

# The Human Fertilisation and Embryology Bill

April 2008

## INTRODUCTION

The Government's Human Fertilisation and Embryology Bill liberalises existing law covering the use of embryos. It applies to technologies ranging from IVF to animal-human cloning. The Bill raises the most fundamental of questions: what does it mean to be human and when does human life begin?

## Adult stem cells lead the way

Scientists around the world are increasingly moving towards non-embryonic stem cell research.

Stem cells from sources such as bone marrow and umbilical cord blood have now been used to successfully treat at least 72 conditions.<sup>1</sup> And breakthroughs in the use of non-controversial stem cells created from adult skin cells have led a number of scientists to move away from

embryonic stem cell research.

In fact, after a decade of research, *no* treatments using embryonic stem cells have been developed. Many are questioning the Bill's strong support for ethically controversial embryo research when the alternatives are now proving so successful.

<sup>1</sup> Prentice, D A et al, *Science*, 19 January 2007, page 328

## Bill legislates for designer babies

The Bill permits the manufacturing of children to use them to treat another person – so-called 'saviour siblings' – turning children into commodities.

It opens the way for wider use of an embryo screening technique called 'pre-implantation genetic diagnosis' (PGD) in which some cells of an embryo created by IVF are removed and tested for particular genetic traits, such as muscular dystrophy.

Since only an embryo which is free from any defect will be implanted, using PGD inevitably leads to most being destroyed. The destruction of embryos in any circumstance cannot be justified.

Although it bans sex-selection for social reasons, the Bill allows the use of PGD to select children whose cells or tissue could be of medical use to a sick brother or sister. Saviour siblings

will be permitted for the treatment of "serious medical conditions", a concept not defined in the Bill. Phil Willis MP, Chairman of the Joint Committee on the draft Bill, has already suggested that this could include autism.<sup>1</sup>

The Bill prevents a saviour sibling being created with the express intention of obtaining "whole organs", but this will have little effect. It will always be known that the saviour sibling is a tissue match, leaving the child open to pressure throughout its life to donate organs (or other tissue) if its brother or sister's health later deteriorates.

What will be the psychological consequences for a child who knows they were not created for their own intrinsic value but as 'spare parts' for someone else?



<sup>1</sup> *The Daily Telegraph*, 1 August 2007

# The Bill and the abortion debate

The Human Fertilisation and Embryology Bill can be amended to change the law on abortion. It is thought both pro-life and pro-abortion politicians will table amendments.

## The current law

In England, Scotland and Wales abortion is allowed up to 24 weeks of pregnancy. The consent of two doctors is required. Abortion up to birth is lawful when the mother's life is at risk, or where the unborn child has a serious handicap (however, 'serious handicap' has been taken to include treatable abnormalities such as a cleft palate). Abortion is unlawful in Northern Ireland, except for when the mother's life is at risk.

## Abortion numbers since 1967

There have been 6.7 million abortions in Great Britain since the law was introduced.<sup>1</sup> According to Government figures given in 2006, of the 5.3 million abortions to residents of England and Wales:

- 0.4% were because of risk to the mother's life.
- 1.3% were because of foetal handicap.<sup>2</sup>
- Over 98% were for social reasons.

One in five recorded pregnancies in England and Wales ends in abortion.<sup>3</sup>

## Reducing the 24 week limit?

There is a compelling case for the 24-week abortion limit to be significantly reduced.

In certain hospitals with appropriate neonatal expertise

survival rates of 46% at 23 weeks and 82% at 24 weeks have been recorded.<sup>4</sup> Pioneering neural research has called into question long-held assumptions about the foetus' lack of ability to feel pain. One world authority has argued convincingly that the foetus utilises unique neural structures which can process pain from 20 weeks or earlier.<sup>5</sup> Embryos develop rapidly: by week 6 the heart is pumping and by week 9 the baby has begun to move. The latest '4D' ultrasound technology has clearly shown the obvious human characteristics of the foetus.

## The consequences for women

After having an abortion, many women deeply regret doing so and experience psychological problems.

In a significant policy shift the Royal College of Psychiatrists recently warned that having an abortion can damage a woman's mental health and women should be told the risks before proceeding.<sup>6</sup>

It now calls for doctors who assess women for abortion to "assess for mental disorder and for risk factors that may be associated with its subsequent development." For many the decision to have an abortion is made

under pressure and with little time for careful thought. Those who pressure women in this way are morally responsible.

Christians holding to the Bible's teaching on the sanctity of life from conception oppose abortion and seek to raise awareness of what abortion really involves.

<sup>1</sup> Combined figures from *Abortion Statistics, England and Wales: 2006*, Department of Health, 2007, Table 1 'Legal abortions: resident status and purchaser, 1968 to 2006' and 'Abortions performed in Scotland 1968-2006', National Statistics release, ISD Scotland, May 2007

<sup>2</sup> House of Commons, Hansard, 8 November 2006, col.1792 wa

<sup>3</sup> *Health Statistics Quarterly*, Office for National Statistics, no.34, 2007, page 63, Table 4.1. The Government does not collect statistics on the number of embryos destroyed at the age of a few days old by drugs such as the morning-after pill.

<sup>4</sup> Memorandum 53, *Scientific Developments Relating to the Abortion Act 1967: Volume II Oral and Written Evidence*, House of Commons Science and Technology Committee, November 2007, Ev 244

<sup>5</sup> Lowry, CL, Hardman, MP, Manning, N, and Anand, KJS, 'Neurodevelopmental Changes of Fetal Pain', *Seminars in Perinatology*, 31 (5), 2007, pages 275-282 and Prof. KJS Anand, Department of Pediatrics, Arkansas Children's Hospital speaking on Channel 4 *Dispatches*, 'Abortion: What We Need to Know', 17 October 2007

<sup>6</sup> *Position Statement on Women's Mental Health in Relation to Induced Abortion*, Royal College of Psychiatrists, 14 March 2008



# Government wants to let scientists grow animal-human embryos for research

The Government wants to permit the creation of embryos which are part-human and part-animal. The Bill calls these "human admixed embryos".

In what some have labelled 'in vitro bestiality', the Human Fertilisation and Embryology Bill opens the way for animal-human hybrid and chimera embryos to be produced for research purposes.

In doing so, the Government has bowed to pressure from scientists who want to use the technique to produce large numbers of embryonic stem cells for research.

Scientists want these embryonic stem cells because they claim they can develop treatments to cure a number of diseases and replace damaged tissue. However, after more than ten years of research no successful treatments have been developed. Meanwhile, the use of adult stem cells has produced significant benefits in patients.

Previously the Government had outlined in a white paper its intention for a general ban on animal-human combinations. But the Bill presented to Parliament opens up the possibility of a variety of unnatural animal-human embryos for research.

The form most sought by scientists is a cytoplasmic hybrid (cybrid). Cybrids are created by removing the nucleus from an animal egg cell and replacing it with a human nucleus. The resulting embryo will genetically have one human parent and one animal parent, with around 99% of the DNA coming from the human nucleus. A small amount of animal DNA will remain in the egg in the form of 'mitochondrial' DNA. In an egg

mitochondria are contained outside the nucleus. The mitochondria carry a small amount of genetic information. Their function is to produce energy so that the egg can develop.

The Government is also promoting the creation of other forms of hybrid and chimeras. Chimeras are created by bringing together a set of human cells and a set of animal cells during early stages of development. The resulting embryo will be a patchwork of human and animal. Hybrids are created by mixing human DNA with animal DNA, with the resulting embryo being a new part-human species. True hybrids will be 50% animal and 50% human – illustrating that 'human admixed embryo' is a grossly misleading term.

By succumbing to the demands of scientists working with embryonic stem cells, the Government is blurring, legally and morally, what it means to be human. The distinction between human and animal, upon which human rights and human dignity depend, is being eroded. The very image of God in humanity is being denigrated through splicing it with genetic information from animals. Furthermore, these embryos will be destroyed on their fourteenth day of existence at the latest.

Even if the moral objections are left to one side, there are numerous scientific reasons for opposing the development of animal-human embryos. Crucially such embryos are not likely to develop in the same way as human embryos, and so will yield little knowledge of the process by which human stem cells develop.

**Some have labelled this 'in vitro bestiality'**

## CHIMERA



'Geep' - a goat/sheep chimera

## HYBRID



'Zorse' - a zebra/horse hybrid

## Why do scientists want to create animal-human embryos?

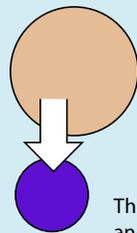
Scientists want to mix human nuclei with animal eggs because there are not enough human eggs to produce the volume of embryonic stem cells they want for research.

They want the embryonic stem cells because they claim it should be possible to turn them into a 'repair kit' for the body, healing damaged tissue and disease.

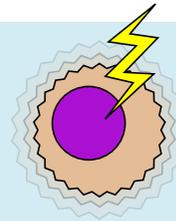
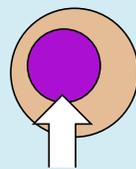
But after more than a decade of work, no successful treatments have been developed from embryonic stem cell research. Meanwhile, non-embryonic stem cells, for example from umbilical cord blood, have already been used successfully in at least 72 different treatments worldwide.<sup>1</sup>

<sup>1</sup> Prentice, D A et al, *Science*, 19 January 2007, page 328

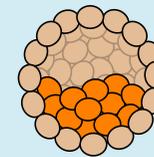
## How cybrids are created and used



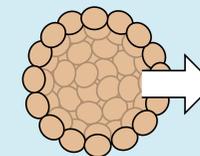
The nucleus is removed from an animal egg and replaced with a human nucleus. The nucleus of a cell contains 99% of its DNA.



The cybrid is stimulated and begins to develop.



The embryo, which is largely human, grows and develops stem cells.



The stem cells are removed and used for stem cell research. The embryo is destroyed.

# Bill opens door to reproductive cloning

Human reproductive cloning, previously banned in the UK, could become legal using new Government powers. The Bill allows the Government to introduce regulations in the future which permit a specific form of human reproductive cloning. Previously, a cloned human embryo had to be destroyed at 14 days, but this new Bill could change that in some circumstances.

The Government wants to permit procedures which would prevent the transmission of mitochondrial diseases from parent to child. Mitochondria, which carry a small but vital amount of genetic information, are contained within a human egg outside the nucleus. The genetic information in a child's mitochondria comes only from the mother. If a mother has a mitochondrial disease, any child she has is likely also to carry the disease.

One suggested method of avoiding such diseases would create a child with three genetic parents. It involves removing the nucleus from a fertilised egg which has diseased mitochondria, and placing it into a healthy egg from a second woman which has had its nucleus removed. The result of this process would be a child which has most of its DNA from its mother and father, and a small amount of DNA from the mitochondria of the second woman.

Creating a child with three parents raises many moral and legal issues. The psychological and medical implications for the resultant child cannot

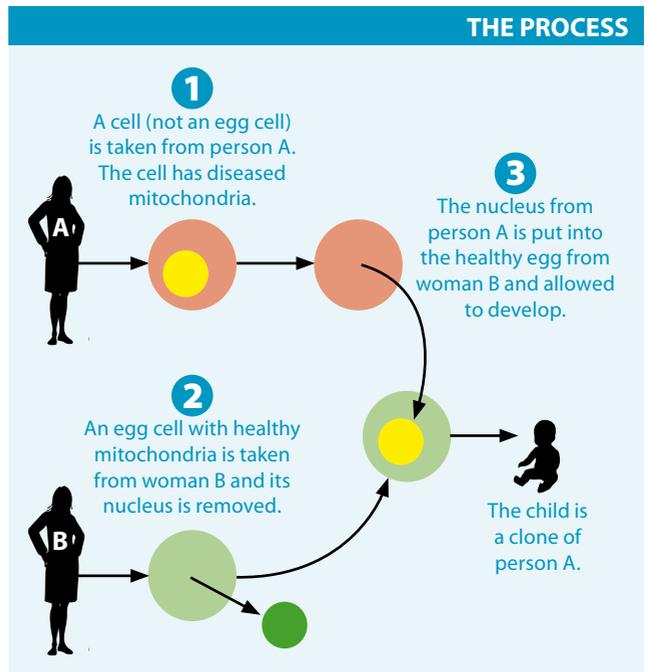
be predicted, and may only become apparent in subsequent generations.

Worryingly, the order-making power contained within the Bill would allow the Government to introduce regulations to allow any method of avoiding the transmission of mitochondrial disease. Future regulations could therefore permit a form of human reproductive cloning. With the stated aim of avoiding the transmission of mitochondrial disease, regulations could allow the nucleus of any cell from the body of a 'parent' to be placed into a donated egg. This process is called somatic cell nuclear transfer. The result would be a cloned embryo, whose nuclear

DNA is identical to that of the 'parent'.

The Bill also repeals the 2001 Human Reproductive Cloning Act which outlaws this procedure. It therefore moves us from having a clear prohibition in primary legislation to allowing one form of reproductive cloning by secondary legislation.

The acceptance of treatments for mitochondrial diseases which manipulate genetic information represents a dangerous legal anomaly, and it is not difficult to envisage a situation in the future when claims are made for the acceptability of other genetic 'treatments'. The door, once opened for one form of reproductive cloning, might be very difficult to close.





## No need for fathers

The Government is legislating against the importance of a father to a child's wellbeing.

Under the current law doctors have to consider "the need of the child for a father" when carrying out in vitro fertilisation (IVF) treatment.

The Human Fertilisation and Embryology Bill as amended in the House

of Lords removes this requirement, replacing it with the vague notion of "supportive parenting".

The move will allow single women and lesbians greater access to IVF treatment.

This flies in the face of the weight of evidence which emphasises the important role a father plays in a child's development.

## Hunt test

The 'Hunt Test' would require scientists seeking a licence to demonstrate that research using human embryos or animal-human embryos is a last resort, that there is no other option. Specifically, this would require that alternatives such as non-embryonic stem cells (e.g. from umbilical cord blood) be used instead when possible.

Such an amendment to the Bill would prevent human embryos having a lesser status than animals in law. Existing legislation covering animal experimentation requires licence applicants to show that there is no "reasonably practicable method not entailing the use of protected animals".<sup>1</sup>

The amendment captures the essence of Government minister Lord Hunt of Kings Heath's assertion in 2001: "...if and when research into adult cells overtakes research using embryos: embryonic research would have to stop because the use of embryos would no longer be necessary for that research".<sup>2</sup>

The Hunt Test would provide a more rigorous framework for research and recognize public concern about the destruction of human embryos in experiments.

<sup>1</sup> Animal (Scientific Procedures) Act 1986, Section 5 (5)

<sup>2</sup> House of Lords, Hansard, 22 January 2001, col. 120