WHAT IS ICSI?
Intracytoplasmic sperm injection (ICSI) is a specialised form of IVF that is used for the treatment of severe cases of male factor infertility. ICSI involves the injection of a single sperm directly into a mature egg.

WHEN IS ICSI USED?
Approximately 30% to 40% of all infertility is due to a significant male factor problem. ICSI has revolutionised the treatment for male infertility. Prior to the first successful ICSI pregnancy in 1992, very little could be offered to couples with severe male factor infertility, aside from using donor sperm. Individuals that may be helped by ICSI include couples who have had poor or no fertilisation during standard IVF, as well as men who have:

• Poor sperm morphology (abnormally shaped sperm)
• Poor sperm motility (slow moving sperm)
• A low sperm count
• An obstruction which prevents sperm release, such as vasectomy
• Antisperm antibodies (antibodies produced by the man's body that may inhibit sperm function)
• A vasectomy reversal that was unsuccessful or resulted in a very low sperm count or very poor quality sperm

HOW IS ICSI DONE?
Before ICSI can be done, mature eggs must be retrieved from the female partner during a standard IVF cycle. The male partner’s semen sample is prepared in the lab to isolate as many healthy moving sperm as possible. After allowing the eggs to rest for 2-4 hours following their removal, the tight outer coating of cells (cumulus) is removed from each egg. Only then can we be sure the egg is mature enough to undergo ICSI.

A glass pipette is used to hold the egg in place. It is so small you can barely see the tip with the naked eye. A thinner, sharp, needle-like instrument is used to pick up a single normal appearing sperm. With great precision, the needle is inserted through the egg’s outer coating (the zona pellucida) and into the egg itself. The sperm is slowly injected into the egg, and the needle is removed, leaving the sperm behind.

The injected eggs are placed in an incubator overnight and checked the next morning for signs of fertilisation. After an additional 24 hours, we can determine how many have divided and gone on to form embryos. Not all eggs fertilise, and not all fertilised eggs become embryos. As with standard IVF, the number of embryos replaced into the uterus depends on the woman’s age. Provided they appear healthy, additional embryos can be frozen if desired.

POSSIBLE RISKS
Thousands of children have been born around the world as a result of ICSI. To date, there is no convincing evidence that the incidence of birth defects is any different with ICSI or IVF as compared to those children born to other parents of similar age and health. The mother’s age at delivery, family history and the presence of pregnancy complications are the most important predictors of newborn health.

It is possible that a male child might inherit a similar or slightly different fertility problem from that of the father. Some men have an acquired cause of their sperm problem that we know will not be hereditary (i.e. vasectomy, spinal cord injury). However, other men have sperm problems that may have been present since birth. These may be passed on to the male children due to a small chromosomal rearrangement, a deletion of a small portion of the Y chromosome, etc. As well, men with very low sperm counts or an obstruction in their sperm ducts (vas or epididymis) may carry one of the cystic fibrosis genes (CF). In addition to passing on their sperm problem, they also have a higher chance of producing a child who actually has cystic fibrosis, especially if their partner also carries one of the cystic fibrosis genes.

Just as the mother’s age influences the risk of birth defects, men with a very low sperm count also have an increased risk (about 1%) of producing a son with an abnormal number of sex chromosomes.
(i.e. XXY or XYY instead of the usual XY). These children have a normal physical appearance and are likely to have normal IQ scores, but they may develop learning difficulties, behaviour problems or infertility.

Blood tests can be done to screen one or both partners for many (but not all) of these problems, including chromosomal rearrangements, cystic fibrosis carrier status, etc. Genetic testing is also available during the pregnancy (i.e. amniocentesis or chronic villus sampling) to look for many of these abnormalities.

WHAT IS THE SUCCESS OF FERTILISATION WITH ICSI?

Many IVF programs around the world now have experience with ICSI. At City Fertility Centre an average 70% to 80% of mature eggs will fertilise normally. In addition, some eggs may be damaged by the injection process (up to 2%), whereas others may fertilise abnormally. More than 90% of couples undergoing ICSI will have at least one embryo to replace. Even with ICSI, there is a very small chance that none of the eggs will fertilise. The clinical pregnancy rates are similar to those of standard IVF and vary with the age of the woman.

COUNSELLING

Infertility and its treatment can be quite stressful from an emotional, physical and financial point of view. We encourage partners to be supportive and participate in the treatment process. It can also be helpful to develop a network of supportive friends and relatives.

In addition to our medical and nursing staff, a counselling session with our trained infertility counsellor is included in the cost of an IVF cycle. Our counsellors are interested and experienced in infertility-related issues.

COST

Please contact City Fertility Centre to receive the most current treatment cost structure.

CONFIDENTIALITY

All services are provided in a completely discreet and confidential environment.