

Sciences TSM – Genetics in class essay

One day, in the future, scientific advances in reproductive technology will improve the genetic health of the human race, but not without conditions.

Genetic health begins with having a genetically healthy baby. The only definite way to check a genetically healthy baby is born is to conduct a genetic test on the embryos of the baby when in the early stages of development. A genetic test checks for mutations in DNA and the structure of chromosomes. Although most of the time a genetic test is accurate, it can give incorrect or misleading results.

Other scientific advances in reproductive technology include the IVF program. This can offer aid to a family's unborn child, whose family history involves the passing of a genetic disease through a dominant or recessive gene that cannot be avoided. Even though this treatment does provide hope for families with the situation of a genetically diseased history, reproductive treatments like IVF can have a low success rate, be emotionally draining and the treatments are financially draining (definitely not economical). Through the use of scientific advances like these, the human race will eventually benefit from it, but not without the conditions and consequences of testing these advances and technology.

Genetic testing involves the structure of genetic material. It is aimed to find mutations in the DNA and examine the current structure of chromosomes to check if there are any genetic diseases. The issues surrounding genetic tests are the possibility of incorrect results and if incorrect results were given at a late time whether the unborn babies' environment may be jeopardised.

An example of a case where a genetic test has given incorrect results, is a family who wanted their child to live a healthy life. This was taken away from them and their child when discovered that their baby was born a boy. Their family history contained an incurable blood disorder called haemophilia and was only present in the males of the family. A genetic test was performed to check that the baby was healthy and that it was a girl. The test said this was the case, but was incorrect.

"We tried everything to avoid this situation and now our baby boy has to go through all the pain and treatment in order to survive. We now face the fact that Jess will require treatment for the rest of his life." (*Parent's sue after child inherits haemophilia)

Genetic testing pushes the limits of science and the law in cases where health care providers have failed to detect genetic mutation in a genetic test of a pre-implanted egg when using reproductive technology. This meant that the sperm/egg donors' family history was not disclosed to the parents whose child inherited a genetic disease. In this case, a situation could have arisen where the parents received the incorrect results of the genetic test too late, the baby's environment could have been jeopardised: the parents may not have enough money to take proper care and the right measures to support the baby. New generations moving forward in society should be able to feel safe and as if progress will be made. No one could feel safe in a society where there are no answers to the right types of questions; knowing that there will be no mistakes with the important issues of genetic testing.

Genetic diseases are passed through a family through the recessive or dominant genes of every person. IVF (In Vitro Fertilisation) is a type of reproductive technology. This particular type of reproductive technology can eliminate the issue of genetic disease by taking out the mutated embryos in the early stages of the process when there are only 4 cells. A condition with reproductive technology and improving the genetic health of society is that reproductive treatments are financially draining, can have a low success rate and can therefore be emotionally draining.

Financially, procedures cost \$2770* per standard cycle with the IVF program. If a woman is infertile, the procedures of reproductive technology may have to be performed many times before there is success. This proves reproductive technology to be un-economical.

Another condition is that reproductive treatments can have a low success rate because the procedure depends on too many unreliable factors; the age of women, types of embryos used, and the number of embryos released into the uterus/fallopian tubes. *This may be very emotional for the expecting family and would eventually prove to be un-reliable.

Although in the future, scientific advances in reproductive technology will improve the genetic health of the human race, there will be conditions with genetic testing and reproductive treatments. Genetic testing was proved to be unreliable in many cases, because of the unreliable factors it depends on. Reproductive treatments have also been proved to be emotionally draining and have a low success rate. These are the factors on which the new generation and the current society is basing itself on: un-reliable genetic tests and expensive reproductive treatments that could fail. These negative possibilities are not acceptable when trying to protect your family from a fragile topic. With today's technology and environment, we need to know the answers relating to genetics, not be asking questions.

* "Infertility and reproductive technology", <http://www.womenshealth.org.au/studentfactsheets/infertility.htm>

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Note 1: As the work was done under examination conditions, the student's essay was handwritten; it has been retyped here to facilitate reading.

Note 2: All orthographical or content errors remain as per the original work.