In Vitro Fertilization and the Destruction of Embryos

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The emergence of in vitro fertilization in the late 1970s and early 1980s was met by mixed responses within Christian circles. These varied from outright hostility amid fears that human life as we know it was threatened, to guarded acceptance of the major procedures. The destruction of embryos was integral to the development of in vitro fertilization as demonstrated by the initial work of Robert Edwards in the UK. This destruction continues as procedures are improved to protect the interests and well-being of future children. For many Christian commentators, the centrality of embryo destruction in abortion, and subsequently in the debate over embryonic stem cells, has overshadowed debate on the loss of embryos during in vitro fertilization. Consequently, the tension between protecting embryos on the one hand and accepting the legitimacy of in vitro fertilization for infertile couples remains unresolved for many Christian commentators. In order to highlight the issues involved, the arguments of a range of commentators are assessed. These include those of contributors to God and the Embryo, *the political debate in the US during the Bush era, Ted Peters, the Vatican, the Christian Medical and Dental Associations, Edwin Hui, John Wyatt, and Richard Higginson. It is concluded that Christians can be open to the blessings of scientific developments such as in vitro fertilization, as long as their limitations and possible misdirections are taken into account in decision making.*

In vitro fertilization (IVF) appears to be generally accepted by the Christian public,[1] and yet it is a phenomenon that has elicited considerable debate within Christian circles. Many within these circles viewed the emergence of IVF in the late 1970s and early 1980s as a mixed blessing.[2] For some, it was a threat to human life and to fundamental Christian values about the meaning of human life.[3] For others, it was a challenging new development in the reproductive technologies, but one that could assist those confronted by issues of infertility.[4] Over subsequent years, there have continued to be subtle undertones of tension between science and faith over how to respond to the intrusion of these technologies into the very intimate areas of human begetting.[5]

What was surprising is that the churches and most theologians (with the exception of Paul Ramsey) had shown practically no interest in this whole realm throughout the 1960s and 1970s, a period when all the essential scientific studies leading to IVF were taking place.[6] None of this work had been carried out in secret. Moreover, Robert Edwards, the reproductive physiologist who almost single-handedly brought developments in human beings to fruition, wrote extensively on the ethical repercussions of IVF.[7] He longed for debate with politicians, philosophers, theologians, and policy makers, but to no avail. IVF lay in the future; it was of very little interest compared with abortion and overpopulation.[8]

However, once the first IVF babies were born, the scene changed. It became clear

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that these children were largely healthy and were not seriously malformed. An unlikely technique had become the hope of many infertile couples longing for a child. In the UK, the 1984 report of the Warnock Committee of Inquiry set the path for UK legislation, and many of its recommendations—contentious as some of them were—proved crucial for debate and subsequent legislation in that country.[9]

At long last the churches and Christian organizations woke up and realized that something dramatic had occurred, something for which they were ill-prepared. Having spent years arguing for protection of the fetus in the context of abortion, they were now confronted by the very early embryo in the context of IVF. Unfortunately, few had expertise in embryology, and they now came face-to-face with embryological terms such as blastocyst, inner cell mass, and primitive streak. However, even now there are far more Christian statements on the destruction of embryos in the production of embryonic stem cells and even on cloning than on their destruction in IVF.[10]

IVF and the Destruction of Embryos—Scientific Background

In considering the relationship between IVF and the destruction of embryos, it is vital to inquire whether IVF can be completely separated from their destruction. This scientific consideration has immense implications for ethical and theological debate on IVF in its simplest forms, namely, within the husband-wife relationship and even without the production of embryos surplus to the requirements of such a couple.

In order to be able to study human development, sufficient embryos had to be obtained, and this meant that IVF had to be a viable procedure in humans. By the mid-1960s successful IVF had been achieved in rabbits,[11] hamsters,[12] and mice.[13] In 1969, research on the pH of the insemination medium for human sperm led to the crucial paper that demonstrated the fertilization in vitro of human oocytes.[14] Enormous interest focused on the normality of the embryos produced by IVF, since this work was highly controversial within scientific circles as well as among the general public and media.[15] All the work carried out by Edwards and collaborators prior to 1969 had been on mice, rabbits, or rats.[16] From the 1970s onward, attention was directed far more onto human oocytes. However, this move from laboratory animals to humans was demanding scientifically and clinically. Against the background of his previous work on the reproductive biology of the mouse, Edwards and gynecologist Patrick Steptoe made a series of discoveries that demonstrated that 16-cell stage human embryos could be obtained in vitro. They then started to transfer these back into women. Unfortunately, a large number of initial attempts led to short-lived pregnancies, since the hormone treatments being used disturbed implantation of the embryo in the uterus, resulting in spontaneous abortions. It was a change in the hormone treatment protocol that led to the first successful pregnancy in 1976.[17] Unfortunately, the embryo had implanted ectopically in the Fallopian tube and the pregnancy had to be terminated. Further modifications led to the birth of the first healthy baby in 1978.[18] For an overview, see the announcement accompanying the award of Edwards's Nobel Prize in 2010.[19]

This brief outline demonstrates that IVF in human beings would not have eventuated in the absence of a considerable amount of highly innovative research using human tissue. This has continued unabated over subsequent years since research using human embryos is intimately woven through every aspect of IVF.[20] It is an ethical requirement that the procedures used are as effective and safe as possible, since as pointed out by ethicist Ronald Green, "we wrong a future child by carelessness or neglect in our reproductive conduct."[21] This does not eliminate the need for previous animal research, but it recognizes the limitations of animal models (interestingly, some recent developments in the artificial reproductive technologies [ARTs], such as the widespread introduction of intracytoplasmic sperm injection [ICSI], may have moved too rapidly into the clinical arena). Nevertheless, ongoing research on human embryos is essential if IVF is to take adequate notice of the interests and welfare of future children, an outworking of theological concerns as much as of general ethical ones.

IVF and the Destruction of Human Embryos—Abortion

Against this scientific backdrop with its reliance upon embryo destruction, one might expect responses to IVF to be closely aligned to viewpoints on abortion. Strong opposition to abortion might be

expected to lead to opposition to IVF based on an embryo-protection stance stemming from the concept that "human life begins at conception."[22] Many have viewed this stance as relevant for the abortion debate, since it draws a line in the sand at fertilization, beyond which no prenatal human life is to be sacrificed. It is a means of protecting all life before birth and gives practical expression of the notion that all human life is sacred—from its earliest manifestations onward.

The anti-abortion rhetoric, however, only infrequently took note of IVF. What is interesting is that the major anti-abortion campaigns (within the evangelical constituency) came to a head in the 1970s and 1980s, at a time when IVF was being developed but before any serious interest in IVF was shown by the same evangelicals. With attention focused on abortion, IVF entered mainstream medicine relatively undetected, at least in public debate. However, by now, IVF was locked into the anti-abortion mindset for a large number of evangelicals, on the ground that "human life begins at conception."

Nevertheless, some Christian writers took note of IVF. Following the release of the Warnock Committee of Inquiry Report in the UK in 1984, there was an outpouring of criticism of what was viewed as the permissive and liberal agenda of the Report. However, this was six years after the birth of the first IVF child in 1978, a period during which well over 1,000 children had already been born using IVF in the UK. And so these commentators, lamenting what they saw as the intrusion of secular forces into the reproductive realm, were writing long after the biotechnology revolution had become established.

However, even this response tended to be submerged beneath more general concerns at other biotechnological developments (both real and highly speculative). Hence, far more attention was directed at cloning, stem cell research, genetic possibilities (the new genetics), eugenics, embryo research, and prenatal diagnosis, than at IVF.[23] Some recognized that opposition to the destruction of embryos had implications for IVF, and some were openly negative toward IVF, but opposition was muted compared with opposition to possibilities such as cloning and eugenics.

Almost total emphasis upon the moral value of the embryo has been the driving force behind sentiments such as these, stemming in large part from opposition to abortion. Arguments repeatedly encountered in the evangelical literature elevate the status of the embryo to one in relationship with God, an image bearer of God, an innocent human being with an inviolable right to life, a neighbor and fellow traveller.[24] Such an elevated status leaves no room for the deliberate destruction of embryos. These arguments are principally found in opposition to abortion and research on embryos rather than in discussions on the practice of IVF.

There are exceptions. Jennifer Lahl considers IVF to be tantamount to abortion.[25] Albert Mohler also recognizes this and rightly comments that if embryos are destroyed in IVF, it is, from his perspective, a troubling procedure. He writes:

> Far too many evangelicals seem to turn a blind eye to this reality. While we celebrate the birth of a child and the gift of life, we cannot blind ourselves to the harsh and grotesque reality that this technology also means the destruction of human life.
>
> Many evangelicals fail to see what many proponents of human embryonic stem cell research have noted—a glaring inconsistency in condemning the destruction of human embryos through stem cell research, while ignoring or dismissing the destruction of embryos in IVF clinics.[26]

However, they tend to limit their concern to the production of surplus embryos in IVF programs, without explicitly acknowledging that embryo destruction is implicit within IVF from its earliest stages through to the present. To quote Mohler again: "At a bare minimum, Christian couples must commit to the implantation of all embryos, and the selective reduction of none."[27]

It is surprising that he does not go further than this and condemn IVF outright. It is true that he considers that IVF cannot be encouraged, since in his eyes it amounts to "the wanton destruction of human life, and is morally and medically indefensible."[28] This is what one would expect of someone for whom the termination and disposal of human embryos in IVF "is a reminder that the gruesome reality of the Third Reich is never far from us."[29]

Some commentators have noted that evangelicals have readily accepted IVF, in contrast to abortion and stem cells, by adopting a variety of compromise positions that allow them to accept this means

of family-building.[30] One has even argued that it is legitimate to freeze embryos as long as they are not subsequently destroyed.[31] Others though object. Lahl argues that "if embryos are human lives, it is time for Christians to be consistent about their moral objections and unite against IVF."[32] These, however, are minority voices, even within those sections of evangelicalism strongly opposed to abortion and the general thrust of the ARTs.

Limitations of the Abortion Model

Roe v. Wade (1973) in the USA and the Warnock Report (1984) in the UK each galvanized the evangelical communities. In their different ways, each was seen as a step too far, but in each case the issues were depicted as a contrast between extremes: pro- or anti-abortion, pro- or anti-IVF. However, while the former fits neatly into the pro-choice versus pro-life paradigm, it is difficult to express the IVF situation in these categorical terms. For most, whatever their doubts about IVF and the destruction of embryos, the end-result is in no way comparable to the end-result of abortion.

The language of "silent holocaust" that has been featured on occasion in the abortion debate sits uneasily with IVF.[33] Even if the destruction of embryos is regarded as a holocaust, the arrival of a baby hardly fits this picture. Hence, there is immediate tension. Even if babies are thought to be the creatures of the doctors who were in part responsible for bringing them into existence, the future child/individual is hardly going to be treated as some form of "not-quite-human" creature (there is no evidence that this is the case in the IVF literature[34]). And where does God fit into this alarming picture, since he cannot have been excluded simply because there has been human assistance in bringing beings into existence? No such concerns are raised over standard obstetric care, even when this involves scans throughout gestation, bed rest, technologically dependent treatment in neonatal intensive care units for very preterm infants, or hormonal treatment before and after fertilization. In many of these instances, the birth of a live child would not have eventuated had there been no technological assistance.

This ambivalence toward IVF reflects differences between abortion and IVF. For those who view the destruction of embryos as being akin to the destruction of postnatal human beings, abortion is an unmitigated evil under all (or most) circumstances. By contrast, IVF is not entirely evil since the intended end result is a much-wanted child. While abortion may be deemed life destroying, IVF is—in the main—life affirming, as long as a balance is attained between the life-destroying aspects of embryo destruction and the life-affirming element in the birth of a child. It is easy to accept completely or reject completely a position such as abortion, but with IVF there is not this simple solution. This does not provide justification for IVF, but it demonstrates the limited relevance of the abortion model.[35]

Abortion is associated with feelings of relief or grief because of the absence of a child. IVF is (if the procedure works as hoped) accompanied by joy at the presence of a child. This child has all the potential and aspirations of any other human being, and is as much a child of God as one conceived without technical assistance. In no way does this invalidate concerns based upon the potential reductionism of a technological approach like IVF, but it does look to a broader framework than one predicated by opposition based solely on an anti-embryonic-destruction mentality.

IVF and the Destruction of Human Embryos—Stem Cells

One strand within the abortion debate, namely, that the protection of embryos is paramount and that human beings should not interfere with what God has or has not given, has had repercussions in other areas. Consequently, when the debate on stem cells entered the public arena in 1998,[36] the therapeutic prospects held out for embryonic stem cells (ESCs) elicited many responses from Christian commentators. While these varied in content and direction, a negative reaction emerged time and again on the ground that this would involve the destruction of embryos.[37] The debate on ESCs was part of the wider debate on embryo research, although much of the latter had a very strong orientation toward stem cells, as demonstrated by the regulations governing embryo research in many jurisdictions.[38] Surprisingly, even in this debate, little attention was paid by Christian writers as well as others to the role of embryo research in the development and ongoing sustenance of IVF.

God and the Embryo

This is illustrated by the edited volume, *God and the Embryo*, published in 2003.[39] With the subheading, "Religious Voices on Stem Cells and Cloning," it was a response to the newly developing debate on embryonic stem cells. As such, greatest attention was paid to stem cells with limited attention to cloning. Inevitably, the status of the embryo underlying these debates constituted one section of the book. While the contributors came from a variety of disciplines and theological backgrounds, little attention was paid to IVF, even though it represented a well-attested reproductive procedure of considerable relevance to the theological debate on embryos and ESCs.

However, Ronald Cole-Turner, one of the editors, was puzzled that views on embryo research were not always reflected in positions on IVF.[40] He commented that one might have expected that anyone who permits couples to create multiple embryos for reproductive purposes might also allow scientists to carry out research on embryos. From this he deduced that greater value is being placed on reproductive freedom than on scientific freedom. His conclusion was that

> we have created an incoherent body of policies that permits abortion, privatizes and thereby ignores in vitro fertilization, prohibits public funding for embryo research and thereby avoids any federal role in overseeing it, but permits privately funded research to do whatever it wants.[41]

While this was written within a specifically American context, its thrust can be generalized to ethical and theological debate elsewhere.

Also of relevance was Cole-Turner's further comment that many religious organizations have accepted IVF without comment, but object to the creation of embryos for research purposes. This acceptance of IVF was, in his eyes, so routine that their members could choose to utilize it almost as if faith played no role in the decision.[42]

The only contributor in the *God and the Embryo* volume to engage with IVF is Gene Outka, philosopher and Christian ethicist, who writes against a background of the widespread acceptability of IVF within society, and hence a procedure that has to be addressed as a fait accompli.[43] While writing within the context of ESCs, he confronts in detail how we treat surplus embryos in IVF programs as well as embryos created explicitly for research purposes. In sketching an approach to these embryos, he refers to the concept of perpetual potentiality, and the "nothing is lost" principle. This leads him to regard research on embryos, including excess embryos, as something in which one acquiesces only reluctantly and hesitatingly. He looks forward to the day when there will be no need to destroy embryos and when it will be possible to reprogram adult stem cells. His position allows him to distinguish between creating embryos for research and employing them for research. While he rejects the notion that abortion and ESC research are morally indistinguishable from murder, neither does he consider that they are morally indifferent actions. They are to be judged by the benefits they might bring to others.

Outka, therefore, represents a carefully nuanced theological position, in which the links between abortion, IVF, ESCs, and embryo research are elaborated and assessed. His "middle" position between "right" and "left" on the necessity of ESC research takes seriously both theological and scientific challenges and possibilities, and accepts that IVF is an integral player within this whole realm.

Political Debate in the United States

In the United States, the debate surrounding ESCs took an unusual turn when it entered the world of politics. While this was not ostensibly for theological reasons, there seems little doubt that the stance adopted by then President George W. Bush was to the liking of many Christians. On August 9, 2001, he spoke to the nation about ESC research, when he declared that "embryonic stem cell research is at the leading edge of a series of moral hazards."[44] He announced that the use of NIH (federal) funds would be permitted for research on an estimated sixty stem cell lines already in existence as of that date. These lines must have been derived from embryos surplus to the requirements of IVF programs. No new embryos could be destroyed in deriving ESCs using federal funds.

The aim of this dictate was to encourage respect for human life while exploring the promise and potential of stem cell research in finding cures for debilitating diseases. Unfortunately, the stem cell lines already in existence, plus additional ones potentially eligible for federal research funding, failed to live up to ethical

standards set by the Food and Drug Administration (FDA).[45]

Regulations governing ESCs fall into four dominant positions. These were designated A to D by Towns and Jones.[46] Position A encompasses countries that prohibit all embryo research and therefore the extraction of ESCs. Position B confines the use of ESCs to those currently in existence, in that they were extracted prior to a specified date, thereby prohibiting the extraction of ESCs and utilization of ESCs derived in the future. Position C allows for the use and ongoing isolation of ESCs from surplus IVF embryos from IVF programs. Position D allows the creation of human embryos specifically for research via both fertilization and somatic cell nuclear transfer (SCNT). In 2006, the Hinxton Group, an international consortium on stem cells, ethics and law, again identified four groups: Prohibitive (equivalent to A), Restrictive Compromise (B), Permissive Compromise (C), and Permissive (D).[47] The classification adopted by the European Science Foundation is similar, but omits a position B equivalent.[48] The groups are Very Restrictive (corresponding to A), Permissive (C), and Very Permissive (D), with further categories of Restrictions by Default (where legislation is not explicit, but national practices are quite restrictive in practice), and Unlegislated (where there is no legislation on human ESCs).

It is not the intent of this article to delve into where different countries fit into these categories, except to state that the position adopted by President Bush in 2001 was that of B. What is relevant for present purposes is to compare Positions A and B. Position A (Prohibition) exemplifies the stance that human life commences at fertilization, allowing nothing to be done to the embryo that is not in its best interests. Such a stance would also be expected to disapprove of IVF, the production of surplus embryos, and the derivation of ESCs from these embryos. Its emphasis is entirely on harm done to embryos, rather than on benefits that might accrue from research using ESCs. It neglects any interests beyond those of the very early embryo, including those of persons with fertility problems.

The intention of position B (Restrictive Compromise) was to allow some research on human embryos, while aiming to protect embryos. This was achieved by allowing research only on stem cell lines already in existence, since the embryos from which these lines had been extracted had previously been destroyed. The destruction of any further embryos was forbidden. This compromise position took note of the plight of people with severe degenerating conditions who could, possibly, benefit from scientific advances.[49] However, these restrictive ESC guidelines fail to protect the large numbers of embryos destroyed daily by IVF procedures in fertility clinics. This is the nub of the conflict as I see it. While the debate was on the production of ESCs, it applies just as forcefully to the destruction of embryos in IVF.

Position B is an attempt to allay the fears of those who see embryo research as commodifying the human embryo, while appeasing those who wish to pursue the therapeutic potential ESCs offer. As a result, this position gives the appearance of upholding an absolute position on the inviolability of the embryo while allowing a moderate amount of research to occur using already derived material. However, ethical inconsistency arises from the ongoing creation and destruction of embryos produced in the IVF programs that exist in most countries.[50]

Christian commentators are generally found within positions A–C, with very few opting for the most permissive position represented by D. The reality, however, is that in practice few reject IVF as demanded by position A, even if they bestow full moral value on embryos from fertilization onward. Most fall by default into category C no matter how problematic this appears to them. I return to specific examples in the section Confronting IVF.

Sacred Cells?

Another contribution to unpack the subtle relationships between the various dimensions within the reproductive technologies is that of Ted Peters. In a provocatively titled book, *Sacred Cells? Why Christians Should Support Stem Cell Research*, written in 2008 with Karen Lebacqz and Gaymon Bennett, Peters employs three ethical frameworks: (1) embryo protection, (2) human protection, and (3) future wholeness.[51] Official Roman Catholicism and many sectors within evangelical Protestantism are identified within an embryo protection framework with its pro-life, anti-abortion stance. The (then) President's Bioethics Council and Leon Kass are seen as major exponents of the human protection position that stresses the dangers of "playing God" and of excessive technological prowess. The authors, Peters,

Lebacqz, and Bennett, advocate the third framework, with its emphasis on exploiting possible medical and associated benefits that may accompany stem cell and allied research.

For Peters, Lebacqz, and Bennett, the embryo protection position serves to reiterate the abortion debate. For them, this position depends on genomic novelty, constituting as it does the bulwark for indicating the presence of a unique individual, ensoulment, and with it a moral claim based in the will of God. Accompanying this position are closely aligned variants, such as the assertions that it is better to be safe than sorry and that all blastocysts are sacred. In this instance, the ethical principle that comes to the fore is nonmaleficence—of embryos in this instance. The authors contend that the same applies with the human protection framework, when it is nature (DNA) and culture that require protection. Beneficence comes into play only when emphasis is placed on human flourishing and the vision for a better future. The authors view this possibility in theological terms. For them, humans are called to be created co-creators, possessing the talent for creative transformation. This future-oriented ethic lies at the heart of their positivity toward stem cell research, but they are careful to replace the hype so often surrounding this research with hope—genuine theological hope in the future. They are emphatic with their assertion that "the promise of redemption tells us that our future is not restrictively determined by our past."[52]

Once again the ability to accept IVF and stem cell research depends upon a view of the human embryo. For Peters, one should not confine one's attention to the embryo's genetic origins, since this omits God's eschatological call to become who we are destined to be.[53] This is closely allied with gifts given us by God, namely, our creativity as human beings, the glimpse we have been given of God's promised future, and our ability to make decisions for the good. From this, stem his major themes. The first is dignity that is ultimately conferred by God; this in turn is relational in character and is derived from destiny and not origin. A second characteristic of Peters's position is that, since the spotlight is no longer directed exclusively onto the early embryo, the principle of beneficence can be included in ethical calculations. This allows him to examine all other groups that might benefit from a greater understanding of the embryo, emanating possibly from research on the embryo. Third, the promise contained within this future vision can only be brought about by creativity, something that Peters sees as fundamental to human existence.[54]

These principles allow Peters considerable liberty in allowing embryo manipulations, not as ends in themselves, but guided by the beneficence argument. The good of others in the community may on occasion trump the good of embryos. It is within this context that IVF is to be seen, allowing both the procedure itself and research on surplus embryos from such programs.

Confronting IVF

While, in my view, much discussion about IVF has been distracted by debate about abortion and, more recently, stem cells, there have been attempts to address IVF in its own right. In this section, I shall cover a range of responses to illustrate how different segments of the Christian church have reacted.

Vatican Stance

The first is that of the Vatican with its definite positions on interference with the earliest stages of human development. This was first enunciated in the 1987 instruction *Donum Vitae*[55] that condemned the voluntary destruction of human embryos obtained in vitro for research purposes.[56] Researchers are, it asserted, usurping the place of God, since they are choosing which embryos will be allowed to live and which will be "sent to death"; "defenceless human beings," it asserted, are being "killed." IVF was condemned since it was seen as giving to biomedical scientists power over the life and identity of embryos, "leading to the domination of technology over the origin and destiny of the human person." These positions were reiterated with a few minor amendments in 2008 with the instruction, *Dignitas Personae*.[57]

The importance of referring summarily to these official positions from the Vatican is to acknowledge the consistency of logic within them. This is not to accept their assumptions or directions, which incidentally have been criticized by a range of Roman Catholic ethicists,[58] but to show how a particular view of the moral significance of the moment of conception may lead to opposition to abortion, artificial contraception, embryo research, the freezing of embryos and

oocytes, IVF, ICSI, preimplantation genetic diagnosis (PGD), and any donation of embryos. *Dignitas Personae,* in particular, seeks to defend the dignity of the human embryo on the grounds of its being personal from conception onward. Embryos are sacrosanct, leading to the simple conclusion that there is to be no technological interference or human control over embryos or any aspect of the reproductive processes.

Two North American Contributions

The Christian Medical and Dental Associations (CMDA) set out its position on IVF and allied ARTs in 2010.[59] Taking into account that this was over thirty years since the first IVF birth, there had been ample time for reflection on the variety of relevant issues and principles.

CMDA accepts that many ARTs may be an appropriate expression of humankind's God-given creativity and stewardship under certain circumstances. The principles guiding this position are

- Fertilization resulting from the union of a wife's egg and her husband's sperm is the biblical design;
- Individual human life begins at fertilization;
- God holds us morally responsible for our reproductive choices;
- ART should not result in embryo loss greater than natural occurrence.

In light of these principles, CMDA considers that a number of procedures are consistent with God's design for reproduction. These include

- Artificial insemination by husband (AIH),
- Adoption, including embryo adoption,
- IVF with wife's egg and husband's sperm, and
- Cryopreservation of sperm or eggs.

The following are thought to be morally problematic:

- Introduction of a third party (any use of donor egg or sperm),
- Gestational surrogacy, and
- Cryopreservation of embryos (on condition that all frozen embryos will eventually be transferred back to the genetic mother).

The following are deemed inconsistent with God's design for the family:

- Discarding or destroying embryos,
- Uterine transfer of excessive number of embryos,
- Destructive experimentation with embryos,
- True surrogacy,
- Routine use of PGD, and
- PGD done with the intention of discarding or destroying embryos.

This statement demonstrates very nicely the conflicting tensions that have to be negotiated by those prepared to accept IVF and who start from the premise that individual human life—and one imagines, individual moral value—commences at fertilization. This leads to the view that embryo loss should not exceed that encountered in natural fertilization. This is a valid conclusion, but since up to 70% of embryos are lost naturally (although estimates over the years have varied substantially),[60] this leaves considerable leeway in IVF. For instance, if twelve embryos are produced following ovarian stimulation, three are lost following embryo transfer, two lead to successful pregnancies and the remaining seven are discarded (or used in research), then the percentage lost is less than 60%. These figures can, of course, be adjusted endlessly, but they indicate that the loss of embryos in IVF, even with the production of embryos surplus to the requirements of the IVF program, may not be too far removed from that encountered naturally.

The prohibition of discarding or destroying embryos is meant to protect embryos, as is opposition to PGD with its greater destruction of embryos than in IVF alone. Opposition to research on embryos, including surplus embryos, is intended to serve the same purpose. However, acceptance of IVF itself entails acceptance, albeit unwittingly, of embryo destruction, both during the early years in which IVF was being established as a viable procedure and also in ongoing research (see section, IVF and the Destruction of Embryos—Scientific Background). In view of this, one is led to ask whether the prohibition encountered in this statement is as helpful ethically and theologically as suggested.

An allied consideration is raised by the acceptance of "embryo adoption," once again one imagines

as a means to preventing the destruction of surplus embryos. However, this involves donating an embryo from one couple to another, something that goes against a procedure considered to be morally problematic, namely, the introduction of a third party into the marital relationship.

While making these critical points, I wish to acknowledge the legitimate concerns underlying the statement and its various provisions. They take seriously the moral value to be ascribed to prenatal human life, and they seek to uphold the importance of the family. They also wish to make use of the benefits arising from technological interventions in reproduction to assist those with fertility problems. However, in my estimation, they downplay the nature of IVF and the scientific research that underpins it, research that has implications for the value we ascribe to human embryos.

Another significant contribution to this debate is that of Edwin Hui with his 2002 book, *At the Beginning of Life: Dilemmas in Theological Bioethics*.[61] For Hui, the human embryo is a human person from conception onward and hence is to be treated with the respect granted to persons.[62] This leads him to the view that any form of embryo manipulation violates an ethic of personhood and compromises the integrity of the embryonic community.[63] In line with this stance, he contends that any embryo research not for the benefit of the embryo in question cannot be endorsed as moral. This includes the use of surplus embryos in IVF programs since they have been made to represent "redundant" human lives.[64] From this it follows that one should protest against IVF as well as other forms of the ARTs and surrogacy.

Definitive as this position appears, his chapter on IVF is devoted to concerns that center on potential harm to embryos, potential physical and psychological harm to resulting children, and adverse effects on couples, with further concerns based on the medicalization and commercialization of IVF and allied procedures. While each of these is ripe for serious analysis (many follow-up studies have been conducted on families with IVF-conceived children), it is interesting that the intimate link between IVF and embryo research is not highlighted as the dominant reason for categorizing IVF as morally untenable.

Two English Contributions

John Wyatt, a respected British commentator on bioethical issues, deals at length with issues at the beginning of human life in his book, *Matters of Life and Death*.[65] His aim is to express a biblically informed position on issues encountered before and after birth, starting from a high view of human life including that of the embryo. As a pediatrician he is well aware of clinical realities and of the suffering caused by infertility and congenital abnormalities, and by the good that can be brought about by the use of medical technology. How then does he cope with the conflicting demands of a high view of the embryo and the potential benefits of IVF? Wyatt contends,

> It is at fertilization that the particular configuration of the human genome is created. It is at fertilization that the image of Adam is passed on to the next generation. Even the early embryo is a being "in Adam."[66]

In light of this, "an appropriate response is to vote in favor of protection and against intentional destruction" of the embryo.[67]

Since, in his view, the creation order posits that sex is the unique way of constructing a baby, ideally there should be no separation between this and its procreative aspects. But he concedes that IVF can be accepted when used to assist an infertile couple to have a child genetically related to them. The logic here is that this is bringing together what the Fall has separated. Nevertheless, he remains troubled by many facets of IVF, namely, its intrusive nature, the production of spare embryos, and its dependence upon many years of embryo research. His conclusion is that

> IVF may be acceptable for a married couple provided that no spare embryos are created, but that the possible negative consequences need to be very carefully considered before embarking on this course.[68]

This is a nuanced and human response to a taxing situation. However, it fails to address some crucial considerations. The destruction of embryos in the early stages of the development of IVF and in its ongoing clinical modifications is bypassed. No technology, least of all IVF, can rely on scientific understanding and concepts lying ten, twenty, or

thirty years in the past. This is especially so when the health and well-being of future children is at stake. Embryos have been and will continue to be destroyed as long as IVF is employed. For many this is not a major problem, but it should be for those who regard embryos as vulnerable human beings to be protected and defended. If embryos are "one of us," loved by God as we are, and to be protected as the most vulnerable and innocent of humans, it is imperative to provide cogent reasons why IVF might on occasion prove acceptable, even with substantial stipulations and provisos.

One writer who did tackle the apparent discrepancy head-on was Richard Higginson.[69] He attempted to balance the demands of what he thought was the wrongness of the initial work carried out on embryos against what might be the legitimacy of some research on spare and defective embryos in the present. He reached the conclusion that there is nothing intrinsically wrong with IVF for couples eager for a child and incapable of conceiving in any other way, but he was also aware of the pitfalls associated with regarding IVF children as products. A valuable insight of his was that it is unreasonable to expect a higher standard of IVF procedures than that found in natural fertilization.[70] In expressing the matter in this way, he cast doubt on the idealism so often shown by those who view embryos as practically sacrosanct—they are flagrantly dispensable in nature, with numerous embryos routinely lost in bringing each new individual into existence. While this provides neither ethical nor theological guidelines for what should or should not be done with or to embryos in the laboratory or clinic, it is a salutary reminder of the fragility of embryos.

Should Christians Positively Embrace IVF?

A degree of positivity toward scientific and technological innovations in the reproductive area will mean being prepared to acknowledge explicitly that it is acceptable to destroy embryos under certain circumstances, and to encourage research on (surplus) embryos. This in turn acknowledges the role of science in alleviating disease and in rectifying what may have gone amiss during development.

Christians should be open about the blessings of scientific investigations in spite of distressing misdirections by those longing to remodel humanity according to their own self-centered aspirations or ideals. Everything that is possible in science should not be undertaken. And societies, including Christian communities, can decide that they do not wish to be involved on ethical grounds. Similarly, those with ethical objections to research on human embryos are under no obligation to utilize IVF, and probably should not do so. All of us draw lines at one point or another. What is crucial is that we clearly assess the grounds on which those choices are being made.

In any assessment of IVF, the driving impetus is to ask what might be most pleasing to God. Phrasing the predicament in these terms points to the centrality of Christ and to biblical directives emphasizing humility, an ethic of responsibility, and stewardship of God's creation. It demands a close examination of one's motives in wanting a genetically related child of one's own as opposed to remaining childless, wanting a child without a genetically debilitating condition, fostering children, or adopting children in dire need.

The welfare of families, family relationships, and individuals should be central, stressing the significance of marriage. This is central to Christian life in society, since it throws the focus onto the significance of humans in the eyes of God—as his beings and, for Christians, as his people. Whatever limits are imposed flow from this framework. The welfare of embryos will not be ignored, but they are no longer the only consideration. ✦

Notes

[1]Pew Survey March 21–April 8, 2013, "Abortion Viewed in Moral Terms: Fewer See Stem Cell Research and IVF as Moral Issues," Pew Research Religion and Public Life Project, http://www.pewforum.org/2013/08/15/abortion-viewed-in-moral-terms/. According to this survey, 12% of Americans consider IVF to be morally wrong; 33%, morally acceptable; 46%, not a moral issue (Protestants: 13% morally wrong; 31% morally acceptable; 45% not a moral issue).

[2]Princeton theologian Paul Ramsey was at the forefront of Protestant response in the 1970s, with his opposition to IVF based in part on his concern that the experiments were being imposed nontherapeutically on the child-to-be without its consent, with the added problem that a damaged human being may be the end-result. See Paul Ramsey, *Fabricated Man* (New Haven, CT: Yale University Press, 1970), 113; see also P. Ramsey, "Shall We 'Reproduce'? 1 The Medical Ethics of In Vitro Fertilization," *Journal of the American Medical Association* 220, no. 10

(1972): 1346–50; "Shall We Reproduce? 2 Rejoinders and Future Forecast," *Journal of the American Medical Association* 220, no. 11 (1972): 1480–85; and P. Ramsey, *On In Vitro Fertilization*, AUL Studies in Law and Medicine 3 (Chicago: Americans United for Life, 1978), reprinted in Stephen E. Lammers & Allen Verhey, eds., *On Moral Medicine* (Grand Rapids, MI: Eerdmans, 1987), 339–45, p. 341.

[3]Examples are provided by O. O'Donovan, *Begotten or Made?* (New York: Oxford University Press, 1984); T. F. Torrance, *Test-tube Babies: Morals, Science and the Law* (Edinburgh: Scottish Academic Press, 1984); N. M. de S Cameron, "The Christian Stake in the Warnock Debate," in *Embryos and Ethics*, ed. N. M. de S. Cameron (Edinburgh: Rutherford House Books, 1987), 1–13; O. R. Johnston, *Warnock "Weighed and Found Wanting"* (London: CARE [Christian Action Research and Education], 1984).

[4]W. O. Spitzer and C. L. Saylor, eds., *Birth Control and the Christian* (Wheaton, IL: Tyndale House, 1969); also L. P. Bird, "Dilemmas in Bioethics," in *Horizons of Science,* ed. C. F. H. Henry (New York: Harper and Row, 1978), 131–55. Also D. Gareth Jones, "Making New Men: A Theology of Modified Man," *Journal of the American Scientific Affiliation* 26 (1974): 144–54.

[5]Of many examples, consider R. Higginson, *Whose Baby? The Ethics of In Vitro Fertilization* (Basingstoke, UK: Marshall Pickering, 1988); Edwin C. Hui, *At the Beginning of Life: Dilemmas in Theological Bioethics* (Downers Grove, IL, InterVarsity Press, 2002); John Wyatt, *Matters of Life and Death: Human Dilemmas in the Light of the Christian Faith*, 2nd ed. (Nottingham, UK: Inter-Varsity Press, 2009).

[6]See R. G. Edwards, B. D. Bavister, and P. C. Steptoe, "Early Stages of Fertilization In Vitro of Human Oocytes Matured In Vitro," *Nature* 222 (1969): 632–35; and R. G. Edwards and P. Steptoe, *A Matter of Life: The Story of a Medical Breakthrough* (London: Hutchinson, 1980).

[7]R. G. Edwards and D. J. Sharpe, "Social Values and Research in Human Embryology," *Nature* 231 (1971): 87–91. Also R. Edwards, "Fertilization of Human Eggs In Vitro: Morals, Ethics and the Law," *The Quarterly Review of Biology* 49 (1974): 3–26; R. G. Edwards, "Reminiscences on Learning about Morals and Ethics in Biomedicine," *Reproductive BioMedicine Online* 14, Suppl. 1 (2007): 7–11.

[8]R. V. Short, "Review of *Our Future Inheritance: Choice or Chance?*," *Journal of Medical Ethics* 1 (1975): 107–8. See also Robert Edwards's own description in R. Edwards, *Life before Birth: Reflections on the Embryo Debate* (London: Hutchinson, 1989).

[9]Mary Warnock, *Report of the Committee of Inquiry into Human Fertilisation and Embryology* (London: HMSO, 1984).

[10]Brent Waters and Ronald Cole-Turner, eds., *God and the Embryo: Religious Voices on Stem Cells and Cloning* (Washington, DC: Georgetown University Press, 2003); Ted Peters, Karen Lebacqz, and Gaymon Bennett, *Sacred Cells? Why Christians Should Support Stem Cell Research* (Lanham, MD: Rowman and Littlefield, 2008).

[11]M. C. Chang, "Fertilization of Rabbit Ova In Vitro," *Nature* 184, Suppl. 7 (1959): 466–67.

[12]R. Yanagimachi and M. C. Chang, "Fertilization of Hamster Eggs In Vitro," *Nature* 200 (1963): 281–82.

[13]D. G. Whittingham, "Fertilization of Mouse Eggs In Vitro," *Nature* 220 (1968): 592–93.

[14]Edwards, Bavister, and Steptoe, "Early Stages of Fertilization In Vitro of Human Oocytes Matured In Vitro."

[15]Edwards and Steptoe, *A Matter of Life*; Edwards, *Life before Birth*.

[16]See M. H. Johnson, "Robert Edwards: The Path to IVF," *Reproductive BioMedicine Online* 23 (2011): 245–62.

[17]P. C. Steptoe and R. G. Edwards, "Reimplantation of a Human Embryo with Subsequent Tubal Pregnancy," *Lancet* 1, no. 7965 (1976): 880–82.

[18]P. C. Steptoe and R. G. Edwards, "Birth after the Reimplantation of a Human Embryo," *Lancet* 2, no. 8085 (1978): 366.

[19]The Nobel Committee for Physiology or Medicine, 'Human In Vitro Fertilization,' The Nobel Assembly at Karolinska Institutet, 2010, http://www.nobelprize.org/nobel_prizes/medicine/laureates/2010/advanced-medicineprize2010.pdf.

[20]R. L. Gardner and M. H. Johnson, "Bob Edwards and the First Decade of *Reproductive BioMedicine Online*," *Reproductive BioMedicine Online* 22 (2010): 103–21.

[21]R. M. Green, *The Human Embryo Research Debates: Bioethics in the Vortex of Controversy* (New York: Oxford University Press, 2001), 74.

[22]See discussion in Jonathan Dudley, *Broken Words: The Abuse of Science and Faith in American Politics* (New York: Crown Publishers, 2011). Responses to the claims made by Dudley that evangelical perspectives on abortion have changed have been provided by Mark Galli, editor of *Christianity Today*, in M. Galli, "'When Evangelicals Were Pro-Choice'—Another Fake History," *Christianity Today* (October 31, 2012), http://www.christianitytoday.com/ct/channel/utilities/print.html?type=article&id=99109; and also in M. Galli, "Does It Matter That Evangelicals Became Prolife Recently?" *Christianity Today* (November 7, 2012), http://www.christianitytoday.com/ct/2012/november-web-only/does-it-matter-that-evangelicals-became-prolife-recently.html.

[23]An example is provided by C. W. Colson and N. M. de S. Cameron, eds., *Human Dignity in the Biotech Century: A Christian Vision for Public Policy* (Downers Grove, IL: InterVarsity Press, 2004).

[24]D. Atkinson, "Some Theological Perspectives on the Human Embryo," in *Embryos and Ethics,* ed. N. M. de S. Cameron (Edinburgh: Rutherford House Books, 1987), 43–57. Further examples of these stances are given by N. M. de S. Cameron and others in *Embryos and Ethics*.

[25]Lahl's views are quoted in N. S. Riley, "What About IVF? The Embryo Technology That Evangelicals Don't Oppose," Boston.com, October 10, 2010, http://www.boston.com/news/science/articles/2010/10/10/what_about_ivf/.

[26]A. Mohler, "'A Rather Unexpected Aspect of IVF'—Over a Million Human Embryos Destroyed in Britain," AlbertMohler.com, January 10, 2008, http://www.albertmohler.com/2008/01/10/a-rather-unexpected-aspect-of-ivf-over-a-million-human-embryos-destroyed-in-britain/.

[27]A. Mohler, "Christian Morality and Test Tube Babies, Part Two," http://www.faithtalk970.com/1396390/.

[28]Mohler quoted in B. Allen, "Southern Baptist Leader Says In-Vitro Fertilization Immoral," Ethicsdaily.com, January 16, 2008, http://www.ethicsdaily.com/southern-baptist-leader-says-in-vitro-fertilization-immoral-cms-12151.

[29]Mohler, ibid.

[30]Riley, "What about IVF?

[31]Referred to in Riley, "What about IVF?

[32]Lahl quoted in Riley, "What about IVF?
[33]J. Powell, *Abortion: The Silent Holocaust* (East Lansing, MI: Tabor Publishing, 1981).
[34]H. Bos and F. van Balen, "Children of the New Reproductive Technologies: Social and Genetic Parenthood," *Patient Education and Counseling* 81 (2010): 429–35.
[35]Ellen Painter Dollar, *No Easy Choice: A Story of Disability, Parenthood, and Faith in an Age of Advanced Reproduction* (Louisville, KY: Westminster John Knox Press, 2012).
[36]J. A. Thomson, J. Itskovitz-Eldor, S. S. Shapiro, M. A. Waknitz, J. J. Swiergiel, V. S. Marshall, and J. M. Jones, "Embryonic Stem Cell Lines Derived from Human Blastocysts," *Science* 282 (1998): 1145–47.
[37]See overview in D. Gareth Jones, "Responses to the Human Embryo and Embryonic Stem Cells: Scientific and Theological Assessments," *Science and Christian Belief* 17 (2005): 199–222.
[38]There are a number of categorizations, all of which have much in common. One recent example is that of the European Science Foundation, *Human Stem Cell Research and Regenerative Medicine: Focus on European Policy and Scientific Contributions* (Strasbourg, France: European Science Foundation, 2013).
[39]Waters and Cole-Turner, eds., *God and the Embryo*.
[40]Ronald Cole-Turner, "Religion Meets Research," in *God and the Embryo*, ed. Waters and Cole-Turner, 7–18.
[41]Ibid., 16.
[42]Ibid.
[43]Gene Outka, "The Ethics of Human Stem Cell Research," in *God and the Embryo*, ed. Waters and Cole-Turner, 29–64.
[44]George W. Bush, "On Stem Cell Research," in *The Stem Cell Controversy: Debating the Issues*, 2nd ed., ed. M. Ruse and C. A. Pynes (Amherst, NY: Prometheus Books, 2006).
[45]Erica C. Jonlin, "Differing Standards for the NIH Stem Cell Registry and FDA Approval Render Most Federally Funded hESC Lines Unsuitable for Clinical Use," *Cell Stem Cell* 14 (2014): 139–40.
[46]C. Towns and D. G. Jones, "Stem Cells: Policy and Ethics," in *The Stem Cell Controversy*, ed. Ruse and Pynes, 329–41.
[47]Hinxton Group: An International Consortium on Stem Cells, Ethics and Law, *World Stem Cell Policies,* accessed May 28, 2014, http://www.hinxtongroup.org/wp_ao_map.html.
[48]European Science Foundation, *Human Stem Cell Research and Regenerative Medicine*.
[49]Towns and Jones, "Stem Cells: Policy and Ethics."
[50]A. N. Anderson, L. Gianaroli, R. Felberbaum, J. de Mouzon, and K. G. Nygren, "The European IVF-Monitoring Programme (EIM), for the European Society of Human Assisted Reproductive Technology in Europe, 2001. Results Generated from European Registers by ESHRE," *Human Reproduction* 20, no. 5 (2005): 1158–76.
[51]Peters, Lebacqz, and Bennett, *Sacred Cells?*
[52]Ibid., 76.
[53]These ideas are developed further in Ted Peters, *Playing God? Genetic Determinism and Human Freedom* (New York: Routledge, 2003). Also in Ted Peters, "Embryonic Persons in the Cloning and Stem Cell Debates," *Theology and Science* 1, no. 1 (2003): 51–77.
[54]See further discussion in Jones, "Responses to the Human Embryo and Embryonic Stem Cells."
[55]Congregation for the Doctrine of the Faith, *Donum Vitae: Instruction on Respect for Human Life in its Origin and on the Dignity of Procreation* (United States Conference of Catholic Bishops, 1987).
[56]A much greater level of detail and analysis is provided by D. Gareth Jones, "Christian Responses to Challenging Developments in Biomedical Science: The Case of In Vitro Fertilisation (IVF)," *Science and Christian Belief* 26 (2014): 143–64.
[57]Congregation for the Doctrine of the Faith, *Dignitas Personae (The Dignity of a Person): On Certain Bioethical Questions* (United States Conference of Catholic Bishops, 2008).
[58]Examples of such ethicists are: Richard McCormick, Kevin Kelly, Celia Deane-Drummond, and Ann-Marie Mealey. See R. A. McCormick, *How Brave a New World? Dilemmas in Bioethics* (London: SCM Press, 1981), 147–48; K. Kelly, *Life and Love: Towards a Dialogue on Bioethical Questions* (London: Collins, 1987); C. Deane-Drummond, "Bodies in Glass: A Virtue Approach to Ethical Quandaries in a Cyborg Age through a Recovery of Practical Wisdom," in *A Glass Darkly: Medicine and Theology in Further Dialogue,* ed. D. G. Jones and R. J. Elford (Bern: Peter Lang, 2010), 61–79; A. M. Mealey, "*Dignitas Personae*," in *A Glass Darkly: Medicine and Theology in Further Dialogue,* ed. Jones and Elford, 111–29.
[59]Christian Medical and Dental Associations (CMDA), *Assisted Reproductive Technology Ethics Statement*, April 29, 2010, accessed December 22, 2014, http://cmda.org/resources/publication/assisted-reproductive-technology-ethics-statement.
[60]Of the many relevant publications, see J. J. Schlesselman, "How Does One Assess the Risk of Abnormalities from Human In Vitro Fertilization?," *American Journal of Obstetrics and Gynecology* 135 (1979): 135–48; S. Shapiro, E. W. Jones, and P. M. Densen, "A Life Table of Pregnancy Terminations and Correlates of Fetal Loss," *Millbank Memorial Fund Quarterly* 20 (1962): 7–45. For a pro-life perspective, see C. O. Tollefsen, "What We Should Do about Natural Embryo Loss," *Public Discourse*, December 16, 2008, http://www.thepublicdiscourse.com/2008/12/103.
[61]Hui, *At the Beginning of Life.*
[62]Ibid., 233.
[63]Ibid., 236.
[64]Ibid., 228.
[65]Wyatt, *Matters of Life and Death.*
[66]Ibid., 502 (iBooks).
[67]Ibid., 494 (iBooks).
[68]Ibid., 304 (iBooks).
[69]Higginson, *Whose Baby?*
[70]Ibid., 107.

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