



When she was diagnosed with polycystic ovarian syndrome, an endocrine system disorder that can cause infertility, Christine Shiels Singh turned to technology in her bid to have a baby.

She and her husband tried intrauterine insemination, a procedure in which sperm is placed in the uterus at the time of ovulation, four times before she was diagnosed with endometriosis, a condition in which cells like those found in the uterus grow in the fallopian tubes or elsewhere in the body.

She tried in vitro fertilization twice before undergoing surgery to unblock her fallopian tubes. The couple then went through two more rounds of IUI, the second of which resulted in an ectopic pregnancy. The fetus was growing in one of Christine's fallopian tubes.

When medication failed to terminate the pregnancy, she underwent surgery to remove the fallopian tube. The other one was also removed because it had cysts inside. Six months later, the Toronto couple tried in vitro fertilization again.

Today, they are the proud parents of a baby girl.

Their success in starting a family is testament to the value of assisted reproductive technology (ART). Thanks to it, millions of people becoming parents who otherwise wouldn't be able to. The field has developed by leaps and bounds since the birth of Louise Brown, the world's first "test tube baby," made international headlines in 1978.

In the first six years after Brown was born through in vitro fertilization — a procedure in which eggs are fertilized by sperm in a lab dish then transferred to a woman's uterus — there were several milestones in ART, including the first birth of a baby conceived using a donor egg and the first live birth of a baby that had developed from a frozen embryo.

In 1992, scientists introduced intracytoplasmic sperm injection (ICSI), a procedure in which sperm is directly injected into an egg to assist with fertilization. This and other procedures and have been refined and enhanced in the years since. ART is continuously evolving.

For example, a Vancouver woman recently gave birth to the first Canadian baby conceived with the help of the Early Embryo Viability Assessment (EEVA) Test. In this procedure, a time-lapse camera is attached to an incubator and takes snapshots of an embryo every five minutes for the first two days after it is created through IVF. That data is fed into an algorithm that assigns each embryo a grade. This helps fertility specialists determine which embryo is most likely to be successfully implanted.

EMD Serono, Canada, an affiliate of the pharmaceutical and chemical company Merck KGaA, Darmstadt, Germany, launched the test in Canada a year ago. More recently, it teamed up with fertility experts to create an app that helps Canadians planning to start a family. The app, called trymester, includes an ovulation tracker, clinic locator and other features. It helps users connect quickly to leading experts in the field.

Managing director Rehan Verjee sees a great need for procedures and devices that help Canadians facing fertility challenges; he notes that one in six couples will need to seek medical support to start a family. But he also sees great hope for them. "There is really so much great science in this field," he says, "I believe the future is very bright indeed."