Embryos, stem cells, morals and meaning.

Presentation at the Federal Parliamentary Library 28th August 2002

Gregory K Pike, Deputy Director, Southern Cross Bioethics Institute

The intensity of the debate surrounding the destruction of human embryos in scientific experiments should surprise no one. For encapsulated within this debate are many deep questions. For example, what is the nature, identity and beginning of the human person? What are the limits, if any, that communities should apply to the scientific/technological enterprise in the new biotechnological era? And how clearly can we see where this enterprise will lead? To what extent can the desire to alleviate human suffering justify the means to achieve that goal? Is such a calculation possible? Should it even be attempted as a meaningful method of determining what is ethical? What are our fundamental shared human values? In this nation? Internationally? Every which way you look at it embryonic stem cell research is stirring up all manner of conviction, passion, belief, worldview, ethic and ideal.

Yet, some have called this issue a no-brainer, even though it has taxed the minds of many, and commanded the attention of legislatures, national and international bioethics bodies, medical associations, the media, and numerous writers of diverse persuasions worldwide. Some have tried to frame the debate as one between science and religion, at times stimulating an unwelcome sectarianism. And others see this as simply more ammunition in a cultural war. As Simon Cooper, writing about the biotech revolution for Arena Magazine, says:

> Depending on where you stand at any particular moment, you can suddenly find yourself being accused of being a strict Catholic ideologue, homophobic, anti-progress or alternatively a crass utilitarian, a neo-Nazi eugenicist, a corporate flunkey, one of the bad guys in Brave New World and so on.

The stem cell debate is poignant as an example of the kinds of biotech issues that are here and yet to come. It is a forerunner for new questions like the genetic modification of humans, asexual reproduction, hybridisation with other species, nanotechnology and the interfacing of humans with machines. At the heart of many of these issues lies the question of the nature of human beings, and this is no less true of the debate about destroying human embryos for research.

A definition of what it means to be human informs what humans may or may not do, and yet such a definition is hard to pin down. As Alexander Pope in his 'Essay on Man' pens, we are not only 'darkly wise and rudely great', but also 'the glory, jest and riddle of the world.' Are humans defined by their genes? By their function? By their cultural heritage? By membership of the species homo sapiens? By choices, moral and otherwise? By interaction with their environment? Perhaps by all of these. One thing is for sure, defining humans primarily by their developmental stage or by their size is not only thin on meaning but has implications for how humans are treated at developmental stages other than the earliest ones occupied by the embryo. For if size really counts, perhaps newborns are proportionately of less moral worth than adults. Repeated reference to the small size of the human embryo, or its number of cells, as if size equals significance, underscores if anything the arrogant power of the strong over the weak, the big over the small.

What do we know about human embryos, and what can be agreed upon? We know that embryos are a new entity, that they are human, and that they largely direct their own development if provided with an appropriate environment. Their nature as an individual entity is not diminished by their capacity to twin. Given what is now known about asexual reproduction in mammals, that is cloning, it would not be surprising to discover that twinning involved a form of asexual reproduction. It has been suggested that the phenomenon of twinning proves that an individual cannot have existed prior to the event. But this argument is a bit like saying that 'because we don't

know if there is one body or two bodies, perhaps there is nobody.' The capacity to twin, whether genetically or environmentally triggered, is no proof of the non-existence of an individual. One can give rise to two either by one ceasing to be and two coming to be, or one continuing and producing a twin by asexual means. Likewise, two can give rise to one in recombination, by one ceasing to be. It has been suggested that 14 days of age is significant because twinning and recombination can no longer occur after this time. But this is not necessarily true, since 'Siamese' twinning and 'foetus in foetu' can occur after implantation and up till one month of age.

The 14 day limit set in the current *Research Involving Embryos and Prohibition of Human Cloning Bill 2002* is patterned on the UK model that was developed in the early eighties by the Warnock committee. In that report the committee made the following statement.

> While, as we have seen, the timing of the different stages of development is critical, once the process has begun there is no particular part of the developmental process that is more important than another; all are part of a continuous process, and unless each stage takes place normally, at the correct time, and in the correct sequence, further development will cease. Thus biologically there is no one single identifiable stage in the development of the embryo beyond which the in vitro embryo should not be kept alive. However we agreed that this was an area in which some precise decision must be taken, in order to allay public anxiety.[1]

As Clarke and Linzey note in their critique of Warnock:

> … this is a clear case of extrinsic criteria being used to solve a problem which requires the determination of firm and unequivocal intrinsic criteria.[2]

It is an example of a shift from the acceptance of the inherent moral value of human life to one which can be conferred if desired, or alternatively, denied if desired.

The Warnock's committee's statement was cast in sharper relief by comments made by Professor Martyn Evans at the *Therapeutic Cloning for Tissue Repair Forum* held in Canberra in 1999, at which I was present. Professor Evans said that the decision to choose 14 days of age had more than anything else to do with the fact that this was about the length of time that human embryos could be kept going *in vitro*. Thus did expedience rather than scientific fact or philosophical deliberation drive the setting of this arbitrarily limit before which it was permissible in the UK to destroy embryonic human beings.

During evidence before the 1986 *Senate Select Committee on the Human Embryo Experimentation Bill 1985* an exchange took place between Senator Walters and Dr Alan Trounson that underscores the difficulty inherent in setting limits base on arbitrariness.

> Senator Walters – Can you tell me the difference between your view on a 13-day embryo and your view on a 14-day embryo?
>
> Dr Trounson – It is an arbitrary situation. I see it as a continuum and I do have a problem with suddenly saying, between one day and another, that I should and I should not study them … I do not see that there is a magical change between day 13 and day 14. It just happens to be an arbitrary time. At that time the embryonic shield is definitely visible there. I would accept that that is a reasonable time.
>
> Senator Walters – At present, but new technology could make that visible earlier, could it not?

---

[1]Warnock, M (Chairman) *Report of the Committee of Inquiry into Human Fertilsation and Embryology*. (London: HMSO Department of Health and Social Security) Cmnd. 9314, p. 65.

[2]Clarke, P.A.B. and A. Linzey, *Research on Embryos: Politics, Theology and Law*. Lester Crook, London, 1988, p. 26.

> Dr Trounson – It is like a slippery slope. I am prepared to come back and argue with any committee if suddenly we get the answer to the whole of cancer or of the whole of every debilitating disease by studying 200 28-day embryos. I would be prepared to put that to the appropriate ethics committee – Federal or whatever – and allow it to make a decision on it. It would have to be a monumentally important project to want to argue out in that area.
>
> Senator Walters – How far would you go? You say 28.
>
> Dr Alan Trounson – If it solved every disease on the earth ---
>
> Senator Walters – How far would you go?
>
> Dr Trounson – I would do **anything** to cure disease.[3] [Emphasis added]

The philosopher Louis Guenin recently had a paper published in the prestigious international journal *Science* in which he proposed that so-called spare or unwanted human embryos in IVF programmes should be renamed *epidosembryos*, from the Greek *epidosis*, meaning 'for a beneficence to the common weal' that is for the welfare of the community. An important point arises from his analysis. Guenin has used the power of a shift in semantics in an attempt to change the moral status of the embryo. He simply defines unwanted embryos differently from wanted ones, thereby making the embryo's moral status dependent upon its utility. Just as the Warnock committee sought and used extrinsic criteria to justify killing human embryos in scientific research, so Guenin uses the extrinsic criteria of being unwanted as his justification. But this is faulty reasoning, for the nature of a wanted or an unwanted embryo is one and the same. Their essential character is independent of utility, and no amount of semantic game playing can change that. Such an analysis would never be applied to any other human being, so why should it apply to embryos?

The current moral status of one of the 70,000 frozen human embryos in Australia is no different from the moral status of an embryo nurtured and implanted in it's mother's womb. There can be no doubt that we now face a moral quandary that would not exist in its current form were it not for the decision to freeze human embryos. For these embryos, we cannot turn back the clock. So, what are their options? First, to be donated to another couple for implantation. Second, to be kept in deep freeze *ad infinitum*. Third, to be used while alive in a research programme, thereby being destroyed. And fourth, to be allowed to die without further intervention.

Much has been made of the fact that by law in several states embryos can only be maintained in deep freeze for 5, 10 or 15 years, after which time they must be thawed and hence allowed to die. If they are going to die anyway, why not use them for research? There are several reasons why this should not happen. First, the moral difficulties that are inherent in the *ex vivo* production of human embryos and their freezing cannot somehow be balanced up by taking the further step of intentionally killing embryos for scientific or medical gain. While there may be some collective bad conscience for allowing 70,000 embryonic human beings to exist in suspended animation, it will not be salved by using them as research material. Our community has made for itself a 'Sophie's Choice', difficult enough to challenge the Wisdom of Solomon.

Second, given our dilemma, there nevertheless remains an option that respects human embryos and does not lead us into moral and perhaps legal difficulty. However, this option will not allow access to live human embryos because it relies on the important moral distinction between allowing to die and intentional killing. In ethics as in law this distinction is crucial. We would never allow the intentional killing of any individual because 'they are going to die anyway'. Allowing to die happens all the time at the end of life, when treatment is futile or burdensome disproportionate to benefit. In such circumstances, machines can be turned off and treatment stopped, and the person

---

[3] *Senate Select Committee on the Human Embryo Experimentation Bill 1985* (official Hansard Report) 1986, Volume 1, 108-109

allowed to die from the underlying condition, because keeping them attached to machines may not only be futile and burdensome, but also contrary to human dignity. This is not intentional killing. Where frozen embryos are concerned, the analogy holds. Embryos in deep freeze that have no prospect of transfer to a woman's womb are being artificially maintained and ought to be allowed to die without interference. This is quite different from the proposal before parliament to kill embryos for research purposes.

Any difficulty with this analogy really only becomes apparent if no moral status is afforded the human embryo. But if the moral status of embryos as embryonic human beings is acknowledged, then the analogy with the end of life has powerful import. And if the distinction between allowing to die and intentional killing is lost at the start of life, we may well lose it at the end of life, and then even for selected circumstances in between.

Another important aspect of this debate is accuracy, which is related to ethics in the principle of truth telling. At times the debate has been somewhat like a Mexican standoff between embryonic stem cells and adult stem cells. Whereas at this point in time it is clear that adult stem cells have more clinical applications and certain promising properties, work on embryonic stem cells may likewise advance even though there are problems at this stage with possible clinical applications because of tissue incompatibility and risk of teratoma formation. But to frame the debate this way alone misses the primary ethical issue at hand and forces a decision based on possible benefits. The reality is that one can always come up with benefits based on unethical means. Organ procurement from unwilling subjects, say one kidney, would solve kidney transplant shortages overnight. But we would never consider treating human beings that way. Fortunately, in the stem cell debate we have a good alternative. What's more, if a particular unethical means leads to a major treatment option, there will be many in the community who will then go through agonising decisions about whether to accept a treatment which they consider to be based on unethical means.

One also has to be cautious about the claims made for stem cells. For example, suggestions that cures for Alzheimer's disease are imminent, when we still do not know its cause or causes, are not only inaccurate, but unfairly raise the hopes of those involved. There have been way too many emotive appeals in favour of embryonic stem cell research. But in reality, superman may never fly again. Making the most of well-known celebrities, and continually referring to those with various illnesses is a risky business, because we just don't yet know whether embryonic stem cell research will produce what has been claimed. The benefits of gene therapy, for example, have been close to non-existent, yet some 15 years ago it was claimed as the great new medical hope.

There is another aspect of this debate in which accuracy has been economised. Most of the discussion has been framed around embryonic stem cells and medical cures. However, the Bill before parliament allows the use of human embryos for a range of purposes, and this is spelled out in the accompanying *Explanatory Guide*[4]. Those uses would include not only the derivation of stem cells, but also examination of the effectiveness of new culture media used in Assisted Reproductive Technology (ART) practice, the training of clinicians in micro-surgical ART techniques, the examination of gene expression patterns of developing embryos, basic research on embryonic development and fertilisation, and the improvement of ART techniques.[5]

Although not mentioned in the *Guide*, embryos could also be used for toxicology studies and the testing of new drugs, either directly or on the stem cell lines derived from particular embryos. Given repeated assurances that few embryos are needed to service embryonic stem cell research, it is more than likely that most of the embryos used will end up in research that has nothing to do with

[4] Explanatory Guide to the *Human Cloning and Research Involving Embryos Bill 2002*, 17 May 2002.

[5] For a detailed assessment of the likely research interests in human embryos see *Human Embryos: A Limitless Scientific Resource?* by JI Fleming, GK Pike and S Ewing, Southern Cross Bioethics Institute, Adelaide, July 2002.

stem cells. It would certainly be prudent to obtain a more accurate and detailed assessment of the nature and extent of these other uses before voting on the *Bill* takes place.

The interest in these other purposes is not new, and in fact was central in the debate that took place in the early eighties. In a recent literature search[6] we identified the range of research being undertaken on human embryos worldwide, and categorised the work under the following headings.

- Creating embryos in different ways (in vitro fertilisation)
- Observing development
- Growing embryos in different solutions
- Exposing embryos to different chemicals to observe the effect
- Growing embryos with other cells
- Vitrifying, freezing and thawing
- Micromanipulation (lasering, cutting, dissecting)
- Destructive analysis
- Using enzymes and chemicals to change the embryo
- Transferring to the uterus
- Implanting the embryo in vitro

It is notable that this research took place in settings with and without regulation.

The studies we identified came from peer-reviewed journals. But in the rapidly advancing and increasingly private biotechnology research sector, it is more than likely that there is another body of research that has not reached these journals and may never do so. Much of this research may not have been published at all, either because it was not undertaken with sufficient scientific rigor or simply did not produce a reportable result. It may also be that the results it yielded, in the view of the companies involved, needed to be kept secret for commercial reasons. Alternatively, even though the work is strictly legal, it may be viewed by the researchers to be outside of publicly acceptable ethical norms, and hence best kept from public view.

This may have been the motive behind the secrecy surrounding cloning experiments conducted in Victoria in which a human nucleus was placed into the enucleated egg of a pig and developed to the 32-cell stage.[7]

Secrecy has accompanied the development of ART from the beginning. Professor Carl Wood made the startling admission in 1983 that he and other IVF scientists had secretly experimented with the conception of a human being in a sheep.

> At one stage despondency about the technique persuaded the team to try for fertilization of a human egg and sperm cell, and embryo growth, in the sheep. After collecting a mature egg from a patient, we placed it and sperm cells from her husband in the sheep oviduct (the animal equivalent of the fallopian tube). But whereas the sperm cells survived in this environment, we were unable to find any trace of the egg. **In some ways we were relieved at the failure of this experiment as it may have been difficult**

[6] *Ibid.*

[7] Mark John, *Greenpeace Says Firms Have Produced Human-Pig Hybrid*. 5 Oct 2000, http://dailynews.yahoo.com/h/nm/20001005/sc/health_embryos_dc_1.html

> **to convince the community that the sheep was an appropriate place for human fertilization and early human development**.[8] [Emphasis added]

The question which needs to be asked is precisely what research the *Research Involving Embryos and Prohibition of Human Cloning Bill 2002* would allow, whether such work would represent the majority of the research undertaken, and even whether amongst some vocal advocates of embryonic stem cell research there is more interest in this sort of research. Perhaps some have seen embryonic stem cells as a beachhead to gain such a generalised access to human embryos.

There are other broader implications of allowing such research. What this research means for human embryos is obvious. They will be destroyed. But what this research means for *us* is another matter. What could be the impact on individuals and communities of adopting a formalised programme of research on human embryos?

In decisions containing a moral choice, there is an impact on the subject as well as the object of that moral choice, and this is usually called the intransitive effects of moral choice. For example, an act of theft not only deprives someone of their possession, but also has an impact on the perpetrator. It makes that person a thief. Our actions are thus important in forming our character. Is this also true of communities? Will the enshrining in law of the destruction of human embryos in research programmes influence our community, its attitudes, what else it will allow, its moral sensitivities, its capacity to discern the truth?

As the moral philosopher Germain Grisez notes:

> … law's effectiveness depends far more on forming the majority's practical reasoning and judgements than on forcing the unwilling minority to comply.[9]

How would the majority's practical reasoning be influenced by a change such as this? The short answer is, we don't know. But a more careful analysis of the possibilities suggests that there could be certain undesirable outcomes.

Bioethicists have always been concerned about the objectification and commodification of human life, or more correctly in recent years, about the *further* objectification and commodification of human life. The reaction against commodification in part arose from the practice of slavery in which humans were treated as objects or property. Slaves were also asserted to be non-persons, and by that label they became the other, that is, not one of us. The non-person label has been applied to other members of the human family at various times throughout history, usually so that they can be treated differently. Such a label is also currently being applied to human embryos. Bioethicists take commodification so seriously that the principle has even been extended to human organs and tissues by making it illegal to apply a price to them, that is to trade in them. The commodification of human beings flies in the face of Kant's dictum that humans should never be used as a mere means to an end. They must be treated as ends in themselves. Commodification of human life fails to respect human dignity and worth which are ends in themselves. By treating human embryos as commodities at their most vulnerable stage, will we lose sight of the value of human life, and also risk extending that commodification to vulnerable human life at other developmental stages?

The other related concern shared by many, not only bioethicists, is the utilitarian character of this proposal. The notion that some can be sacrificed for the benefit of others, and that some loss/benefit ratio can be calculated for human life is deeply disturbing. In a recent paper by Glenn

---

[8] Professor Carl Wood and Ann Westmore, *Test-Tube Conception*, Melbourne, Hill of Content Publishing Company, 1983, 48

[9] Germain Grisez, *Should the city council vote to supply needles to drug addicts?* In: The Way Of The Lord Jesus. Vol. 3. Difficult Moral Questions, Franciscan Press, Quincy University, Illinois, 1997, 830.

McGee and Arthur Caplan in the *Kennedy Institute of Ethics Journal*[10], the authors took at face value the personal status of the human embryo, but then sought to weigh the potential good that could in theory arise from experiments upon them, before coming to the conclusion that the sacrifice was justified. To my mind there is something particularly callous about that appraisal, and one that in terms of the intransitive effects of moral choice would have an impact on those carrying out the act as well as on the collective community conscience. For to assert such dominance over the utterly defenceless is to embrace a potentially corrupting power.

On the matter of collective community conscience, Fetherstonhaugh *et al.* recently discussed the phenomenon of psychosocial numbing by which our ability to appreciate losses of life as they become more catastrophic could impair our ability to make consistent, equitable and wise decisions.[11] Even though these authors were describing mass losses of adult human life, they were able to identify not only a numbing of emotive response but also a numbing of moral sensitivity. It must then be asked whether a similar numbing of moral sensitivities would accompany acceptance of the mass destruction of human embryos for scientific research?

Another corollary of consenting to this line of research is the assumption that biotechnological solutions are the best ones for difficult human problems. On the basis of this assumption, research into embryonic or adult cells means that biotechnology rather than say, preventative or other forms of medicine, are the focus of the research endeavour. This raises questions of distributive justice, resource allocation and the most effective public health approach.

In conclusion, as hinted at the outset, perhaps this debate, as part of the larger one yet to be had about our postmodern, posthuman, biotech future, will influence our understanding of our own human nature. Perhaps this will drive an attempt to redefine ourselves, and perhaps we will become more committed to functionality as the chief criterion in that redefinition.

Leon Kass, head of the US Presidents peak bioethics body, likens that quest to an heroic yet tragic endeavour in which the outcome may be unexpected. He says:

> As Aldous Huxley made clear in his prophetic *Brave New World*, the conquest of disease, aggression, pain, anxiety, suffering, and grief unavoidably comes at the price of homogenisation, mediocrity, pacification, trivialised attachments, debasement of taste, and souls without love or longing. Like Midas, bioengineered man will be cursed to acquire precisely what he wished for, only to discover – painfully and too late – that what he wished for is not exactly what he wanted. Or, worse than Midas, he may be so dehumanised he will not even recognise that in aspiring to be perfect, he is no longer even truly human.

[10] Glenn McGee and Arthur Caplan, The Ethics and Politics of Small Sacrifices in Stem Cell Research. *Kennedy Institute of Ethics Journal*, 9(2):151-158, 1999.

[11] Fetherstonhaugh *et al*., Insensitivity to the Value of Human Life: a Study of Psychophysical Numbing. *Journal of Risk and Uncertainty*, **14**, 283-300, 1997.