



THE SOCIETY FOR THE PROTECTION OF UNBORN CHILDREN

Study notes on in vitro fertilisation

These notes look at the basic in vitro fertilisation technique and examine what those on either side say about the moral issues raised by IVF.

Discussion points are included to prompt class discussions or to suggest research projects or essay work.

© SPUC 2006 Copying permitted for free circulation

Study notes on in vitro fertilisation

© SPUC 2006

What is IVF?

In vitro fertilisation (IVF) literally means fertilisation ‘in glass’. It refers to creating an embryo by putting eggs and sperm together in a liquid culture medium in a glass (or plastic) laboratory dish. Embryos and children conceived by IVF, rather than in the normal environment of the mother’s body, are sometimes referred to as ‘test tube babies’.

Human embryos were created in the laboratory in the 1950s and 1960s, but the first baby born as a result of IVF was Louise Brown. She was born in July 1978, in Great Britain as a result of the efforts of Patrick Steptoe, a gynaecologist, and Dr. Robert Edwards, a physiologist.

What is a human embryo?

Human embryos are genetically complete human beings, formed when the mother’s egg and the father’s sperm join to form a new distinct individual. They will grow and develop if they are simply given nutrients and the right environment.

How common is IVF?

Latest published figures for the UK¹, state that about 22,000 “successful” IVF treatment cycles are undertaken each year. A successful treatment cycle means eggs are collected and fertilised creating embryos, and one or two of the embryos are transferred to the mother’s womb. IVF clinics say the average number of eggs collected is ten to twelve². Normally, the clinic will try to fertilise most of these eggs, using sperm from the woman’s husband or partner or from a donor.

In the UK, just over 1% of children born are created by IVF techniques (about 8,000 per year, including about 1600 pairs of twins)³. In some other countries the proportion is higher - in Finland it is around 2%.⁴

What are the reasons for using IVF?

Originally IVF was promoted as a means of helping childless, infertile couples to have a baby. This is still one of the main reasons why people use IVF. Sometimes a woman undergoing medical treatment that causes infertility as a side effect may have her eggs collected and stored so that she can have IVF later on. Others may postpone childbearing till their late 30s or 40s, when women become less fertile, relying on IVF as a back-up. Following earlier surgical sterilisation some women wish to resume child-bearing, perhaps with a new partner.

Other reasons put forward for IVF include avoiding the birth of a disabled baby (when the couple know they are carriers of a genetic condition), and providing a baby as a transplant donor (e.g. of bone marrow) for an older brother or sister. IVF is a stepping-stone to developing techniques for cloning and genetic manipulation. The hopes of developing new drugs and techniques are a huge concern of the biotech industry which has promoted IVF very forcefully in the UK. Presently, embryos made by cloning or other genetic manipulation techniques must be destroyed, but the law may be reviewed in future.

What happens to IVF embryos?

About 10 -15% of IVF embryos are transferred within a few days to their mother’s womb. The others are either discarded, used for experiments, stored for future use (frozen in liquid nitrogen), or in a few cases donated to other women wishing to bear a child.

Often two embryos (sometimes more) are transferred to the womb together. IVF clinics estimate that worldwide, 45% of IVF babies born are from multiple pregnancies. Nearly 25% of pregnancies induced by IVF are twin pregnancies.⁵ This compares with a natural twin rate of 2% or less.⁶ Multiple pregnancies carry higher health risks for both mothers and unborn children.

Overall about 4% of test-tube embryos will survive to be born.

Discussion points:

- Do people have a “right” to have a child?
- If parents have a right to have a child, does it matter how they go about achieving it?
- Is there a danger of treating children like consumer goods?

IVF – the moral issues

IVF gives rise to many moral questions and problems. Those who promote it say it brings great joy to many couples by enabling them to have a child. Those who oppose it say that although the intention may be a good

one, IVF is a bad way to try to achieve it. To help understand why IVF remains controversial, we will look at some of the key questions, comparing what those on opposite sides of the arguments say.

1) Is IVF wrong or unjust in itself?

For IVF	Against IVF
If a couple want to have a child, and science can help them achieve that, they should be able to have what they want.	Children are people too, endowed with rights. They are not just 'commodities' to satisfy their parents' wishes.
Most couples can conceive a baby if they want to. It's unfair that some can't. IVF makes it more fair.	The fact that some couples have the ability to conceive a child doesn't mean everyone has a right to do so.
Embryos are too small to count as people; they can't do the things that mature humans can, so they can't have the same rights.	Human rights are something we all 'inherit' because we are members of the human family – human embryos included.
Embryos cannot protect themselves or assert their rights, so they only have the rights we decide to grant them.	Many people are unable to assert their rights – the oppressed, poor, displaced, disabled, etc. We should help them, not destroy them.

Discussion points:

- Are IVF embryos different from embryos conceived naturally?
- Does it matter if we deliberately discard or destroy some embryos in the process?
- What is special about early embryos?
- Is the human embryo intrinsically precious, endowed with his or her own human rights and dignity?

2) Is IVF the best way of overcoming infertility?

For IVF	Against IVF
Infertility can cause deep psychological suffering, and we should do all we can to help infertile couples. Among women and couples suffering from infertility, the effects that have been observed include reactions such as despair, isolation, anger, envy of others and a hidden grief.	For most childless couples, IVF offers only false hope. It is not suitable for all kinds of infertility, and it is not usually successful in terms of a "take-home baby" for those who try it. By concentrating on IVF, hope is being denied to those for whom it is unsuitable, unsuccessful or ethically unacceptable.
If IVF can help relieve the suffering of infertile couples it is a good thing and should be allowed. There are not many other infertility treatments that can be widely used and are widely available.	Only a minority (just over one in five) of attempts at IVF will end up with a baby being born. In other words it has a failure rate of nearly 80%. Other fertility treatments could be developed, but most funding is directed to IVF.

Discussion points:

Girls

- Imagine you are unable to have a baby. Do you think your family/friends would try to be supportive, or would they put you under pressure to have a baby?
- Would you try IVF?
- If your sister or a close friend was unable to conceive what would you say to her?

Boys

- Should a man feel ashamed if he and his wife/partner cannot conceive?
- What would most affect your decision about whether to consider IVF?
 - The cost?
 - The number of embryos created/lost?
 - The question of what to do with “spare embryos”?

3) Are there undue risks and hazards for IVF embryos?

For IVF	Against IVF
Many 'natural' embryos die (in what is called a miscarriage) – so there is no harm if many IVF embryos die. In the natural reproductive process embryos often don't survive to be born, especially disabled ones. We are only copying nature.	Nobody knows how many naturally conceived embryos die, there is little evidence that a high proportion die. Besides, everyone dies eventually, but that doesn't give us the right to kill even the very weakest human being.
If we didn't create these embryos by IVF they would never have lived at all, so they are no worse off if we decide to use them for experiments or to destroy them.	This argument is wrong because it could apply to children of any age – parents do not have a right to destroy their children. They are not just “possessions”.
Pre-implantation genetic diagnosis (PGD) is one of the most important IVF breakthroughs. It enables some inherited disabilities to be detected, so that only unaffected embryos are implanted. When a couple know that they carry a genetic disorder, IVF can help them.	This technique involves removing cells from the embryo, and testing them. Embryos may be damaged or killed in the process. Those found to be disabled are discarded. It does not help disabled embryos. It just means destroying them and keeping only the “perfect” ones.
For many couples, IVF is the only infertility treatment that is on offer: they are not putting embryos at risk in a casual way. It is not unreasonable for them to put embryos at a certain degree of risk.	Only about 4% of embryos created by IVF survive to be born. 96% die or are killed or remain in long-term deep-freeze. There is a grossly disproportionate risk of death for embryos. Why are alternative treatments not offered?
One of the main reasons for IVF is to allow medical research on human embryos up to 14 days after fertilisation: this could enable serious diseases to be conquered.	Research on embryos was one of the main reasons, if not the main reason, why IVF was developed, but after some 40 years of research, and nearly 30 years since the first IVF baby was born, no treatment for any disease has been found by experimenting on human embryos. Besides, it is wholly wrong to use human beings in research that will end in their death.

Discussion points:

- Should we be concerned about the embryos who die in the IVF treatment process?
- What would your attitude be towards them?
- Is it right for IVF technicians to select embryos who are “perfect” to transfer to the mother's womb?
- Discuss how a couple might react if a selected “perfect” embryo turned out to have a disability when born.
- How might a couple feel about their ‘spare’ embryos stored in deep freeze?

4) What about babies who survive the embryo stage?

For IVF	Against IVF
There is a risk of disability for any baby, not just those conceived by IVF. While evidence of the long-term health risks is inconclusive, it would be wrong to restrict IVF, and deny couples the chance to have a baby.	An analysis of 25 studies published in the medical journal Human Reproduction concluded that there is a 30-40% increased risk of birth defects associated with assisted reproductive technologies, and that the information should be made available to couples seeking IVF treatment.
IVF is simply copying the process of natural conception in the womb. Conception (fertilisation) is a very simple process. It just requires the egg, at the right stage of maturity, and the sperm, which have to go through a process called 'capacitation' first, to come together in a culture medium, which is a substitute for the fluids in the mother's body.	IVF is very different from natural conception. For example, problems are emerging with the culture medium in which IVF actually takes place. Growing evidence suggests that IVF babies are likely to be small at birth. Not enough IVF babies have been followed up to know the long-term effects, but low birth weight is a significant indicator of later problems like diabetes and obesity, as well as heart and circulatory disease.
IVF practitioners are trying to improve techniques so that more embryos survive, and fewer are born with congenital disabilities like spina bifida, Downs syndrome or cerebral palsy. Mothers are offered screening tests during pregnancy so that babies with these anomalies can be detected and aborted.	Trying to ensure embryos are healthy, but then destroying them if they are "sub-standard", reduces them to the level of factory products that are scrapped if they fail quality control checks. This is a callous way to treat unborn children.

Discussion points:

- Do you think that research into health problems among IVF children should be a priority?
- What other problems might IVF children face?
- How might a person conceived using an egg and/or sperm from anonymous donors feel?
- In what ways is such IVF like adoption and in what ways is it different?

5) What about risks to the woman/couple?

For IVF	Against IVF
Women and men undertaking IVF are told of the risks to them and their embryos. People should be allowed to take reasonable risks when fully informed of the dangers of the procedures and of success/failure rates. There are special legal rules that reinforce the need for informed consent for IVF.	Women face physical difficulties and sometimes serious side-effects in stimulating the body to produce an excess of ova (eggs), retrieving them, and transferring the embryo(s) to the womb. If there is pressure on the woman from a husband/partner or others to bear a child she may feel she has to disregard her own welfare.
Some risks may arise through errors or unexpected problems that occur. These are rare as IVF in Britain is allowed only under licence from the Embryology Authority. The consent of both the father and the mother of an embryo is required before it is transferred to the womb, given to another couple, frozen or used for experimentation.	Errors have sometimes led to mixing up embryos and transferring the 'wrong' one to a woman, sometimes leading to an induced abortion. Couples may fall out and dispute the fate of their frozen embryos. More common problems include the emotional distress caused by the high failure rate of the technique.
The financial burden of IVF has been eased by wider NHS funding. About 25% of IVF treatment in the UK is now funded by the health service. There are moves to make the criteria for eligibility more uniform throughout the country.	Public funding for IVF may deeply offend people with serious moral or religious objections. Costs of treatments range from £2,000 to £4,000 per cycle and the drugs can cost an additional £1,000. Some people undergo several cycles.

Discussion points:

- IVF children have the same personal and spiritual needs as any one else. Is there a danger that they will be seen as being different?
- Where do people get their ideas about how we should treat human embryos?
- Despite its limitations as an infertility treatment, some scientists and medical researchers strongly support IVF.
Why do you think this is?
- Do you think more money and effort should be spent on researching and developing other ways of overcoming infertility?
- Do you think young people are given enough information about the things that could lead to infertility later on?

An alternative to IVF

One ethical alternative to IVF is NaProTechnology. This method of treating infertility teaches a couple how to observe and record the biological signs of fertility in their own bodies. With the help of a specially trained doctor, couples then learn to interpret these signs and learn about their own specific difficulties in conceiving. By using this approach couples are able, in all but a few cases, to find out exactly what is preventing them from achieving a pregnancy. In IVF, very little time is spent

on why a couple is infertile because the aim of IVF is to bypass the problem and remove the fertilisation process from the couple.

NaProTechnology aims to turn each infertile couple into an expert on their own fertility. This enables couples, with the help of some medication where necessary, to maximise their chances of conceiving a child.

Some key advantages over IVF:

- Overall success rates of NaProTechnology are much higher than IVF in both the USA and in the Republic of Ireland where this treatment is established.
- This treatment is much cheaper than IVF and does not involve invasive surgical procedures.
- Fertilisation takes place in the mother's body. NaProTechnology does not require any use or abuse of human embryos.
- Couples claim that this treatment enables them to take control of their infertility and those who do not achieve a pregnancy are better able to accept involuntary childlessness.

NOTES

1 Human Fertilisation and Embryology Authority (HFEA), *Patient Guide to IVF 2002*.

2 Monash IVF, at <http://www.monashivf.edu.au/about/success.html>, 2005

3 HFEA, *ibid*.

4 <http://virtual.finland.fi/netcomm/news/showarticle.asp?intNWSAID=26468#mode>

5 Monash IVF Factsheet, *Multiple Births and IVF in Australia*, http://www.monashivf.edu.au/library/factsheets/multiple_births.html

6 See <http://www.nomotc.org/library/incidence.html#incidence%20table>

7 Alastair G. Sutcliffe, *IVF Children: The First Generation*, Parthenon, London, 2002, 27.

8 In Australia and New Zealand in 2000, 26.4% of babies born by ART were of low birth weight, compared with 6.8% of all births
Dean JH and Sullivan EA *Assisted Conception Australia and New Zealand 2000 and 2001*. AIHW Cat. No. PER 22. Sydney: Australian Institute of Health and Welfare National Perinatal Statistics Unit (Assisted Conception Series No. 7), 2003, 28.

9 Jeremy Thompson, 'Level of Protection of Human Embryos', *South Australian Council on Reproductive Technology Quarterly Bulletin*, No. 15, June 2001, 6, and cf. John I Fleming, 'Level of Protection of Human Embryos – A Response', *South Australian Council on Reproductive Technology Quarterly Bulletin*, No. 16, September 2001, 5-6

10 Michelle Hansen et al., Assisted reproductive technologies and the risk of birth defects—a systematic review. *Human Reproduction* 20(2):328-38, 2005.

11 "The Medical and Surgical Practice of NaProTECHNOLOGY" available online at www.naprotechnology.com

The Society for the Protection of Unborn Children

5-6 St Matthew Street, London, SW1P 2JT

www.spuc.org.uk

Tel: 020 7222 5845

For more detailed information on IVF, NaProTechnology and related topics, visit the website or contact our enquiries officer at the above address/phone number.