

Multiple births in Canada are on the rise. Between 1974 and 1990, births of twins increased by 35% (per 100,000 successful pregnancies). The incidence of triplet births increased nearly 250% during the same period (Multiple Births: Trends and Patterns in Canada 1974 - 1990 Health Reports, Millar WJ, Wadhera S, Nimrod C).

1997 was a record year for triplet births, reaching 127 sets. In 1991, seven sets of quadruplets and one set of quintuplets were born to Canadian women, compared with 1974 when only 28 sets of triplets and no sets of quadruplets or quintuplets were born. The birth rate of quadruplets fluctuates, from a high of 10 sets born in 1979 to none at all in 1974, 1977, 1984 and 1995. (Statistics Canada, Health Reports, Cat. 84-210, Table 10 Multiple Births (including stillbirths) Canada and Provinces, 1991; Statistics Canada, Births by Plurality).

Overall 15-17% of multiple births result from infertility treatments. However, it is estimated that 60% of triplets, 90% of quadruplets and 99% of quintuplets result from these treatments (Recent Trends in the Incidence of Multiple-Births and their Mortality, Botting B, MacDonald, Davis I, MacFarlane A; Three, Four and More: A Study of Triplet and Higher Order Births, Botting B, MacFarlane A, Price F).

The widespread and unregulated use of ovulation induction drugs is responsible for a significant number of dizygotic twins, triplets and higher order multiple births (*Proceed With Care: Final Report of the Royal Commission on New Reproductive Technologies; Twins and Higher Multiple Births: A Guide to their Nature and Nurture*, Bryan E.).

The incidence of triplets resulting from in vitro fertilization procedures is unlikely to decline until fertility specialists no longer need to transfer three embryos to achieve a single pregnancy (*Triplets and Higher Multiple Births: Too High A Price?* Bryan E, Denton J).

Note - there is no research citing on the percentage of multiple pregnancies that result from the use of fertility drugs.

Implications

- Multiple pregnancies present significant complications for pregnant women, such as premature labour, fetal growth retardation and difficulties of delivery (Twins and Higher Multiple Births: A Guide to their Nature and Nurture, Bryan E.).
- Multiple birth children are at a higher risk of neonatal mortality, birth defects, SIDS, child abuse and developmental disabilities.
- Families with multiple-birth children experience a combination of physical, emotional and financial stresses.
- The use of assisted reproduction pose significant financial demands on publicly financed health care, including the cost of fertility treatments, antenatal, delivery and postnatal care, and neonatal care for the babies.

The ethics of new reproductive technologies

- Although many childless couples experience the joy of a baby through treatments for infertility, they face the risk of a higher order multiple pregnancy and its associated complications and implications.
- Very occasionally, a controversial operation called selective reduction is performed to reduce one or more fetuses in a higher order pregnancy to improve the survival chances of the remaining fetuses.

Recommendations - Before Conception

- Patients should be provided with more information about the known risks of multiple births associated with assisted reproduction, in both written information and counselling before treatment starts.
- Integrate infertility services with maternity and neonatal services to ensure continuity in treatment and services.
- Serious consideration should be given by governments to regulate the activities of clinics and physicians practicing techniques of assisted reproduction and prescribing ovulation stimulants.

Definitions

- **Embryo Transfer or Replacement:** The procedure by which one or more zygotes obtained from in vitro fertilization or by uterine lavage are placed, or replaced, into the uterus of a woman, using a catheter (small tube) passed through her cervix. For specific techniques, see GIFT; IVF; ZIFT.
- **GIFT (Gamete Intrafallopian Transfer):** A technique of assisted reproduction in which a woman's mature eggs are removed by laparoscopy or by a catheter (small tube) under ultrasound guidance and then reintroduced with sperm into the fallopian tubes.
- **Higher Order Multiple Births:** This is a term used to express multiple births involving three or more infants (i.e. triplets, quadruplets, quintuplets etc.).
- **IVF (In Vitro Fertilization):** A technique used in assisted reproduction. Mature eggs are removed from a woman's ovary, usually after administration of an ovulatory stimulant, and fertilized with sperm in the laboratory. After fertilization and incubation, the fertilized egg is placed in the woman's uterus; it may also be transferred to another woman.
- **Ovulatory Stimulants:** These so-called fertility drugs include bromocriptine, clomiphene citrate, gonadotropins and gonadotropin-releasing hormone, used in treatment of an ovulatory disorder; in in vitro fertilization, to produce eggs for retrieval (superovulation); and sometimes in donor insemination, to regulate timing of ovulation. Trade names of these fertility drugs include clomid and pergonal. As a fertility treatment, ovulatory stimulants increase the risk of multiple pregnancy and may cause a serious condition known as hyper-stimulation syndrome.
- **ZIFTT (Zygote Intrafallopian Transfer):** A form of assisted reproduction in which a zygote obtained by in vitro fertilization is transferred to the fallopian tube usually by a catheter (small tube) through the uterus under ultrasound guidance.

Other Resources

- *The Biology of Twinning*, Multiple Births Canada Fact Sheet series
- *General Multiple Birth Facts & Figures*, Multiple Births Canada Fact Sheet series
- *Monozygotic or Dizygotic*, Multiple Births Canada Fact Sheet series
- *Multiple Birth Terminology*, Multiple Births Canada Fact Sheet series
- *Zygosity Testing*, Multiple Births Canada Fact Sheet series

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Questions?

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