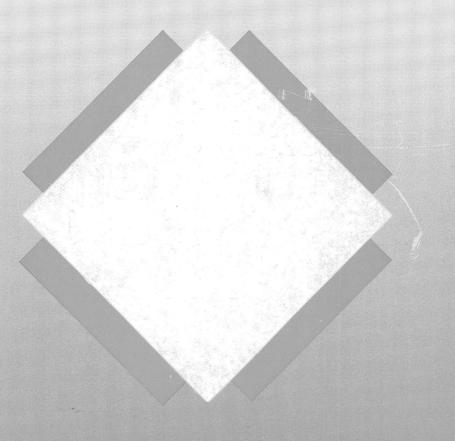
Royal Commission on New Reproductive Technologies

Commission royale sur les nouvelles techniques de reproduction



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ROYAL COMMISSION RELEASES STUDY OF DONOR INSEMINATION

OTTAWA — Donor insemination is the oldest, simplest, and most widely used of all assisted reproduction techniques, but the secrecy surrounding this procedure, and the complete anonymity of sperm donors as well as the medicalization of the procedure need to be addressed, according to a report released by the Royal Commission on New Reproductive Technologies.

The study, entitled **Donor Insemination:** An **Overview**, was prepared for the Commission by Dr. Rona Achilles, Coordinator of Family Planning Research and Information, Department of Public Health, for the City of Toronto. To prepare this overview, Dr. Achilles reviewed over 200 articles and reports and undertook an informal, exploratory survey of sperm banks. In November 1990, Dr. Achilles organized and moderated for the Commission a roundtable discussion of those who had used donor insemination.

Dr. Achilles found that donor insemination is chosen by people as a reproductive option for a variety of reasons. Heterosexual couples may use it to circumvent infertility of the male partner, to avoid transmission of a genetic disease or when there is blood type incompatibility. Single women or lesbian couples may use this option when they do not have a male partner. Dr. Achilles points to the relatively low cost of donor insemination compared to other reproductive technologies, as well as relatively high success rates since the women being inseminated do not usually have fertility problems.

The report notes how the dominant concern in the medical literature about donor insemination has shifted from the legal, ethical and religious debates of the 1950s and 1960s to concern about the transmission of sexually transmitted diseases to recipients of donated sperm. Despite the existence of rigorous guidelines in most jurisdictions, evidence suggests that the actual practice with regard to donor screening varies considerably from one jurisdiction to another.

The secrecy about the procedure, as well as the complete anonymity between recipients and sperm donors, make it difficult to undertake research on donor insemination. However, international and national trends are now moving toward more openness in the practice. Whether to tell, what is the impact of telling or not telling, and if so, who to tell (family, friends, the children?) are the emerging issues.

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The absence of an adequate system of reporting or monitoring births from donor insemination makes it difficult to know how common donor insemination is in Canada. Nation-wide estimates done in the early 1980s show a steady increase, with births ranging from 1 519 to 6 000 annually.

Dr. Achilles found that the psychological and social aspects of the practice in medical settings has not changed in over a century. The medicalization of the procedure and the doctor-patient confidentiality emphasize anonymity and secrecy, so that the voices of DI mothers, their partners, the donors, or the children conceived through donor insemination are rarely heard.

Little empirical research has been done into long-term issues arising from the practice of donor insemination, for example, what it means for the definition of "fatherhood." How will the children conceived through donor insemination feel about their origins? Will they want access to information about their biological father as adoptees have wanted about their birth parents? The effects of donor insemination on the family and on the community are not well understood and the author suggests avenues for future research into these areas. As well, she proposes an examination of the attitudes and practices of physicians and sperm banks in this practice.

The Commission was established in October 1989. Studies such as this one are being released throughout the Commission's mandate to inform the public and to assist those working in the field of reproductive health. The Commission's Final Report will be submitted to the federal government in October 1992.

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(For further information, or to obtain a copy of the study, contact Anne Marie Smart, Communications Division, at 613 957-0597.)

DONOR INSEMINATION: AN OVERVIEW

by

Rona Achilles, Ph.D.

March 1992

Prepared for the

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This paper was commissioned by the Royal Commission on New Reproductive Technologies. It is designed to inform the Commission and the general public on issues being considered by the Commission.

The information contained in this paper was provided by the author and does not necessarily reflect the views of the Commission.

Copies are available from the Royal Commission on New Reproductive Technologies by quoting No. 203-E. (The Commission reserves the right to limit quantities.)

The Royal Commission on New Reproductive Technologies was established in October 1989 to examine current and potential medical and scientific developments related to new reproductive technologies. In particular, the Commission has been asked to consider their social, ethical, health, research, legal, and economic implications for women, children, and society as a whole. The Commission is to report to the federal government by October 1992.

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Preface from the Chairperson

The federal government established the Royal Commission on New Reproductive Technologies in October 1989 and gave it a wide-ranging mandate. The mandate directs it to examine the issues surrounding a range of new reproductive technologies, considering in particular their social, ethical, health, research, legal, and economic implications.

The challenge facing the Royal Commission is to help Canadians understand and deal with the implications of new and powerful technologies related to human reproduction. Canadians have many questions about how the technologies are already being used in Canada, and why, and about what their role in society should be.

In many of the areas covered by the Commission's mandate, reliable data are simply not available on which to base recommendations as to what policies and safeguards should be applied. For this reason, the Commission set in motion a multi-disciplinary program of Research and Evaluation to provide rigorous, credible, and timely data about and critical analysis of the issues surrounding new reproductive technologies.

The Royal Commission is committed to an open and transparent research process with high standards and a protocol which includes peer review. Specialists in academic disciplines ranging across law, history, ethics, medicine, sociology, and philosophy are examining the implications of the technologies through a variety of methods. The Commission is in contact with various communities across the country to solicit advice and to commission research projects. Guidelines have been developed to help ensure the quality, integrity, and usefulness of all research studies. Research projects are subjected to rigorous internal and external review processes, first at the design stage and later at the report stage. Peer review for content and for methodology is a key feature of the process. In addition, researchers using human subjects are required to comply with appropriate ethical review standards.

Many academics, researchers, and groups who have participated in the Commission's work have requested access to the data and information generated by the Commission to help them consider their positions and make their recommendations to the Commission.

In response to these requests, the Commission sought and obtained permission to publish some of the research papers in advance of its Final Report. Reports such as this one will be released over the duration of its mandate to assist those working in the field of reproductive health and new reproductive technologies and to help inform the public.

Acknowledgments

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Executive Summary

Donor insemination (DI) is a type of artificial insemination that has been practised in Canada for several decades and has had little public attention or research interest. It is a reproductive alternative to sexual intercourse chosen by a variety of people for different reasons. The medicalization of DI has encouraged secrecy about the procedure and has allowed neglect of important psychosocial, ethical, and legal issues associated with the process. The author provides an overview of the practice of DI and points to gaps in the knowledge base in research on donor insemination.

DI is generally used in cases of male infertility for heterosexual couples, but may also be used by single or lesbian women who do not have a male partner. The author describes the various methods of insemination, including self-insemination. She points to the relatively low cost of donor insemination compared to other reproductive technologies, as well as the relatively high success rates, since the participants do not necessarily have fertility problems.

In the last decade, the dominant concern in medical literature about DI has shifted from the legal, ethical, and religious debates of the 1950s and 1960s to concern about transmission of sexually transmitted diseases (STDs), and the guidelines of various professional associations have reflected this shift. However, despite the existence of rigorous guidelines, evidence indicates poor adherence to them.

Although record-keeping in DI practice is considered important, it continues to be irregular. Consequently, it is impossible, at this time, to determine the incidence of donor insemination. In the early 1980s, estimates for annual DI births in Canada ranged from 1 519 to 6 000.

The author outlines the history of artificial insemination from its origins in animal husbandry, through the first recorded human artificial insemination in London, England in 1793, to the first recorded use of frozen sperm in the 1940s in the United States. Ethical and legal questions related to DI have made it a controversial procedure, and its eugenic potential has been frequently raised in public debates.

The anonymity and secrecy facilitated by medicalization are the defining social features of DI practice. Very little is known about the experience of DI mothers, their partners, the donors, or the children conceived through DI. The psychosocial issues raised by DI practice have therefore had little or no attention in empirical research. Prominent among the psychosocial issues are questions about the definition of fatherhood, as well as other matters of sexuality, reproduction, and family. Few empirical studies address the issues of the donor's role, the long-term issues for donors, offspring, and recipients, or the impact of DI on the community. The issue of secrecy is a key one and has ramifications for all participants in the procedure.

The medical risks associated with DI practice, ranging from transmission of infection to a variety of reproductive conditions, are outlined. In addition, the results of an exploratory study

of Canadian and U.S. sperm banks, gathering data on their advertising, donor screening, counselling, and other practices, is described.

Finally, the author sets out what research needs to be done with regard to the attitudes and practice of physicians and sperm banks, and the attitudes and experiences of the community, donors, recipients, and offspring.

Introduction

The fact that it is no longer necessary to have sexual intercourse to reproduce has introduced changes to the social relationships surrounding reproduction. Although the risks of reproducing are altered through various interventions, therapies, and treatments, it is in the realm of human relationships that the term "reproduction revolution" ¹ takes on its greatest significance.

In its original and simplest form, donor insemination (DI) is best described as a social arrangement rather than a technology. It is a simple procedure in which a woman is inseminated with sperm from a man other than her partner. Donor insemination does not cure or treat male infertility but circumvents the problem by using a fertile man's sperm. DI is simply a replacement for sexual intercourse. A woman can use donor insemination to become pregnant when her male partner has a fertility problem or to avoid transmission of a genetic disease. A woman may also choose to use DI when she is single or has a female partner. A woman who has a partner with a fertility problem arranges through a doctor to conceive with a fertile male who will most likely be unknown to her. This situation is the same for couples who wish to avoid the transmission of disease and for single and lesbian women who do not have male partners. The physician becomes a kind of "sperm broker" arranging for conception between two fertile people.

Once referred to as artificial insemination by donor, the insemination is "artificial" only in the sense that sperm is placed in a woman's reproductive tract manually rather than through ejaculation during sexual intercourse. Conception, gestation, and birth occur in the same way as they do in any other pregnancy. Why would a woman choose artificial insemination over sexual intercourse to become pregnant? What are the implications of this choice? Why is this simple procedure controlled by the medical profession? Answers to these questions begin the complicated process of unravelling the medical and social processes that this potentially simple procedure can involve.

DI was first documented in medical literature over a century ago and has been practised in Canada for several decades. Its existence has risen to public consciousness on occasion through legal cases, through debate about its eugenic potential, or through religious condemnation. Overall, however, donor insemination has been practised quietly and secretly and currently still operates in an almost total legal vacuum. Public attention now directed to the procedure is largely a result of other developments, such as in vitro fertilization and preconception contracts, whose processes and implications are more publicly visible. clandestine nature of donor insemination for over a century can be understood, not as a result of the ramifications being so minor, as some have implied,² but perhaps because the ramifications are so great.

Medical control has been established over this simple process. By selecting and screening both recipients and donors, physicians decide who will become parents. In doing so, they may perpetuate cultural mythologies about who is a "fit" parent and who is not. Medicalization of DI also shapes how the procedure is perceived. Sperm is viewed as a "treatment" or a "cure,"

like a drug, rather than as the reproductive gametes of another human being. Secrecy about the procedure encourages participants to ignore the psychosocial issues, which would become evident if the process were openly acknowledged. Medicalization of DI has also resulted in unnecessary medical interventions on fertile women in order to increase the efficiency of the procedure.

The psychosocial, ethical, and legal³ issues involved in this arrangement are enormous; in fact, it was once possible to argue that the issues involved were predominantly and perhaps solely psychosocial, ethical, and legal rather than medical. Two things have changed this situation. One is the advent of AIDS, which makes it necessary to freeze sperm for six months in order to test the donor for HIV antibodies. The second is a result of the medicalization itself, and is the use of more invasive and complex methods of insemination than the original placement in the vaginal canal — including insemination in the uterus or the fallopian tubes or injection of sperm in the perineum. Both of these changes mean that DI is now, as well as a social arrangement, a more complex technical procedure with the accompanying risks.

As well as the plethora of psychosocial and ethical issues faced by the participants, there are a number of broader sociological shifts created by this separation of sex and reproduction. In fact, some of our culture's most deeply embedded assumptions, beliefs, and practices with respect to how children are conceived can be altered by donor insemination. These cultural conceptions involve notions of privacy, familiarity, and proximity in time and space associated with reproduction. Practices such as long-distance sperm banking, posthumous insemination, and interventions for sex and other characteristic pre-selection⁴ raise many issues regarding the potential for eugenic consequences of donor insemination.

This paper is devoted to a survey of the English-language literature currently available on donor insemination. There are several biases inherent in letting the available literature guide the organization and content of the paper. First, the literature is predominantly medical and all the biases of the medical model are apparent in the literature review. The overwhelming majority of research available is on technical issues related to screening donors, increasing the efficiency of the procedure, or on development of new procedures. The focus of medical research is not on the psychosocial or ethical issues, hence the voices and experience of the participants in the procedure are rarely heard. There is little information available on self-insemination, even in the non-medical literature.

Compared to other methods of assisted reproduction, such as *in vitro* fertilization (IVF), there has been little research undertaken on the subject of donor insemination. The purpose of this paper, however, is to identify precisely these gaps in the knowledge base and make recommendations regarding future research. As the paper will repeatedly point out, there are almost no data on the practice in Canada.

Description of the Practice

Donor insemination is the oldest, simplest, and most widely used of all assisted reproduction technologies. It is potentially a simple procedure, used to achieve insemination and fertilization without sexual intercourse. In its most rudimentary form, a sample of sperm, usually collected through masturbation, is placed in the upper vagina at the time of ovulation. Although the procedure hardly warrants description as a technology, technical expertise is used in medical settings to screen donors, prepare sperm, and, in some cases, enhance the fertility of the female recipient. Some variations of donor insemination are more complex and employ other therapies and drug treatments.

There are two main types of artificial insemination practised in medical settings. In donor insemination (DI), sperm from a man other than a woman's partner is used. In artificial insemination homologous (AIH), the sperm from the woman's partner is used. In the past, some physicians have practised a third type of artificial insemination called artificial insemination combined (AIC). In this procedure, sperm from one or more donors is pooled with the woman's partner's sperm to obscure the identity of the biological father and encourage the view that the child is the woman's partner's. The objective of this method, however, is no longer considered to be good medical practice. Outside medical settings, women can use self-insemination (SI) to become pregnant. Self-insemination is similar to DI in that sperm from a man who is not the woman's partner is used, but it is different in that physicians are not involved.

Although DI and AIH are technically identical procedures,5 the social features of the practice of donor insemination are distinctive in a number of ways.⁶ Since the source of the sperm in DI is not the woman's husband or partner, the practice violates some deep cultural norms. For this reason, DI is practised through a number of complex social processes, which ensure anonymity between the sperm donor and the recipient(s) and which generally encourage secrecy and confidentiality. All of these aspects of DI — the anonymity, the secrecy, and the confidentiality — are facilitated by the medicalization of a process that is not necessarily medical in nature. A woman could, for example, find other ways to become pregnant by a man other than her husband/partner without going to a doctor.⁷ This is true whether or not she has a male partner. When DI is described in these terms, the psychosocial aspects of the procedure become apparent. Defining and treating DI in medical terms attempts to gloss over some of the more difficult psychosocial issues that the procedure raises. Another consequence of secrecy is that it is impossible to report the incidence of the procedure accurately, since accurate records are not always kept. In addition, systematic follow-up procedures are not in place to monitor any aspect of the procedure, whether medical or psychosocial.

Reasons for Use

Artificial insemination is generally described as a treatment for male infertility. This is indeed an accurate description of AIH, where the sperm is manipulated to enhance its fertilizing capacity. In donor insemination, however, no attempt is made to alter the causes of the infertility in the man himself; rather, his infertility is circumvented by the use of another man's fertile sperm.

AIH may be used when a man is undergoing treatment that might damage his sperm, for example, chemotherapy or pituitary surgery. In these cases, sperm is frozen for future use. Other applications of AIH include its use for cervical factor infertility, idiopathic infertility, psychogenic or organic impotence, and vaginismus. AIH is also used for posthumous insemination or after the sperm has been subjected to sex selection techniques, both of which are controversial because of the social implications of these procedures.

The most widely accepted uses for DI are for the absence of sperm (azoospermia) or a low sperm count (oligozoospermia) in the male partner. DI is also employed to avoid transmission of a serious hereditary or genetic disorder (such as Huntington, hemophilia, or Tay-Sachs disease, or for chromosomal abnormalities) or to avoid blood type incompatibility. DI may also be used when the male partner has an untreatable illness, a medical disorder that inhibits ejaculation, antisperm antibodies in his semen, or has had a vasectomy. Single and/or lesbian women may use DI to become pregnant because they do not have a male partner.

Male Infertility

Sterility and infertility are frequently confused as the same thing. Sterility, however, refers to permanent or incurable infertility, and infertility is most commonly defined as the inability to achieve pregnancy after one year of sexual intercourse without contraception. The period of one year is arbitrary and may vary in different contexts.

Research on male infertility has been hampered by the assumption that fertility problems are probably located in the female. There has been much less work on male infertility and, therefore, less is known about the causes and treatment of male infertility than of female infertility.

Good data on the extent of infertility in Canada is not available at present. In the United States, it is estimated that approximately 10-15% of couples experience infertility. Of these, approximately 30-50% of the problems are caused by male factor infertility. Most male infertility results from abnormal, non-motile, or too few sperm, although retrograde ejaculation and erectile dysfunction are also factors. The potential causes of male infertility are similar to those in the female, some of which are preventable and some of which are not: sexually transmitted diseases, smoking, alcohol and drug abuse, environmental pollutants, and occupational health hazards. Strenuous exercise, poor nutrition, and stress are thought to be other contributing factors. Other identified factors include mumps and the complications of orchitis¹⁰ (which can cause atrophy of testis, destroy sperm, or cause a permanent reduction in sperm production), varicose veins (varicocele¹¹) of the testis, prolonged fevers, use of anabolic steroids, and exposure of the scrotum to heat (hot baths, tight clothing or underwear).¹²

Screening

In the past decade, the dominant concern in medical literature about DI has shifted from the legal, ethical, and religious debates of the 1950s and 1960s to concern about the transmission of sexually transmitted diseases (STDs) to recipients of donated sperm.¹³ The evolution of this concern can be traced by examining guidelines of various professional associations, such as the American Fertility Society (AFS). In 1980, the major known medical risk associated with donated semen was gonorrhea. Guidelines for testing of semen and blood of donors were described in two short paragraphs in a small booklet.¹⁴ Fresh semen was typically used, and frozen semen was reserved for situations in which scheduling necessitated its use.¹⁵ In 1986, revised and broadened guidelines of the AFS emphasized the screening of donors for STDs.¹⁶

Although the threat of AIDS was by now a reality and it was known that HIV could be transmitted through semen or blood, fresh sperm was still considered safe. In 1988, the AFS revised its 1986 position on this issue and recommended the use of only frozen sperm. Evidence that as long as six months may be required for the HIV antibody to be detected necessitated new recommendations that semen be quarantined for 180 days, 17 the donor tested for HIV antibodies, and the donor retested before the specimen is used. 18 The 1990 AFS guidelines are the most comprehensive yet, revising and expanding upon previous recommendations. 19 The very fact that two new sets of guidelines and one revision were published by the AFS within four years reflects the rapid evolution of knowledge and the importance attributed to these recommendations.

In Canada, a federal government document published in 1981 established standards for screening of donor sperm,²⁰ and more recent guidelines were published by the Ontario government in 1987²¹ and by the Canadian Fertility and Andrology Society (CFAS) in 1988.²² The most recent guidelines on reproductive technologies published by the Combined Ethics Committee of the Canadian Fertility and Andrology Society and the Society of Obstetricians and Gynaecologists of Canada (CFAS/SOGC) essentially refer the reader to the 1988 CFAS report.²³ Guidelines on genetic screening of gamete donors for artificial insemination are being developed by the Canadian College of Medical Geneticists (CCMG).

The 1987 Ontario guidelines recommend a screening process for donors that is typical of other reports and includes (1) a personal history, (2) physical examination, and (3) in-depth semen analysis that includes microbial screening. Personal histories include information on family medical history, a three-generational genetic history, reproductive history, and mental health history. Educational and occupational achievements, as well as interests, may be recorded to satisfy curiosity or requests from the recipient.²⁴ A maximum age of 50 is recommended by some guidelines²⁵ and a minimum age of 18 by others.²⁶ In some cases, proven fertility is desirable but not a requirement.²⁷ Candidates are excluded for a history of homosexual activity, intravenous drug use, sexually transmitted diseases, or having a heterosexual partner from a high-risk group for HIV or with Hepatitis B.²⁸

The thorough medical examination and a three-generational genetic history are recommended by most guidelines, which often include a check list of questions to be asked in

their appendices²⁹ (see Appendix B for a sample of questions from the CFAS guidelines). Physical characteristics such as height, weight, build, eye and hair colour, complexion, and ethnic origin are recorded to facilitate matching of donors to recipients. With heterosexual couples, the donor is usually matched to the (social) father, with lesbian couples to the co-mother, and with single women to the woman being inseminated. Blood and semen testing is recommended in order to test for AIDS, cytomegalovirus, Hepatitis B, Herpes simplex, chlamydia, gonorrhea, syphilis, ureaplasma, mycoplasma, streptococcal species, trichomonas, and warts.³⁰ It is now considered standard in guidelines to quarantine semen for six months and retest for AIDS and Hepatitis B before use for insemination. Recommendations also generally advise that, every six months, donors be retested for HIV, hepatitis B, chlamydia, gonococcus, ureaplasma, and mycoplasma.³¹ Semen should also be tested for sperm motility, concentration, and morphology in order to ensure its fertilizing capacity and normality.

Despite the existence of rigorous guidelines for donor insemination in most jurisdictions, available evidence indicates poor adherence to the guidelines. So far, evidence of transmission of pathogens through donor sperm remains anecdotal, since there have been no large scale studies to systematically evaluate this issue. In fact, typically, the inseminating physician does not follow up on the pregnancy or birth, or on those who fail to conceive, so there would be no way of knowing what had occurred.³² There have been reports, however, of transmission of AIDS,³³ hepatitis B,³⁴ chlamydia,³⁵ genital herpes,³⁶ gonorrhea,³⁷ and ureaplasma.³⁸ The importance of laboratory testing of donor semen is emphasized by the fact that most of the donors in these reported cases were asymptomatic at the time of donation.³⁹

Since donor insemination is such a simple procedure, it can be undertaken by general practitioners in their private practices. In these settings, screening is likely to be the least rigorous. A personal communication shows that some fertility specialists in hospitals in Toronto and Montreal continue to use fresh sperm, for example, because they "know and trust their donors."

In the United States, DI practitioners have been surveyed twice. A 1979 survey of U.S. practitioners using DI reported that sperm donors were subjected to "very little genetic screening. Family histories were usually superficial, and biochemical tests were rarely performed. Most screening was performed by physicians who were not trained for this task." Seventy-one percent of practitioners surveyed said they would reject a donor who had hemophilia in his family, even though transmission could not occur if the donor was not affected. Almost 95% said they would reject a carrier of Tay-Sachs, but less than 1% indicated that they tested for this disease. Only 28.8% of practitioners undertook any biochemical tests on donors, and these consisted mainly of tests for communicable diseases. Genetic screening relied upon the sperm donor's own knowledge of genetics and his family history. However, a study of prospective donors at the University of North Carolina School of Medicine revealed that the majority of applicants who had a genetic history indicating an inheritable disorder "did not recognize the condition as being genetic even if the individual had had medical training." Even medical students may not have the knowledge to accurately self-report on genetic history.

A 1987 survey conducted by the Office of Technology Assessment (OTA) in the United States reported an equally haphazard screening of donors.⁴³ Fewer than one-half of the physicians surveyed tested donors for HIV antibodies; one out of four did not screen for infertility; and one out of five did not screen donors for sexually transmitted diseases. Less than half of the physicians screened donors for genetic diseases and, among those who did screen donors, there was the same absence of training in this area as had been indicated in the 1979 study. Twenty-six percent, for example, would have accepted donors with a family history of Huntington's disease, which has a 50% chance of being transmitted to their offspring.

There has been no nation-wide study of artificial insemination practice in Canada⁴⁴ and only one small study, in 1984, of Ontario practitioners.⁴⁵ Results from this survey indicated that donor screening varied considerably in Ontario at that time. Fewer than one-half of the physicians did a complete blood count, semen culture, blood tests, or genetic history. Most did semen analysis and testing for syphilis and hepatitis.⁴⁶

Lack of adherence to professional standards is a serious problem in donor insemination. It may be that guidelines require further publicity, directed especially toward DI practitioners who are not fertility society members. The U.S. OTA survey found a positive correlation between the number of inseminations done per year and awareness of professional standards and guidelines.⁴⁷ The use of frozen sperm from sperm banks may circumvent this problem if the sperm bank adheres to professional standards.

Medical evaluation of the female recipient is also recommended in some guidelines. This evaluation may be limited to identification of conditions that are associated with substantial risk to the mother (e.g., severe cardiac, pulmonary, hepatic, or renal disease) and/or to the fetus (e.g., untreated diabetes),48 or may include routine medical and reproductive history, physical examination, and lab tests similar to those performed on any woman anticipating pregnancy.⁴⁹ The recipient will also be asked to document the timing of her ovulation for one or two months before inseminations begin.⁵⁰ It is generally recommended that if conception does not occur after four to six insemination cycles, further investigation of fertility, such as hysterosalpingograms and laparoscopies, should be undertaken.⁵¹ Reports in an exploratory study of participants in donor insemination indicate, however, that recipients without evidence of fertility problems may be given infertility work-ups, including the procedures above, and administered fertility drugs, such as clomiphene citrate, in order to regulate ovulation (even when it is not irregular) and to ensure that sperm is not "wasted." This practice increases the risks of the procedure, as discussed in the section on Medical Risks.

Methods of Insemination

Although the specifics of the procedure may vary by physician and practice, what follows is a basic description of donor insemination in a clinical setting.⁵³ Semen is generally obtained from the donor through masturbation and collected in a sterile plastic or glass jar. Donors are, generally, also asked to abstain from sexual activity for three days before donation, to increase their fertility. If fresh semen is used, it will be allowed to liquefy (approximately 5-20 minutes) and be used for insemination within two hours.⁵⁴ If frozen sperm is used, the same procedure is employed using a thawed sample.⁵⁵ The semen is placed in the vaginal canal through a sterile syringe at the estimated time of the recipient's ovulation. In order to increase the sense of participation by the male partner (if present), some physicians suggest that he place the semen in his partner's vaginal canal.⁵⁶ The recipient may lie with her pelvis slightly elevated for 30-40 minutes after the insemination. Another common method is to put semen in a small cup that covers the cervix; the cup is removed three to four hours later. These methods are called *intracervical insemination*⁵⁷ and represent artificial insemination in its simplest form. As testimony to the simplicity of the procedure, couples may use the cervical cup method at home, with reported very high success rates.⁵⁸

Generally, at least two inseminations are scheduled for each cycle — a day or two before ovulation and on the day of ovulation. Since sperm can remain viable for 48 hours in the female reproductive tract, this allows a potential four-day period for conception. Some clinics may inseminate up to four or five times per cycle to optimize the possibility of fertilization occurring. In the absence of other infertility factors, most DI programs anticipate pregnancy to occur within 6 to 12 cycles.

Current medical literature suggests that the simplest form of artificial insemination, described above, is no longer typically practised and that practice is increasingly tied to more complex, invasive, and sophisticated therapies and technologies. The extent of this, however, is unknown and could be determined only through survey research.⁵⁹ Other more complex methods of insemination include (1) intrauterine (IUI), (2) direct intraperitoneal, and (3) intratubal or fallopian insemination.

Intrauterine insemination⁶⁰ is generally used with the husband's/partner's sperm to overcome male factor infertility, cervical factor infertility, immunologic infertility, and, in some cases, idiopathic infertility.⁶¹ Sperm is deposited directly in the uterine cavity. Used to overcome the same problems, direct intraperitoneal insemination involves injecting at least six million sperm into the body cavity between the uterus and the rectum.⁶² The most experimental and invasive technique is intratubal or fallopian insemination, which may involve laparoscopy (requiring anaesthesia) to inject sperm directly into the mouth of the fallopian tubes.⁶³ There is also a variant using ultrasound to guide a sliding system of catheters through the cervical canal, uterus, and uterotubal junction, where a concentrated sample of sperm is injected (no anaesthesia is required).⁶⁴ In these more complex methods of insemination, the recipient is usually given fertility drugs for ovarian stimulation and the sperm is prepared in ways similar to those used with *in vitro* fertilization and gamete intrafallopian transfer (GIFT).⁶⁵

Sperm preparation occurs through a variety of methods including sperm washing, sperm swim-up, and drug treatments. In addition to always being prepared for the more complex methods of insemination, sperm may also be prepared for intracervical insemination in order to increase success rates of the procedure. Sperm washing is the most common method and is used to separate viable sperm from other elements of the semen, such as prostaglandins, antibodies, and micro-organisms. It also concentrates viable sperm into a smaller volume.

The semen sample is diluted with tissue culture medium, which helps maintain sperm motility, and is then centrifuged at low speed to separate out sperm. Sperm swim-up or sperm rise is used to concentrate the most highly motile sperm. This is accomplished by placing a layer of proteins (albumin) over the (washed or unwashed) semen, through which the most motile sperm will "swim-up," leaving behind most of the abnormal and non-motile sperm. Drug treatments may improve sperm motility with the addition of caffeine, arginine, or kinins to the semen sample. Antibiotics may be used to eliminate bacterial infection.

Although DI is defined as a treatment for male infertility, the woman being inseminated becomes the patient in this process. Current medical literature indicates an increasing pattern of additional technologies and drug treatments directed toward the normal female recipient to regulate her cycles. This is particularly true with the more complex methods of insemination described above, but it may also occur with simple intracervical insemination. As well as routine medical examinations similar to those for any woman anticipating pregnancy, a woman without known fertility problems may undergo a variety of procedures, including laparoscopy, ultrasound, endometrial biopsy, sperm antibody evaluation, hormone analysis through radioimmunoassays of blood and urine, and hysterosalpingograms.⁷¹ Drug treatments include clomiphene citrate (trade names Clomid and Serophene), human chorionic gonadotropin (HCG) and human menopausal gonadotropin (HMG: trade name Pergonal).⁷² Clomiphene citrate may be administered routinely with donor insemination to regulate ovulation, since the timing of the insemination is so crucial to the success of the procedure.⁷³ It is not known in what proportion of cases these additional techniques and treatments are used.

In order to observe accurately its timing, as well the use of ovulation-inducing drugs, ovulation may be monitored through a variety of methods, including daily charting of the basal body temperature (BBT), observing changes in the quantity and quality of cervical mucous, analysis of the luteinizing hormone (LH) in the blood or urine, and high-resolution ultrasound scans of the ovarian follicles.⁷⁴

Self-Insemination

Self-insemination (SI) refers to the process by which women, without the assistance of the medical profession, find their own donors and use donor insemination to have children. Women who choose SI avoid the risks associated with becoming a patient. Although self-insemination can be used by anyone who wishes to have more control over the process, it is used mostly by single and lesbian women who may be unable to gain access to medical services. Heterosexual couples may use SI because they prefer to find their own donor. There is very little documentation of the practice; however, there is evidence of its use in Britain and the United States since at least the late 1970s. It is likely that SI became a reproductive option for Canadian women at about the same time. By 1982, there were reports of a self-insemination network in Windsor, Ontario.

The procedure itself is simple. The woman inserts a sperm sample into her vagina (near the cervix), usually with a needleless syringe or a similar implement. Some women use turkey

basters, simply pour semen into the vagina (using a speculum to keep it open), or put semen into a diaphragm or cervical cap. Insemination should occur at the time of ovulation, with usually two inseminations per cycle.⁷⁸ The difficult part, for most women, is finding a donor. The high prevalence of AIDS in the gay male community has reduced women's options for donors, since gay men frequently acted as donors for lesbian women in the past.⁷⁹ However, some women consider gay or heterosexual men who test negative for HIV infection over a six-month period and who practise safe sex in the interim to be suitable donors.⁸⁰ Women using SI may choose to have a known or unknown donor.

An unknown donor is the preference for many lesbians and single heterosexual women who do not wish to risk a custody battle and/or prefer to parent without the biological father. To ensure anonymity, an intermediary or "sperm runner" is used to transport the fresh sperm from the donor to the recipient. In some cases, concern about transmission of HIV has overridden custody concerns, and an increasing number of lesbians are choosing a known donor — usually a friend or relative of their partner. The biological father may be involved with parenting the child or may play a more distant role.

No exact figures on the number of births resulting from SI in Canada (or anywhere) are available. There is, however, agreement that the practice is increasing.⁸⁴ One U.S. estimate suggests that 1 000 to 3 000 children per year are conceived through SI by lesbians.⁸⁵

Cost

The cost of artificial insemination is relatively lower than other new reproductive technologies. A 1986 U.S. survey⁸⁶ reports the range of costs for artificial insemination with the partner's sperm at \$30 to \$50 for intracervical insemination and \$40 to \$200 for intrauterine insemination with washed sperm.⁸⁷ Donor sperm was reported at \$35 to \$150 for fresh sperm, and \$40 to \$350 for frozen sperm. (Figures represent costs per procedure for the initial procedure and may be less for a series.) The fee paid to the donor was found to range from \$50 to \$100.⁸⁸ In a 1987 U.S. survey, the average total cost of the entire process (including initial consultations, examinations, testing, and inseminations) was reported at approximately \$1 000.⁸⁹ In contrast, for example, the range for *in vitro* fertilization is reported at \$775 to \$6 200 and the range for gamete intrafallopian transfer (GIFT) at \$2 500 to \$6 000.⁹⁰ These figures do not include the cost of drugs. There is no similar survey of infertility services costs in Canada.⁹¹

There are associated costs so that the total cost of the procedure to the health care system will include diagnostic services (e.g., history and physical examination, screening for infections, ultrasound, hormonal tests, pelvic examinations, and cervical mucous testing) and additional treatment services (such as drug treatments). Most of these will be more expensive than the insemination itself (per attempt). For example, the U.S. survey reports the median cost of donor insemination with frozen sperm at \$100, and the median cost of patient history and physical examination at \$120.92 The more complex the method of insemination employed (i.e., direct intraperitoneal or intratubal) and the more additional technologies and drug treatments employed,

the more expensive the procedure will be. There are also costs of testing for sexually transmitted diseases.

In Canada, medical insurance covers the cost of artificial insemination in seven provinces: Prince Edward Island, Nova Scotia, New Brunswick, Ontario, Manitoba, Saskatchewan, and British Columbia. Ontario does not cover the fee to the donor. 93 In most practices, the donor is either paid a fee or reimbursed for time and expenses; the amount varies.⁹⁴ This cost is usually passed on to the recipients and, in one Canadian exploratory study, had a range from \$15 to \$2 000, with an average cost of \$300 to \$400 per cycle (covering all inseminations, usually 2 to 3 per cycle.)95 Lower amounts are for fresh sperm, the payment being given directly to the donor, and the higher amounts are for frozen sperm, usually imported from U.S. sperm banks. 66 The Ontario Recommended Guidelines for DI report that costs to the consumer range from \$50 to \$150 per insemination (in 1987). The total cost to the consumer will vary according to the number of inseminations undertaken and the cost of any drugs that are used, which may or may not be covered by individual drug plans. In 1988, an Ontario woman attempted to get the Ministry of Health to pay for the cost of donor sperm, reported at \$250 per cycle and a total of \$1 500.97

Success Rates

Since both the sperm donor and the recipient are presumably fertile, it should not be surprising that the success rate of DI is relatively high, compared to other forms of assisted reproduction.⁹⁸ Figures commonly cited are between a 60% to 70% pregnancy rate in six cycles.⁹⁹ The take-home baby rate is not available for DI because, in general, there is no follow-up by the inseminating physician. In most cases, another physician will deliver the baby, unaware that the conception was through DI.

The rate of success will vary according to the method of insemination, reason for use, factors related to the recipient's fertility (e.g., age), and whether the sperm is fresh or frozen. The relative success rates of fresh and frozen sperm are currently an issue in the medical literature due to the fact that the new guidelines recommend the use of frozen sperm only (for HIV testing). Initially, much resistance to the exclusive use of frozen sperm arose because success rates were reported to be much lower than with fresh sperm. Recently, however, several studies have reported good success rates with frozen sperm, and methods of improving success rates with frozen sperm are being developed.

A recent Canadian study has reported on a retrospective review of 81 recipients inseminated with frozen sperm in the DI program in Calgary. Although the use of a control group was not possible, the reported pregnancy rate of 52% in six cycles is only slightly lower than rates achieved with fresh sperm. The average number of straws (small containers of sperm) used with those who became pregnant is reported at 4.8, slightly higher than with fresh sperm. The sample size (81) in this study was small, but the success rate is similar to those reported by other international studies, which are challenging the belief that success rates are necessarily reduced dramatically through the use of frozen sperm.

Because there is no standardization of success rate measures, it is not possible to compare some figures from international studies. The French Federation Centre d'Étude et de Conservation du Sperme Humain (CECOS) collates the results of its 20 centres and provides annual reports. Since 1973, approximately 17 000 pregnancies have been obtained with frozen donor sperm for either donor insemination or *in vitro* fertilization with frozen donor sperm. The overall mean success rate per cycle (similar to fecundability rate) has been approximately 8% and the theoretical cumulative success rate 48% at 6 cycles and 66% at 12 cycles. A study from Hong Kong reports the cumulative pregnancy rate at 6 months as 46.8% and the fecundability rate as 10%. An Australian multicentre study reports a fecundability rate of 12%. Another Australian study reports a cumulative success rate of 61% (after 12 cycles) over a period of 10 years, and a New Zealand study reports a cumulative pregnancy rate of 45.5% for 3 months and 64.7% for 6 months. Sweden reports an even higher success rate, with a cumulative rate of pregnancy of 82% and the average fecundability of 10%.

Other factors identified as affecting success rates include the woman's age,¹¹⁰ history of abdominal surgery, menstrual irregularity, use of clomiphene citrate,¹¹¹ low cervical mucous scores,¹¹² endometriosis, tubal polyps,¹¹³ the fertility of the sperm, and the method of cryopreservation.¹¹⁴ As well, the more complex methods of insemination generally report lower success rates,¹¹⁵ although a recent study reports higher success rates with intrauterine insemination than with intracervical insemination using frozen donor sperm.¹¹⁶

Record-Keeping

There are some surveys of record-keeping in DI practice. A 1979 U.S. study of 379 DI practitioners¹¹⁷ found that only 36.6% of physicians surveyed kept records on the children and only 30.4% kept records on the donors. In addition, an overwhelming majority (82.6%) were opposed to legislation requiring that records be kept on children and donors. Opposition to record-keeping was based on the need to protect the anonymity of the donor and to ensure the privacy of the recipients. About half of the physicians used the same donor for each insemination in a cycle, but used different donors for each cycle. Only 17.1% used the same donor for every cycle and 31.8% used different donors within a single cycle. ¹¹⁸

A more recent (1987) U.S. survey reported that 54% of physicians regularly doing artificial insemination kept records that linked donors with specific pregnancies in recipients, and 71% of these physicians kept records monitoring the number of pregnancies achieved by each donor. The likelihood of records being kept increased with practice size and with hospital-based versus private, office-based physicians. The majority of physicians surveyed would not give access to anyone, even when identifying information had been removed: not to donors (76%), to recipients (72%), to partners of recipients (73%), or to resulting children (77%). As well, in most cases, they would not allow access, without donors' names, to public health departments (67%) or to research scientists (60%). Most (52%) would even refuse a judicial request. 120

An Ontario survey of 16 physicians using DI reported that a large proportion of physicians use an anonymous linkage system between donors and recipients. Both donors and recipients are

notified of this linkage system. 121 There has been no comprehensive provincial or national survey of record-keeping practices regarding DI in Canada.

The most acceptable arguments for complete, personally identified record-keeping are for medical reasons: to facilitate follow-up if genetic problems are detected in either the donor or the children conceived through DI or to monitor the number of pregnancies achieved by one donor. There are also, however, psychosocial and ethical reasons to maintain records linking recipients, donors, and offspring. Children conceived through DI may at some point need, for psychological reasons, to know more about their biological father. This need may conflict with the agreement with the donor about his anonymity, and it may also conflict with the current medical practice. However, we need to evaluate if current medical practice is indeed the most appropriate option.

Australia, for example, in its Medical Procedures Act, requires "the Health Commission to maintain a central register of prescribed non-identifying and identifying particulars of donors, recipients, donated gametes, and offspring conceived as a result of reproductive technologies."122 Non-identifying information is to be accessible to all parties and identifying information is to be available upon written permission of the person inquired about. 123 In Sweden, an act was passed in 1984, which requires that information about the donor be registered, records kept for at least 70 years, and the child conceived by donor insemination can have access to these records at the age of maturity. 124 In Britain, the Human Fertilisation and Embryology Bill proposes legislation that would require establishment of a centralized system of storing information about donors, recipients, and resulting offspring of donor gametes. It would also allow offspring to obtain some information about their biological origins, and it leaves the door open for future legislation regarding identifying information.¹²⁵

The suggested form of records for donor insemination varies. Both Australia and Britain suggest centralized registries, 126 whereas other reports suggest records be kept in physicians' confidential files.¹²⁷ Levels of information kept may also vary between identifying or nonidentifying, with the possibility that identifying information might be kept at the physician's office, for example, and non-identifying information be forwarded to a central (provincial or national) registry. The type of information to be recorded for sperm donors was detailed in the Australian Infertility (Medical Procedures) Regulations in 1988. Identifying information could include name of the hospital, clinic, and/or physician, name of donor, birth date, birth place, full name of donor's spouse, name of donor's parents or other family members, addresses and phone numbers, date and place of donation, date of receipt by hospital, clinic, or physician. Nonidentifying information could include marital status, occupation, religion, ancestry, country of birth, colour of hair and eyes, complexion, build, height, weight, education, personal and/or professional interests, number and sex of children, personal health problems, family history of genetic disorders and/or major health problems, and dates and results of tests, including screening and blood group.

Incidence

It is impossible to report accurately the incidence or prevalence of donor insemination because of the absence of an adequate system of reporting or monitoring. In Ontario, for example, artificial insemination is an item in the fee schedule for health insurance coverage, but records do not distinguish between artificial insemination by partner and donor insemination. Nor do they indicate the number of live births. In addition, many patients prefer to pay cash to the doctor rather than have the procedure recorded in the medical computer system, so that even those records that are available may not represent incidence.¹²⁸ A recent survey of provincial data bases indicates that New Brunswick (through hospital insurance data) and Saskatchewan (through physicians' claims) are the only provinces that collect data on artificial insemination, and only Saskatchewan distinguishes between AIH and DI in its data collection.¹²⁹ Recommendations in a 1988 Quebec report include the suggestion that AIH and DI be given separate code numbers by the Quebec Health Insurance Board in order to facilitate analysis and observation of the practice. 130 Without an accurate record of the type of procedure and of each procedure's mean success rate, an accurate estimate of the number of live births is difficult, if As a further complicating factor, the extent of self-insemination (donor not impossible. insemination outside clinical settings) is totally unknown but could be quite substantial, given its relative simplicity and its popularity in the lesbian community (see Self-Insemination).

Although they are not an accurate record of the actual incidence, Ontario Health Insurance Plan¹³¹ figures do show a steady increase over a five-year period from 1979 (6 525) to 1984 (9 973).¹³² The 1987 Ontario guidelines for DI estimate 6 000 artificial insemination procedures per year, with approximately 500 births (DI and AIH).¹³³ There is no indication of what their estimate is based on, but it would appear to be conservative, given the Ontario Health Insurance Plan figures, which, as indicated, are quite low to begin with.

Nation-wide estimates made in the early 1980s have varied from 1 519¹³⁴ to 6 000¹³⁵ births annually from DI, with no estimates of the prevalence of DI births in Canada. A 1988 Canadian Fertility and Andrology Society membership directory lists 28 clinics providing donor insemination services and a total of 78 practitioners listing artificial insemination (with no distinction between AIH and DI) services. This list refers only to those practitioners who are members of the Canadian Andrology and Fertility Society; there is evidence of a number of physicians who are not members of this association who also practise donor insemination. ¹³⁶

A 1987 U.S. survey estimates that, in 1986-87, 172 000 U.S. women underwent artificial insemination, with a resulting 35 000 births from AIH and 30 000 births from DI. To Other estimates put the total population of DI offspring in the United States at over one million, and the number in California alone has been estimated at 20 000 (which would appear to be quite low). The British Royal College of Obstetricians and Gynaecologists reports 1 000 pregnancies and 780 live births from DI in 1982, figures which the Warnock report considered to be an underestimate, since they are limited to the number of pregnancies and births of which the College knew. France reports about 1 700 DI births per year (one out of every 450 births), with an estimated total population of 16 000. Other international reports estimate

the Australian DI birth rate at 2 000 per year, Switzerland and the Netherlands at more than 1 000, and Sweden at more than 300.¹⁴² In 1987, a Japanese report estimated the total DI population at nearly 10 000.¹⁴³

An Historical Perspective

Any discussion of the history of human artificial insemination raises the question of why we know so little about a procedure that has such a long history. Compare, for example, the attention given to *in vitro* fertilization (IVF) in its relatively short history of a little over a decade (the birth of the first child conceived through IVF was in 1978). The documented medical history of artificial insemination is well over 100 years old in the United States, ¹⁴⁴ and over 200 years old in Britain. One Canadian source states that the first artificial insemination was performed in Canada in 1968; however, an exploratory study of participants indicates that donor insemination was practised at least as early as 1950 in Toronto, ¹⁴⁷ and this is probably a conservative estimate. Despite this rather lengthy background, early history of the procedure is limited to a few well-known documents and incidents that are regarded as turning points in the history of the procedure.

Medical histories generally begin with animal husbandry, where the procedure was first developed. Veterinary history of artificial insemination usually begins in the fourteenth century when, as the story goes, Arabs impregnated mares of their enemies with the semen of inferior stallions. Other turning points include the publication of a paper in 1784 by Spallanzani describing artificial insemination in dogs and a monograph by a Russian physiologist, Iwanov, describing large-scale artificial insemination in animals. The benefits of using artificial insemination with animals (particularly cattle) are well established and are the basis of a massive industry, which includes the importance of accurate and comprehensive record-keeping systems, since the primary goal is to improve stock. 153

The first recorded artificial insemination in humans occurred in London in 1793, when John Hunter is said to have collected sperm from a husband suffering from hypospadias¹⁵⁴ and to have successfully artificially inseminated the man's wife.¹⁵⁵ AIH was also performed by J.M. Sims in the United States in 1866 on six women. Only one woman became pregnant, probably because of Sims's confusion of menstruation with ovulation. Sims apparently later condemned the procedure as immoral medical practice.¹⁵⁶ Artificial insemination with donor sperm was practised by Robert Dickinson in 1890 "in great secrecy."¹⁵⁷ A 1909 report published an incident that had taken place 25 years earlier, confirming that donor insemination had begun in the United States in the late 1800s. From its earliest records, donor insemination is marked by secrecy.

In the 1909 report, a physician tells the story of the insemination of a merchant's wife with the sperm of a "hired man," also referred to as the "best looking member" of the physician's medical class. Neither the patient nor the merchant was initially told about the procedure. When the woman became pregnant, the doctor, William Pancoast, told the husband, who requested his

wife not be told. Addison Davis Hard, the author of the 1909 article, and presumably also the "hired man," later "shook the hand" of his offspring at age 25. The majority of his article addresses the eugenic benefits of donor insemination.

Another crucial development in the history of artificial insemination is the history of freezing or cryobanking. Although Spallanzani succeeded in freezing and preserving human semen as early as 1776, the first recorded use of frozen sperm for insemination was in the 1940s and 1950s in the United States. Spermbanking was slow to develop, however, and 20 years after its discovery only 571 births had resulted from frozen sperm compared to, for example, 200 babies born through IVF after only a six-year history. It is generally accepted that the demand for artificial insemination increased in the 1960s because of other trends, including the difficulty in treating male infertility and the reduction of babies available for adoption.

Religious and mythological sources are suggestive of a much longer history going back to a second-century Talmudic story about conception achieved in bath water contaminated with semen.¹⁶⁴ Another story tells of a thirteenth-century rabbi warning women to be careful of bed linens on which a man other than her husband has slept.¹⁶⁵ As one author argues, this non-medical history suggests that artificial insemination has existed in the public consciousness longer than the history of medical practice would indicate¹⁶⁶ and also points to the existence of SI outside of medical practice.

The secrecy about artificial insemination (especially by donor), and the relative absence of regulation of the practice, ¹⁶⁷ can be attributed in part to the rather contentious and sensitive social issues that it raises. A brief look at the history of legal cases indicates that the procedure has raised questions about adultery, legitimacy of the child, inheritance rights, and the issue of uncertain fatherhood, as well as the donor's rights and duties. ¹⁶⁸ Historically, the social acceptability of the procedure has therefore been very low.

Public acceptance can be traced through a number of inquiries into artificial insemination conducted in Britain. A 1948 report declared it a "public offence." In 1960, it was declared "undesirable" but not illegal, and in 1973, it was recommended that it be covered by the National Health Service. Despite the legitimacy of health insurance coverage in most jurisdictions, donor insemination is still perceived in some quarters as a threat to the family, in particular to a specific image of the family as a heterosexual couple raising its own biologically linked children. The advent of single women and lesbian couples having children through donor insemination is clearly perceived as a threat to the traditional image of the family.

In addition to threatening traditional mores surrounding sexuality, reproduction, and family life, donor insemination has, historically, been supported by groups wanting to improve the human race through selective breeding.¹⁷³ The debate about DI and its eugenic potential has been ongoing since the first publication about donor insemination appeared in 1909¹⁷⁴ and has surfaced with several incidents about DI that have reached the public.¹⁷⁵ Most recently, the issue has been raised again by the creation of a sperm bank in the United States that banks only sperm from "unusually well-educated donors." Popularly referred to as the "Nobel-Prize Winners

Sperm Bank," the Repository for Germinal Choice is funded by the Foundation for the Improvement of Man¹⁷⁶ and represents an extreme position in the eugenics debate and in donor insemination practice.

Psychosocial Issues

Donor insemination makes it possible for a man and a woman who may be complete strangers to conceive a child together. The fact that the biological parents of a child may have never even met has radically changed the social relationships surrounding reproduction for DI participants.¹⁷⁷ A woman who wishes to become pregnant through DI must find a fertile male who will supply her with sperm. The complicated manner in which this potentially simple social exchange takes place indicates the sensitive psychosocial issues it involves. Sperm, despite its apparent availability, is not easily acquired. The barriers, however, are psychological and social and most women using donor insemination will go to a doctor rather than ask a friend or find their own donor.

The anonymity and secrecy facilitated by medicalization are the defining social features of DI practice. 178 These and the confidentiality of the doctor/patient relationship have hindered research on participants in DI. Research from the perspective of the participants is striking by its absence. Very little is known about the experience of DI mothers, their partners, the donors, or the children conceived through DI. Although DI appears to be becoming more socially acceptable, the absence of a language to describe the relationships created through the procedure indicates a continuing absence of cultural legitimacy.

The term parent, whether it refers to a mother or a father, typically refers to an individual who embodies both the biological and social components of the parental role. conceive through "natural" reproduction are expected to rear their biological offspring. When this is not the case, as with adoption, foster-parenthood, or step-parenting, parental roles are modified by an additional adjective or descriptor. Biological parents are described as, for example, birth, original, natural, or sometimes real parents. Social parents are described as adoptive, foster-, or step-parents. Successful use of DI severs the link between biological and social fatherhood. What has been culturally assumed to be one role and one person is now two roles and two people. Since DI is rarely openly acknowledged, however, there is no common or shared language to describe these two distinct paternal roles. This paper uses the term biological father to describe the sperm donor and social father (or simply father) to refer to the male who will raise the child.

Prominent among the psychosocial issues raised are questions about the relationship between, and the meaning of, biological and social fatherhood. The biological father of a child conceived through DI is a sperm donor. If records are not kept, linking the donor to the mother, or if records are kept but not accessible, DI offspring may never have information about their biological father.

The question as to who is the father of a child evokes powerful cultural imagery. For example, it has been the subject of many Greek and Roman myths. In the 1990s, it remains a recurring and powerful image — still the subject of much literature and appearing in popular mythology through soap operas and popular novels. But DI offspring may be unaware that the man who raises them is not their biological father. Secrecy about the procedure is actively encouraged by some physicians, and a couple may decide to keep the origins of their DI child(ren) to themselves. They may not even tell other family members. What does it mean to a man's emotional life to have a purely biological link to a child? What does it mean not to have a biological tie to a child for a man who will raise a child "as his own?" Why does it matter who is the biological father? Although some argue that it doesn't matter, the energy invested in keeping the secret suggests that it matters very much.

Religious and cultural factors play an important role in understanding people's responses to the experience of infertility and to the procedure and its attendant therapies. There is now a small body of literature that describes the responses of different religions;¹⁷⁹ however, cultural differences in relation to infertility and reproductive interventions remain largely unexplored. This section describes the psychosocial issues for participants in DI and reports on the available research literature. The majority of the discussion focuses on married heterosexual couples using DI in a clinical setting, since this is what has been reported on.

Community Attitudes

Surveys of community attitudes regarding donor insemination are few. Studies of attitudes toward new reproductive technologies more frequently focus on specific populations, such as the infertile or recipients of particular technologies, such as IVF. The low public visibility of donor insemination contributes to this lack of attention. IVF and pre-conception contracts have received much more public attention in their short history of a little over a decade than artificial insemination has in over a century of practice. A recent study of Canadian attitudes toward new reproductive technologies makes only one mention of artificial insemination in its summary. Approximately 27% of those polled had an awareness of artificial insemination, whereas 37% had an awareness of IVF. It is possible that public comprehension of the technology is low as well, so that any surveys of community attitudes would have to take this into account.

Australian researchers have undertaken two major studies of community attitudes. In 1983, Rowland and Ruffin reported on attitudes of 104 (52 male and 52 female) Australian residents to AIH, DI, IVF, and adoption. Two-thirds of respondents did not know what AIH and DI entailed. Support for alternatives to infertility were found to be as follows: adoption, 91%; AIH, 94%; IVF, 86%; DI only 52%, with 34% indicating they did not approve. The authors speculated that this lack of support for DI was a result of the absence of public discussion about it. It is of interest that only 61% felt that DI was moral, compared to 87% for AIH and 76% for IVF. Those who answered negatively were questioned further. The issue of adultery and the use of another man's sperm were the main reasons given for the perception of immorality.

In 1985, Rawson, another Australian researcher, reported findings from a national sample of 989 respondents as well as 279 opinion leaders on attitudes to DI alone. 183 Results indicated that Australians, overall, approve of DI for married couples with medical problems: 70% approved, 17% disapproved, 5% needed to know more, and 8% had no opinion. Male (71%) and female (70%) approval responses were remarkably similar. There was a decrease in approval by increasing age, but no difference between the responses of single or married respondents. Approval also increased with an increase in educational status, but there was no difference in approval between urban and rural areas; non-Anglo-Saxon groups indicated lower levels of approval than did Anglo-Saxon groups.

Two U.S. studies indicate a low level of social acceptability of reproductive technologies among college students. Matteson and Terranova report on a 1977 study of 45 U.S. female undergraduates concerning new reproductive techniques. 184 The majority of subjects would choose for themselves techniques that maintained genetic relatedness of both partners and would seldom use techniques that employed donor eggs or sperm. The majority, however, would allow others to use any of the techniques (which included sex predetermination). The authors speculate that most women would reject the use of a "foreign" egg because of a preference for biological relatedness (not a rejection on moral grounds, since they would allow it for others). A 1988 study of college students of both sexes indicated no difference by sex on this issue, but indicated that blacks are more negative than whites about the technologies. 185 This much larger study of 733 students included both black (248) and white (485) students and was analyzed by race and religious preference as well as by sex. Adoption (included in the study as another method of acquiring children) was the most acceptable method, with 89.8% of whites and 78.3% of blacks stating that this was acceptable. The various reproductive technologies were ranked in descending order of preference for whites and blacks, respectively: AIH (80.4%, 66.8%), IVF (56.9%, 50.7%), embryo transplant (28.3%, 20.3%), DI (23.0%, 14.4%), and surrogate motherhood (16.1%, 13.4%). Women were more accepting of adoption than men (90%, 82%). There are no Canadian surveys on attitudes of the general public to DI, with the exception of the above-mentioned poll, which reports only on public awareness of the procedure.

Despite disparate populations and methodologies, there are some common threads in these studies. The first is that DI has a low public visibility. In general, the public does not understand what the procedure entails, either technically or socially. This means that public education has to accompany any attempt to determine public attitudes. Secondly, DI is among the least acceptable of the alternatives to infertility. It shares this status with other methods of assisted reproduction which use donor gametes. A strong cultural emphasis on the importance of the biological tie between parent and child inhibits acceptance of these techniques.

Donors

Although sperm donors are frequently compared to blood donors, the two bear little resemblance when their roles are examined closely. Unlike the blood donor, whose role is perceived as an honorary and public one, the sperm donor will receive no badges for public service. His role is perceived as a shadowy one. Asked to donate gametes for the conception of a child within a family, sperm donors are important players, but they have no identity within the family. In contrast, women who donate eggs are interviewed openly for newspaper and magazine articles. One study found that couples undergoing DI rejected the idea of using the husband's brother as a donor, while couples using egg donation generally found the idea of using a sister acceptable. 188

The expectations of a sperm donor are conflicting: he is asked to be of good character, an altruist, but simultaneously to be willing to breed children in whom he has no interest and for whom he has no responsibility. Within the DI family, he may be perceived as a threat to the marriage and to family stability. He may remind the father of his own failure to reproduce or confuse the child about his/her parentage. It is not surprising that so few studies are available on sperm donors and how they feel about their role.

In general, the medical literature on donors focuses on the technical issues, such as screening, and there is very little discussion of the psychosocial aspects of the donor's role. A 1981 Health and Welfare Canada report commented: "There is virtually no information on the variety of emotions and attitudes that must occur among young men who become sperm donors. Is the donor fearful of disclosure of his identity? Is it correct to assume that donors are generally motivated by the unselfish desire to help infertile couples?" A decade later, there are still only a few empirical studies that address these issues. 190

It is surprising, given the practical importance of maintaining a donor pool, that there is very little information in medical literature even on the issue of recruitment. An exploratory study of sperm banks undertaken for this report indicated that donors in Canada are recruited through university newspapers and through physicians' personal contacts (see Sperm Banks). The common stereotype of donors is that they are all medical students, which, according to the limited data available, is not entirely accurate internationally. Donors are more likely to be medical students when the sperm bank is affiliated with a teaching hospital. In Australia, Rowland found that donors were from a variety of backgrounds with diverse educational levels: lower high school (6%), high school certificate (29%), university degree (37%), college diploma (9%) and post-graduate work (13%). 191 Occupations of donors ranged from a gardener to a computer analyst. Of 67 respondents, only one was a medical student and one a science student. A similar diversity was found by Nicholas and Tyler. 192 In Daniels's study of 37 New Zealand donors, 23 were in the professional and technical classification, 6 were students, 5 were in services and sales, and 2 in agriculture and production. 193 An exploratory Canadian study reported donors from varied backgrounds, among whom there were no medical students. 194 The Canadian Fertility and Andrology Society's (CFAS) Guidelines for Therapeutic Donor Insemination identify the following recruitment groups for DI:

- a. medical students,
- b. other members of the university/teaching hospital community,
- c. general population (media publicity or word-of-mouth),
- d. pre-vasectomy patients, and

e. partners of tubal factor IVF or tubal ligation patients (with a warning that approaching infertility patients may be considered insensitive). 195

The use of frozen sperm means that practitioners who use sperm banks do not have to do their own recruitment. Overall, the stereotype of the sperm donor as a medical student who donates for financial reasons and is disinterested in his possible offspring and their well-being is not supported by what data are available. Reasons for donating are reported as primarily altruistic ("to help other people"), with a small proportion in each study stating that acquaintance with an infertile couple had influenced their decision. Secondary motives include the desire to find out about their own fertility and to father children; a small minority state financial motives. In an exploratory study, a small number of donors stated a sexual/erotic motive for donating. Very few stated payment as a sole motive, and further questioning revealed that donors, in general, did feel they deserved some compensation for time and expenses but would have continued to donate without payment. In the words of one donor (bracketed material is the interviewer):

[Is the payment important to you?] No, but it sort of was in a way in that I had to take time off work and the time I took off work was without pay. I would lose the pay, so it kind of made up for that it also paid the gas to go down and back ... but it wasn't the key fact. [Would you donate if you were not paid?] Yes. [Why?] Well, there are a lot of reasons for that, you know, I suppose you could call it the milk of human kindness sort of thing. I'd like to help somebody if I could. It's like being a blood donor as far as I'm concerned. It's the same thing. Why do people donate blood? But, also ... I wanted to get my lineage out. It's really not important what the name is ... you know ... but, I think I would like to have my genes carry on, you know, heredity. [But you already have two children through your marriage, right?] Yes, but it ... you know ... it gives you greater chances doesn't it?²⁰⁰

This donor states another motive unexplored in the literature on sperm donors — having his "genes carry on, you know, heredity" — suggestive of an existential dimension to reproductive behaviour. If donors seek immortality through sperm donation, then infertility — the inability to reproduce — may remind individuals of their mortality.²⁰¹

The issue of payment to sperm donors (and gamete donors in general) is debated quite frequently in the literature and there are a variety of positions on this issue in different jurisdictions. France, for example, has long had a policy that sperm donors should not be reimbursed in any way.²⁰² Annas has suggested that U.S. sperm donors are more appropriately termed *sperm vendors*, since they receive money for their sperm donation.²⁰³ Current guidelines generally stress that payment is compensation for time, expenses, and inconvenience and not payment for the human genetic material.²⁰⁴ The amount of payment is generally between \$15 and \$75, an amount intended to compensate the donors without creating compensation as a motive to conceal information.²⁰⁵ The recent report from the Combined Ethics Committee of the CFAS/SOGC "endorses the payment of gamete donors to reimburse them in a reasonable fashion for the costs and inconvenience of donation and any screening procedures which are essential to the safe operation of donor gamete programs."²⁰⁶ Some commentators, however, raise the question of whether payment eventually leads to differential

valuing of different gametes²⁰⁷ — meaning sperm from someone with socially valued traits, such as high intelligence or athletic skills, may cost more than sperm from someone less accomplished.

There is a concern about the possibility that offspring (biological half-siblings) will grow up, meet, marry, and have children together. Limitations on the number of children conceived by one donor is, therefore, an important aspect of safe DI practice. Recent Canadian guidelines are silent on this issue, with the exception of a Quebec report that suggests a limit of six pregnancies or 30 utilizations of sperm from a specific donor. The 1990 American Fertility Society guidelines set the limit at no more than ten pregnancies, except in the instance of isolated subgroups. The American Association of Tissue Banks suggests that it is crucial that the number chosen be calculated in relation to the size of the recipient community. Limiting the number of children conceived by each donor presumes that there are systematic follow-up procedures in place and that good record-keeping practices are used (see Record-Keeping).

There is little empirical data on the long-term issues for donors, since donors have been studied only at the time of donation. An exploratory study has indicated that the feelings and attitudes of sperm donors may change over time. They may, for example, eventually desire more information about the results of their donations. This may include information about the number of children who were conceived with their sperm, and they may maintain an interest in their offspring's well-being as well. As one donor put it:

At 20 or 22 or something ... you don't think of anything at the time. Well, I don't know quite how to say ... you just don't think that 20 years from now you could have somebody out there. You just more or less do it and forget about it and then three years later you think back about it ... (it changed for me) when I saw my first son.²¹¹

The 1990 CFAS/SOGC guidelines make precedent-setting recommendations on this issue in North America when they "recommend that gamete donors be provided with medical and genetic information about children born of their gametes if requested or if such information might have a bearing on the future health or reproductive choices of the gamete donors or their natural offspring. When the children reach the age of legal competence, exchange of identifying information may occur if both parties are agreeable."

Different studies on donors' attitudes toward their anonymity show different results. Australian and New Zealand studies have, in general, found that a substantial portion of donors would be willing to be identified to their DI offspring when they reach age 18.²¹³ In an Australian study of 67 donors, "60% would not mind if their AID offspring contacted them after age 18 to find out about family history and other details."²¹⁴ In a New Zealand study of 37 donors, almost one-quarter would still donate under conditions in which they could be traced in the future, and a further 30% were not sure.²¹⁵ Less positively, Handelsman *et al.* found in a study of 75 sperm donors overwhelming opposition to the disclosure of identifying information, but 43% would accept the disclosure of non-identifying information.²¹⁶ But a British study undertaken after publication of the Warnock report found that patients, health care professionals, and donors were unanimously opposed to such a change.²¹⁷ Research on this issue has, so far,

been limited to donors who are part of DI programs where anonymity of the donor is the practice. It is possible that a different pool of donors would have different responses.²¹⁸ In the United States, the Sperm Bank of Northern California successfully solicits donors who are willing to be contacted by their offspring and this fact is known when couples choose whether they will use this source.²¹⁹

Recipients

Those who require medical assistance to have children (for medical or non-medical reasons) may have to meet certain eligibility criteria to have access to these services. This process imposes a form of discriminatory selection similar to the process for those who wish to A major difference from adoption, however, is that, with assisted reproduction, physicians generally make these decisions on an ad hoc basis or according to their own values. Eligibility criteria or screening procedures generally involve marital status, sexual preference, age, and/or psychological criteria intended to assess the ability to parent. Recipients for DI may be a married heterosexual couple, an unmarried heterosexual couple, a lesbian couple, or a single woman.

In a survey of Canadian DI practitioners, Freedman et al. 221 found diversity within the profession about non-medical patient selection criteria (see Table 1). Although there was little consensus among the surveyed practitioners, a majority would reject a woman with no male partner (66%) or with a stable lesbian partner (76%). A small number would not accept a woman who is over the age of 35 (11%), married for less than two years (10%), or with a common-law partner (8%). Freedman also reports that these decisions are made by individual physicians and that larger clinics tend to be more tolerant, particularly if they have more applicants and are affiliated with a university.

Different jurisdictions have taken different positions on this issue of access. The Ontario Law Reform Commission recommends (in regard to all assisted reproduction technologies) restriction to "stable single women and to stable men and stable women in stable marital or nonmarital unions."222 Defining what is meant by "stable" is problematic and might require, for example, psychological testing of all applicants. The Quebec report recommends (by the majority of members) that "the clientele for artificial insemination be defined to include couples ... not excluding single women regardless of their status."223 In Sweden, only married women or women cohabiting with a male can use DI services. The motivation for this is stated as being "a child needs both a mother and a father." The British Warnock report states that as a "general rule it is better for children to be born into a two-parent family, with both father and mother."225 The recommendation of the Canadian Combined Ethics Committee of the CFAS/SOGC emphasizes the physician's obligation to refer patients to another physician when "on grounds of conscience" they are unable to treat a patient.²²⁶ Whatever the position taken,

TABLE 1. Reaction of DI clinics in Canada to selected characteristics of female applicant

Female applicant	Accept (%)	Unsure (%)	Reject
Age > 35	86	3	11
Married less than 2 years	85	5	10
Common-law partner	84	8	8
Applicant would have high-risk pregnancy	77	6	17
Applicant has been refused by adoption agency	73	16	11
Age < 20	67	14	19
Applicant's partner has significantly reduced life expectancy	59	19	22
Applicant or partner has criminal record	21	33	46
Economic incapacity to support children	20	26	54
No male partner	18	16	66
Stable lesbian partner	8	16	76
Pregnancy high risk to applicant	8	8	84
Mentally unable to support children	3	3	94
History of child abuse/neglect		5	95

Source: B. Freedman, P.J. Taylor, R. Wonnacott, and S. Brown, "Non-medical Selection Criteria for Artificial Insemination and Adoption," Clinical Reproduction and Fertility 5 (1987): 53-66.

the issue of access to DI (and all assisted reproduction technologies) raises the ethical (and legal) question of whether individuals have a right to reproduce and whether this right includes access to medical services to do so.²²⁷

Those using assisted reproductive techniques have requirements placed on them that are not imposed on those who can reproduce "naturally" or without medical assistance. Because of their infertility or lack of male partner, the act of reproducing is now in the public realm and additional responsibilities and duties are imposed on them.

The need for counselling is another issue that is generally advocated for participants in assisted reproduction. Counselling could serve two functions: (1) to screen applicants considered psychologically unfit for parenting, or (2) to provide support for the emotional processes necessary for decision making and to ensure informed choice. The screening function of counselling could be undertaken through psychological testing, and applicants could be accepted or rejected on the basis of results.²²⁸ This relates to the issue of access discussed above. It

is the second function of counselling — to provide support and ensure informed choice — that is discussed here.

A major counselling issue for heterosexual couples who are using DI to circumvent male infertility is the coming to terms with the infertility itself. Berger²²⁹ concludes that decision making in donor insemination is a two-stage process requiring the couple to deal first with the infertility (the loss of the ability to have a child biologically related to both parents) and. subsequently, with the decision to use donor insemination to have a child.²³⁰ In a study of 120 couples, Berger and his colleagues found that an "interim period of three months or longer between the discovery of infertility and the application for DI was associated with less marital discord, indecision and symptoms in the applicants, than was a hastier decision to undertake it "231

Study of the psychological and emotional processes of male infertility appears to have suffered from the same inattention as have the physiological aspects of male infertility. There is comparatively little research on the psychosocial responses of males to infertility, compared to females who are more often the focus of reproductive research in general. However, the diagnosis of infertility is clearly associated with loss of self-esteem and depression and may be viewed as a blow to masculinity, just as donors report their fertility is associated with "proof of manhood, virility and masculinity."²³² Within the context of donor insemination, infertility may also be associated with guilt about the inability to give one's partner a child. An Israeli study of 44 DI couples found that 80% of the men had guilt feelings about their infertility stemming from feeling that their manhood was lacking, that they were not "real" fathers, and that they were responsible for their wives' needing to undergo treatment.²³³ Another study found that a diagnosis of male infertility was more likely to be associated with marital difficulties than if the infertility was located in the female or in both partners.²³⁴ Counselling could encourage couples to acknowledge and grieve the loss of their shared biological child. Since infertility is not an issue for single women or lesbian couples undergoing DI, this grief process is not part of their experience. The following discussion centres on heterosexual couples, since this is the focus of the medical literature and of research studies.

Counselling to ensure informed choice means that clients would receive complete information about the risks and benefits of the proposed procedure as well as the risks and benefits of any alternative procedures or interventions.²³⁵ For DI recipients, this includes considering child-free living, adoption, or, in some instances, use of IVF for male factor infertility.236 Counselling is needed particularly when the DI procedure follows quickly on the heels of a diagnosis of infertility. Among the issues to be raised for recipients are legal concerns,²³⁷ the method of donor selection, the potentially contentious issue of using another man's sperm, donor anonymity, the issue of secrecy, medical risks of the procedure (e.g., infection), success rates, the failure to conceive, and the perinatal risks common to all pregnancies.

The psychological impact on the female recipient of donor insemination must also be taken into account. A woman undergoing donor insemination in a medical setting is attempting to conceive a child with the sperm of a man who is unknown and, most likely, unknowable to her. This reproductive arrangement is unique, since a reproductive partner is usually someone with whom a woman is intimate and, in all other cases, at least someone she has met. Two psychoanalytically oriented writers in the United States report that female recipients of DI must suppress fantasies about the donor,²³⁸ and one-third in a study of 43 were preoccupied with the donor's looks and personality.²³⁹ Experiencing DI entirely as a medical procedure may be a way of coping with the stress of what one writer calls the "anonymous pregnancy."²⁴⁰ The anonymity of the donor ensures distance from the man who provides sperm for her child. In the words of one DI mother:

AID is a clinical treatment, it's like an allergy shot, there is no personal contact, there is not another person, it is just a treatment. It's just a means to an end [emphasis added].²⁴¹

In an exploratory study of DI participants, female recipients identified the isolation stemming from the secrecy of the procedure as a major stress. The majority felt a need for support in raising their DI children, especially if they were keeping their childrens' origins secret.²⁴² As one DI mother commented:

One of the hard things about having done this was not knowing anybody else in the same situation to talk with and to discuss certain matters that arose with us ... because you can't talk to other friends or anybody really, and I really don't know how to ... It would be good for my husband to talk to another man who for infertility reasons has done this too rather than just me ... I mean, you feel so terribly isolated.²⁴³

Since secrecy is generally not an issue for single women or lesbian couples, who are generally open about their children's origins, the stress of keeping the secret is not part of their DI family experience.

The literature on the impact of DI on the male partner of this recipient of donor insemination focuses on the experience of male infertility, which may arouse feelings of inadequacy, shock, and personal violation.²⁴⁴ He may have strong feelings about his partner being inseminated with another man's sperm and carrying and bearing a child to whom he is unable to be a biological father. One writer warns that the child may serve as a constant reminder of the man's infertility.²⁴⁵

The importance of matching the physical characteristics of the donor and the male partner becomes apparent in this context. The function is to present the image of a biologically linked family. It is not clear how effective this strategy is for the social father. Similar to adoptive parents who are not the biological parents to their children, a DI (social) father may experience problems of "entitlement," that is, he may feel he is not entitled to parent or discipline children who are not really his (biologically).²⁴⁶ In the words of one father of two DI children:

There are a lot of little day to day experiences that come up that I tend to brush off fairly easily with or without humor, in my own mind. The talk of family resemblances is always coming up and I don't mind it really but it always makes me feel like I'm not

being honest with the person who may be spouting off on how my daughter looks just like me ... Something is always around to remind you that your relationship with your children is not quite what people think ... Logically, yes, — I'm very much their father, they are my children, etc., but emotionally it's never concrete, never settled. I'm not sure I'll ever be totally convinced that I'm 100 percent their father.²⁴⁷

Clearly, this is an area where counselling could play a role in clarifying the different roles in parenting created through DI.

Despite the plethora of complex dynamics set in motion by donor insemination, there is little research available on the impact of DI on a marriage. What is available shows surprisingly studies reporting negative outcomes anecdotal.248 outcomes: are largely Rosenkvist,²⁴⁹ reporting on a Danish study of 48 couples attempting DI, found only 4% (two couples) had divorced after two years. Both of the couples who had divorced had not achieved a pregnancy. Emphasizing the need to study couples who reject donor insemination or who fail to conceive, Rosenkvist observes that "as compared to successful AID couples, couples in whom the woman did not become pregnant have more severe emotional reactions and a more problematic development of partners individually as well as mutually."²⁵⁰ Norwegian researchers compared 227 DI mothers with a control group and found no significant difference in the separation rate between the two groups.²⁵¹ Berger et al. speculate that the bond of secrecy may stabilize the marriage and ensure loyalty — particularly for the child(ren)'s sake.252 Other positive outcomes include reports that recipients who return for a second child are satisfied²⁵³ or that the very fact that they return for subsequent children is an indicator of satisfaction.²⁵⁴

The indicators used to suggest positive outcomes are therefore (1) the continuance of the marriage, and (2) return for a subsequent DI child. Given the stress of infertility, the problematic nature of the DI solution, and the demand for secrecy, the issue of stress on the marriage may require more in-depth study. British researchers suggest that this divorce rate is lower than that of the general population possibly because couples who are willing to undertake DI may be more committed to each other in the first place. Those who are less committed and who encounter infertility may divorce rather than use DI.²⁵⁵

Secrecy

Secrecy is a key issue in DI practice — whether to tell and, if so, who to tell (family, friends, the children?). If recipients choose to be open about the procedure, how and when the telling should occur are largely unanswered questions that would benefit from long-term followup research on DI families. Research on recipients shows their marked preference to keep the procedure secret.²⁵⁶ However, most research is conducted at the time of insemination. In an exploratory study, several recipients reported that problems arose that could not have been forseen and it became impossible or inconvenient to keep the secret from family, friends, or the children.²⁵⁷ In most instances, when adult DI offspring are informed about their origins, it is because of a family crisis or because the secret has accidentally leaked out.²⁵⁸ Even though recipients express a preference for secrecy at the time of insemination, according to small followup studies, they usually tell someone — another family member or a friend — and they report that the secret is difficult to keep.²⁵⁹

Various reasons have been put forward to explain the importance of the secrecy in DI practice: (1) to hide the infertility of the male, which is culturally associated with failure of masculinity, impotence, and loss of self-esteem;²⁶⁰ (2) to make sure that the children won't feel "different"²⁶¹ and to side-step legal issues; (3) to preserve an image of the family as biologically linked;²⁶² and (4) to avoid the difficulties of acknowledging the division of parental roles into biological and social fathering.²⁶³ All of these factors operate in generating the need for secrecy, which, until very recently, was encouraged in medical literature and in procedural guidelines.

In general, the need for secrecy is supported by the medical and legal profession. Openness about the procedure is supported by professionals with experience in adoption — psychologists, social workers, and sociologists. Adoption is frequently cited as a social precedent for DI. Those supporting openness fear that the same mistakes that were made with early adoption practice are being repeated. Secrecy about adoption proved to produce problems, and adoption policy now supports openness with the child, the community and, sometimes, even openness with birth parents.²⁶⁴ The comparison of DI to adoption is problematic, since there are significant differences, as well as similarities (see Offspring).

In the last decade, however, a shift has occurred in medical professional guidelines from sanctioning secrecy completely (including not telling family physicians or the physician who delivers the baby) to a position of uncertainty about this issue.²⁶⁵ Recent Canadian guidelines go further and state that "[A]dverse interpersonal relationships may develop in the long term because of the perceived need to maintain secrecy ... "²⁶⁶ There has also been a move internationally to be more open about DI practice. Legislation in Sweden and Australia as well as pending legislation in Britain ensure that records are kept linking donors with their offspring and that DI offspring can have access to information about their biological father (see Record-Keeping). An Australian bioethics committee has devoted two major reports to these issues of record-keeping and access to information.²⁶⁷ Although sympathetic to the offspring's right to know, their final report recommends that "[T]he social parents have the choice of whether or not they inform an offspring conceived of gamete donation,"²⁶⁸ clearly respecting the parents' right to privacy.

For the minority of DI parents who decide to tell their children about their origins, there is little guidance as to when and how to do this. If adoption is a reasonable precedent, children are best told at the age at which they are told about reproduction (ages three to five). Although they will not integrate the implications of this knowledge until much later, it is generally agreed that growing up with the information is better than being told later. The following is a description of one DI mother's story to her DI daughter:

Your dad and I really wanted to have a baby. We had a hard time because when your dad was a teenager he had an operation which meant that he no longer had any seeds.

So we went to the doctor and the doctor said he knew a man who gave the seeds to the doctor and the doctor put them into mommy and that's how we got you.²⁶⁹

Single women and lesbian couples generally tell their DI children about their origins and are having to create their own stories as they go along. Without more experience in this area. it is impossible to say how DI children will react to this experience in adulthood.

Offspring

There is only one published follow-up study of children conceived through DI. This 1968 Japanese study of 54 DI offspring reports that the physical and mental development of the children studied was superior to that of the control group.²⁷⁰ Other reports about the experience and welfare of DI offspring are all based on case studies or small samples. Research on the psychosocial issues for DI offspring is hindered by secrecy and the confidentiality of the doctorpatient relationship. Most may not know about their DI origins.

Discussion of the psychosocial factors for DI children relies largely on risk factors for adoptive families.²⁷¹ These include unresolved parental feelings about infertility and the child's sense, if his or her origins are kept secret, that "something is off." There is also the concern about severe consequences if the secret is revealed under conditions of family stress.²⁷²

How far the analogy between adoptees and offspring of DI can be carried is frequently debated. Both the similarities and the differences warrant consideration. The secrecy and anonymity and the attempt to "pass" as biological parents are clearly analogous to early adoption practices, which are now considered to have been erroneous.

In DI, the biological mother is also the social mother, so that, unlike adoption (in a twoparent family), there is one biologically tied parent and one who is not biologically tied. This creates an imbalance within the family, which is structurally more analogous to a step-parent family than to an adoptive family. This imbalance may be a source of conflict for the couple.²⁷³ Another often-cited difference between DI and adoption is that adoption is a process of finding a family for a child who has been relinquished by the biological parents, whereas DI is a process for a couple or a woman seeking a child. In addition, a child is knowingly created by one of the biological parents with no intention of rearing it. Whatever weight is attributed to the differences and similarities, however, adoption remains the closest social precedent for donor insemination practice.

Although it is generally agreed that secrecy may be harmful, 274 there is, as noted above, no solid research to evaluate the effects of telling or not telling DI children about their origins. The difference between finding out accidentally and being told about their origins intentionally appears to be crucial to the response of DI offspring to knowledge about their origins. Two British researchers describe as positive the response of a "small number of individuals" whose parents decided to tell them of their DI origins:

When they were eventually told, all these young adults had accepted their AID status equably and none of them had found it a particularly traumatic experience ... These young people had certainly been surprised when they were told, but some of that surprise was because their parents had felt the need to keep the matter such a close secret for so many years. None of them regretted the fact that their parents had had them by AID. They were enjoying life and happy to be alive and realized that they owed their existence to AID. They were also pleased to feel that their parents had wanted a child so badly.²⁷⁵

Reports by DI children (also small samples) who found out about their origins accidentally are not so positive — although, in most cases, their anger was directed more at being deceived than at the DI procedure itself.²⁷⁶ The following is an excerpt from an interview with a 45-year-old architect and father of two children, who describes his feelings after being told by his mother about his DI origins at age 37, after his father's death:

As I grew to live with this truth, it felt like a Gordian Knot that continued to increase in complexity the more I thought about it as an issue and felt it as a personal tragedy (as I now regard it). I began to consider myself as a victim of a life-long deception. I cannot understand why it ever had to be a secret, why my mother could not have told me at the age of five, why the "donor" has to be anonymous, why there are no regulations, why this is supposedly better than adoption, and why I have no rights as a human being to know my own father.²⁷⁷

Although a distinct issue, the donor's anonymity is inextricably linked to the secrecy surrounding DI and the importance of linked records. If DI children are told about their origins, the risk is that they will want information about their biological father. Some DI mothers in an exploratory study were unwilling to tell their children about their DI status because they knew that they could not tell them anything about their biological father and presumed they would be interested.²⁷⁸ In the words of one DI mother (of Amy) who also has an adopted child (Brian):

I think of Amy as Dan's child, our child ... It's different with Brian, everyone knows he's adopted. Secrecy isn't possible. We can help him find his parents if he wants to. It's different with AID ... we couldn't tell her about her parents.²⁷⁹

Anonymity is generally viewed in absolute terms — nothing about the donor is revealed to anyone. But his identity is known to those who recruit him, and information about him may vary from nothing at all, to medical or non-identifying information, to identifying information. This perspective opens up more possibilities for different kinds of relationships between the donor and his biological offspring and the recipients.

It is currently felt that children need to know, for mental health reasons, who their biological parents are, and that they have a right to this information. In 1964, H.J. Sants published his classic article on "genealogical bewilderment," arguing that "[n]ot knowing would appear to be incompatible with the secure self-image." "Geneological bewilderment" is a term coined in 1952 to describe the maladjustment problems of some adopted children. In 1973, John Triseliotis published his study of 73 Scottish adoptees who had applied for copies of their original birth certificates. He discovered that three out of five of this group had been

told about their adoptive status late — after the age of ten. All of the adoptees who had been told late were resentful and felt betrayed by their adoptive parents. In addition, he found that those who had no information, negative information, or were dissatisfied with their adoptive family were the most strongly motivated to establish a relationship with their "natural" parents. Those who were given some information or whose adoptive family experience was positive were seeking background information to complete their identity. Similarly, a more recent review suggests that a compulsion to search for biological parents is rooted in emotional deprivation but acknowledges that "genetic curiosity" is healthy among those cut off from their roots. 283 The extent to which DI offspring will duplicate the responses of adoptees is unknown. However, the following is the response of one DI offspring whose father told her about her origins after her mother died:

> I feel that I was cruelly deceived. By lying to me all my life, my dignity as their child and their integrity as my parents was irreparably damaged. Because I was a child my trust in them was exploited and used to cover up what they themselves considered 'unpalatable' and of questionable morality.284

Those who find out accidentally about their DI status have several issues to deal with at once. Usually, there is a family crisis (such as a death, divorce, or serious illness perceived as genetically transmitted) which triggers the revelation. During this stressful period, they must deal with what they are likely to see as a "life-long" deception. And, finally, they are also being asked, at this time, to deal with the implications of their DI origins — that their father is not their biological father and that there is another unknown male who has fathered them biologically. Perhaps it is because there is so much to absorb at once that DI offspring who find out accidentally about their origins do not appear to fare well. Their parents' attitude may shape how the children respond to their origins. If the parents are secretive, the child may feel ashamed, whereas openness about the procedure may create a more positive attitude.

The possibility of studying DI offspring on a large scale may be precluded by the conditions of current practice. Few may know of their origins and those who do may be difficult to contact. Further research on the responses of adoptees, however, would be useful. How many are interested in their biological parents? Are these reunions successful? Given the recent development of adoption registry programs in Canada, research in this area could shed more light on this issue in a Canadian context.

Physicians

Although the attitudes of practitioners would provide a crucial perspective on the practice of donor insemination, this is a largely untapped research area. Surveys have tended to focus on aspects of physicians' practice other than attitudes. Only one Canadian survey turns direct attention to the attitudes of physicians themselves (discussed under the issue of access for recipients).²⁸⁵ One U.S. study, a survey undertaken by the OTA in 1987, asks specific questions about physicians' attitudes to their practice of artificial insemination.²⁸⁶ Overall, there is a good deal of variance in responses. Physicians are "split almost evenly over whether requests for artificial insemination ought to be honored 'regardless of marital status or sexual orientation'."²⁸⁷ Similarly, a small Ontario study found that about one-half of the physicians reported "impending divorce action" and "sexual orientation of the women and single status" as the most important factors in rejecting patients.²⁸⁸

Asked whether self-insemination was a reasonable alternative to physician-assisted donor insemination, physicians in the U.S. sample were also divided in opinion. Female physicians and physicians with smaller practices were more likely to say yes.

However, regardless of age, sex, or size of practice, surveyed physicians were "uniformly and strongly opposed" to the rights of the offspring to "communicate with their genetic fathers." Physicians showed the greatest diversity in attitudes in regard to "trait specialization" (sperm banks that specialize in donors with intellectual, artistic, or athletic gifts). Over half, in total, of the two samples agreed strongly or somewhat agreed that there was nothing wrong with these banks.²⁸⁹

In contrast to the U.S. survey, which found consensus among American physicians on the point that DI offspring did not have a right to know their genetic fathers, a New Zealand survey reported that nearly half (45%) of physicians felt that children should be told of their origins, although 95% felt that there should be no Health Department requirements on this point.²⁹⁰ This substantial difference of opinion of physicians from two different countries vis-à-vis the same issue suggests the extent to which this issue is subject to cultural conditions and to the immediate context of the practice. Education, therefore, could be an effective agent of change on these issues.

Medical Risks

The risks posed by the simplest form of insemination are identical to those posed by sexual intercourse — the transmission of infection (viral, mycoplasmal, and bacterial) through semen and the risk of genetic or chromosomal abnormalities.²⁹¹ The risks are multiplied, however, by the repeated use of one donor who has not been properly screened. These risks may, in fact, be reduced if sperm donors are screened for infection and by genetic history. The repeated use of one donor in a small geographical area may increase the risk of marriage and unknowing incest among children of the same sperm donor. This has resulted in recommendations that donors be limited to between six to ten pregnancies²⁹² (see Donors).

Some diseases which may be transmitted by DI are chlamydia, gonorrhea, cytomegalovirus, hepatitis B virus, and HIV (see Screening). The transmission of all of these has been documented in an anecdotal fashion,²⁹³ but since there are no long-term, systematic studies of the outcomes of DI, the incidence is unknown. The anonymity and secrecy considered essential to the practice and the consequent inadequate record-keeping hinder follow-up. If HIV is transmitted, it is life-threatening. Risks from other pathogens include spontaneous abortion, placental infections, premature delivery, and stillbirth.²⁹⁴

The risks of DI increase with the number of attendant therapies and treatments that accompany it. The more invasive methods of insemination are also more likely to increase risks. Intrauterine insemination, for example, includes risks of bleeding, cramping, introduction of infection, and uterine contamination.²⁹⁵ One source lists the possibility of developing antisperm antibodies in a fertile woman using intrauterine insemination for AIH.²⁹⁶ As well, diagnostic procedures may engender more risks. Listed among the risks for hysterosalpingography, for example, are "excruciating pain," radiation damage, adhesions, and pelvic inflammatory disease.²⁹⁷

The drug treatments used to induce ovulation also increase the risks of the procedure. Listed among the possible medical risks of these hormonal treatments are luteal phase defect. hydatidiform mole, ovarian hypertrophy, premature aging of the ovary, ovarian cancer, ectopic pregnancy, and multiple gestation.²⁹⁸ A fertile woman, in other words, whose ovaries are hyperstimulated during DI to increase the efficiency of the procedure, risks (1) multiple pregnancy (the risks of which include placental problems, premature rupture of the membranes, abnormal fetal presentation, the need for selective fetal reduction, induced hypertension, excess amniotic fluid, the need for post-partum blood transfusions, severe nausea, vomiting, anxiety, depression, prematurity, low birthweight, an increase in birth defects, 299 as well as the innumerable social and economic costs of bearing and raising more than one child at a time); (2) severe ovarian hyperstimulation (swelling of ovaries, fever, severe abdominal pain) occurring in about 10% of cases;³⁰⁰ and (3) an increase in ectopic pregnancy (5% in one study).³⁰¹ Once again, these are iatrogenic problems caused by the DI procedure, in some cases in women with no proven fertility problems. No studies have been conducted on the offspring looking at the reproductive tract at or beyond puberty, so that the effects of the drug therapies over time is unknown.

There is no evidence of an increased risk to DI offspring, with the exception of the psychosocial issues identified in the section above. The risks to the donor include the risk of finding out about infection (including HIV), about genetic abnormalities, and about problems with his own fertility.

Sperm Banks

An exploratory study of sperm-banking practice in Canada was undertaken for the purpose of this report, since there does not appear to be literature in this area. A number of banks were contacted: three Canadian commercial sperm banks (Repromed and Gamete Services in Toronto and L'Institut de la Medicine Reproduction de Montreal); seven hospital-based banks; five smaller clinics that use banks; and two U.S. commercial banks (Idant in New York City and Xytex in Augusta, Georgia). A number of questions concerning donor recruitment, payment, screening practices, the frequency of donation, counselling, and costs to the patient were asked. The following is a brief summary of the results of this small study.

Donors are recruited mainly from two groups: (1) students (university-wide and medical students) and (2) donors found through the physician's practice and personal contacts. The latter group consists largely of the husbands and partners of female patients with fertility problems. One U.S. bank reported recruiting "mostly young professionals" through TV ads and general newspapers. Most banks reported recruitment problems for donors in specific populations (e.g., Chinese, East Indian, Black, Arab, etc.), although they also reported that the demand for sperm among these groups is low. Donors are paid, on average, \$50 per sample, with one Canadian commercial bank paying \$90 per sample.

All of the banks surveyed used either Canadian Fertility and Andrology Society, American Fertility Society, or American Association of Tissue Banks guidelines for screening donors. Adherence to the guidelines resulted in the rejection of between 75% to 95% of prospective donors. Most banks limit the number of donations per donor in some way, although, in some cases, this is in terms of years of donation, not live births. (The average number of pregnancies per donor is 10, with a range from 3 to 30.) One hospital-based bank in a small community reported no limit on the number of donations, pregnancies, or births per donor.

Donors are counselled on reporting changes in their sexual behaviour, but most banks (with the exception of the large commercial U.S. banks) do not counsel on psychosocial issues. The charge (to the patient or to the physician from the bank) is, on average, about \$100 per sample. Sperm samples from ethnic populations cost a little more, as does washed sperm or sperm that has been shipped from the United States. There was no shortage of sperm reported. Although every sperm bank and clinic contacted is using frozen sperm, several practitioners mentioned that they are aware that smaller, office-based practices were still using fresh sperm.

Research Needs

The following is a preliminary agenda for research in donor insemination, which is derived directly from the literature review above. It is not meant as a comprehensive list but as a guide to identifying issues on which data is needed, which, in donor insemination, includes almost every area of the practice and its consequences. Many of the issues are linked, such as record-keeping practices and, for example, monitoring of outcomes. Almost all would require the cooperation of practitioners.

With the exception of the Freedman *et al.* study of non-medical selection criteria,³⁰² there has been no systematic collection of data from Canadian DI practitioners. In order to get a full picture of DI practice in Canada, it is important to collect data from both hospital-based and office-based practices, since anecdotal evidence indicates that these might be quite different. A list of issues and/or information on which it would be extremely useful to have data on DI practice in Canada follows.

Practice and Attitudes of Physicians

DI Practice

- a comprehensive list of practitioners using DI;³⁰³
- incidence (the number of live births). This requires follow-up procedures and recordkeeping practices that are not currently in place;
- outcomes: the number of inseminations, pregnancies, live births, and abnormalities;
- awareness of professional guidelines current CFAS, AFS, Ontario, or other guidelines;
- adherence to professional guidelines for screening donors;
- collection of data on transmission of diseases to recipients (this also requires followup procedures and record-keeping practices that are currently not in place);
- extent of simple or complex methods of insemination being used and under what conditions:
- record-keeping practices (Are records kept on the donor? On the use of his sperm, on pregnancies, live births, other relevant outcomes? Is the opportunity available for the donor to update his file if, for example, he were to develop a problem in the future, such as diabetes, or simply change his personal information? Are records kept on the recipient? Is it possible to make links between the recipient, the donor, and each offspring?);
- donor recruitment: How are donors recruited?:
- payment to donors: Are donors paid? How much? Is it viewed as payment or as reimbursement for time and expenses?;
- limitations on the number of donations per donor;
- criteria for screening recipients;
- counselling for donors;
- costs to the consumer:
- counselling recipients about risks and options;
- sources of sperm: commercial or public banks;
- use of fresh or frozen sperm;
- sex preselection practice.

Sperm Banks

- awareness of professional guidelines;
- adherence to professional guidelines;
- record-keeping practices;
- donor recruitment;
- payment to donors;
- limitations on the number of donations;
- the number of straws from each ejaculate:
- the extent of profit for commercial banks;

- counselling for donors;
- costs.

Attitudes of Practitioners

- attitudes regarding non-medical selection of recipients, e.g., single women, lesbian couples:³⁰⁴
- centralized registries;
- who should have access to records and under what conditions?;
- · rights of offspring;
- rights of donors;
- rights of recipients.

Attitudes of the Public and of Participants

Community Attitudes

• There has been no poll of the Canadian public on the issues involved in donor insemination (e.g., payment for gamete donation, opinion on offspring rights, etc.).

Donors

- attitudes toward donation/payment/offspring/recipients;
- attitudes toward anonymity and disclosure issues (non-identifying and/or identifying information);
- attitudes to record-keeping;
- attitudes of a non-donor male population³⁰⁵ vis-à-vis these issues.

Recipients

- the experience of single women and lesbian couples creating families through donor insemination and self-insemination;
- the decision-making process leading to donor insemination for all participants;
- indicators of the success of the procedure in social terms (i.e., the experience of the families, their attitudes toward the procedure in the long term, marital stress caused by DI);
- reasons for secrecy and the extent of secrecy;
- the effects of telling or not telling offspring.

Offspring

• It would be ideal to have long-term, large-scale studies of DI offspring; however, this is unlikely because of the secrecy and anonymity surrounding the procedure. Such studies would be possible with children conceived through self-insemination, since

- secrecy is less an issue. However, the issues would be different from those experienced by children conceived through DI in a medical setting;
- It should be possible to collect some information on the experience of offspring even if the sample is small;
- Another useful source of information is adoption registries. How much are they being used? What are their problems or successes? Is this a feasible model for DI offspring?

Donor insemination is an important reproductive alternative not matched by an active research interest in either the medical or psychosocial aspects of the procedure. IVF, with only a little over a decade of practice, has far more available research than DI, which has now been practised for several decades in Canada. Although DI practice has benefitted from research in other arenas, focusing research on issues unique to DI would assist in ensuring safe practice. It would also be helpful in evaluating its appropriate place in our society.

Conclusions

Despite the technical advances in screening of donors, freezing of sperm, and new methods of insemination, donor insemination is practised today in medical settings in much the same manner as it was a century ago. Physicians maintain control over the whole process; the selection, as well as the matching of donors and recipients, is controlled by practitioners; sperm donors remain anonymous; record-keeping is haphazard; participants have no right of access to records if they are kept; DI offspring and other family members are rarely told of the DI conception; and the entire process is kept secret. Within this medical model, a fertile woman becomes a patient and may risk the side-effects of drugs and therapies used to increase the efficiency of the procedure. An attempt is made to deny the psychological impact of male infertility and the consequent loss of a child biologically tied to both parents. Offspring are raised without knowledge of their DI origins and would, in most cases, be unable to obtain information about their biological father even if they were told. Although the risk of transmitting HIV through semen may ensure a medical role in DI practice, it was not the original reason for medicalization, nor is it a reason to maintain medical control over the entire process.

There are demands among consumers for a different kind of DI practice. In the United States, there are two groups of DI offspring lobbying for access to records about their biological fathers: Donors' Offspring and HOPE (Helping Offspring Pursue Ethics). In Canada, there is a group called the New Reproductive Alternatives Society, whose goals are public education, support for participants, and lobbying for changes in DI practice on issues such as access to records, control over the procedure, and recognition of the psychological processes involved.

In a different model of DI practised by the Sperm Bank of California (see Appendix A), recipients choose a donor from a catalogue that lists race/ethnicity, skin, hair, and eye colour, height, weight, blood type, and identity-release information. Donor profiles summarizing family history, medical, physical, and personal characteristics, as well as the donor's medical chart (containing a detailed medical history form, lab test results, and exam findings) are also available. It is also possible for participants to bring their own donor to the bank. Participants have the option of directly enrolling in the bank, where the program includes an orientation, fertility awareness class, complete physical examination, assistance with selecting the donor and the insemination visit, or working directly with their own physician, who must register with the bank. The insemination can take place in the clinic, the doctor's office, or at home. Partners are encouraged to participate in every phase of the program and catalogues, profiles, and sperm can be mailed to any destination in the United States or Canada.

In this model, a high level of screening and technical expertise is maintained, but participants can negotiate different aspects of the process with the sperm bank or with their physician. Participants are more likely to tell their children about their DI origins. Some offspring will be able to meet their biological father at age 18. The innovative family forms created through DI are more visible than in traditional medical practice, where every attempt is made to pretend that the donor insemination did not take place.

In the traditional medical practice of DI, the birth of a DI child is the end goal of the process. In the life of all participants, the birth of a DI child is also a beginning. It is the beginning of a new and innovative family form that can only benefit from acknowledgement of its unique features.

Glossary

Antisperm antibodies: Antibodies to sperm found in either member of an infertile couple, which may interfere with sperm movement or ability to interact with the egg.

Arginine: Amino acid used to stimulate sperm activity.

Cervical factor infertility: Infertility associated with cervical mucus incompatibilities with a partner's sperm.

Chlamydia: The bacteria chlamydia trachomatis is a common sexually transmitted disease. In women, infection may cause pelvic inflammatory disease (PID) of the upper genital tract, leading to infertility, increased risk of ectopic pregnancy, stillbirth, or premature birth, and eye infection and pneumonia in a resulting infant. In males, chlamydia may cause inflammation of the urethra, which, if untreated, can reach the epididymis. It is difficult to cure and may cause infertility.

Cryopreservation: The preservation of tissues such as sperm, eggs, or embryos by freezing them at extremely low temperatures in liquid nitrogen.

Cytomegalovirus: One of a group of highly host-specific herpes viruses. Depending upon the age and immune status of the host, the virus can cause a variety of clinical syndromes.

Ectopic pregnancy: A fertilized egg that implants outside the uterus, usually in the fallopian tube.

Endometriosis: The presence of endometrial tissue (the normal uterine lining) in abnormal locations, such as the fallopian tubes, ovaries, or peritoneal cavity.

Erectile dysfunction: Failure of the erectile tissues in the penis or clitoris.

Fecundability: The probability of pregnancy occurring per cycle of treatment; the figure may be multiplied by 100 to give a "percentage chance" of pregnancy.

Fertilization: Fusion of an oocyte (egg) and sperm and subsequent combining of the two sets of chromosomes (23 each).

Follicle: A fluid-filled structure within the ovary that contains the developing egg. At ovulation, the follicle breaks through the surface of the ovary and the egg is released.

Gamete: The mature male or female reproductive cell, which contains one set of chromosomes. In a man, the gametes are sperm; in a woman, they are eggs, or ova.

Gamete intrafallopian transfer (GIFT): A technique of assisted reproduction in which fertilization takes place *in vivo*. A woman's mature oocytes are removed by laparoscopy or under ultrasound guidance and then reintroduced with sperm in a catheter threaded into the fallopian tubes.

Gonorrhoea: A sexually transmitted bacterial disease. If not treated, in women it can spread to the uterus and the fallopian tubes, causing pelvic inflammatory disease; in men, it can cause inflammation of the testes and can affect semen quality.

Herpes: An infection caused by the herpes simplex virus transmitted by vaginal, anal, or oral sex and sometimes through linens and towels. Men may have sores on the penis, scrotum, perineum, buttock, anus, and thighs and women on their vagina and cervix. The outbreaks recur and there is currently no medical cure.

Hydatidiform mole: An abnormal pregnancy resulting from a pathologic ovum. It results in a mass of cysts resembling a bunch of grapes.

Hypertrophy: The enlargement or overgrowth of an organ due to an increase in size of its constituent cells.

Hypospadias: A structural abnormality of the penis where the opening of the urethra is on the underside of the penis. It may decrease fertility by preventing semen from being delivered into the vagina, but does not affect the quality of the sperm.

Hysterosalpingogram (HSG): An X-ray of the female reproductive tract after injecting into the uterus a dye that travels into the fallopian tubes. Since the dye does not transmit x-rays, the outline of the uterus and the degree of openness of the fallopian tubes can be seen.

Idiopathic infertility: Infertility for which no organic problem has been identified in either partner.

Insemination cycles: A menstrual cycle in which a woman is inseminated.

Intrafallopian: Within the fallopian tubes.

Intraperitoneal: Within the peritoneal cavity.

Intrauterine: Within the uterus.

In vitro fertilization (IVF): A technique of assisted reproduction. Mature oocytes (eggs) are removed from a woman's ovary, usually after administration of an ovulatory stimulant, and fertilized with sperm in the laboratory. If the sperm do not fuse with the ova, fertilization may be achieved by microinjection of sperm into the egg or by mechanically opening the zona

pellucida. After fertilization and incubation, the fertilized egg is placed in the woman's uterus. An embryo from IVF may also be transferred to another woman.

Kinins: Peptides used to stimulate sperm activity.

Laparoscopy: A procedure requiring a general anesthetic, in which the reproductive organs are viewed through a special scope (laparoscope) inserted near the navel after the abdomen has been inflated with carbon dioxide. It is used in the investigation of adhesions, endometriosis, and pelvic inflammatory disease.

Luteal phase defect (LPD): Failure of the endometrial lining of the uterus to develop properly after ovulation because of inadequate production of progesterone by the corpus luteum (cells left in the follicle after the egg leaves). This may prevent a fertilized egg from implanting in the uterus or may lead to early pregnancy loss.

Luteinizing hormone (LH): The pituitary hormone that causes the testes in men and ovaries in women to make sex hormones. In women, when the egg is ripe, the pituitary releases a large amount of luteinizing hormone (LH). As a result, within 24 to 36 hours the egg finishes maturing and bursts out of the ovary. The remaining cells in the follicle start producing the sex hormone, progesterone. In men the two pituitary hormones, LH and FSH (follicle stimulating hormone) are released together. LH stimulates testosterone production in the testes.

Microbial screening: Laboratory screening for bacteria, protozoa, and fungi.

Morphology: The study of form and structure, such as assessing the shape of sperm during semen analysis. Dysmorphology of sperm may affect movement and, thus, the ability of the sperm to fertilize the egg.

Mycoplasma: A micro-organism similar to bacteria which is associated with reproductive tract infections. This is the basis of a sexually transmitted disease, which may be transmitted alone or with chlamydia. Women are often asymptomatic, but men often have painful urination and discharge. This organism has been implicated in some studies in female infertility, ectopic pregnancy, miscarriage, and premature birth.

Non-motile: Referring to the inability of sperm to move spontaneously.

Orchitis: Inflammation of the testes.

Ovulation: The release of an oocyte (egg) from a woman's ovary, generally around the midpoint of the menstrual cycle.

Pathogens: Any disease-producing micro-organism.

Retrograde ejaculation: Flow of semen into the bladder rather than out through the penis.

Streptococcal infection: Acute or chronic streptococcal infections of the genital tract. They are not usually sexually transmitted. They sometimes travel through the lymphatic or blood vessels, causing adhesions to form around the outside of the fallopian tubes, thereby affecting fertility. The source can be an induced abortion, miscarriage, childbirth, or biopsy.

Syphilis: A bacterial disease caused by a spiral-shaped bacterium called a spirochete. In infection stages, it is transmitted through sexual intercourse or skin contact and may affect fertility.

Trichomoniasis: An infection of the vagina caused by the parasitic organism trichomonas vaginalis protozoan, which may be sexually transmitted.

Tubal polyp: A growth on the mucous membrane of the fallopian tube.

Ureaplasma: See mycoplasma.

Uterotubal junction: The junction of the uterus and the passage through which ova leave the uterus.

Vaginismus: Involuntary contraction of the muscles around the outer third of the vagina, which prohibit penile entry.

Notes

- 1. P. Singer and D. Wells, *The Reproduction Revolution* (Oxford: Oxford University Press, 1984).
- 2. Anonymous, personal communication with DI practitioner, October 1985.
- 3. The legal issues will not be dealt with in this paper.
- 4. Sex selection techniques are not yet very well developed and remain controversial scientifically as well as socially. See M.R. Geier, J.L. Young, and D. Kessler, "Too Much or Too Little Science in Sex Selection Techniques?" Fertility and Sterility 53 (6)(June 1990): 1111-12.
- 5. With artificial insemination by husband, there is a tendency to use more complex methods of insemination since the sperm itself will need to be prepared and manipulated, or intrauterine insemination may be indicated because of female factor infertility in the recipient. However, due to the current requirement of freezing donor sperm, the technical differences between the two types of insemination are reduced.
- 6. Artificial insemination by husband is much less contentious socially; however, the traditional view of the Roman Catholic Church opposes even the use of AIH since procreation would be achieved without sexual intercourse. This parallels a similar view about birth control, which would also separate sexuality and procreation.
- 7. See, for example, the section on self-insemination in this report. It could be argued that AIDS has changed the possibility of finding a partner to achieve pregnancy, but the medicalization of DI occurred long before the advent of AIDS.
- 8. Canadian Fertility and Andrology Society (CFAS) and Society of Obstetricians and Gynaecologists of Canada (SOGC), Ethical Considerations of the New Reproductive Technologies (Toronto: Ribosome Communications, 1990).
- 9. J.B. Staub and L.I. Lipshultz, "Treatments for Infertile Men," Medical Aspects of Human Sexuality 24 (July 1990): 40-45.
- 10. Inflammation of a testis as a result of the mumps.
- 11. Varicocele is "an abnormal dilation and twisting of the veins carrying blood from the testes back to the heart." United States, Congress, Office of Technology Assessment (OTA), Infertility: Medical and Social Choices (Washington, D.C.: G.P.O., 1988), 66.
- 12. OTA, Medical and Social Choices.
- 13. See for example, R.M. Greenblatt et al., "Screening Therapeutic Insemination Donors for Sexually Transmitted Diseases: Overview and Recommendations," Fertility and Sterility 46 (3) (September 1986): 351-64; M. Chauhan et al., "A Protocol for the Recruitment and Screening of Semen Donors for an Artificial Insemination by Donor Programme," Human Reproduction 3 (7)(October 1988): 873-76; W.P. Hummel and L.M. Talbert, "Current Management of a Donor Insemination Program," Fertility and Sterility 51 (6)(June 1989): 919-30; C.L.R. Barratt, M. Chauhan and I.D. Cooke, "Donor Insemination — A Look to the Future," Fertility and Sterility 54 (3)(September 1990): 375-87; B.S. Shanis, J.H. Check and A.F. Baker, "Transmission of Sexually Transmitted Diseases by Donor Semen," Archives of Andrology 23 (3)(1989): 249-57; J.L. Marks, D. Marks and L.I. Lipshultz, "Artificial Insemination with Donor Semen: The Necessity of Frequent Donor Screening," Journal of Urology 143 (2)(February 1990): 308-10.

- 14. American Fertility Society (AFS), Report of the Ad Hoc Committee on Artificial Insemination (Birmingham, Ala.: American Fertility Society, 1980).
- 15. See the analysis in K.S. Moghissi, "Reflections on the New Guidelines for the Use of Semen Donor Insemination," *Fertility and Sterility* 53 (3)(March 1990): 399-400.
- 16. American Fertility Society (AFS), "New Guidelines for the Use of Semen Donor Insemination: 1986," Fertility and Sterility 46 (4)(Supplement 2)(October 1986): 95S-110S.
- 17. The possibility that the development of seropositivity (detection of HIV antibodies) may occur after 180 days (six months) has not been excluded. Hummel and Talbert, "Current Management."
- 18. American Fertility Society (AFS), "Revised New Guidelines for the Use of Semen Donor Insemination," Fertility and Sterility 49 (2)(February 1988): 211.
- 19. American Fertility Society (AFS), "New Guidelines for the Use of Semen Donor Insemination: 1990," Fertility and Sterility 53 (3)(Supplement 1)(March 1990).
- 20. Canada, Health and Welfare Canada, Storage and Utilization of Human Sperm (Ottawa: Health and Welfare Canada, 1981).
- 21. Ontario, Ministry of Health, Ad Hoc Group, Recommended Guidelines for Therapeutic Donor Insemination Services in Ontario (Toronto: Ministry of Health, 1987).
- 22. Canadian Fertility and Andrology Society (CFAS), *Guidelines for Therapeutic Donor Insemination* (Montreal: Canadian Fertility and Andrology Society, 1988).
- 23. CFAS/SOGC, Ethical Considerations.
- 24. Ontario, Ministry of Health, Recommended Guidelines.
- 25. Ontario, Ministry of Health, Recommended Guidelines.
- 26. CFAS/SOGC, Ethical Considerations.
- 27. Ontario, Ministry of Health, Recommended Guidelines.
- 28. CFAS, Guidelines for Therapeutic Donor Insemination.
- 29. See, for example, CFAS, Guidelines for Therapeutic Donor Insemination.
- 30. See, for example, Ontario, Ministry of Health, Recommended Guidelines.
- 31. CFAS, Guidelines for Therapeutic Donor Insemination.
- 32. A small Ontario survey of DI physicians reports that "[T]welve of 15 physicians followed the pregnant women post-conception and 11 of 12 physicians reported following the women into the postpartum period." J. Jarrell and R. Milner, "Artificial Insemination by Donor in Ontario," *Annals / Royal College of Physicians and Surgeons of Canada* 19 (2)(March 1986): 115-18. This amount of follow-up would appear to be unusual in DI practice.

- 33. G.J. Stewart et al., "Transmission of Human T-Cell Lymphotropic Virus Type III (HTLV-III) by Artificial Insemination by Donor," Lancet 2 (8455)(14 September 1985): 581-84.
- 34. W.R. Berry et al., "Transmission of Hepatitis B Virus by Artificial Insemination," Journal of the American Medical Association 257 (8)(27 February 1987): 1079-81.
- 35. T.C. Nagel, G.E. Tagatz and B.F. Campbell, "Transmission of Chlamydia Trachomatis by Artificial Insemination," Fertility and Sterility 46 (5)(November 1986): 959-60.
- 36. D.E. Moore et al., "Transmission of Genital Herpes by Donor Insemination," Journal of the American Medical Association 261 (23)(16 June 1989): 3441-43.
- 37. N.J. Fiumara, "Transmission of Gonorrhoea by Artificial Insemination," British Journal of Venereal Diseases 48 (4)(August 1972): 308.
- 38. B.N. Barwin, "Transmission of Ureaplasma Urealyticum by Artificial Insemination by Donor," Fertility and Sterility 41 (2)(February 1984): 326.
- 39. L. Mascola and M.E. Guinan, "Semen Donors as the Source of Sexually Transmitted Diseases in Artificially Inseminated Women: The Saga Unfolds," Journal of the American Medical Association 257 (8)(27 February 1987): 1093-94.
- 40. Anonymous, personal communication with a recipient attending a major hospital clinic in Toronto, November 1990; see also, C. Gainor, "Service Supplying Fresh Sperm Abandoned after Controversy," Medical Post 26 (8)(27 February 1990): 28.
- 41. M. Curie-Cohen, L. Luttrell and S. Shapiro, "Current Practice of Artificial Insemination by Donor in the United States," New England Journal of Medicine 300 (11)(15 March 1979): 585-90.
- 42. M.C. Timmons et al., "Genetic Screening of Donors for Artificial Insemination," Fertility and Sterility 35 (4)(April 1981): 451.
- 43. United States, Congress, Office of Technology Assessment (OTA), Artificial Insemination: Practice in the United States. (Washington, D.C.: Office of Technology Assessment, 1988).
- 44. A survey of DI clinics in the U.K. reports that "most of the clinics had no structured policy for control of common (non-HIV) sexually transmitted diseases within their programmes." See C.L.R. Barratt et al., "Screening Donors for Sexually Transmitted Disease in Donor Insemination Clinics in the UK: A Survey," British Journal of Obstetrics and Gynaecology 96 (4)(April 1989): 461-66.
- 45. Jarrell and Milner, "Artificial Insemination."
- 46. This survey, undertaken in 1983-1984, preceded medical knowledge about testing for HIV.
- 47. OTA, Artificial Insemination, 51.
- 48. CFAS/SOGC, Ethical Considerations, 29.
- 49. AFS, "New Guidelines: 1990," 2S.

- 50. This may include basal body temperature charting, observation of cervical mucous, measurements of luteinizing hormone, and/or ultrasound monitoring of follicular maturation. See AFS, "New Guidelines: 1990," 2S.
- 51. AFS, "New Guidelines: 1990," 2S.
- 52. R.G. Achilles, "The Social Meanings of Biological Ties: A Study of Participants in Artificial Insemination by Donor" (unpublished doctoral thesis, Department of Education, University of Toronto, 1986). See also, R. Achilles and M. Lippincott, "The Dialectics of Reproduction: The Third Revolution?" *Resources for Feminist Research* 18 (3)(September 1989): 73, for discussion of sperm as a "special commodity" treated both as a service of sale and as a donation.
- 53. See for example, E.F. Olshansky and L.N. Sammons, "Artificial Insemination: An Overview," *Journal of Obstetric, Gynecologic, and Neonatal Nursing* 14 (6)(Supplement)(November-December 1985): 49S-54S; E.C. Small and R.N. Turksoy, "A View of Artificial Insemination," *Advances in Psychosomatic Medicine* 12 (1985): 105-23; N.J. Alexander and S. Ackerman, "Therapeutic Insemination," *Obstetrics and Gynecology Clinics of North America* 14 (4)(December 1987): 905-29.
- 54. Semen gels or coagulates immediately after ejaculation and later liquefies again.
- 55. Cryopreservation (freezing) of sperm may differ by laboratory but generally a cryoprotective medium such as glycerol is added to the sperm and the sample is then frozen in straws in liquid nitrogen. The 1988 CFAS TDI guidelines provide a detailed description of semen cryopreservation.
- 56. P. Mazzola and J.J. Stangel, "Artificial Insemination Performed by Husband," Fertility and Sterility 41 (4)(April 1984): 654.
- 57. Recent medical literature uses the term *intracervical insemination* to refer to what was previously called intravaginal insemination. See OTA, *Medical and Social Choices*, 126; W. Byrd et al., "A Prospective Randomized Study of Pregnancy Rates Following Intrauterine and Intracervical Insemination Using Frozen Donor Sperm," *Fertility and Sterility* 53 (3)(March 1990): 521-27.
- 58. M.P. Diamond et al., "Pregnancy Following Use of the Cervical Cup for Home Artificial Insemination Utilizing Homologous Semen," *Fertility and Sterility* 39 (4)(April 1983): 480.
- 59. Exploratory research also indicates that donor insemination is rarely practised in its simplest form in clinical settings. Achilles, "Social Meanings."
- 60. In some cases the use of intrauterine insemination remains contentious. See N.C. Allen et al., "Intrauterine Insemination: A Critical Review," *Fertility and Sterility* 44 (5)(November 1985): 569-80.
- 61. A. Sunde, J. Kahn and K. Molne, "Intrauterine Insemination," Human Reproduction 3 (1)(January 1988): 97-99.
- 62. OTA, Medical and Social Choices, 127. This technique remains experimental. See CFAS/SOGC, Ethical Considerations, 6.
- 63. G.S. Berger, "Intratubal Insemination," Fertility and Sterility 48 (2)(August 1987): 328-30.
- 64. R.P.S. Jansen et al., "Pregnancies after Ultrasound-Guided Fallopian Insemination with Cryostored Donor Semen," *Fertility and Sterility* 49 (5)(May 1988): 920-22.
- 65. OTA, Medical and Social Choices, 127.
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- 66. Sperm washing must occur with intrauterine insemination because seminal plasma may be irritating to the lining of the uterus. CFAS/SOGC, Ethical Considerations, 6.
- 67. OTA, Medical and Social Choices, 127.
- 68. OTA, Medical and Social Choices, 127.
- 69. OTA, Medical and Social Choices, 127.
- 70. OTA, Medical and Social Choices, 127; Alexander and Ackerman, "Therapeutic Insemination."
- 71. See Small and Turksoy, "View of Artificial Insemination"; OTA, Medical and Social Choices; Berger, "Intratubal Insemination."
- 72. The medical risks of these drug treatments are discussed in the section entitled Medical Risks.
- 73. Olshansky and Sammons, "Artificial Insemination."
- 74. M. Saaranen, M. Suhonen and S. Saarikoski, "Ultrasound in the Timing of Artificial Insemination with Frozen Donor Semen," Gynecologic and Obstetric Investigation 22 (3)(1986): 140-44.
- 75. See E. Noble, Having Your Baby by Donor Insemination (Boston: Houghton Mifflin, 1987).
- 76. G.E. Hanscombe and J. Forster, Rocking the Cradle (Boston: Alyson, 1982).
- 77. S. Brodribb, "Off the Pedestal and onto the Block? Motherhood, Reproductive Technologies, and the Canadian State," Canadian Journal of Women and the Law 1 (2)(1986): 407-23.
- 78. For more detailed descriptions of the initial SI phenomena, see N. Adamson, "Self-Insemination," Healthsharing 6 (4)(September 1985): 8-9; R. D. Klein, "Doing It Ourselves: Self Insemination," in Test-Tube Women, eds. R. Arditti, R. D. Klein and S. Minden (London: Pandora Press, 1984), 382-90; alternative press pamphlets such as Feminist Self Insemination Group, Self Insemination (London: The Feminist Self Insemination Group, 1980); C. Pies, Considering Parenthood (San Francisco: Spinsters Ink. 1985).
- 79. D. Richardson, Women and AIDS (New York: Methuen, 1988).
- 80. K. Arnup, "Brief Presented to the Royal Commission on the New Reproductive Technologies" (Toronto, 20 November 1990); Halifax Lesbian Committee on Reproductive Technologies, "Brief to the Royal Commission on Reproductive Technologies" (Halifax, 17 October 1990).
- 81. S. Wilkes, "Not as Easy as 1-2-3: Lesbians Trying to Get Pregnant," Rites for Lesbian and Gay Liberation 1 (9)(March 1985): 13.
- 82. The partner's brother is a popular choice.
- 83. Pies, Considering Parenthood; J.A. Schulenburg, Gay Parenting (Garden City, N.Y.: Anchor Press/Doubleday, 1985).
- 84. R.H. Blank, Regulating Reproduction (New York: Columbia University Press, 1990); K. Lahey, "Alternative Insemination."

- 85. F. Hornstein and C. Pies, "Baby M and the Gay Family," Out/Look 1 (1) (Spring 1988): 79.
- 86. Figures would be presumably much higher now, but proportionally similar.
- 87. Costs indicated are for each insemination.
- 88. This 1986 survey conducted by the Office of Technology Assessment in the U.S. was reported in the OTA report, *Medical and Social Choices*, 141.
- 89. OTA, Artificial Insemination, 49.
- 90. All figures are per attempt. OTA, Medical and Social Choices, 141.
- 91. Costs for IVF in Canada are estimated at between \$5 000 and \$10 000 per cycle. Based on personal discussions of preliminary data with Ron Goeree, for a report to the Royal Commission on New Reproductive Technologies.
- 92. All costs in U.S. dollars. OTA, Medical and Social Choices, 141.
- 93. The Flett Consulting Group Inc. "Review of Government Data Bases and Surveys," in Report to the Royal Commission on New Reproductive Technologies (Ottawa, October 1990): 7.
- 94. This debate about payment to donors is discussed in the section entitled Donors.
- 95. Achilles, "Social Meanings."
- 96. The \$15 cost was reported by a recipient who underwent DI some time ago and probably does not reflect the current situation. The \$2 000 fee was reported by a recipient attending a clinic in Toronto in October 1988 the sperm was frozen and imported from the U.S. The cost of \$2 000 was for each straw (each cycle would involve at least two straws).
- 97. The woman took the issue to her ombudsman, and the Ministry of Health reports that the issue is still under review. Personal communication with the Women's Health Bureau, Ministry of Health, Ontario.
- 98. Success rates for *in vitro* fertilization, for example, range from 10% to 30% (pregnancy rate per treatment) and a much lower "take-home baby rate" estimated from 3% to 15%. See H.E. Bryant, *The Infertility Dilemma* (Ottawa: Canadian Advisory Council on the Status of Women, 1990), 13. The OTA report cites an overall 6% success rate in the U.S. OTA, *Medical and Social Choices*, 295.
- 99. S.E. Brown and A.A. Yuzpe, "Recent Advances in the Treatment of Infertility," *Ontario Medicine* 4 (22)(25 November 1985): 10. Cited in Ontario, Ministry of Health, *Recommended Guidelines*.
- 100. S.G. Scott et al., "Therapeutic Donor Insemination with Frozen Semen," *Canadian Medical Association Journal* 143 (4)(15 August 1990): 273-78.
- 101. It would be considered unethical to use fresh sperm in a randomized trial because of the risk of transmission with HIV.
- 102. See Scott et al., "Therapeutic Donor Insemination," 275. They define their terms as follows:
 - crude pregnancy rate: the proportion of recipients who were in the program and became pregnant.
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- drop-out rate: the proportion of recipients who did not complete a series of six insemination cycles and who did not become pregnant.
- fecundability rate: the probability of a pregnancy occurring per cycle of treatment; usually expressed as a fractional value, the rate may also be multiplied by 100 to give a "percentage chance" of pregnancy.
- theoretical cumulative pregnancy rate (TCPR): the cumulative proportion of recipients who began a series of six cycles of insemination and who became pregnant; this rate, which is calculated from the observed monthly fecundability rates, does not account for the women who dropped out before completing the series of insemination cycles.
- "take-home baby rate": the likelihood of a recipient having a liveborn baby after a ser_ies of six insemination cycles (i.e., after exclusion of those who dropped out and correction for spontaneous abortions); the concept was developed in recent years to express the results of in-vitro fertilization and embryo transfer.

(This definition of "take-home baby rate" has been criticized for skewing results since it does not include all of the recipients who started in a program.)

- 103. D. Le Lannou and J. Lansac, "Artificial Procreation with Frozen Donor Semen: Experience of the French Federation CECOS," Human Reproduction 4 (7)(October 1989): 757-61. The female recipients are described as heterogeneous, including fertile, sub-fertile, and infertile women.
- 104. A.W.Y. Wong et al., "Factors Affecting the Success of Artificial Insemination by Frozen Donor Semen," International Journal of Fertility 34 (1)(January/February 1989): 25-29.
- 105. A.O. Trounson et al., "Artificial Insemination by Frozen Donor Semen: Results of Multicentre Australian Experience," International Journal of Andrology 4 (2)(April 1981): 227-34.
- 106. G. Kovacs et al., "Artificial Insemination with Cryopreserved Donor Semen: A Decade of Experience," British Journal of Obstetrics and Gynaecology 95 (4)(April 1988): 354-60.
- 107. W.R. Gillett et al., "Pregnancy Rates with Artificial Insemination by Donor: The Influence of the Cryopreservation Method and Coexistent Infertility Factors," New Zealand Medical Journal 99 (814)(26 November 1986): 891-93.
- 108. There is no attempt to standardize other relevant factors affecting success rates here, such as sperm motility, cryopreservation methods, size of sample, or female fertility factors.
- 109. A. Edvinsson et al., "Factors in the Infertile Couple Influencing the Success of Artificial Insemination with Donor Semen," Fertility and Sterility 53 (1)(January 1990): 81-87.
- 110. Edvinsson et al., "Factors in the Infertile Couple."
- 111. The use of clomiphene citrate in this study affected the success rate negatively. A.R. Martinez et al., "Intrauterine Insemination Does and Clomiphene Citrate Does Not Improve Fecundity in Couples with Infertility Due to Male or Idiopathic Factors: A Prospective, Randomized, Controlled Study," Fertility and Sterility 53 (5)(May 1990): 847-53.
- 112. Wong et al., "Factors Affecting."
- 113. Gillett et al., "Pregnancy Rates."

- 114. B.A. Keel and B.W. Webster, "Semen Analysis Data from Fresh and Cryopreserved Donor Ejaculates: Comparison of Cryoprotectants and Pregnancy Rates," *Fertility and Sterility* 52 (1)(July 1989): 100-5.
- 115. Lower success with more complex methods of insemination may be due to more problematic infertility. In any case, it is difficult to compare success rates among different methods of insemination because so many factors cannot be controlled.
- 116. Byrd et al., "A Prospective Randomized Study."
- 117. Curie-Cohen, Luttrell and Shapiro, "Current Practice of Artificial Insemination," 588.
- 118. Curie-Cohen, Luttrell and Shapiro, "Current Practice of Artificial Insemination," 588.
- 119. OTA, Artificial Insemination, 46.
- 120. This is the philosphy expressed in most guidelines and reports up until the mid to late 1980s at which point the absolute value of secrecy and anonymity are questioned. See, for example, the AFS reports for donor insemination published in 1980, 1986, and 1990.
- 121. Jarrell and Milner, "Artificial Insemination," 117.
- 122. Australia, National Bioethics Consultative Committee, *Reproductive Technology* (Commonweath of Australia: National Bioethics Consultative Committee, 1989), 12-13.
- 123. National Bioethics Consultative Committee, Reproductive Technology, 12-13.
- 124. Act on Insemination, 1 March 1985, Sweden (1984:1140).
- 125. National Bioethics Consultative Committee, Reproductive Technology, 14.
- 126. Australia, Committee to Consider the Social, Ethical and Legal Issues Arising from In Vitro Fertilization, *Report on Donor Gametes in IVF* (Victoria, Australia: G.P.O., 1986) (commonly referred to as the Waller Report). M. Warnock, *A Question of Life* (Oxford: Basil Blackwell, 1985) (commonly referred to as the Warnock Report).
- 127. See, for example, Ontario Law Reform Commission, Report on Human Artificial Reproduction and Related Matters, 2 vols. (Toronto: Ministry of the Attorney General, 1985).
- 128. Ontario Law Reform Commission, Report on Human Artificial Reproduction, vol. 1, 18.
- 129. The Flett Consulting Group Inc., "Review of Government Data Bases and Surveys," 5.
- 130. Ministère de la Santé et des Services sociaux du Québec, Rapport du comité de travail sur les nouvelles technologies de reproduction humaine (Québec: Ministère de la Santé et des Services sociaux, 1988), 4. Information about whether this system has been implemented was not available during the Flett survey of provincial data bases.
- 131. The Ontario Health Insurance Plan or OHIP is now referred to as the Provincial Insurance Plan.
- 132. Again, the figures give limited information. These numbers indicate the number of procedures and do not give information about the number of patients, type of insemination, or number of live births.
- 133. Ontario, Ministry of Health, Recommended Guidelines, 3.
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- 134. Health and Welfare Canada, Storage and Utilization.
- 135. F. Orr, "Sperm Donated Mainly for Money," Globe and Mail, 24 April 1981, p. 15.
- 136. Probably not AIH since it tends to be more complicated. See Achilles, "Social Meanings" for reference to office-based DI practice. Also, information provided by the New Reproductive Alternatives Society, a British Columbia-based group of parents of DI children who provide support for members and lobby the government for changes in DI practice.
- 137. OTA, Artificial Insemination, 3.
- 138. Noble, Having Your Baby.
- 139. B.Z. Sokoloff, "Alternative Methods of Reproduction: Effects on the Child," Clinical Pediatrics 26 (1)(January 1987): 11-17.
- 140. Warnock, A Question of Life, 19.
- 141. A. Fagot-Largeault, "In France, Debate and Indecision," Hastings Center Report 17 (3)(Supplement) (June 1987): 10-12.
- 142. Noble, Having Your Baby.
- 143. K. Bai, Y. Shirai and M. Ishii, "In Japan, Consensus Has Limits," Hastings Center Report 17 (3)(Supplement) (June 1987): 18-20.
- 144. W.J. Finegold, Artificial Insemination (Springfield, Ill.: Charles Thomas, 1964), 6.
- 145. E. Home, "An Account of the Dissection of an Hermaphrodite Dog," Philosophical Transactions of the Royal Society of London 89, part 2 (1799): 157. Cited in Small and Turksoy, "A View of Artificial Insemination."
- 146. J.E. Rioux and C.D.F. Ackman, "Artificial Insemination and Sperm Banks: The Canadian Experience," in Human Artificial Insemination and Semen Preservation, eds. G. David and W.S. Price (New York: Plenum Press, 1980), 31.
- 147. Achilles, "Social Meanings." Based on interviews with a Canadian DI offspring now in her forties and a sperm donor who donated in Toronto in the late 1950s and early 1960s.
- 148. One Toronto physician has suggested that his father (also a physician) practised donor insemination as early as the 1930s and 1940s. Anonymous interview with Toronto physician.
- 149. See, for example, Finegold, Artificial Insemination. See also R.T. Francoeur, Utopian Motherhood, 3d ed. (South Brunswick: A.S. Barnes, 1977) and A.T. Gregoire and R.C. Mayer, "The Impregnators," Fertility and Sterility 16 (1)(January-February 1965): 130-34, for a history of artificial insemination in the U.S.
- 150. An extensive discussion of the relationship between animal husbandry and artificial insemination (and other NRTs) in humans can be found in G. Corea, The Mother Machine (New York: Harper and Row, 1985).
- 151. Small and Turksoy, "View of Artificial Insemination," 106.
- 152. Small and Turksoy, "View of Artificial Insemination," 106.

- 153. That artificial insemination in animals might be used for similar purposes in humans is certainly one of the fears that its use has raised.
- 154. A developmental abnormality in which the male urethra opens on the underside of the penis or on the perineum.
- 155. Home, "An Account of the Dissection." Cited in Small and Turksoy, "View of Artificial Insemination," 106.
- 156. Françoeur, Utopian Motherhood; also cited in Small and Turksoy, "View of Artificial Insemination."
- 157. Hummel and Talbert, "Current Management," 919.
- 158. Gregoire and Mayer, "The Impregnators."
- 159. Gregoire and Mayer, "The Impregnators."
- 160. R.G. Bunge and J.K. Sherman, "Fertilizing Capacity of Frozen Human Spermatozoa," *Nature* 172 (4382)(24 October 1953): 767.
- 161. P. Liljestrand, Patriarchy Updated (Berkeley, Calif.: University of California, 1988).
- 162. Corea, The Mother Machine.
- 163. Small and Turksoy, "View of Artificial Insemination."
- 164. Liljestrand, Patriarchy Updated.
- 165. Cited in Liljestrand, Patriarchy Updated.
- 166. Liljestrand, Patriarchy Updated.
- 167. Compared to, for example, attention paid to IVF and pre-conception contracts.
- 168. B.M. Dickens, Medico-Legal Aspects of Family Law (Toronto: Butterworths, 1979).
- 169. G.F. Fisher, Artificial Human Insemination: Report of a Commission Appointed by His Grace the Archbishop of Canterbury (Geoffrey Francis Fisher) (London: Society for Promoting Christian Knowledge, 1948).
- 170. Great Britain, Departmental Committee on Human Artificial Insemination, Human Artificial Insemination: Feversham Committee's Report (London: H.M.S.O., 1960).
- 171. J. Peel, "Appendix V: Report of Panel on Human Artificial Insemination," *British Medical Journal* 2 (3549)(Supplement)(7 April 1973): 3-5.
- 172. R. Achilles, "Donor Insemination: The Future of a Public Secret," in *The Future of Human Reproduction*, ed. C. Overall (Toronto: Women's Press, 1989).
- 173. There is, in fact, a built-in eugenic component to DI to the extent that donors are selected for certain more socially valued characteristics or drawn exclusively from, for example, the professions and the middle class in general. There is no systematic empirical information on how physicians obtain donors in Canada.
- 174. Gregoire and Mayer, "The Impregnators."
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- 175. For a more extensive discussion of this issue, see Corea, The Mother Machine; N. Pfeffer, "Artificial Insemination, In-Vitro Fertilization, and the Stigma of Infertility," in Reproductive Technologies, ed. Michelle Stanworth (Minneaplis: University of Minnesota Press, 1987), 81-97; R. Snowden and G.D. Mitchell, The Artificial Family (London: Allen and Unwin, 1981).
- 176. OTA, Artificial Insemination, 67.
- 177. Achilles, "Donor Insemination."
- 178. R. Achilles, "Anonymity and Secrecy in Donor Insemination: In Whose Best Interests?" in Sortir la maternité du laboratoire, (Québec: Conseil du statut de la femme, 1988), 157.
- 179. See, for example, B.A. Brody and B.C. White, "Religious and Secular Perspectives about Infertility Prevention and Treatment," in Infertility: Medical and Social Choices (Contractor Documents) vol. 4: Social and Medical Concerns, United States, Congress, Office of Technology Assessment (Washington, D.C.: Office of Technology Assessment, 1988).
- 180. This section focuses on surveys of populations which do not focus exclusively on the infertile population or participants in new reproductive technologies. Studies of these populations as well as studies that focus on specific issues within the technologies, particularly DI, are reviewed in the section on recipients.
- 181. Angus Reid Group, Canadians' Perceptions and Attitudes Regarding New Reproductive Technologies (Ottawa: Angus Reid Group, 1990). This refers to the summary only. The full report was not available at the time of writing.
- 182. R. Rowland and C. Ruffin, "Community Attitudes to Artificial Insemination by Husband or Donor, In Vitro Fertilization, and Adoption," Clinical Reproduction and Fertility 2 (3)(September 1983): 195-206.
- 183. G. Rawson, "Human Artificial Insemination by Donor and the Australian Community," Clinical Reproduction and Fertility 3 (1)(March 1985): 1-19.
- 184. R.L. Matteson and G. Terranova, "Social Acceptance of New Techniques of Child Conception," Journal of Social Psychology 101 (1977): 225-29.
- 185. P.C. Dunn, I.J. Ryan, and K. O'Brien, "College Students' Acceptance of Adoption and Five Alternative Fertilization Techniques," Journal of Sex Research 24 (1988): 282-87.
- 186. K.W. Back and R. Snowden, "The Anonymity of the Gamete Donor," Journal of Psychosomatic Obstetrics and Gynaecology 9 (3)(December 1988): 191-98.
- 187. M. Gordon, "Inconceivable?" Mirabella (July 1991): 60-63.
- 188. M.V. Sauer et al., "Survey of Attitudes Regarding the Use of Siblings for Gamete Donation," Fertility and Sterility 49 (4)(April 1988): 721-22. One interpretation of these findings is that egg donation is a surgical procedure and the exchange occurs between two women. Sperm donation involves masturbation and occurs between a man and a woman, in fact replacing sexual intercourse.
- 189. Health and Welfare Canada, Storage and Utilization.
- 190. The majority of the studies on donors are from Australia because of the emphasis on issues related to donors in commissions and inquiries there.

- 191. R. Rowland, "Attitudes and Opinions of Donors on an Artificial Insemination by Donor (AID) Programme," Clinical Reproduction and Fertility 2 (4)(December 1983): 249-59.
- 192. M.K. Nicholas and J.P. Tyler, "Characteristics, Attitudes and Personalities of AI Donors," *Clinical Reproduction and Fertility* 2 (1)(March 1983): 47-54.
- 193. K.R. Daniels, "Semen Donors in New Zealand: Their Characteristics and Attitudes," *Clinical Reproduction and Fertility* 5 (4)(August 1987): 177-90.
- 194. Achilles, "Donor Insemination." Since the sample was self-selecting, it may be that medical students would be less likely to participate in a study.
- 195. CFAS, Guidelines for Therapeutic Donor Insemination, 5.
- 196. Self-reported motivational research is problematic in many respects, including the possibility that subjects may report what they feel is socially acceptable and that motivations may change over time. However, the task here is to report on the issues identified in existing research.
- 197. The purpose of an exploratory study is to identify the range of possible issues, but it is not useful to estimate the distribution of these issues in a population.
- 198. Achilles, "Social Meanings."
- 199. See Rowland, "Attitudes and Opinions"; Daniels, "Semen Donors"; Nicholas and Tyler, "Characteristics, Attitudes"; D.J. Handelsman et al., "Psychological and Attitudinal Profiles in Donors for Artificial Insemination," *Fertility and Sterility* 43 (1)(January 1985): 95-101.
- 200. Achilles, "Social Meanings," 67.
- 201. Achilles, "Social Meanings."
- 202. S.B. Novaes, "Social Integration of Technical Innovation: Sperm Banking and AID in France and in the United States," *Social Science Information* 24 (3)(September 1985): 569-84.
- 203. G.J. Annas, "Fathers Anonymous: Beyond the Best Interests of the Sperm Donor," *Child Welfare* 60 (3)(March 1981): 161-74.
- 204. B. Knoppers and E. Sloss, "Recent Developments: Legislative Reforms in Reproductive Technology," *Ottawa Law Review* 18 (3)(1986): 683.
- 205. Knoppers and Sloss, "Recent Developments," 684.
- 206. CFAS/SOGC, Ethical Considerations, 41.
- 207. Knoppers and Sloss, "Recent Developments," 685.
- 208. Ministère de la Santé et des Services sociaux du Québec, Rapport du comité.
- 209. AFS, "New Guidelines: 1990," 4S. The guidelines state: "There is a reasonable consensus that the danger of an increase in consanguinity over that which occurs in the general population is essentially nil if the unit is set at ≤ 10 pregnancies per donor. This suggestion would require modification if the population using donor insemination
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- represented an isolated subgroup." Presumably the limit would be less than 10 if the population served was a smaller isolated group.
- 210. American Association of Tissue Banks, Standards for Tissue Banking (Rockville, Md.: American Association of Tissue Banks, 1984).
- 211. Achilles, "Social Meanings," 137.
- 212. CFAS/SOGC, Ethical Considerations, 35.
- 213. Rowland, "Attitudes and Opinions"; Handelsman et al., "Psychological and Attitudinal Profiles"; Daniels, "Semen Donors."
- 214. Rowland, "Attitudes and Opinions," 256.
- 215. Daniels, "Semen Donors," 183.
- 216. Handelsman et al., "Psychological and Attitudinal Profiles," 98.
- 217. A. Walker, S. Gregson and E. McLaughlin, "Attitudes Towards Donor Insemination A Post-Warnock Survey," Human Reproduction 2 (8)(November 1987): 745-50.
- 218. L. Jonsson, "Artificial Insemination in Sweden," in Sortir la maternité du laboratoire (Québec: Conseil du statut de la femme, 1988), 154.
- 219. OTA, Artificial Insemination, 65.
- 220. Knoppers and Sloss, "Recent Developments," 675.
- 221. B. Freedman et al., "Non-Medical Selection Criteria for Artificial Insemination and Adoption," Clinical Reproduction and Fertility 5 (1/2)(February/April 1987): 55-66.
- 222. Ontario Law Reform Commission, Report on Human Artificial Reproduction, 275.
- 223. Ministère de la Santé et des Services sociaux du Québec, Rapport du comité, 4.
- 224. Jonsson, "Artificial Insemination in Sweden," 150.
- 225. Warnock, A Question of Life, 11.
- 226. CFAS/SOGC, Ethical Considerations, 28.
- 227. See M.A. Ryan, "The Argument for Unlimited Procreative Liberty: A Feminist Critique," Hastings Center Report 20 (4)(July/August 1990): 6-12, for an interesting discussion of this issue, and J.A. Robertson, "Procreative Liberty and the Control of Conception, Pregnancy, and Childbirth," Virginia Law Review 69 (3)(April 1983): 405-62, for another viewpoint.
- 228. See, for example, M. Humphrey and H. Humphrey, "Marital Relationships in Couples Seeking Donor Insemination," Journal of Biosocial Science 19 (2)(April 1987): 209-19; D.N. Cox and A.E. Reading, "Personality Profiles of Women Attending an Artificial Insemination by Donor Clinic," Personality and Individual Differences 4 (2)(1983): 213-14.

- 229. D.M. Berger, "Psychological Aspects of Donor Insemination," *International Journal of Psychiatry in Medicine* 12 (1)(1982): 49-57; and D.M. Berger et al., "Psychological Patterns in Donor Insemination Couples," *Canadian Journal of Psychiatry* 31 (9)(December 1986): 818-23.
- 230. Research on infertility and adoption supports this two-stage process.
- 231. D.M. Berger et al., "Psychological Patterns," 821.
- 232. R. Achilles, "Social Meanings," 152.
- 233. A. David and D. Avidan, "Artificial Insemination Donor: Clinical and Psychologic Aspects," Fertility and Sterility 27 (5)(May 1976): 528-32.
- 234. K.J. Connolly, R.J. Edelmann, and I.D. Cooke, "Distress and Marital Problems Associated with Infertility," *Journal of Reproductive Infertility and Psychology* 5 (1)(1987): 49-57.
- 235. CFAS/SOGC, Ethical Considerations, 4.
- 236. This practice has been documented in the U.S., Australia, and Britain. I am unaware of documentation of its practice in Canada. See J. Lorber, "Choice, Gift, or Patriarchal Bargain? Women's Consent to *In Vitro* Fertilization in Male Infertility," *Hypatia* 4 (3)(Fall 1989): 23-36.
- 237. Several crucial legal matters remain unresolved in Canada regarding donor insemination. These include the child's legal status, clarity about the legal rights of the (social) father, the severing of the sperm donors' rights, what should be recorded on the birth certificate, physician liability, record-keeping (is the donor a patient?), etc. See Ontario Law Reform Commission, *Report on Human Artificial Reproduction*.
- 238. G. Gerstel, "A Psychoanalytic View of Artificial Donor Insemination," *American Journal of Psychotherapy* 17 (1)(January 1963): 64-77.
- 239. B. Rubin, "Psychological Aspects of Human Artificial Insemination," Archives of General Psychiatry 13 (2)(August 1965): 121-32.
- 240. A. Clamar, "Psychological Implications of Donor Insemination," *American Journal of Psychoanalysis* 40 (2)(Summer 1980): 173-77.
- 241. Achilles, "Social Meanings," 32.
- 242. Achilles, "Social Meanings."
- 243. Achilles, "Social Meanings," 86.
- 244. B. Harvey and A. Harvey, "How Couples Feel About Donor Insemination," *Contemporary Ob-Gyn* 9 (5)(1977): 93-97.
- 245. Clamar, "Psychological Implications."
- 246. A. Baran and R. Pannor, Lethal Secrets (New York: Warner Books, 1989), 47.
- 247. Anonymous, personal communication, August 1990.
- 58 ROYAL COMMISSION ON NEW REPRODUCTIVE TECHNOLOGIES

- 248. See, for example, W.W. Watters and J. Sousa-Poza, "Psychiatric Aspects of Artificial Insemination (Donor)," Canadian Medical Association Journal 95 (16 July 1966): 106-13; and Gerstel, "A Psychoanalytic View."
- 249. H. Rosenkvist, "Donor Insemination: A Prospective Socio-Psychiatric Investigation of 48 Couples," Danish Medical Bulletin 28 (4)(September 1981): 133-48.
- 250. Rosenkvist, "Donor Insemination," 143.
- 251. E. Bendvold et al., "Marital Break-Up among Couples Raising Families by Artificial Insemination by Donor," Fertility and Sterility 51 (6)(June 1989): 980-83.
- 252. Berger et al., "Psychological Patterns," 822.
- 253. I. Milsom and P. Bergman, "A Study of Parental Attitudes After Donor Insemination (AID)," Acta Obstetricia et Gynecologica Scandinavica 61 (2)(1982): 125-28.
- 254. J.C. Czyba and M. Chevret, "Psychological Reactions of Couples to Artificial Insemination with Donor Sperm," International Journal of Fertility 24 (4)(1979): 240-45.
- 255. R. Snowden, G.D. Mitchell and E.M. Snowden, Artificial Reproduction (London: Allen and Unwin, 1983), 72.
- 256. See C.E. Clayton and G.T. Kovacs, "AID Offspring: Initial Follow-Up Study of 50 Couples," Medical Journal of Australia 1 (8)(17 April 1982): 338-39; Milsom and Bergman, "A Study of Parental Attitudes"; C. Manuel, M. Chevret, and J.C. Czyba, "Handling of Secrecy by AID Couples," in Human Artificial Insemination and Semen Preservation, eds. G. David and W.S. Price (New York: Plenum Press, 1980), 419-29.
- 257. Achilles, "Social Meanings."
- 258. Achilles, "Social Meanings"; Baran and Pannor, Lethal Secrets.
- 259. Manuel, Chevret, and Czyba, "Handling of Secrecy."
- 260. Snowden and Mitchell, The Artificial Family; Achilles, "Social Meanings."
- 261. Reported by recipients in a qualitative and exploratory study. See Achilles, "Social Meanings."
- 262. This process is facilitated and confirmed by the importance given to matching physical characteristics of the sperm donor to the recipients. This is true whether the recipient(s) is/are heterosexual, gay, or single. See Achilles, "Social Meanings."
- 263. See Achilles, "Social Meanings."
- 264. The practice of open adoption is fairly new. It consists of birth parents and adoptive parents meeting and the birth parent negotiating some level of contact with the adoptive parents and the child.
- 265. Compare the AFS statements in the 1980 guidelines on DI ("There is no benefit and considerable risk to informing friends, relatives, ministers, and offspring of the procedure.") to the 1990 statement of the Ethics Committee of the AFS ("The Committee notes that there is a lack of information about whether secrecy is better for the child."). Ethics Committee of the American Fertility Society, "Artificial Insemination - Donor," Fertility and Sterility 53 (6)(Supplement 2)(June 1990): 44S.

- 266. CFAS/SOGC, Ethical Considerations, 22.
- 267. Australia, National Bioethics Consultative Committee, *Access to Information* (Commonwealth of Australia: National Bioethics Consultative Committee, *Reproductive Technology*.
- 268. National Bioethics Consultative Committee, Reproductive Technology.
- 269. Achilles, "Donor Insemination," 116.
- 270. R. Iizuka et al., "The Physical and Mental Development of Children Born Following Artificial Insemination," *International Journal of Fertility* 13 (1)(January-March 1968): 24-32.
- 271. Sokoloff, "Alternative Methods."
- 272. Sokoloff, "Alternative Methods."
- 273. R.J. Edelmann, "Psychological Aspects of Artificial Insemination by Donor," *Journal of Psychosomatic Obstetrics and Gynaecology* 18 (1981): 155-72.
- 274. B.E. Menning, "Donor Insemination: the Psychological Issues," Contemporary Ob-Gyn 18 (33)(1989): 3-13.
- 275. R. Snowden and E. Snowden, The Gift of a Child (London: Allen and Unwin, 1984), 108.
- 276. Achilles, "Social Meanings"; Baran and Pannor, Lethal Secrets.
- 277. Anonymous, personal communication, October 1990.
- 278. Achilles, "Social Meanings."
- 279, Achilles, "Social Meanings," 76.
- 280. H.J. Sants, "Genealogical Bewilderment in Children with Substitute Parents," *British Journal of Medical Psychology* 37, part 2 (1964): 138.
- 281. National Bioethics Consultative Committee, Access to Information, 5.
- 282. J.P. Triseliotis, In Search of Origins (London: Routledge and Kegan Paul, 1973).
- 283. M. Humphrey and H. Humphrey, "A Fresh Look at Genealogical Bewilderment," *British Journal of Medical Psychology* 59, part 2 (June 1986): 133.
- 284. S. Rubin, "A Spermdonor Baby Grows Up," in *The Technological Woman*, ed. J. Zimmerman (New York: Praeger, 1983), 214.
- 285. See Freedman et al., "Non-Medical Selection."
- 286. OTA, Artificial Insemination. The sample consisted of two sampling frames. The first was a national cross-sectional sample drawn from the universe of currently practising physicians likely to become involved in infertility therapy (general practice, family practice, or reproductive care specialists) for a total of 1 600 subjects. The second

- was drawn from the membership lists of two professional societies the American Fertility Society and the American Andrology Society — for a total of 1 213 subjects.
- 287. OTA, Artificial Insemination, 57.
- 288. Jarrell and Milner, "Artificial Insemination," 116.
- 289. OTA, Artificial Insemination, 57-59.
- 290. K.R. Daniels, "The Practice of Artificial Insemination of Donor Sperm in New Zealand," New Zealand Medical Journal 98 (776)(10 April 1985): 235-39.
- 291. Given the advent of AIDS, however, the risks from sexual intercourse are currently life-threatening.
- 292. CFAS guidelines are silent on this issue. The Quebec report recommends 6 pregnances or 30 utilizations based on the 1981 Health and Welfare Report on Storage and Utilization. The AFS recommends a limit of 10 pregnancies per donor. See the section on donors for further discussion of this issue.
- 293. See Stewart et al., "Transmission of Human T-Cell"; Berry et al., "Transmission of Hepatitis B"; Nagel, Tagatz, and Campbell, "Transmission of Chlamydia Trachomatis"; Mascola and Guinan, "Semen Donors,"
- 294. H.B. Holmes, "Risks of Infertility Diagnosis and Treatment," in Infertility: Medical and Social Choices (Contractor Documents) vol.4: Social and Medical Concerns, United States, Congress, Office of Technology Assessment, (Washington, D.C.: Office of Technology Assessment, 1988).
- 295. See Olshansky and Sammons, "Artificial Insemination"; Allen et al., "Intrauterine Insemination"; Holmes, "Risks of Infertility"; S. Sahmay, T. Atasu and I. Karacan, "The Effect of Intrauterine Insemination on Uterine Activity," International Journal of Fertility 35 (5)(September/October 1990): 310-14.
- 296. Sahmay, Atasu, and Karacan, "Effect of Intrauterine Insemination."
- 297. Holmes, "Risks of Infertility," 20.
- 298. Holmes, "Risks of Infertility," 37.
- 299. E.E. Wallach, "Gonadotropin Treatment for the Ovulatory Patient The Pros and Cons of Empiric Therapy for Infertility," Fertility and Sterility 55 (3)(March 1991): 478-80; R.M. Zaner, F.H. Boehm and G.A. Hill, "Selective Termination in Multiple Pregnancies: Ethical Considerations," Fertility and Sterility 54 (2)(August 1990): 203-205; C. Overall, "Selective Termination of Pregnancy and Women's Reproductive Autonomy," Hastings Center Report 20 (3)(May/June 1990): 6-11.
- 300. Wallach, "Gonatropin Treatment," 480.
- 301. W.C. Dodson and A.F. Haney, "Controlled Ovarian Hyperstimulation and Intrauterine Insemination for Treatment of Infertility," Fertility and Sterility 55 (3)(March 1990): 457-67.
- 302. See Freedman et al., "Non-Medical Selection."
- 303. The most recent directory of the CFAS is dated 1988 and does not include many of the office-based DI practitioners.

- 304. This is the one issue that has been surveyed nation-wide. See Freedman et al., "Non-Medical Selection."
- 305. The surveys of donors about issues to do with sperm donation may be skewed by the fact that these men have agreed to donate under the current conditions and agreements. There may be another pool of men who would agree to different conditions.
- 306. The identity-release information refers to whether the donor will agree to release information about his identity to his offspring at age eighteen.

Bibliography

- Achilles, R. "Anonymity and Secrecy in Donor Insemination: In Whose Best Interests?" In Sortir la maternité du laboratoire: actes du Forum international sur les nouvelles technologies de la reproduction. Québec: Conseil du statut de la femme, 1988.
- —. "Donor Insemination: The Future of a Public Secret." In *The Future of Human Reproduction*," edited by C. Overall. Toronto: Women's Press, 1989.
- —. "The Social Meanings of Biological Ties: A Study of Participants in Artificial Insemination by Donor." Doctoral thesis, Department of Education, University of Toronto, 1986.
- Achilles, R., and M. Lippincott. "The Dialectics of Reproduction: The Third Revolution?" Resources for Feminist Research 18 (3)(September 1989): 72-75.
- Act on Insemination, 1 March 1985, Sweden (1984:1140).
- Adamson, N. "Self-Insemination." Healthsharing 6 (4)(September 1985): 8-9.
- Alexander, N.J., and S. Ackerman. "Therapeutic Insemination." *Obstetrics and Gynecology Clinics of North America* 14 (4)(December 1987): 905-29.
- Allen, N.C., et al. "Intrauterine Insemination: A Critical Review." Fertility and Sterility 44 (5)(November 1985): 569-80.
- American Association of Tissue Banks. Standards for Tissue Banking. Rockville, Md.: American Association of Tissue Banks, 1984.
- American Fertility Society. "New Guidelines for the Use of Semen Donor Insemination: 1986." *Fertility and Sterility* 46 (4)(Supplement 2)(October 1986): 95S-110S.
- —. "New Guidelines for the Use of Semen Donor Insemination: 1990." Fertility and Sterility 53 (3)(Supplement 1) (March 1990).
- —. "Revised New Guidelines for the Use of Semen-Donor Insemination." Fertility and Sterility 49 (2)(February 1988): 211.
- -.. Report of the Ad Hoc Committee on Artificial Insemination. Birmingham, Ala.: American Fertility Society, 1980.
- Angus Reid Group. Canadians' Perceptions and Attitudes Regarding New Reproductive Technologies. Ottawa: Angus Reid Group, 1990.
- Annas, G.J. "Fathers Anonymous: Beyond the Best Interests of the Sperm Donor." *Child Welfare* 60 (3)(March 1981): 161-74.
- Arnup, K. "Brief Presented to the Royal Commission on the New Reproductive Technologies." Toronto, 20 November 1990.
- Australia. Committee to Consider the Social, Ethical and Legal Issues Arising from In-Vitro Fertilization. *Report on Donor Gametes in IVF*. Victoria, Australia: G.P.O., 1986.

- Australia. National Bioethics Consultative Committee. *Reproductive Technology*. Commonweath of Australia: National Bioethics Consultative Committee, 1989.
- —. Access to Information: An Analogy between Adoption and the Use of Gamete Donation. Commonwealth of Australia: National Bioethics Consultative Committee, 1989.
- Back, K.W., and R. Snowden. "The Anonymity of the Gamete Donor." *Journal of Psychosomatic Obstetrics and Gynaecology* 9 (3)(December 1988): 191-98.
- Bai, K., Y. Shirai and M. Ishii. "In Japan, Consensus Has Limits." Hastings Center Report 17 (3)(Supplement) (June 1987): 18-20.
- Baran, A., and R. Pannor. Lethal Secrets: The Shocking Consequences and Unsolved Problems of Artificial Insemination. New York: Warner Books, 1989.
- Barratt, C.L.R., et al., "Screening Donors for Sexually Transmitted Disease in Donor Insemination Clinics in the UK: A Survey." *British Journal of Obstetrics and Gynaecology* 96 (4)(April 1989): 461-66.
- Barratt, C.L.R., M. Chauhan and I.D. Cooke. "Donor Insemination A Look to the Future." *Fertility and Sterility* 54 (3)(September 1990): 375-87.
- Barwin, B.N. "Transmission of *Ureaplasma Urealyticum* by Artificial Insemination by Donor." *Fertility and Sterility* 41 (2)(February 1984): 326.
- Bendvold, E., et al. "Marital Break-Up among Couples Raising Families by Artificial Insemination by Donor." *Fertility and Sterility* 51 (6)(June 1989): 980-83.
- Berger, D.M. "Psychological Aspects of Donor Insemination." *International Journal of Psychiatry in Medicine* 12 (1)(1982): 49-57.
- Berger, D.M., et al. "Psychological Patterns in Donor Insemination Couples." Canadian Journal of Psychiatry 31 (9)(December 1986): 818-23.
- Berger, G.S. "Intratubal Insemination." Fertility and Sterility 48 (2)(August 1987): 328-30.
- Berry, W.R., et al. "Transmission of Hepatitis B Virus by Artificial Insemination." *Journal of the American Medical Association* 257 (8)(27 February 1987): 1079-81.
- Blank, R.H. Regulating Reproduction. New York: Columbia University Press, 1990.
- Brodribb, S. "Off the Pedestal and onto the Block? Motherhood, Reproductive Technologies, and the Canadian State." *Canadian Journal of Women and the Law* 1 (2)(1986): 407-23.
- Brody, B.A., and B.C. White. "Religious and Secular Perspectives about Infertility Prevention and Treatment." In *Infertility: Medical and Social Choices* (Contractor Documents) vol.4: Social and Medical Concerns. Washington, D.C.: Office of Technology Assessment, 1988.
- Brown, S.E., and A.A. Yuzpe. "Recent Advances in the Treatment of Infertility." *Ontario Medicine* 4 (22) (25 November 1985): 10.
- Bryant, H.E. The Infertility Dilemma. Ottawa: Canadian Advisory Council on the Status of Women, 1990.
- 64 ROYAL COMMISSION ON NEW REPRODUCTIVE TECHNOLOGIES

- Bunge, R.G., and J.K. Sherman. "Fertilizing Capacity of Frozen Human Spermatozoa." Nature 172 (4382) (24 October 1953): 767-68.
- Byrd, W., et al. "A Prospective Randomized Study of Pregnancy Rates Following Intrauterine and Intracervical Insemination Using Frozen Donor Sperm." Fertility and Sterility 53 (3)(March 1990): 521-27.
- Canada. Health and Welfare Canada. Storage and Utilization of Human Sperm: Report of the Advisory Committee to the Minister of National Health and Welfare. Ottawa: Health and Welfare Canada, 1981.
- Canadian Fertility and Andrology Society and Society of Obstetricians and Gynaecologists of Canada. Ethical Considerations of the New Reproductive Technologies. Toronto: Ribosome Communications, 1990.
- Canadian Fertility and Andrology Society. Guidelines for Therapeutic Donor Insemination. Montreal: Canadian Fertility and Andrology Society, 1988.
- Chauhan, M., et al. "A Protocol for the Recruitment and Screening of Semen Donors for an Artificial Insemination by Donor Programme." Human Reproduction 3 (7)(October 1988): 873-76.
- Clamar, A. "Psychological Implications of Donor Insemination." American Journal of Psychoanalysis 40 (2) (Summer 1980): 173-77.
- Clayton, C.E., and G.T. Kovacs. "AID Offspring: Initial Follow-Up Study of 50 Couples." Medical Journal of Australia 1 (8)(17 April 1982): 338-39.
- Connolly, K.J., R.J. Edelmann, and I.D. Cooke. "Distress and Marital Problems Associated with Infertility." Journal of Reproductive Infertility and Psychology 5 (1)(1987): 49-57.
- Corea, G. The Mother Machine: Reproductive Technologies from Artificial Insemination to Artificial Wombs. New York: Harper and Row, 1985.
- Cox, D.N., and A.E. Reading. "Personality Profiles of Women Attending an Artificial Insemination by Donor Clinic." Personality and Individual Differences 4 (2)(1983): 213-14.
- Curie-Cohen, M., L. Luttrell and S. Shapiro. "Current Practice of Artificial Insemination by Donor in the United States." New England Journal of Medicine 300 (11)(15 March 1979): 585-90.
- Czyba, J.C., and M. Chevret. "Psychological Reactions of Couples to Artificial Insemination with Donor Sperm." International Journal of Fertility 24 (4)(1979): 240-45.
- Daniels, K.R. "Semen Donors in New Zealand: Their Characteristics and Attitudes." Clinical Reproduction and Fertility 5 (4)(August 1987): 177-90.
- -.. "The Practice of Artificial Insemination of Donor Sperm in New Zealand." New Zealand Medical Journal 98 (776)(10 April 1985): 235-39.
- David, A., and D. Avidan. "Artificial Insemination Donor: Clinical and Psychologic Aspects." Fertility and Sterility 27 (5)(May 1976): 528-32.
- Diamond, M.P., et al. "Pregnancy Following Use of the Cervical Cup for Home Artificial Insemination Utilizing Homologous Semen." Fertility and Sterility 39 (4)(April 1983): 480-84.

- Dickens, B.M. Medico-Legal Aspects of Family Law. Toronto: Butterworths, 1979.
- Dodson, W.C., and A.F. Haney. "Controlled Ovarian Hyperstimulation and Intrauterine Insemination for Treatment of Infertility." *Fertility and Sterility* 55 (3)(March 1990): 457-67.
- Dunn, P.C., I.J. Ryan, and K. O'Brien. "College Students' Acceptance of Adoption and Five Alternative Fertilization Techniques." *Journal of Sex Research* 24 (1988): 282-87.
- Edelmann, R.J. "Psychological Aspects of Artificial Insemination by Donor." Journal of Psychosomatic Obstetrics and Gynaecology 18 (1981): 155-72.
- Edvinsson, A., et al. "Factors in the Infertile Couple Influencing the Success of Artificial Insemination with Donor Semen." Fertility and Sterility 53 (1)(January 1990): 81-87.
- Eichler, M. Families in Canada Today: Recent Changes and their Policy Consequences, 2nd ed. Toronto: Gage Publishing, 1988.
- Ethics Committee of the American Fertility Society. "Artificial Insemination Donor." Fertility and Sterility 53 (6)(Supplement 2)(June 1990): 43S-45S.
- Fagot-Largeault, A. "In France, Debate and Indecision." *Hastings Center Report* 17 (3)(Supplement)(June 1987): 10-12.
- Feminist Self Insemination Group. Self Insemination. London: Feminist Self Insemination Group, 1980.
- Finegold, W.J. Artificial Insemination. Springfield, Ill.: Charles C. Thomas, 1964.
- Fisher, G.F. Artificial Human Insemination: Report of a Commission Appointed by His Grace the Archbishop of Canterbury (Geoffrey Francis Fisher). London: Society for Promoting Christian Knowledge, 1948.
- Fiumara, N.J. "Transmission of Gonorrhoea by Artificial Insemination." *British Journal of Venereal Diseases* 48 (4)(August 1972): 308-9.
- Flett Consulting Group Inc. "Review of Government Data Bases and Surveys." In *Report to the Royal Commission on New Reproductive Technologies*. Ottawa: Royal Commission on New Reproductive Technologies, 1990.
- Francoeur, R.T. Utopian Motherhood: New Trends in Human Reproduction. 3d ed. South Brunswick: A.S. Barnes, 1977.
- Freedman, B., et al. "Non-Medical Selection Criteria for Artificial Insemination and Adoption." *Clinical Reproduction and Fertility* 5 (1/2)(February/April 1987): 55-66.
- Gainor, C. "Service Supplying Fresh Sperm Abandoned after Controversy." *Medical Post* 26 (8)(27 February 1990): 28.
- Geier, M.R., J.L. Young, and D. Kessler. "Too Much or Too Little Science in Sex Selection Techniques?" Fertility and Sterility 53 (6)(June 1990): 1111-12.
- Gerstel, G. "A Psychoanalytic View of Artificial Donor Insemination." *American Journal of Psychotherapy* 17 (1) (January 1963): 64-77.
- 66 ROYAL COMMISSION ON NEW REPRODUCTIVE TECHNOLOGIES

- Gillett, W.R., et al. "Pregnancy Rates with Artificial Insemination by Donor: The Influence of the Cryopreservation Method and Coexistent Infertility Factors." New Zealand Medical Journal 99 (814)(26 November 1986) 891-93.
- Gordon, M. "Inconceivable?" Mirabella (July 1991): 60-63.
- Great Britain, Departmental Committee on Human Artificial Insemination. Human Artificial Insemination: Feversham Committee's Report. Cmnd 1105. London: H.M.S.O., 1960.
- Greenblatt, R.M., et al. "Screening Therapeutic Insemination Donors for Sexually Transmitted Diseases: Overview and Recommendations." Fertility and Sterility 46 (3)(September 1986): 351-64.
- Gregoire, A.T., and R.C. Mayer. "The Impregnators." Fertility and Sterility 16 (1)(January-February 1965): 130-34
- Halifax Lesbian Committee on Reproductive Technologies. "Brief to the Royal Commission on Reproductive Technologies." Halifax, 17 October 1990.
- Handelsman, D.J., et al. "Psychological and Attitudinal Profiles in Donors for Artificial Insemination." Fertility and Sterility 43 (1)(January 1985): 95-101.
- Hanscombe, G.E., and J. Forster. Rocking the Cradle: Lesbian Mothers: A Challenge in Family Living. Boston: Alyson, 1982.
- Harvey, B., and A. Harvey. "How Couples Feel About Donor Insemination." Contemporary Ob-Gyn 9 (5)(1977): 93-97.
- Holmes, H.B. "Risks of Infertility Diagnosis and Treatment." In Infertility: Medical and Social Choices (Contractor Documents) vol.4: Social and Medical Concerns. Washington, D.C.: Office of Technology Assessment, 1988.
- Home, E. "An Account of the Dissection of an Hermaphrodite Dog." Philosophical Transactions of the Royal Society of London 89 (part 2)(1799): 157-78.
- Hornstein, F., and C. Pies. "Baby M and the Gay Family." Outlook 1 (Spring 1988): 79.
- Hummel, W.P., and L.M. Talbert. "Current Management of a Donor Insemination Program." Fertility and Sterility 51 (6)(June 1989): 919-30.
- Humphrey, M., and H. Humphrey. "Marital Relationships in Couples Seeking Donor Insemination." Journal of Biosocial Science 19 (2)(April 1987): 209-19.
- Humphrey, M., and H. Humphrey. "A Fresh Look at Genealogical Bewilderment." British Journal of Medical Psychology 59 (part 2)(June 1986): 133-140.
- Iizuka, R., et al. "The Physical and Mental Development of Children Born Following Artificial Insemination." International Journal of Fertility 13 (1)(January-March 1968): 24-32.
- Jansen, R.P.S., et al. "Pregnancies after Ultrasound-Guided Fallopian Insemination with Cryostored Donor Semen." Fertility and Sterility 49 (5)(May 1988): 920-22.
- Jarrell, J., and R. Milner. "Artificial Insemination by Donor in Ontario." Annals of the Royal College of Physicians and Surgeons of Canada 19 (2)(March 1986): 115-18.

- Jonsson, L. "Artificial Insemination in Sweden." In Sortir la maternité du laboratoire: actes du Forum international sur les nouvelles technologies de la reproduction. Québec: Conseil du statut de la femme, 1988.
- Keel, B.A., and B.W. Webster. "Semen Analysis Data from Fresh and Cryopreserved Donor Ejaculates: Comparison of Cryoprotectants and Pregnancy Rates." *Fertility and Sterility* 52 (1)(July 1989): 100-105.
- Klein, R. D. "Doing It Ourselves: Self Insemination." In *Test-Tube Women: What Future for Motherhood?* edited by R. Arditti, R. Duelli Klein and S. Minden. London: Pandora Press, 1984.
- Knoppers, B., and E. Sloss. "Recent Developments: Legislative Reforms in Reproductive Technology." *Ottawa Law Review* 18 (3)(1986): 663-716.
- Kovacs, G., et al. "Artificial Insemination with Cryopreserved Donor Semen: A Decade of Experience." *British Journal of Obstetrics and Gynaecology* 95 (4)(April 1988): 354-60.
- Le Lannou, D., and J. Lansac. "Artificial Procreation with Frozen Donor Semen: Experience of the French Federation CECOS." *Human Reproduction* 4 (7)(October 1989): 757-61.
- Liljestrand, P. Patriarchy Updated: Artificial Insemination by Donor. Berkeley, Calif.: University of California, 1988.
- Lorber, J. "Choice, Gift, or Patriarchal Bargain? Women's Consent to *In Vitro* Fertilization in Male Infertility." *Hypatia* 4 (3)(Fall 1989): 23-36.
- Manuel, C., M. Chevret, and J.C. Czyba. "Handling of Secrecy by AID Couples." In *Human Artificial Insemination and Semen Preservation*, edited by G. David and W.S. Price. New York: Plenum Press, 1980.
- Marks, J.L., D. Marks and L.I. Lipshultz. "Artificial Insemination with Donor Semen: The Necessity of Frequent Donor Screening." *Journal of Urology* 143 (2)(February 1990): 308-10.
- Martinez, A.R., et al. "Intrauterine Insemination Does and Clomiphene Citrate Does Not Improve Fecundity in Couples with Infertility Due to Male or Idiopathic Factors: A Prospective, Randomized, Controlled Study." *Fertility and Sterility* 53 (5)(May 1990): 847-53.
- Mascola, L., and M.E. Guinan. "Semen Donors as the Source of Sexually Transmitted Diseases in Artificially Inseminated Women: The Saga Unfolds." *Journal of the American Medical Association* 257 (8)(27 February 1987): 1093-94.
- Matteson, R.L., and G. Terranova. "Social Acceptance of New Techniques of Child Conception." *Journal of Social Psychology* 101 (1977): 225-29.
- Mazzola, P., and J.J. Stangel. "Artificial Insemination Performed by Husband." Fertility and Sterility 41(4) (April 1984): 654.
- Menning, B.E. "Donor Insemination: the Psychological Issues." Contemporary Ob-Gyn 18 (33)(1989): 3-13.
- Milsom, I., and P. Bergman. "A Study of Parental Attitudes After Donor Insemination (AID)." *Acta Obstetricia et Gynecologica Scandinavica* 61 (2)(1982): 125-28.
- Moghissi, K.S. "Reflections on the New Guidelines for the Use of Semen Donor Insemination." *Fertility and Sterility* 53 (3)(March 1990): 399-400.

- Moore, D.E., et al. "Transmission of Genital Herpes by Donor Insemination." Journal of the American Medical Association 261 (23)(16 June 1989): 3441-43.
- Nagel, T.C., G.E. Tagatz and B.F. Campbell. "Transmission of Chlamydia Trachomatis by Artificial Insemination." Fertility and Sterility 46 (5)(November 1986): 959-60.
- Nicholas, M.K., and J.P. Tyler. "Characteristics, Attitudes and Personalities of AI Donors." Clinical Reproduction and Fertility 2 (1)(March 1983): 47-54.
- Noble, E. Having Your Baby by Donor Insemination: A Complete Resource Guide. Boston: Houghton Mifflin, 1987.
- Novaes, S.B. "Social Integration of Technical Innovation: Sperm Banking and AID in France and in the United States." Social Science Information 24(3) (September 1985): 569-84.
- Olshansky, E.F., and L.N. Sammons. "Artificial Insemination: An Overview." Journal of Obstetric, Gynecologic, and Neonatal Nursing 14 (6)(Supplement)(November-December, 1985): 49S-54S.
- Ontario Law Reform Commission. Report on Human Artificial Reproduction and Related Matters. 2 vols. Toronto: Ministry of the Attorney General, 1985.
- Ontario. Ministry of Health. Ad Hoc Group. Recommended Guidelines for Therapeutic Donor Insemination Services in Ontario. Toronto: Ministry of Health, 1987.
- Orr, F. "Sperm Donated Mainly for Money." Globe and Mail, 24 April 1981.
- Overall, C. "Selective Termination of Pregnancy and Women's Reproductive Autonomy." Hastings Center Report 20 (3)(May/June 1990): 6-11.
- Peel, J. "Appendix V: Report of Panel on Human Artificial Insemination." British Medical Journal 2 (3549) (Supplement)(7 April 1973): 3-5.
- Pfeffer, N. "Artificial Insemination, In-Vitro Fertilization and the Stigma of Infertility." Chap. 4 in Reproductive Technologies: Gender, Motherhood and Medicine, edited by M. Stanworth. Minneapolis: University of Minnesota Press, 1987.
- Pies, C. Considering Parenthood. San Francisco: Spinsters Ink, 1985.
- Québec. Ministère de la Santé et des Services sociaux. Rapport du comité de travail sur les nouvelles technologies de reproduction humaine. Québec: Ministère de la Santé et des Services sociaux, 1988.
- Rawson, G. "Human Artificial Insemination by Donor and the Australian Community." Clinical Reproduction and Fertility 3 (1)(March 1985): 1-19.
- Richardson, D. Women and AIDS. New York: Methuen, 1988.
- Rioux, J.E., and C.D.F. Ackman. "Artificial Insemination and Sperm Banks: The Canadian Experience." In Human Artificial Insemination and Semen Preservation, edited by G. David and W.S. Price. New York: Plenum Press, 1980.
- Robertson, J.A. "Procreative Liberty and the Control of Conception, Pregnancy and Childbirth." Virginia Law Review 69 (3)(April 1983): 405-62.

- Rosenkvist, H. "Donor Insemination: A Prospective Socio-Psychiatric Investigation of 48 Couples." *Danish Medical Bulletin* 28 (4)(September 1981): 133-48.
- Rothman, C.M. "Live Sperm, Dead Bodies." Hastings Centre Report 20 (1)(January/February 1990): 33-34.
- Rowland, R. "Attitudes and Opinions of Donors on an Artificial Insemination by Donor (AID) Programme." *Clinical Reproduction and Fertility* 2 (4)(December 1983): 249-59.
- Rowland, R., and C. Ruffin. "Community Attitudes to Artificial Insemination by Husband or Donor, *In-Vitro* Fertilization, and Adoption." *Clinical Reproduction and Fertility* 2 (3)(September 1983): 195-206.
- Rubin, B. "Psychological Aspects of Human Artificial Insemination." *Archives of General Psychiatry* 13 (2) (August 1965): 121-32.
- Rubin, S. "A Spermdonor Baby Grows Up." In *The Technological Woman: Interfacing with Tomorrow*, edited by J. Zimmerman. New York: Praeger, 1983.
- Ryan, M.A. "The Argument for Unlimited Procreative Liberty: A Feminist Critique." *Hastings Center Report* 20 (4) (July/August 1990): 6-12.
- Saaranen, M., M. Suhonen and S. Saarikoski. "Ultrasound in the Timing of Artificial Insemination with Frozen Donor Semen." *Gynecologic and Obstetric Investigation* 22 (3)(1986): 140-44.
- Sahmay, S., T. Atasu and I. Karacan. "The Effect of Intrauterine Insemination on Uterine Activity." *International Journal of Fertility* 35 (5)(September/October 1990): 310-14.
- Sants, H.J. "Genealogical Bewilderment in Children with Substitute Parents." *British Journal of Medical Psychology* 37 (part 2)(1964): 133-41.
- Sauer, M.V., et al. "Survey of Attitudes Regarding the Use of Siblings for Gamete Donation." Fertility and Sterility 49 (4)(April 1988): 721-22.
- Schulenburg, J.A. Gay Parenting. Garden City, N.Y.: Anchor Press/Doubleday, 1985.
- Scott, S.G., et al. "Therapeutic Donor Insemination with Frozen Semen." *Canadian Medical Association Journal* 143 (4)(15 August 1990): 273-78.
- Shanis, B.S., J.H. Check and A.F. Baker. "Transmission of Sexually Transmitted Diseases by Donor Semen." Archives of Andrology 23 (3)(1989): 249-57.
- Singer, P., and D. Wells, *The Reproduction Revolution: New Ways of Making Babies*. Oxford: Oxford University Press, 1984.
- Small, E.C., and R.N. Turksoy. "A View of Artificial Insemination." *Advances in Psychosomatic Medicine* 12 (1985): 105-23.
- Snowden, R., and E. Snowden. The Gift of a Child. London: Allen and Unwin, 1984.
- Snowden, R., and G.D. Mitchell. *The Artificial Family: A Consideration of Artificial Insemination by Donor*. London: Allen and Unwin, 1981.
- 70 ROYAL COMMISSION ON NEW REPRODUCTIVE TECHNOLOGIES

- Snowden, R., G.D. Mitchell and E.M. Snowden. Artificial Reproduction: A Social Investigation. London: Allen and Unwin, 1983.
- Sokoloff, B.Z. "Alternative Methods of Reproduction: Effects on the Child." Clinical Pediatrics 26 (1)(January 1987):
- Staub, J.B., and L.I. Lipshultz. "Treatments for Infertile Men." Medical Aspects of Human Sexuality 24 (July 1990): 40-45.
- Stewart, G.J., et al. "Transmission of Human T-Cell Lymphotropic Virus Type III (HTLV-III) by Artificial Insemination by Donor." Lancet 2 (8455)(14 September, 1985): 581-84.
- Sunde, A., J. Kahn and K. Molne. "Intrauterine Insemination." Human Reproduction 3 (1)(January 1988): 97-99.
- Timmons, M.C., et al. "Genetic Screening of Donors for Artificial Insemination." Fertility and Sterility 35 (4) (April 1981): 451-56.
- Triseliotis, J.P. In Search of Origins: The Experiences of Adopted People. London: Routledge and Kegan Paul, 1973
- Trounson, A.O., et al. "Artificial Insemination by Frozen Donor Semen: Results of Multicentre Australian Experience." International Journal of Andrology 4 (2)(April 1981): 227-34.
- U.S. Congress. Office of Technology Assessment. Artificial Insemination: Practice in the United States: Summary of a 1987 Survey. Washington, D.C.: Office of Technology Assessment, 1988.
- -. Infertility: Medical and Social Choices. Washington, D.C.: G.P.O., 1988.
- Walker, A., S. Gregson and E. McLaughlin. "Attitudes Towards Donor Insemination A Post-Warnock Survey." Human Reproduction 2 (8)(November 1987): 745-50.
- Wallach, E.E. "Gonadotropin Treatment for the Ovulatory Patient The Pros and Cons of Empiric Therapy for Infertility." Fertility and Sterility 55 (3)(March 1991): 478-80.
- Warnock, M. A Question of Life: The Warnock Report on Human Fertilisation and Embryology. Oxford: Basil Blackwell, 1985.
- Watters, W.W., and J. Souza-Poza. "Psychiatric Aspects of Artificial Insemination (Donor)." Canadian Medical Association Journal 95 (3)(16 July 1966): 106-13.
- Wilkes, S. "Not as Easy as 1-2-3: Lesbians Trying to Get Pregnant." Rites for Lesbian and Gay Liberation 1 (9) (March 1985): 13.
- Wong, A.W.Y., et al. "Factors Affecting the Success of Artificial Insemination by Frozen Donor Semen.' International Journal of Fertility 34 (1)(January/February 1989): 25-29.
- Zaner, R.M., F.H. Boehm and G.A. Hill. "Selective Termination in Multiple Pregnancies: Ethical Considerations." Fertility and Sterility 54 (2)(August 1990): 203-5.

APPENDIX A

The Sperm Bank of California

WHAT IS DONOR INSEMINATION?

Donor insemination is a process of introducing semen into the vaginal canal or cervix with a device for the purpose of fertilizing an egg and achieving pregnancy.

Its safety and effectiveness have been well established. Currently in the U.S. 15-20,000 children a year are conceived by insemination. Since WW II well over 300,000 children have been born as a result of this method and since 1776, when the technique of freezing sperm was developed, over a million children have been conceived through this method.

ABOUT THE PROGRAM

There are six components to our donor insemination program. All office visits are by appointment only.

- 1. Orientation An introductory discussion about our services, philosophy, client participation, donor screening criteria and legal information.
- 2. Fertility Awareness Class Designed to show participants how to check, chart and interpret

the fertility cycle. Includes instruction on how to chart basal body temperature, check cervical mucus, and do self-exam of the cervix with a plastic speculum.

- 3. Complete Physical Exam Includes laboratory testing and family history.
- 4. Consultation For selection of a donor. Medical compatibility is reviewed.
- 5. Insemination Visit At the fertile time the woman comes in the office. She can receive a mucus check and assistance with insemination. Assistance is provided to women who
- inseminate at the office
 - inseminate at home
- have their own donor

Cost: fees for all services are based on a sliding scale. Call for specific fees.

Confidentiality: all medical records of donors and recipients are confidential.

Referrals: referrals can be made to counselors and specialists pertinent to infertility, pregnancy achieving and prenatal care.

PHILOSOPHY

We believe that women have the right to control our own

reproduction and in doing so, determine if, when and how to achieve pregnancy. The donor insemination program at our center is for all women, regardless of race, marital status or sexual orientation. Lesbians, single women and women with infertile partners are encouraged to participate.

For many years semen for artificial insemination by donor (A.I.D.) has been available on a limited basis. Our program is an important resource for women who have not had access to alternative fertilization.

THE SPERM BANK OF CALIFORNIA

The Sperm Bank has attracted clients from all over the world. The donor insemination program at The Sperm Bank is unique. Among its features are:

- High quality medical screening and fertility testing on all donors
- Large inventory of donor specimens
- Physical, health as well as personal characteristics of all donors
- Accessibility to donor information
- Availability of identity-release donors

- Diverse ethnic representation of donors
- Expert advisory board for medical and legal consultation

If you are interested in the Donor Insemination Program at The Sperm Bank, please call. As with all of our services, your confidentiality is strictly observed.

THE SPERM BANK OI CALIFORNIA

Telegraph Hill Medical Plaza 3007 Telegraph Ave. Suite 2 Oakland, CA 94609 (510) 444-2014

OTHER SERVICES

Private donor screening
Sperm storage
Semen analysis
Sperm Washing
AIDS screening
Fertility awareness classes
Health education
Advocacy and referrals

APPENDIX B

Sample Questionnaires from CFAS Guidelines

MEDICAL QUESTIONNAIRE

HISTORY:			Potential donor no.:
Place & date of birth	:		Age:
Marital status: single	/ married / seperated		
Fertility status: pr	oven / unknown		
		mother:	
		-	
•			
-		ES:	
	_	date	
I/V drug use: NO /	YES:		
Sexual proclivity: he	eterosexual / bisexual	/ homosexual ever no	t just now
Neglecture of the second secon			
MEDICAL:			
Allergies:	NO / YES :		
Regular medication:			
History of STD:	NO / YES :		
Surgery: Asthma:	NO / YES :		
Respiratory:	NO / VES :		
Cardiac problems:	NO / YES ·		
Renal problems:	NO / YES:		
Diabetes:	NO / YES :		
Jaundice:	NO / YES :		
Mumps:	NO / YES :		
Hypertension:	NO / YES :		
Epilepsy:	NO / YES :		
Mental illness:	NO / YES :		
Vision problems:	NO / YES :		
Hearing problems:	NO / YES :		
Completed by:		I	Date://19

MATCHING CHARACTERISTICS

Race: CAUCASIAN / MEDITERRANEAN / INDIAN / CHINESE / JAPANESE
NATIVE INDIAN / POLYNESIAN / NEGRO /
Blood group: ABO type: O / A / B / AB Rh type: NEGATIVE / POSITIVE
Height: feet inches OR centimetres
Weight: pounds OR kilograms
Build: SLIGHT / MEDIUM / HEAVY / OBESE
Hair Color: FAIR / LIGHT-BROWN / DARK-BROWN / BLACK / RED /
Beard color: FAIR / LIGHT-BROWN / DARK-BROWN / BLACK / RED /
Eye color: BLUE / BROWN / GREEN / GRAY / HAZEL /
COMMENTS:
Completed by: Date://19

GENETICS QUESTIONNAIRE

1.	Have you ever had any chronic illness, disorder or heal	lth prob	olem? YES	NO					
2.	Have you ever been treated for a mental illness?	YES	NO						
3.	Do (or did) you have any birth defect(s)?	YES	NO						
4.	Have you ever sired a pregnancy that was lost as a miscarriage, stillbirth or childhood death?	YES	NO						
5.	Do you have any children with a birth defect, mental retardation or handicapping condition?	YES	NO						
6.	Think of your brothers and sisters and their children. Are there any among them with:								
	A birth defect	YES	NO						
	Mental retardation ("slow")	YES							
	Chronic illness	YES							
	Genetic conditions or illness	YES							
	Stillbirth(s)	YES	NO						
7.	Think of your parents, aunts, uncles and cousins. Are there any among them with:								
	A birth defect	YES	NO						
	Mental retardation ("slow")	YES	NO						
	Chronic illness	YES	NO						
	Genetic condition or illness	YES	NO						
8.	8. If you have answered "YES" to any of the above questions, please give the details here:								
9.	9. Do you belong to one of the following ethnic backgrounds?								
	 Negro (sickle cell) Chinese (x-thalassemia) Greek (B-thalassemia) Italian (B-thalassemia) E. Indian (B-thalassemia) Other: Jewish (Tay Sach's) S.E. Asia (x- & B-thalmassemia) Maltese (B-thalmassemia) Portuguese (B-thalmassemia) 								
	ampleted by	Do	ite:/	/10					
	ompleted by:	Da		11/					

SPECIFIC GENETIC SCREEN

1. Does any member of your family have nay of the following conditions?

a) Down's syndrome	YES	NO
b) Cleft lip or cleft palate	YES	NO
c) club boot	YES	NO
d) congenital heart disease	YES	NO
e) mental retardation	YES	NO
f) neural tube defects (spina bifida, meningocoele)	YES	NO
g) cystic fibrosis	YES	NO
h) phenylketonuria or other inherited metabolic disorder	YES	NO
i) progressive kidney disease	YES	NO
j) diabeted mellitus requiring insulin therapy	YES	NO
k) diabetes mellitus not requiring insulin	YES	NO
l) premature degeneration of any organ system	YES	NO
m) cataracts before the age of 40	YES	NO
n) deafness before the age of 60	YES	NO
o) loss of muscle coordination	YES	NO
p) schizophrenia	YES	NO
q) manic depressive psychosis	YES	NO
r) mental deterioration or senility before the age of 50	YES	NO

Coi	mpleted by:	Date://19_	
3.	Is there a history of early deaths in your family (heart attacks, etc)?	YES I	NO
2.	Do you have any coffee-colored spots on your skin (about the size of a quarter)?	YES I	NO

MATERNAL ANCESTRY

Grandfather: (if living)		Age:		-	Health status			
	(if deceased)		Age at	death:		Cause of death	-	
Grandmother:	(if living)		Age: _		-	Health status		
	(if deceased)		Age at	death:		Cause of death		
Aunts and unc	cles:							
Living:		Sex		Age	Heal	th status		
1		M / F			-			
2		M/F						
3		M/F						
4		M/F				National particular designation of the second secon		
5		M/F						
Deceased: (in	nclude neonatal	and chi	ldhood	deaths)				
		Sex		Age at death	Cau	se of death		
1		M/F			-		Land 1.00 50 de la contract (1000	
2		M / F			-			
3		M/F						
4		M / F						
First cousins:								*
Neonatal death(s)?:		NO / YES:		_ Cau	se (if known):			
Birth defect(s)?:		NO / YES:		_ Spec	cify:		· ·	
Mother:							-	
(if living) A		Age: _	Age:		_ Hea	lth status:		
(if deceased)		Age of death:		Cau	se of death:			
Mother's ance	estors:							
Country:		Re	gion: _			City:		

THREE GENERATION HISTORY

SIBLINGS			
Living:	Sex	Age	Health status
1	M / F		
2	M / F		
3	M/F		
4	M/F		
5	M/F		
6	M/F		
Deceased: (include neona	atal and childho	ood deaths)	
Age of death			Cause of death
1			
2	***************************************		
CHILDREN (your own, i	f any) Sex	Age	Health status
1	M/F		
2	M/F		
3	M/F		
4	M/F		
5	M/F	-	
6	M/F		
Deceased: (include neona	atal and childho	ood deaths)	
Age of death			Cause of death
1			
2.			

PATERNAL ANCESTRY

Grandfather:	r: (if living)		Age:			Health status
	(if deceased)		Age at	death:		Cause of death
Grandmother:	(if living)		Age: _			Health status
	(if deceased)		Age at	death:		Cause of death
Aunts and unc	eles:					
Living:		Sex		Age	Health	status
1		M/F				
2		M/F				
3		M/F				
4		M/F				
5		M/F				
Deceased: (in	clude neonatal	and child	dhood o	deaths)		
		Sex		Age at death	Cause	of death
1		M/F				
2		M/F		***	-	
3		M/F				
4		M/F			-	
First cousins:						
Neonatal deat	h(s)?:	NO / Y	'ES:		Cause	(if known):
Birth defect(s))?:	NO / Y	ES: _		Specif	y:
Father:						
(if living)		Age: _			Health	status:
(if deceased)		Age of	death:		Cause	of death:
Father's ances	stors:					
Country:		Reg	gion: _		_ Ci	ty:

Royal Commission on New Reproductive Technologies



Commission royale sur les nouvelles techniques de reproduction