

4. IVF – In Vitro Fertilization

- In Vitro means *glass*
- The process of removing a woman's ovum or eggs, combining them with sperm in a petri dish or test tube, and after a few days, inserting the fertilized eggs into the womb that will carry the child.
- Drugs are usually given to the woman to increase the number of eggs produced in the month when they intend to harvest the eggs

GIFT – Gamete Intra-fallopian Transfer -- injects ova and sperm into the fallopian tubes hoping they will unite.

ZIFT – Zygote Intra-fallopian Transfer – an embryo is produced in a petri dish and then placed in the fallopian tube.

Let's apply our Biblical Ethical Model:

> *What about conduct?*

- Whose sperm is used? Is there a donor? Is this adultery?
- What was the method for collecting the sperm?
- The process commonly produces multiple embryos (preferably 3).
- Once done, either several are placed in a woman's uterus so there is a better chance of pregnancy or some of the embryos are frozen.
- In the 1st case, not all of the embryos survive. Those that do are often aborted or destroyed through a process called fetal reduction.
- In the 2nd case, the couple must decide what to do with the remaining frozen embryos. Often they are destroyed. Other times they are used for research.
- Can we justify the experimentation with and the destruction of these embryos? Are they humans?
- An embryo is a fertilized egg that represents the beginning of life.
- Destruction or neglect of human life is immoral.

Psalm 139:13-16

> *What about character?*

- If it is the husband's sperm, was there lust involved?
- What are my motives?

> *What about goals?*

- Is God glorified in the process, both in sperm collection and in what happens to these embryos?

Further Questions to Consider:

- > Is embryo adoption immoral?
- > Consider Russell Moore's answer and Joe Carter's article below:

***Is Embryo Adoption Immoral?* by Russell Moore**

<https://www.russellmoore.com/tag/embryo-adoption/>

***Surrogacy* by Joe Carter**

<https://erlc.com/article/issue-analysis-surrogacy>

Other Problems to Consider:

- Who is the family now?
- Exploitation of women, particularly poor women. *Stars and Stripes* and other military media advertise to military wives who are often low-income and needy.
- Psychological studies have shown the effects on children to be disturbing. Children often feel abandoned and betrayed by their biological parents. They end up feeling confused and lost.
- The surrogate grows a strong maternal bond with the child, causing her to want to keep it.
- Legal issues: (*Consider this case*)

The thorny legal issues surrounding surrogacy first appeared with the "Baby M" case in New Jersey in 1987. A married couple, William and Elizabeth Stern, contracted with Mrs. Whitehead, a

married mother of two, to carry and give birth to their child for \$10,000. Whitehead was inseminated with Stern's sperm, and Baby M was born on March 27, 1986.

However, the Whiteheads grew uncomfortable with the idea of selling the child and wouldn't release her to the Sterns. In the court case that followed, Judge Harvey Sorkow declared that the contract terminating Mrs. Whitehead's parental rights was enforceable; the New Jersey Supreme Court reversed his decision in a 7-0 ruling on February 3, 1988.

Harold Cassidy, the Whiteheads' lawyer, explained in Public Discourse in 2012 that "16 separate policies and statutory provisions were violated in Baby M. Today, gestational surrogacy arrangements violate those same policies and statutes."

Conduct, character, and goals – the issues are similar to IVF since the same process is used. Also, consider Joe Carter's article in the link above.

Stem Cell Research

1. Stem Cells – cells that have not yet obtained a special structure and function.

*Most cells in the body are a particular type and have a particular function.

*The cells can give rise to several other differentiated and specialized cells of the body (for example, liver cells, kidney cell, brain cells).

They differ from other cells in that they can theoretically divide without limit to replenish other cells for as long as the person is alive.

They also retain the potential to produce differentiated and specialized cell types.

Their ability to do this decreases after embryonic stage.

By learning how stem cells differentiate and become specialized, scientists hope to gain a better understanding of how cells work in general and what can go wrong with them.

They also hope to use stem cells as transplants for repairing damaged cells in the body. This is their hope to cure things like Parkinsons and spinal cord injuries.

2. Embryonic stem cells – stem cells that have been taken from the inner cells mass of a blastocyst, an embryo of about 150 cells that has not yet implanted into a woman’s uterus.

*Embryo is the term used until the end of the 8th week of gestation.

*These embryos come from couples who use In Vitro Fertilization

*This process often creates more embryos than are implanted into a woman’s womb. The couple can donate the leftover embryos for research purposes.

3. Adult Stem Cells – a non-embryonic stem cell, either from a fetus, a child or an adult.

*Sometimes called somatic stem cells.

4. Stem Cell Line – a family of constantly dividing cells, the product of a single group of stem cells, which can be grown indefinitely in the laboratory.

Ethical Issues

* The process of obtaining stem cells leads to the destruction of the embryo from which the cells are taken

* For the same reason that abortion is immoral so is this.

* Since life begins at conception, when the sperm and egg join, the embryo is a living human being.

*Those who support Embryonic Stem Cell research argue that because these cells can be used to heal disease and relieve suffering in fully developed human beings it is ok.

- It is illegal in Germany, Austria, Ireland, Italy, Portugal and New Zealand.

- Most countries in South America and Africa have some sort of ban

- There are no restrictions in the US on research and only minimal restrictions on government funding.

- In 1995, Congress prohibited the use of federal funds for research that destroys or seriously endangers human embryos, or creates them for research purposes.
- In 2009, President Obama issued an Executive Order that lifted all restrictions against federal funding of stem cell research.
- The truth is there are more than 70 conditions currently being treated with adult stem cells and zero with embryonic cells.
- On animals these cells turned into tumors.

Scripture

Human life begins at conception

Job 31:13-1

Psalm 51:5

Psalm 139:13-16

Matt. 1:20

Taking innocent life is condemned

Exodus 20:13

Deut. 5:17

**Thanks to the research of Joe Carter and the ERLC*

Cloning

*Also called Somatic Cell Nuclear Transfer (SCNT)

Definition: The process by which identical copies of an organism are made. The copy possesses the exact same genetic material. Genetic material consists of genes, the parts of cells that determine characteristics of living things.

History

- 1953 Tadpoles

1962 Frogs

1981 Mice

1990 Cows

1997 Sheep (Dolly) – Dolly was the only one to live! – Only 29 of 277 embryos survived past 6 days.

The Process

-The process involves introducing the nuclear material a human somatic cell (donor) into an oocyte (egg cell) whose own nucleus has been removed or inactivated, and then stimulating this new entity to begin dividing and growing, yielding a cloned human embryo. – Joe Carter, ERLC

1. Doctors harvest up to 15 eggs each from up to 40 donors who have been injected with fertility drugs. This produces about 400 eggs.
2. Cells are taken from the cloning candidate.
3. The nucleus of each egg is sucked out with a fine needle.
4. The DNA-free eggs and the donor cells are placed next to one another and zapped with electricity. This fuses them together.
5. Some of these rebuilt eggs divide to form embryos.

What's the difference between cloning and Genetic Engineering?

Definition:

Genetic Engineering – the process in which scientists manipulate genes to create purposefully different versions of organisms – and in some cases, entirely new living things.

- Geneticists have even introduced genes from one species to another.
- In the case of humans, Genetic Engineering aims at producing human beings selected according to sex or other predetermined qualities.
- In other words, attempting to manufacture human beings to exact specifications.
- Genetic Engineering could be used to change physical appearance, metabolism, and even improve physical capabilities and mental faculties.
- Gene doping – the non therapeutic use of cells, genes, or genetic elements to enhance athletic performance. Testing for this is all but impossible. Mice were genetically engineered to have increased muscle growth and strength. They were called “Schwarzenegger Mice.”

Positives or suggested benefits of cloning and genetic engineering:

1. By manipulating genetic material, human life can be improved. People could be more intelligent, stronger, and healthier.

2. Cloned animals may have uses in medicine. New drugs could be tested on cloned animals – making more consistent tests.
3. In the field of agriculture, chickens that produce eggs faster than others could be cloned for better egg production.
4. Plants or animals can be genetically engineered to give them more desirable qualities (larger, stronger, more productive)
5. Infertile couples, who do not wish to adopt, could use cloning to have children who are biologically related to them.
6. Cloning humans would provide stem cells for further research.
7. Creating cloned humans can provide perfect matches for transplants.

Negatives or ethical concerns of cloning and genetic engineering:

- There is a high rate of failure. As mentioned earlier only 29 of 277 embryos survived past 6 days in Dolly's case.
- It is controversial even among scientists, activists and consumers.
- Even with crops, scientists fear that modified crops could interbreed with non-modified crops and no one knows what the results would be.
- When it comes to manufacturing humans with superior traits, who decides what is superior?
- Cloning for research purposes involves creating human life solely for the purpose of destroying it.
- Cloning to produce children poses a threat to the life of the child and the mother.
- When we begin to mess with the DNA ecosystem we are headed for unpredictable results that could later injure the person or lead to their death.
- Human cloning treats human life as a commodity to be created and used.

The Bible

1. Cross-breeding goes against the created order
 - Gen 1:11-12
 - Gen 1:20-21 and 1:24-25 - all speak of "according to its kind"
 - Lev 19:19
 - Deut. 22:9

2. God is our designer, not man!
 - Ps 119:73
 - Ps 139:14

- 1 Cor 15:38-39
- 1 Tim 4:4

*Are we playing God?

3. The Sanctity of Life

- Gen 1:27
- Gen 9:6
- Ex 20:13
- Jer 1:5, Is 49:1, Ps 139:13-16, Ex 21:22-25

All show that life begins at conception, that even the baby in the womb is a human life.

- Remember the ends cannot justify the means
- Conduct – direct commands against mentioned above
- Character – playing God. “I’ll be the designer.”
- Goals – is God glorified when we modify people He created? When we destroy embryos?