbiased information.

Based on data from the Canadian Fertility and Andrology Society, the overall live birth rate for all techniques combined was 21.2 percent in Canada in 2001.[24] Although the chances of success vary depending on a variety of factors as mentioned above, the overall data do nevertheless provide an insight into a troubling state of affairs: Almost four out of five people, 78.8 percent, who have availed themselves of a fertility clinic have not succeeded in having a child.

In other words, many attempts to help a woman become pregnant will fail repeatedly and the individual will experience each negative result as an actual bereavement. After all, these technologies which sustain hope and create great expectations will result in extreme disappointment and a great deal of emotional pain in many cases.

---

* A pregnancy that is detected by the presence of a hormone (hCG) secreted by the embryo once it has been implanted in the uterus.

** A pregnancy that is confirmed by ultrasound scan showing that one or more embryos are present in the uterus.

MYTH 5

ASSISTED REPRODUCTIVE TECHNOLOGIES HAVE BEEN

RIGOROUSLY TESTED.

THUS, PRACTICE HAS COME BEFORE ETHICS AND APPLICATIONS HAVE COME BEFORE PROOF.

The fact that assisted reproductive technologies have been in use for more than 25 years and that they are very accessible no doubt contributes to the notion that they have been adequately evaluated by the medical establishment. However, as surprising and paradoxical as it might seem, assisted reproductive technologies have developed with no constraints, unsupervised, without any long-term social or scientific evaluation of their impact on women and children. Thus, practice has come before ethics and applications have come before proof.

Too often, fertility clinics have been able to develop technologies and use them to treat women when such technologies have not been put through rigorous research testing to determine if they are either harmless or effective. Indeed, Raymond D. Lambert, a researcher at the CHUQ research centre says:

> … if these technologies have risks, it is because they are not used correctly (e.g. in vitro fertilization, ovarian

> stimulation), or because they are being tested directly on humans without previously having been put through animal testing (intra-cytoplasmic injection or microinjection of a sperm cell), or because they are administered to human beings in spite of the fact that animal testing has revealed the risks (in vitro maturation).[25]

Even now in Quebec, some fertility clinics routinely offer in vitro maturation of eggs, even though this "practice" is considered by many to be still in the experimental and research stage.

The lack of reliable scientific data with respect to the long-term risks of these technologies and the fact that some of them are still experimental raises yet other concerns: In such a context of information scarcity, how can women make informed decisions? How can the informed consent of people making use of these technologies be ensured?

Considering the concerns thus raised, it is urgent to carry out testing of the technologies and long-term monitoring of risks to the health of women using them and to the children born as a result. Furthermore, some of these technologies are still experimental, and therefore it is imperative that they be supervised in accordance with appropriate research protocols to demonstrate their safety and harmlessness before they are used.[26] And finally, women who make use of these technologies should be informed of the fact that they are participating in research and they should sign a consent form to that effect.

FERTILITY CLINICS HAVE BEEN ABLE TO DEVELOP TECHNOLOGIES AND USE THEM TO TREAT WOMEN WHEN SUCH TECHNOLOGIES HAVE NOT BEEN PUT THROUGH RIGOROUS RESEARCH TESTING TO DETERMINE IF THEY ARE EITHER HARMLESS OR EFFECTIVE.

MYTH 6

HAVING A CHILD IS A RIGHT!

Sometimes the desire for a child seems so compelling that, in the name of free choice, law and individual liberty, it is defended as an absolute right.[27] Some people consider infertility a disease. This view implies that health is a right, which implies in turn that it is possible for an individual or a couple to conceive a child and that it is their right to do so. Of course children's rights exist, but there is as such no right for an individual or a couple to conceive a child.

The inability to conceive a child within a given period of time may be the result of a psychological problem, but it can also result from a complex combination of socioeconomic, psychological and relational factors. But to what extent can infertility really be considered a disease? It would be a strange disease indeed that exists only in terms of the desire for a child, and whose symptom is frustration at not being able to conceive one.[28]

In reality, infertility is very often a wish gone unfulfilled, a plan that has been frustrated, and in this sense it causes great distress to couples who are faced with it. However, when people view this inability to turn their wishes into reality as a disease and believe that there is a medical solution, access to which they have a right, they may, incredibly, embark on an escalating series of medical interventions, really an exercise in relentless therapeutic treatment, with as many as three, five or even nine cycles of in vitro fertilization.

Such continual medicalization of a wish, like an obsession with scientific progress as a solution to all problems, sometimes turns assisted reproduction into a therapy of pure convenience, one that increasingly reflects a response to a demand for "a child when I want, the way I want." Thus the legitimate desire to conceive a child can increasingly be framed as a right to have a "perfect" child, or at least one without defects, with the medical establishment responding to this desire by making many varied technologies available to individuals.[29]

This sort of medicine based on desire has raised a number of concerns because of the possible pitfalls it entails. In some countries, for example, preimplantation diagnosis is used to choose a baby's sex merely so that couples can achieve gender variety in their families, or to choose an embryo to be a "saviour sibling," one selected for the purpose of serving as a tissue donor for a brother or sister with a serious disease.

Does this mean that there are no limits on the desire for a child, whether it is considered a so-called right or expressed as a wish to have a "designer baby"? Should there be some attempt to set limits on what medical practice can offer or should we accept the belief that anything is perfectly valid and legitimate because technologies now exist to achieve it?

THE LEGITIMATE DESIRE TO CONCEIVE A CHILD CAN INCREASINGLY BE FRAMED AS A RIGHT TO HAVE A "PERFECT" CHILD, OR AT LEAST ONE WITHOUT DEFECTS, WITH THE MEDICAL ESTABLISHMENT RESPONDING TO THIS DESIRE BY MAKING MANY VARIED TECHNOLOGIES AVAILABLE TO INDIVIDUALS.

MYTH 7

ASSISTED REPRODUCTIVE TECHNOLOGIES ARE

PART OF A DISINTERESTED INDUSTRY

Beneath the pronouncements of some practitioners who put themselves forward as the last hope of infertile couples lies the reality of the assisted reproduction industry, a reality we too often forget. A variety of interests come together in this industry, including:

- Practitioners attracted to a high-profile emerging sector that is made more lucrative by international competition
- Those who entertain the fantasy of the ultimate power to give life
- Private clinics with their significant financial backing and need to be profitable

The result, moreover, is the establishment of an industry which, once it is set in motion, can only go forward with supply itself creating demand.[30]

In particular, the commerce of conception serves the interests of the pharmaceutical industry, biomedical and genetic technology companies, and biological research and analysis laboratories. In the United States, the conception industry is estimated at $3 billion dollars annually.[31] In England, it is the most lucrative medical specialty and fertility experts earn more than even the highest paid cosmetic surgeons.[32]

IN ENGLAND, ... FERTILITY EXPERTS EARN MORE THAN EVEN THE HIGHEST PAID COSMETIC SURGEONS.

At the heart of this industry are practitioners in private clinics, who are not only care providers but also entrepreneurs selling reproduction services. Although they may be very professional in their practice, like any good entrepreneur they are in business to make a profit. They are thus both authority and interested party with respect to the patients they see, the services they provide, and the need to earn maximum profit for their business. In this context, as neonatal paediatrician Annie Janvier points out, isn't a doctor more likely to recommend in vitro fertilization if it is financially more profitable?[33]

In fact, such a context puts practitioners in this field in a delicate position with regard to conflict of interest in dealing with couples who are both patients and clients, who are in distress because they do not have a child and are often in a very vulnerable emotional state because of their situation. The choices they face and the health risks they are willing to take thereby become more complicated. Thus, the doctor will have to decide whether to transfer several embryos at once in order to improve the chances of success for his or her clinic—despite increased health risks for a woman—or to take a less aggressive—and perhaps less successful—approach that reduces the health risks for women and children.[34]

Oversight of assisted reproductive technologies should be based first and foremost on principles aimed at protecting women's and children's health. To this end, practice standards should be developed by independent authorities with no conflicts of interest. Unfortunately, as this is written, neither Canada nor Quebec has yet instituted any such mechanisms.

MYTH 8

CHILDREN'S INTERESTS ARE PROTECTED

BECAUSE DONORS ARE ANONYMOUS

IS THE FEAR OF A POSSIBLE DECREASE IN THE NUMBER OF DONORS A VALID AND SUFFICIENT REASON FOR DELIBERATELY DEPRIVING CHILDREN OF KNOWLEDGE ABOUT A PART OF THEIR ORIGINS?

In Canada, as in most countries, the anonymity of sperm and egg donors is protected. However, in the interests of children, the issue of donor anonymity is raising an increasing number of questions and concerns.

Anonymity means that the donor on the one hand, and the recipient couple and their child on the other, do not know each other's identities. Only the donor's non-identifying information, such as hair and eye colour, height, occupation, interests, etc., and medical information are accessible and may be revealed to the child if necessary.

Those in favour of maintaining anonymity base their argument on protecting the donor's privacy and the risk of a possible decrease in the number of donors if anonymity were removed. Since the Quebec *Code civil* recognizes neither responsibility nor parental rights with respect to a child born of a sperm or egg donation, is anonymity justified? Is the fear of a possible decrease in the number of donors a valid and sufficient reason for deliberately depriving children of

knowledge about a part of their origins, which are a key factor in their identity, experience and background? Children born of anonymous donors did not choose not to know part of their genetic origins; the choice was imposed on them. If anonymity is removed, adult children will have the right to learn more about the man or woman who contributed to their conception if they wish to do so.

MYTH 9

ASSISTED REPRODUCTIVE TECHNOLOGIES ARE

AN ADVANCE FOR HUMANITY

WE ARE MOVING INCREASINGLY AWAY FROM THE *WANTED* BABY TOWARD THE MADE-TO-ORDER, *DESIGNER* BABY.

Over the last few decades, assisted reproductive technologies have become increasingly familiar through media coverage, so much so that they now seem to be a normal path to parenthood. However, behind this situation is another reality that transforms our perception of the very foundations of human identity.

In fact, beyond enabling people to become parents, assisted reproductive technologies destroy our understanding of what it is to produce a child. According to sociologist and professor Louise Vandelac, we are the first generation in history to regard human beings as component parts, parts, moreover, that may be many kilometres or years distant from each other, with sperm, eggs and embryos being purchased via internet or mail order.[35] Now we can produce a child in the laboratory. We are moving increasingly away from the *wanted* baby toward the made-to-order, *designer* baby.[36] Little by little these technologies are beginning to change our very notion of

what human beings are, and with preimplantation diagnosis we can control their quality, choose specific characteristics or correct specific defects. But where will this "ultimate power of the desire for a child" and this overwhelming desire for a perfect child lead? Are we not coasting slowly towards eugenics?

The illegal sale of gametes, which exists on the Web, is also transforming and weakening the very foundations of human dignity insofar as the body and its parts are the underlying source of every human being's identity. Do we as a society want to consider human beings as nothing more than a consumer product that can be given or traded and its parts marketed?

Does the progress we want for humanity mean having human beings become perfect, utilitarian, medical devices or trade goods? Or does real progress have us avoid, or at least limit, the need to turn to such technologies by taking preventive measures that will help preserve fertility, and ensure the best socioeconomic conditions possible for people to become parents. Real progress would also mean that we are able to establish safety parameters that must be obeyed in order to avoid any type of abuses that could endanger the life and development of human beings.

Assisted reproductive technologies, the results of efforts of creative scientists, practitioners and investors, have been imposed as a *fait accompli* and their relevance and merits are not the result of collective decisions; to date, we have become the target of these technologies over which we have had practically no control. And yet, in a democracy, we should be collectively determining the role and relevance of such technologies and how they should be supervised. After all, science should serve human beings, not the reverse.

GLOSSARY

ASSISTED REPRODUCTIVE TECHNOLOGIES

WHAT ARE THEY EXACTLY?

DONOR INSEMINATION

Donor insemination is a procedure in which sperm is deposited into the cervix or uterus during ovulation for the purpose of increasing the chances of fertilization. Donor insemination is usually repeated several times and is often done in conjunction with ovarian stimulation in order to increase the chances of success, which also contributes to a significant increase in the related risks.

Insemination is mostly used to treat fertile women when there is a problem with male fertility. It is also used by lesbian couples or single women who seek to have a child without a male partner. Insemination may also be done with the partner's sperm or with the sperm of an anonymous donor provided by a sperm bank, or a known donor. A surrogate mother may also be inseminated with the sperm of a man to whom she will later give the child.

Donor insemination therefore requires the handling of sperm. There are a number of issues in connection with the methods for

collecting, analyzing, preserving, freezing, marketing and exporting sperm, such as advertising practices, donor anonymity, etc., as well as with the various uses that may be made of it.

OVARIAN STIMULATION

Ovarian stimulation involves taking various doses of hormones in order to cause the ovaries to produce several mature, viable eggs, from 3 to 15 or more, during a single cycle.

Ovarian stimulation is recommended for women to accelerate or increase the chances of natural conception or to increase the chances for success of donor insemination. Ovarian stimulation is also used in the process of in vitro fertilization to retrieve as many eggs as possible, which will later be fertilized and transferred, thus increasing the success rate. This procedure, in which several embryos are transferred to a woman's uterus, is in fact the cause of one of the principal health problems in connection with assisted reproductive technologies: multiple pregnancies. Ovarian stimulation also leads to the creation of thousands of so-called "spare" embryos, which can be frozen and used in subsequent attempts, given to another couple, or used as materials for research.

Some drugs used in ovarian stimulation have not been approved for this purpose nor have their long-term effects on women's health been adequately investigated. But despite this, some studies have demonstrated the potential short- and long-term risks.[37] We know, for example, that these procedures can cause significant side effects such as swelling or bursting of the ovaries, haemorrhaging, kidney problems or serious hormonal imbalances. Some people have also raised concerns about links between these drugs and ovarian cancer, but not enough studies have yet been done on that subject.[38]

Ovarian stimulation is also done in the case of egg donors—women who are not infertile—in order to increase the number of eggs that

can be retrieved in a single cycle. Some women donate their eggs not only for use in a fertility clinic but also (as in England where it is permitted by law) for research on stem cells or therapeutic cloning. This latter procedure has been increasingly promoted as a promising treatment for diseases such as Parkinson's. But these claims don't consider the significant concerns many have raised about the incalculable number of eggs that would be needed to obtain meaningful results and the number of women who would thus be exposing themselves to significant health risks while deriving no benefit to themselves.[39] Such research also opens the door to reproductive cloning, in other words cloning of identical human beings, which raises a number of concerns about human development itself.

In vitro fertilization

Simply put, in vitro fertilization is a procedure in which fertilization is brought about by combining eggs and sperm outside a woman's body in a Petri dish. But this procedure is far more involved and complex than it seems. First, a woman's ovarian function is suppressed by administering oral contraceptives or pituitary gland inhibitors. The purpose of this step is to replace the woman's natural cycle by an entirely artificial cycle so that all stages of the procedure can be controlled, thereby facilitating the scheduling of the operating room and personnel.

Once the inhibition of ovarian function has been confirmed, the ovarian stimulation procedure begins with the woman taking large doses of hormones. The purpose of this step is to stimulate the development of several ovarian follicles, increasing the number of eggs that can be retrieved in a single cycle. When the eggs are mature, ovulation is started by injecting a pregnancy hormone. Egg retrieval is done under local anaesthetic and women are offered pain medication. Although a single egg per cycle is needed for natural

conception, too often the goal is to produce as many mature eggs as possible to increase the chances of success of IVF.

Next comes the actual in vitro fertilization step. The collected eggs are analyzed and then combined with the sperm of the partner or a donor in a Petri dish where fertilization takes place—not in a test tube as the popular expression suggests. Two days later the number of developed embryos can be determined. Next, one or several embryos are transferred to the woman's uterus. After the embryos are transferred, the woman takes other types of hormones (progesterone) in order to encourage implantation of one or more embryos.

Even today there is no standard restricting the number of embryos that can be transferred into a woman's body. Several years ago, the number could be as many as five, six or even nine embryos at one time. However, transferring several embryos into the uterus significantly increases the number of multiple pregnancies and the number of premature babies, whose health and development can be dangerously compromised. Consequently, many physicians and others call for limiting the number of embryos transferred to one, or at most, two.

The embryos that are not used, called "spares," are destroyed, donated, or frozen for later use or for use in research. This technique makes human reproductive material—sperm, eggs and embryos—available for manipulations of different kinds or for marketing, which raises a large number of ethical questions indeed.

Failure can occur at any stage of in vitro fertilization. The patient may have a bad reaction to ovarian stimulation, the eggs may fail to be fertilized, the embryos may not be implanted in the uterus, etc. Some women will try a second, third or even a tenth time, each time with high risks and serious costs to their physical and psychological health, their relationship with their partner, and their finances.

Intra-cytoplasmic sperm injection or microinjection

Micro-injection is a procedure used in in vitro fertilization. It involves introducing a single sperm cell into an egg by injection through a very fine needle. Initially this technique was used in cases of male infertility—low sperm count in the ejaculate, for example—so as to pass on the father's genetic material and not have to rely on an outside donor. However, in recent years this technique has been used increasingly for other reasons, so much so that it has become more or less routine. In 2001, for example, more than 55 percent of in vitro fertilizations in Canada were done using microinjection.[40]

This technique, which was first used directly on humans without any animal testing, is relatively new, having been used for the first time in 1992; long-term effects on the health and growth of children born as a result of this procedure cannot yet be evaluated. On the other hand, we know that microinjection increases the risk of congenital malformations, genetic problems and chromosomal abnormalities in such children.[41]

Although microinjection may circumvent fertility problems in some men by making it possible for them to have a child who carries their genes, it nevertheless raises concerns. In fact, enabling sterile men to conceive children introduces the risk that such children will be sterile themselves, although this has not been sufficiently tested.

Preimplantation genetic diagnosis

Preimplantation genetic diagnosis is a procedure done in conjunction with in vitro fertilization. It involves detecting certain hereditary diseases, such as muscular dystrophy, haemophilia, cystic fibrosis, etc., from the very earliest stage of an embryo's development before it is transferred to a woman's uterus. Only "healthy" embryos will be transferred; the others will be destroyed or used for research.

Preimplantation diagnosis is the point where genetic techniques and in vitro fertilization meet, making it possible to eliminate embryos that carry certain genetic diseases. But it can also be used to develop a "quality" child by selecting specific desired genetic traits, such as sex. It can also be used to produce a "saviour sibling," a baby selected and conceived for the express purpose of serving as a donor for a brother or sister with a serious disease. Considering the seriousness of the ethical questions this raises, it is important to have limits and controls on the uses that can be made of preimplantation diagnosis.

But who can decide what is and is not acceptable or which traits to encourage and which to eliminate? Where should the line be drawn between legitimate requests and matters of preference, such as eye colour? Will identifying a gene for predisposition to certain types of cancer, for example, lead to the elimination of embryos that have that predisposition, even though that cancer might be related to a number of other factors and might never develop? How should normal and abnormal be defined? Could it be that the availability of preimplantation diagnosis means that the medical establishment will be less inclined to perform research and develop new treatments for diseases that can now be eliminated using this diagnostic technique?[42]

Preimplantation diagnosis opens the door to an increased ability to control life, and there is no doubt that as a result our very notions of human difference and diversity may change, more than ever bringing us face to face with the spectre of eugenics.

IN VITRO MATURATION

Unlike in vitro fertilization, where eggs are collected at the peak of their maturity after ovulation, immature eggs are used in in vitro maturation. Maturation takes place in the laboratory, thereby prolonging the various stages of conception outside a woman's body and under medical control.

This technique, which is said to have been developed to help women who have problems with ovulation, is often represented as an alternative to ovarian stimulation. Used in conjunction with egg freezing techniques, in vitro maturation makes it possible to preserve immature eggs, for example allowing women undergoing cancer treatment to preserve their eggs for later use.

In vitro maturation has been used on human beings despite research in animals showing that it poses some risk[43]. Moreover, the use of in vitro maturation is gradually increasing even though such experiments have not been supervised in such a way as to evaluate adequately the related risks.[44]

The potential ethical consequences of such a practice are numerous. For example, it may be possible to remove immature eggs from cadavers or from aborted foetuses. "This source, which is as yet available only for scientific research purposes, could favour the development of 'egg donations' from an anonymous foetus to a sterile or menopausal woman."[45] Moreover, using in vitro maturation makes it possible to obtain an abundant supply of eggs, thereby potentially clearing the way for therapeutic or reproductive cloning, since there require large numbers of eggs. It could also increase the eugenic power of preimplantation diagnosis, which has so far been limited by the small number of embryos to choose from.[46]

Surrogate mothers

A surrogate mother is the term used to describe a woman who carries a child that will be given to another individual or to a couple after it is born. Although most people who turn to a surrogate mother are heterosexual couples where the woman is sterile, sometimes homosexual couples or single men also use this approach.

A surrogate mother may conceive a child through donor insemination using her own egg and the sperm of the biological father-to-be. More

often, she will carry a child conceived through transferring an embryo created from the sperm and egg of the man and woman who will be the child's eventual parents.

In all cases, the surrogate and the commissioning couple sign a contract setting out the terms and conditions of the pregnancy and the procedure for handing over the child immediately after its birth. No remuneration of any kind is permitted in Quebec. In Canada, such agreements may contain certain financial arrangements: for example, some expenses in connection with the pregnancy may be covered or other forms of compensation may be allowed. In Quebec, surrogacy contracts are not recognized and have no legal value if there is a dispute or legal action between the parties.

Surrogacy, whether commercial or altruistic, is in itself a form of instrumentalization of children and of women who lend or rent their uterus. The practice depersonalizes surrogates by turning them into living incubators and commodifies children by treating them as articles of trade or commerce.

This practice raises other questions and issues as well. How will children understand the story of their origins and how will they come to terms with their parentage? What will the psychic and physical effects be on a child grown in the womb of a woman who does not expect to love or raise that child? What are the psycho-emotional risks to a woman who has agreed to carry a baby for nine months, has felt it move and develop inside her, has given birth to it, only to sell it or give it up? How can we allow a child to be bought and sold and how can we let a woman's value be reduced to her reproductive functions?

References

(1) Allard, S. (2002, August 10). Un bébé, mais à quel prix? La procréation assistée, pour le meilleur et pour le pire. *La Presse*, p. B-4.

(2) Larsen, U. (2005). Research on Infertility: Which Definition Should We Use? *Fertility and Sterility*, *83*, 846-852.

(3) Fédération du Québec pour le planning des naissances. (1994). *Quatre femmes, quatre cultures: Le planning des naissances au Québec, bilan pour l'action* [Brochure]. Montreal.

(4) National Collaborating Centre for Women's and Children's Health. (2004, February). *Fertility: Assessment and Treatment for People with Fertility Problems*. Retrieved from http://www.nice.org.uk/page.aspx?o=cg011NICEguideline

(5) Parisian, S. (2005). The Manner in Which Eggs Will Be Extracted from Healthy Women Donors. From Hands Off Our Ovaries. Retrieved from http://www.handsoffourovaries.com/pdfs/appendixb.doc

(6) Goodall, L. (2006, August 14). Woman Dies after Routine IVF Treatment. Retrieved from http://www.bionews.org.uk/new.lasso?storyid=3143

(7) Beeson, D., & Lippman, A. (2006). Egg Extraction for Research: Risks to Young Healthy Women. *Reproductive Biomedicine Online, 13*. Retrieved from http://www.rbmonline.com/4DCGI/Article/Detail?38%091%09=%202503%09

(8) *Ibid.*

(9) Parisian, S.

(10) Lambert, R.D., & Sirard, M.-A. (2005). Sur les conditions d'exercice de la pratique médicale du traitement de l'infertilité et de la recherche connexe. *L'Observatoire de la génétique, 23*. Retrieved from http://www.ircm.qc.ca/bioethique/obsgenetique/cadrages/cadr2005/c_no23_05/c_no23_05_02.html

(11) Janvier, A., for the Société des néonatalogistes du Québec et l'Association des pédiatres du Québec. (2006, March). *Mémoire sur le projet de loi 89, Loi sur les activités cliniques et de recherche en matière de procréation assistée et modifiant d'autres dispositions législatives*. Presented at the Commission des affaires sociales.

(12) *Ibid.*

(13) Mitchell, A.A. (2002). Infertility Treatment—More Risks and Challenges. *New England Journal of Medicine*, *346*, 769-770.

(14) Lambert, R.D. & Sirard, M.-A.

(15) Bastian, H., & Gupta, S. (2002, December). *Unexplained Infertility*. Cochrane Collaboration Consumer Network.

(16) Pinsonneault, S., & Ouellette, G. (1995). *Fertilité et milieu de travail*. Montreal.

(17) Luoma, J. (2005, October). *Challenged Conception: Environmental Chemicals and Fertility.* Retrieved from http://obgyn-nw.ucsf.edu/docs/Challenged_Conceptions.pdf#search=%22%20environmental%20chemicals%20fertility%22

(18) Statistics Canada. (2005, July). Births 2003. *The Daily*. Retrieved from http://www.statcan.ca/Daily/English/050712/d050712a.htm

(19) Bastian, H., & Gupta, S.

(20) De La Rochebrochard, E., *et al.* (2006). Fathers Over 40 and Increased Failure to Conceive: The Lessons of In Vitro Fertilization in France. *Fertility and Sterility, 85*, 1420-1424.

(21) World Health Organization. Assisted Reproduction in Developing Countries–Facing Up to the Issues. *Progess in Reproductive Health Research*, *63*.

(22) Laberge, C., & Venne, S. (2006, January). Hausse des ITS, émergence de nouvelles ITS, a-t-on perdu la maîtrise de la situation? *Le Médecin du Québec*, *41*.

(23) Reid, R. (1999). *New Reproductive Technologies: Evolution, Rational and Technical Aspects*. Retrieved from http://meds.queensu.ca/medicine/obgyn/IIE/technology.htm

(24) Gunby, J., & Daya, S. (on behalf of the IVF Directors Group of the Canadian Fertility and Andrology Society). (2005). Assisted Reproductive Technologies (ART) in Canada: 2001: Results from the Canadian ART Register. *Fertility and Sterility*, *84*, 590-599.

(25) Lambert, R.D., & Sirard, M.-A.

(26) Lambert, R.D., *et al*. (2006, March). *Mémoire sur le projet de loi 89, Loi sur les activités cliniques et de recherche en matière de procréation assistée et modifiant d'autres dispositions législatives*. Presented at the Commission des affaires sociales.

(27) Bourg, C. (1992). *L'infertilité: procréation médicalement assistée, adoption, filiation, questions éthiques, psychologiques, juridiques et scientifiques*. Texts assembled by the author. Montreal: ERPI Science; Brussels: De Boeck-Wesmael.

(28) Vandelac, L. (1988). *L'infertilité et la stérilié: l'alibi des technologies de procréation*. (Sociology thesis, Paris, Université de Paris VII.

(29) D'Adler, M.-A., & Teulade, M. (1986). *Les sorciers de la vie*. Paris: Gallimard.

(30) *Ibid*.

(31) Spar, D.L. (2006). *The Baby Business: How Money, Science, and Politics Drive the Commerce of Conception*. Boston: Harvard Business School Press.

(32) Goodchild, S., & Owen, J. (2006, January 8). The Baby Millionaires: Fertility Experts Become Medical Profession's Highest Earners. *The Independent.*

(33) Janvier, A.

(34) *Ibid*.

(35) Vandelac, L. (2002). *Sortie en douce de l'espèce humaine...* Retrieved from http://sisyphe.org/article.php3?id_article=265

(36) D'Adler, M.-A., & Teulade, M.

(37) Beeson, D., & Lippman, A.

(38) *Ibid*.

(39) Henderson, M. (2006, February 14). Donor Breakthrough for Cloning Research. *The Times*.

(40) Gunby, J., & Daya, S.

(41) Hansen, M., Kurinczuk, J.J., Bower, C. & Webb, S. (2002). The Risk of Major Birth Defects after Intracytoplasmic Sperm Injection and In Vitro Fertilization. *New England Journal of Medicine 346,* 725–730; Garcia, G. et al. Stérilité du couple à définition masculine par azoospermie et fécondation in vitro assistée par micro-injection (F.I.V.-I.C.S.I.) Réflexions à partir d'une étude prospective portant sur nos 42 premiers patients. (2002). *Progrès en urologie, 12,* 429-436.

(42) Simard, N. (2001, March 2). *Diagnostic préimplantatoire. Bébés à la carte*. Presented at the third annual Seminar on Biotechnology, Ottawa.

(43) *Ibid*.

(44) Lambert, R.D., & Sirard, M.-L.

(45) Testart, J. (2004, November). Des ovules en abondance? *M/S: médecine sciences*, *20.* Retrieved from http://www.erudit.org/revue/ms/2004/v20/n11/009707ar.html

(46) *Ibid*.

FÉDÉRATION
DU QUÉBEC
POUR LE PLANNING
DES NAISSANCES

Fédération du Québec pour le planning des naissances
110, rue Ste-Thérèse, bureau 405
Montréal (Québec) H2Y 1E6

www.fqpn.qc.ca