



# Ethics in Brief

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## Embryos and Genes, Clones and Cybrids - Aspects of the 2008 Human Fertilisation and Embryology Act

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*The 2008 Human Fertilisation and Embryology Act contains some controversial legislation, especially that relating to new lines of research on human embryos. In order to understand fully the contents of this Act it is necessary to go back to the first HFE Act in 1990 which followed from the recommendations of the Warnock Committee. Those recommendations arose from a particular view of the moral status of the early embryo on which all subsequent legislation has been based. Changes in societal attitudes and progress in science have tended to reinforce this view, leading to increasing liberalisation in what is permitted. Establishing a Christian ethical standpoint is difficult and thus there is a variety of Christian opinions about these issues.*

### Introduction

The 2008 Human Fertilisation and Embryology Bill (now Act) received Royal Assent on 13th November, 2008. Its passage through Parliament was accompanied by extensive lobbying both by opponents and by supporters. To understand the often heated debate we must first go back to July 1978 when Louise Brown, the world's first 'test-tube baby' was born. The Government convened a committee, chaired by Mary Warnock, charged with making recommendations about the regulation of *in vitro* fertilisation and related issues. The committee reported in 1984<sup>1</sup> and its recommendations led to the Human Fertilisation and Embryology Act (1990). The Act set up the Human Fertilisation and Embryology Authority (HFEA) and provided a framework for its work. A key factor, both then and now, is the Committee's understanding of the moral status of the early human embryo: **the early embryo is not yet a person but nevertheless should not be regarded as just a ball of cells. Thus 'the embryo of the human species [should] be afforded some protection in law'**. There was however a minority of the Committee that ascribed full human personhood to the early embryo.

The Act also permitted research on human embryos. These could be created specifically for research or could be spare embryos donated by couples undergoing IVF. Research was limited in three ways. First, it was only allowed during the first 14 days after fertilisation; embryos must then be destroyed. Secondly, no embryo that had been the subject of any experiment should be introduced into the womb. Thirdly, the research was limited to problems related to human reproduction, including infertility and congenital disease. Again, there was a minority of the Warnock Committee, this time a substantial one, which opposed the use of embryos in research.

The committee also made recommendations for regulation of IVF treatment. Most of these recommendations were incorporated into the 1990 Act. Thus the Act required that IVF clinicians consider the welfare of the child to be born, including a child's need for a father.

Between 1985 and 1990, Warnock's proposal to allow research on embryos met with strong opposition, both within and outside Parliament although the latter was not as well coordinated as in 2001 or 2008 (see below). In Parliament this opposition was apparent in the large majority that supported the second reading in 1985 of Enoch Powell's Private Member's Bill, *Unborn Children (Protection)*, aimed at prohibiting research on human embryos; it was also evident in the text of a Government White Paper in 1987. However by the time the HFE Bill itself was published and debated, many of its opponents had changed their minds, probably as a result of lobbying by organisations representing the scientific and medical communities.<sup>2</sup>

### **2001: the Act is modified**

In 2000, the Parliamentary Committee on Science and Technology suggested that changes were needed in the terms of the Act. The main issue was an extension of the purposes for which embryo research was allowed, including 'increasing knowledge about the development of embryos, increasing knowledge about serious disease and enabling any such knowledge to be applied in developing treatments for serious disease'. Although not immediately apparent in the wording, the changes were to allow research on human embryonic stem cells (ES cells), perceived as having great potential in regenerative medicine. Further, it was proposed that in addition to research on ES cells with 'spare' embryos from IVF, research on ES cells created by cloning ('therapeutic' cloning) should be permitted.

Prior to and during the parliamentary debates, the proposals were open to public consultation. Opposition to the changes, effectively coordinated *via* the internet, was generally based on the view that human life is sacred from fertilisation<sup>3</sup> onwards. If it was bad enough to use embryos for research it was even worse to create them (by cloning) specifically to use them as sources of stem cells. Human embryos would just be commodities. Supporters of the changes included groups and

societies representing the interests of patients with degenerative diseases and many clinicians and medical researchers. A MORI poll indicated that about 80% of the British public supported the use of human embryos for research on ES cells. The changes were approved by Parliament in 2001. Further, in order to close a possible loop-hole, Parliament also passed the Human Reproductive Cloning Act which forbids reproductive cloning.

The HFEA has since granted a small number of licences to undertake research on human ES cells, including the creation of cloned embryos for this purpose. It has also interpreted the regulations to allow the pre-implantation testing of embryos in order for a couple to have a child who can donate stem cells to a pre-existing sibling ('saviour siblings'). Although the number of saviour sibling cases has been small, they have attracted some very critical comments and not just from those opposed to embryo research in general. It is said that this procedure makes the new child a mere commodity, born just for its stem cells. Not surprisingly, parents of saviour siblings deny this.<sup>4</sup>

### **The 2008 Bill/Act**

The scene is thus set for the 2008 Bill. Scientific progress has continued. Furthermore, societal attitudes have changed since the original HFE Act in 1990. There is a widespread, more aggressive secularism, often, in the media at least, mixed in with a strong dose of post-modernism. There are changes in perception about what constitutes a family, with arrangements previously regarded as unconventional now being more widely accepted. In ethical decision-making, rights have become an increasingly important factor, notwithstanding Mary Warnock's perceptive warning.<sup>5</sup>

Parliament regarded changes in both science and society as extensive enough to warrant a new Bill. As mentioned already, the Bill's passage through Parliament was accompanied by extensive lobbying, often as in 2001,

coordinated *via* the internet. This was focussed on four general issues: abortion (which lies outside the scope of this article), regulations concerning the welfare of the child born after IVF, genetic selection of embryos (including saviour siblings) and the use of 'admixed' embryos in research. Other issues, such as the creation of artificial gametes for research purposes, attracted less attention.

### **Welfare of the child**

One of the changes under this heading was replacement of the requirement to consider a child's need for a father with a requirement to consider the child's need for supportive parenting. This was a rights-based decision: the right of a woman with no man in her life, whether she is single or lesbian, to have a child,<sup>6</sup> an event that actually requires the participation of a man (albeit here just as a sperm donor). Rights-based ethics thus overrides all other considerations.

### **Genetic selection**

Although the HFEA had permitted, since the late 1990s, genetic selection in relation to genetic illness and, under the 2001 amendments, the creation of saviour siblings, it was thought necessary to strengthen the Authority's position and to establish further guidelines. One of the new guidelines was that embryos that are known to have an abnormality that may lead to serious illness or disability 'must not be preferred to those that are not known to have such an abnormality'. This has caused disquiet especially amongst deaf people who wish, if circumstances permit, to be able to select an embryo that will develop into a deaf child.<sup>7</sup>

### **Admixed embryos**

Arguably the most controversial part of the Act was to authorise the HFEA to grant licences for research on admixed embryos. These fall into four classes:<sup>8</sup>

1. Cybrids: The egg of another mammalian species is emptied of its nucleus (which contains the bulk of the genetic material) and the nucleus of a human cell is inserted into it. About 20 non-

human genes remain; these are contained in sub-cellular structures called mitochondria and have the same function as the directly equivalent genes in humans. Cybrids are needed because of the shortage of donated human eggs. Without eggs, research on ES cells from embryos created by cloning cannot proceed.

2. GM human embryos: Embryos into which a gene/genes from another species has/have been inserted.

3. Chimeric embryos: Human embryos into which one or more non-human cells have been inserted.

4. True hybrids: Embryos resulting from the fusion of a human gamete with a non-human gamete. Currently, no need for the last category is envisaged but it was considered wise to 'future-proof' the legislation. For all these four categories, research must not go on past the 14-day stage (with the exception of stem cell lines established, *e.g.*, from cybrid embryos).

Cybrids had already entered public consciousness. In 2006, scientists applied to the HFEA for permission to work with cybrid embryos. In January 2007, the HFEA announced that it would at least temporarily refuse permission while it considered the proposals in detail. One of the factors in the discussion was whether this research was permissible under the 2001 revisions. However, in mid-2007 the decision was effectively taken out of the HFEA's hands when members of the Parliamentary Select Committee on Science and Technology indicated that they regarded any further delay as an intolerable block to research progress. Permission was thus granted to two laboratories. The HFEA had clearly been placed in a difficult position made even more difficult when the new Bill was published in detail, suggesting that work with cybrid embryos did indeed require new legislation.

### **Rights and wrongs?**

Legislation on embryos *in vitro* has obviously become more liberal, both in what is written and in its interpretation. We have moved from the creation of spare embryos in IVF, to research on

embryos, to genetic selection, to cloning and now to cybrids. What are we to make of this? Is this a clear example of a slippery slope down which we are gathering speed? What factors help us to make ethical decisions?

### **Does the Bible help?**

It takes very little thought to realise the Bible is of no *direct* help here. Nothing was known about pre-implantation embryos in biblical times. Conception, a term much used amongst campaigners, meant becoming pregnant and did so for many centuries after the biblical era. The absence of direct guidance is of course not unique to this topic. The problem has been discussed in general by several modern authors. Richard Hays<sup>9</sup> warns against trying to find proof texts to support any particular viewpoint on a topic about which the Bible is silent, including termination of pregnancy (and I add, the moral status of the early embryo). Thus he criticises the use of Psalm 139: 13-16 to 'prove' that abortion is wrong. Nevertheless he suggests that the tenor of scripture as interpreted in Christian tradition is opposed to abortion. He, along with Brock<sup>10</sup> and Stott,<sup>11</sup> emphasises that in applying the Bible to our modern context we do so as part of the ongoing community of disciples. These decisions are not made in isolation either from tradition or from each other. We work together to apply the general moral guidance of the Bible in our contemporary society.

However, this does not mean that all Christians will agree with each other. Hays presents a very telling example of differing but equally sincerely held views. At the beginning of the 1991 Gulf War, Billy Graham went to the White House to pray with President George Bush (Snr) as Operation Desert Storm was launched. A few hours earlier, the presiding Bishop of the President's own Christian denomination had joined a candlelight vigil outside the White House in order to pray, not for success in war but for peace. 'Which group of Christians', asks Hays, 'those inside the White House or those outside the fence, had rightly discerned the Word of God?'

### **Does science help?**

Human pre-natal development is not a steady uninterrupted process. For about 7-10 days after fertilisation the embryo undergoes cell divisions and then some re-organisation to form the blastocyst, the stage at which ES cells are obtained. A pregnancy is only established if the blastocyst implants into the wall of the uterus. A large proportion of the cells in the blastocyst form the placenta. Only the ES cells themselves go on to form the foetus. Any genetic or developmental continuity from fertilised egg to foetus therefore only involves a sub-population of cells in the blastocyst. Further, the success rate for implantation is low, achieved by 20-30% of human blastocysts. Implantation is a specific 'bottle-neck' in development, particularly emphasised in those mammals in which implantation is delayed. Further, in humans, completion of implantation more or less marks the end of the embryo's potential for twinning. These features of early embryonic life led the majority of the Warnock Committee to conclude that the early embryo should not be invested with personhood.

### **So, is there a Christian view?**

Actually, as I have written elsewhere,<sup>12</sup> there are several Christian views.<sup>13</sup> At one end of the spectrum are those who hold that there is no reason to suppose that the sanctity and dignity of human life do not extend backwards into pre-natal and pre-implantation life. It is pointed out that every new embryo is genetically unique and that genetic uniqueness carries on through to the born baby (with the rare exception of the formation of identical twins). Psalm 139 is often quoted in support of this position, despite the psalmist's total ignorance of fertilisation and early embryonic life. The early embryo is regarded as the weakest of our neighbours whom we are ordered to love. Thus, there can be no such thing as a spare embryo. All research on embryos is wrong. If one reads the material from some of the lobbying groups, especially those of either a conservative evangelical or Roman Catholic persuasion, the impression is given that this is **the** Christian viewpoint.<sup>14</sup>

We must note that those who hold this view are not saying that the early embryo exhibits all the characters of a competent human being, amongst which we include abstract thought, moral reasoning and the spiritual attributes associated with being made in the Image of God. It is the continuity that is emphasised. The embryo is a human person in the making and as such should be granted the same respect as a born human. The rather simplistic question 'When does human life begin?' is thus not relevant. The very early embryo is human life and will gradually acquire the qualities that we associate with personhood.

Nevertheless, the question 'When does human life begin?' is widely used in this debate. I would prefer to re-frame the question as 'At what stage do we grant to the developing human the moral status of a born human?' What criteria should we use in making this decision? If we want to wait until the features of a fully competent human are acquired, then we would exclude babies and yet we are in no doubt that a newborn baby is a little person. In truth, it is probably impossible to identify a significant developmental stage at which we say that the developing human is now a person. Based on this uncertainty, some people use the Precautionary Principle to oppose research on human embryos. Since we do not know when personhood is attained, then it is better to play safe and to protect the embryo from the earliest stages of its existence, thus avoiding the possibility of committing a 'grave moral wrong'.

At the other end of the spectrum are Christians who believe that our overriding motivation in this area is to care for existing humans, again citing the commandment to love our neighbour as ourselves. This will impel us to relieve or eliminate suffering and to engage in healing and restoration. Pre-implantation embryos are not invested with personhood and are not regarded as neighbours. Often, the basic facts of early embryonic development are cited in support of this view. The high wastage rate at the implantation stage is noted: if God (or nature) does not treat the blastocyst as precious, why

should we regard it as sacred? Even if a gradualist position is adopted, the pre-implantation life of the embryo is excluded because implantation is regarded as a major 'phase-change'. Those who hold this position tend to agree with organisations such as patients' groups which support research on human embryos and stem cells. This view is set out very fully in a recent book by the American theologian Ted Peters<sup>15</sup> but is also expressed by several other Christian authors.<sup>16</sup>

However, this is not the whole story. Neil Messer, asks us to re-consider the relevance of the question '*Is the embryo a person?*' Whatever we believe about the early embryo, the task is to apply our ethical thinking, based in Christian virtue, to deciding whether what we are now doing with embryos is right or wrong. It is still entirely possible that some will, along with Peters<sup>17</sup> and others, support current developments in stem cell research. However, others may want to draw a different line. This is beautifully discussed by biologist-turned-theologian Celia Deane-Drummond.<sup>18</sup> While not ascribing personhood to the early embryo, she suggests that it is not virtuous to treat it as a mere commodity. This includes creating embryos, e.g. by cloning, specifically to use as sources of ES cells. However, she accepts that spare embryos are created during most IVF procedures (in a sense mimicking the natural wastage rate at the blastocyst stage). Since these already have in her words, a 'doomed existence' one might find their use in stem cell research acceptable.

My own position on these issues is, I confess, not completely constant.<sup>19</sup> I attempt to use a virtue-ethics approach in my thinking about these issues. It is not easy. I do not regard the early embryo as a person and agree that we have a mandate to heal and restore existing humans. I therefore tend to support or at least accept current developments. However, I also have a concern about commodification of the human embryo, which from time to time causes me to have reservations. This brings me to a final plea: that whatever our opinion, we recognise

patiently and lovingly that others, equally committed to living as authentic followers of Jesus in the twenty-first century, may reach a different conclusion from our own.

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### Acknowledgements

I am grateful to Ted Peters for our helpful recent conversation, to John Searle and Suzi Leather for ongoing discussion and to Philippa Taylor who challenges my view of the early embryo every time we meet.

### End notes:

1. M. Warnock, *Report of the Committee of Inquiry into Human Fertilisation and Embryology* (HMSO, 1984).
2. M. Mulkey, 'Political parties, parliamentary lobbies and embryo research', *Public Understanding of Science* 4 (1995), 31-55.
3. Many people use the term *conception*. In my view, this is **very** confusing. The term dates back to a time before the existence of the human egg was even thought of and when the processes of fertilisation and early embryo growth were totally unknown. *Conception* was the start of pregnancy which is not the same as fertilisation.
4. Whatever our readers' views of saviour siblings, I suggest that they will find Jodi Picoult's novel *My Sister's Keeper* (Atria Books/Hodder, 2004) very thought-provoking.
5. Warnock states that a rights-based ethics can too easily weaken our concept of right and wrong. She is convinced 'that there cannot be a morality founded on the concept of rights'. M. Warnock, *An Intelligent Person's Guide to Ethics* (Duckworth, 1998).
6. A. Smajdor, 'The changing face of IVF regulation', *Expert Reviews in Obstetrics and Gynecology* 3 (2008), 433-436.
7. See [http://bda.org.uk/Human\\_Fertilisation&Embryology-i-102.html](http://bda.org.uk/Human_Fertilisation&Embryology-i-102.html)
8. For a fuller description see <http://royalsociety.org/document.asp?tip=0&id=7573>
9. R. Hays, *The Moral Vision of the New Testament* (T & T Clark, 1997).
10. B. Brock, 'What role ought the Bible to play in Christian ethics? "Developing a hermeneutic" vs. "Immersion in a tradition"', *Ethics in Brief* 12.2 (2007).
11. J.W.R. Stott, *New Issues Facing Christians Today* (Zondervan, 1999).
12. J. Bryant and J. Searle, *Life in Our Hands: A Christian Perspective on Genetics and Cloning* (IVP, 2004).
13. See also the discussion on the Diocese of Oxford's website: Rebecca Paveley, *Hope for the Sick or Frankenstein Science?* <http://www.oxford.anglican.org/page/6545/>
14. See also A. Sutton, *Christian Bioethics: A Guide for the Perplexed* (T & T Clark, 2008).
15. T. Peters, *Sacred Cells? Why Christians Should Support Stem Cell Research* (Rowman & Littlefield, 2008).
16. G. Jones, *Designers of the Future - Who Should Make the Decisions?* (Monarch Books, 2005).
17. N. Messer, *Christian Ethics* (SCM Press, 2006).
18. C. Deane-Drummond, *The Ethics of Nature* (Blackwell, 2004).
19. As is apparent in some of my writing: e.g., J. Bryant in N. Bovey, *God, The Big Bang and Bunsen-Burning Issues* (Authentic Media, 2008).

### For further reading

- Ted Peters *Sacred Cells? Why Christians Should Support Stem Cell Research*, Rowman & Littlefield, 2008.
- Agneta Sutton, *Christian Bioethics: A Guide for the Perplexed*, T & T Clark, 2008. These two books represent the two ends of the spectrum on Christian views about stem cells and related issues. See also the review by John Bryant of Sutton's book in *Third Way*, November 2008 (<http://www.thirdwaymagazine.com/446>)
- John Bryant and John Searle, *Life in Our Hands: A Christian Perspective on Genetics and Cloning*, IVP, 2004.
- Richard Hays, *The Moral Vision of the New Testament*, T & T Clark, 1997.
- Rebecca Paveley, *Hope for the Sick or Frankenstein Science?* <http://www.oxford.anglican.org/page/6545/>
- Jodi Picoult, *My Sister's Keeper*, Atria Books/Hodder, 2004. A powerful and thought-provoking novel about the life of a saviour sibling.

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