

HUMAN EMBRYONIC STEM CELL THERAPY

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[The author presents an overview (completed on September 15, 2001) of three issues involved in the ethics of human embryonic stem cell therapy: the ethical implications of some of the scientific issues involved, the specific ethical issues of the moral standing of the early human embryo and the problem of cooperation, and a consideration of two public policy issues: should the research go forward, and what kind of health care system should the United States adopt. The author argues that the public policy questions are the most important agenda.]

THE RECENT DISCUSSIONS regarding the use of human embryonic stem cells and the decision by U. S. President George W. Bush to authorize federal funds to support research on only 64 previously existing cells lines derived from donated embryos (though it now appears that fewer than half of these lines are established and useful for research) have provoked a variety of moral and scientific claims, as well as raised questions of health care priorities. Here I review some of the scientific issues, examine several moral claims regarding the early embryo and the topic of cooperation, and finally identify issues related to health care and public policy.¹

Additionally this article focuses on the ethical issues of only embryonic stem cell research. While it is clear that embryonic stem cells are the most desired for scientific research because of their potential, other sources of stem cells are proving to be clinically efficacious. Adult stem cells from sources such as bone marrow and the brain, as well as from other sources such as the placenta and umbilical cord, are becoming easier to obtain and their clinical usefulness is clearly established, though cost may still be an

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¹ For a review of many of the issues discussed in this essay, see Suzanne Holland, Karen Lebacqz, and Laurie Zoloth, *The Human Embryonic Stem Cell Debate: Science, Ethics, and Public Policy* (Boston: MIT, 2001).

issue. Hematopoietic stem cells, derived from bone marrow cells, are being used successfully in bone marrow transplantation with the stem cells surviving in the body. Additionally a pure line of neural stem cells from adult mice has recently been generated.² This summer a colleague of mine, David Adams, together with a team of students, transformed blood cells into neurons. Such potentially useful sources of adult stem cells should not be ignored simply because of the availability of a supply of more accessible—though ethically controversial—stem cells. Continued research in this direction could also eliminate the need for embryonic stem cells and thus end this debate. We are not at that stage, however, and thus the need to focus on the use of human embryonic stem cells.

SCIENTIFIC ISSUES

Work on human stem cells began in 1998, motivated by the understanding that these cells from the blastocyst, the 4–5 day old embryo, had not yet differentiated and thus could potentially become any cell in the human body. This insight drives the research that focuses on how to extract these cells from the blastocyst, how to isolate them and to grow multiple copies of them, and then to coax these cells into becoming specific tissues such as muscle, nerve, or pancreatic islet cells. These specialized cells would then be implanted and repair or replace damaged tissue. Some work on animal stem cells, particularly those of mice, has been done. These cells have developed into insulin-producing cells and others into dopamine-producing neural cells, research that is of particular interest for those with diabetes and Parkinson's disease,³ though other non-stem cell interventions such as the development of a vaccine for Alzheimer's disease are underway.⁴

A first problem in this debate is that this research remains in its infancy. Scientists have yet to achieve a critical first stage in embryonic stem cell research: the ability consistently to isolate embryonic stem cells and then tease them into the desired type of tissue, though adult stem cells can

² Rodney L. Rietze, Helen Valcanis, Gordon F. Brooker, Tim Thomas, Anne K. Voss and Perry F. Bartlett, "Purification of a Pluripotent Neural Stem Cell from the Adult Mouse," *Nature* 412 (August 16, 2001) 736–39. Although the work was done on mice, the authors claim: "This demonstrates that a predominant, functional type of stem cell exists in the periventricular region of the adult brain with the intrinsic ability to generate neural and non-neural cells" (736).

³ Sheryl Gay Stolberg, "A Science in Its Infancy, But With Great Expectations for Its Adolescence," *New York Times*, 10 August 2001, A17.

⁴ For a report on the development of this vaccine, generated from a mouse genetically engineered to develop Alzheimer's disease, see D. Schenk, D. Adams et al., "Immunization with amyloid- β attenuates Alzheimer's disease-like pathology in the PDAPP mouse," *Nature* 400 (July 8, 1999) 173–77. This vaccine is now in Phase II of human research trials.

successfully be extracted from hematopoietic cells from bone marrow. And after three years of research, scientists have now developed human embryonic stem cells into blood-making cells that then became “colonies of cells, some of which were primed to make red blood cells, some white blood cells, and some platelets, the three main types of blood cell.”⁵ A second stage will be to discover the correct mode of delivery of the specialized cells to the part of the body that is diseased or injured. A third stage will be to determine if such specialized cells enter the body, become part of it, and begin functioning to replace the injured cells; this is the stage of tissue engineering, different from, but obviously based on stem cell research. Once these steps are achieved, scientists will encounter another set of challenges: discovering if in fact there are long-term benefits or whether the cells multiply as expected but do not interact and replace injured cells.

I have identified only four stages in what will be a much longer and more complex research effort. Already some are arguing that the Bush proposal does not provide enough cell lines for such necessary research.⁶ Several issues from the scientific perspective need to be highlighted. First, many advocates for embryonic stem cell research imply that as soon as funding begins, human trials will start and progress will be immediate, although no one has actually promised such instant progress. But neither has anyone put the debate into an accurate scientific context of how very preliminary the research actually is. In my judgment, the debate has been conducted with the use of inflated rhetoric. Embryonic stem cell research will first have to be tested on animals for efficacy and safety; only then would human research begin.

At the present time, in the United States, there are two radically different debates about human research going on, neither apparently within hearing distance of the other. One element of the debate assumes human trials with stem cells will start immediately; another element seeks to heighten the review of research on humans and to develop stronger guidelines and an increased role for Institutional Review Boards. This conversation is furthered strained by the lack of regulations for privately funded research vs. highly regulated federally funded research or research regulated and monitored by, for example, the Food and Drug Administration. The recent death of a research subject in a gene therapy trial at the University of Pennsylvania and the death of a volunteer in a research project at Johns Hopkins University have shown that there are serious scientific

⁵ Nicholas Wade, “Team Says It Coaxed Human Cells To Produce Blood,” *New York Times*, 4 September 2001, A17.

⁶ Editorial, “Downside of the Stem Cell Policy,” *New York Times*, 31 August 2001, A18.

and ethical issues about how research on humans is being conducted in some cases. The pressure to produce benefits rapidly from stem cell research raises the stakes of research ethics much higher, particularly given the amount of private capital that might flow in that direction.

The second dimension in the human stem cell debate has focused on its benefits. This phase of the debate is speculative but one seldom hears that admission. To be sure, some claims are made in the subjunctive—"might produce cures," "may work"—but such caveats quickly disappear. Embryonic stem cell therapy is at present a promissory note, a scientific hypothesis, and a claim to be established. To state the facts bluntly, no one is sure whether this research will work or even if stem cells can consistently be teased into becoming specified tissues. Even in the research I have cited that succeeded in coaxing embryonic stem cells into becoming blood cells, scientists, "do not yet know the signals that tell an embryonic stem cell to turn into a blood-forming cell."⁷ Only long, tedious, and rigorous laboratory work can answer that question.

My observations do not argue that research on embryonic stem cells should not be undertaken. Rather, I argue that very thorough, well designed, carefully monitored, federally funded studies of stem cells derived from a variety of sources, including human embryos, could be morally justified. The critical need at present is to establish the efficacy of the therapy. This can be best done with many teams working simultaneously on different approaches. Much scientific work has to precede any clinical application of stem cell therapy and, given the current state of our knowledge, we are a long way from that point. Thus the most critical current scientific issue to resolve is efficacy.

MORAL STATUS OF THE BLASTOCYST AND COOPERATION

The ethical issues surrounding the use of embryonic stem cells are complex and difficult to explicate and debate. It is clear beyond all doubt that blastocysts, the source of the stem cells, are living, are of human origin, and possess, unless twinning occurs or a clone is generated, a unique genetic code. The first question, then, is what is the moral standing of the human blastocyst, the human embryo at the early stages of cell division, specifically up to the time of its implantation into the uterine wall?

President Bush gave a partial answer in his decision for limited public funding of this research: "I also believe human life is a sacred gift from our creator. I worry about a culture that devalues life and believe, as your president, I have an important obligation to foster and encourage respect

⁷ Wade, "Team Says It Coaxed Human Stem Cells To Produce Blood," A17.

for life in America and throughout the world.”⁸ Use of stem cells from already destroyed fetuses “allows us to explore the promise and potential of stem cell research without crossing a fundamental moral line by providing taxpayer funding that would sanction or encourage further destruction of human embryos that have at least the potential for life.”⁹ President Bush’s solution prohibits researchers from obtaining stem cells from in vitro fertilization clinics or generating them for research, thus upholding a key principle of the pro-life movement and garnering praise from Jerry Falwell and Pat Robertson—but not from the bishops speaking through the U.S. Catholic Conference. Yet in order to satisfy scientists and other proponents of stem cell research, Bush allows the use of established cell lines from already destroyed fetuses (though many scientists and proponents argued that the proposal did not go far enough).

Pope John Paul II gave another perspective on this debate in an address to President Bush on July 23, 2001, during their meeting. The pope re-articulated his position on the use of embryos by saying: “Experience is already showing how a tragic coarsening of consciences accompanies the assault on innocent human life in the womb, leading to accommodation and acquiescence in the face of other related evils such as euthanasia, infanticide and, most recently, proposals for the creation for research purposes of human embryos, destined to be destroyed in the process.”¹⁰ The pope also called on citizens of the United States to show the world that they can be masters and not products of technology.

In a similar, though more specific response to the Bush stem cell proposal, Bishop Joseph A. Fiorenza, president of the USCC, said: “However, the trade-off [Bush] has announced is morally unacceptable: The federal government, for the first time in history, will support research that relies on the destruction of some defenseless human beings for the possible benefit to others. However such a decision is hedged about with qualification, it allows our nation’s research enterprise to cultivate a disrespect for human life. . . . The President’s policy may therefore prove to be as unworkable as it is morally wrong, ultimately serving only those whose goal is unlimited embryo research.”¹¹

⁸ “Excerpts from Bush Address on U.S. Financing of Embryonic Stem Cell Research,” *New York Times*, 10 August 2001, A16.

⁹ *Ibid.*

¹⁰ “Pope John Paul II Addresses President Bush,” (www.americancatholic.org/News/StemCell/). For a fuller discussion on these issues, see the Pontifical Academy for Life, “Declaration of the Production and the Scientific Therapeutic Use of Human Embryonic Stem Cells” (25 August 2000) http://www.vatican.va/news_services/index.htm.

¹¹ “Catholic Bishops Criticize Bush Policy on Embryo Research,” (www.nccbuscc.org/comm/archives/20001/o1-142.html).

While respecting these strong papal and episcopal teachings on the moral status of the embryo, I am not persuaded that the human blastocyst is a human person in the strong sense of that term as is being argued. Such a position requires, in my judgment, a static view of biology and a collapse of the traditional Aristotelian distinction between potency and act. The claim that the “human being is to be respected and treated as a person from the moment of conception and therefore from that same moment his rights as a person must be recognized”¹² does not address the fact that fertilization is itself a process requiring at least 24 hours to complete. (And cloning does not require fertilization at all! When might we say, then, that a cloned human begins to exist?) While some may say that a person is present after fertilization is completed, nonetheless there are several more critical stages of development before there is a clear division between inner and outer cell mass. This stage is important because the outer cell mass develops into the support structures for the embryo, while the inner cell mass (the source of the stem cells) goes on to become the embryo proper. While many argue that the blastocyst at this stage is a person *in potentia* and, therefore, should be treated as such, a core problem is that potency is not act. The acorn is an oak tree in potency but is not actually an oak tree. Similarly, to say that the blastocyst is potentially a person is to say that it is not yet actually a person. Collapsing the difference between act and potency only begs the question.

Modern biology shows that embryogenesis is a process. A human person, as we understand the term, arises in part out of a complex process of biochemical development. There are stages in that process but one can recognize them fully only after they have occurred. The process is organic and evolutionary, not static. I think an appreciation of this shift in an understanding of the biology of human embryogenesis is critical for a moral evaluation of the embryo. The medieval Scholastics argued that the body had to be suitably prepared before the intellectual soul could be infused. This position, termed delayed animation, was based on their understanding of the development of the embryo¹³ and was in place canonically since 1591 when “Gregory XIV restricted the penalty to abortion of

¹² *Donum vitae* no. 1. The citation can also be found in Thomas A. Shannon and Lisa Sowle Cahill, *Religion and Artificial Reproduction* (New York: Crossroad, 1988) 149. The Instruction is careful to note that the Church has not taken a philosophical position on the time of ensoulment. However “[f]rom the moment of conception, the life of every human being is to be respected in an absolute way” (ibid. 147).

¹³ See John T. Noonan, Jr., *Contraception: A History of Its Treatment by the Catholic Theologians and Canonists* (Cambridge, Mass.: Belnap/Harvard University, 1965) as well as John R. Connery, S.J., *Abortion: The Development of the Roman Catholic Perspective* (Chicago: Loyola University, 1977).

the animated fetus.”¹⁴ This distinction between the formed and unformed fetus was removed in 1869 as part of a restructuring of the penalties for abortion. To no one’s surprise, however, the biology that the Scholastics used has been shown to be inadequate. In my view, the same needs to be said of some of the philosophical categories used to evaluate the moral standing of the embryo. The traditional Aristotelian categories appropriated by Aquinas and other Scholastics come from a static worldview that understood, for example, that all species were created as they currently exist and stood in a particular hierarchical relation to each other, both socially and ontologically. This view does not cohere with an evolutionary worldview. The theory of evolution, for example, significantly compromises the Aristotelian concept of substance for one species evolves into another, thus critically undermining the stability of a substance.

Applying analogously the still-valid insight of the Scholastics that there must be some coherence between science and philosophy, I argue that one can identify some stages in the process of embryogenesis that point to necessary, but not sufficient, conditions for personhood—stages that identify the moral standing of the embryo at various points along the developmental continuum. Here I highlight several critical stages, not the entire process of embryogenesis.¹⁵ The first stage is the completion of the fertilization process because then one has an organism with a full genetic complement. This organism is new, genetically distinct from the parents, and may or may not be genetically unique—depending on whether or not it is a twin or was conceived through cloning. A second state is true individuality. This occurs about two weeks into the development process and is biologically and philosophically critical because after this time the cells in this particular organism become committed to being the body parts they will become in this specific body. After the process of restriction is completed, the cells of the organism can no longer be divided and become whole other organisms (and this of course is why the stem cells are obtained before this process occurs). If the organism is divided at this stage, one will get two halves. Thus restriction marks the presence of true individuality, a stage more morally significant than genetic uniqueness because while the genetic code can, through cloning be theoretically copied repeatedly, individuality is unrepeatable.¹⁶ A third stage is the development of the primitive streak, a stage that marks a transition to an organism that now

¹⁴ See Connery, *Abortion* 212.

¹⁵ For an excellent presentation of the embryogenesis process, see (www.zygote.swarthmore.edu).

¹⁶ For a further development of this point see, Thomas A. Shannon and Allan B. Wolter, O.F.M., “Reflections on the Moral Status of the Pre-embryo,” *Theological Studies* 51 (1990) 603–26; Thomas A. Shannon, “Cloning, Uniqueness and Individuality,” *Louvain Studies* 19 (1994) 283–306; Thomas A. Shannon, “Human Clon-

has the generally recognizable structure of an embryo. A fourth stage is the emergence of various organs and the beginnings of the spinal column and brain. A fifth stage is the integration of the entire neural system, the spinal column and the brain. What is critical at this stage is that the neural system is now a fully integrated circuit in that the fetus—now about 21 weeks old—can now both receive stimuli but also initiate some acts on its own.

These various stages are necessary, but not sufficient, biological stages in the development of personhood as we understand it. Ultimately, one cannot be a person in the full moral sense without an integrated neural system. To say that, however, does not mean that the developing organism has no moral standing or is morally valueless until all biological stages are completed.¹⁷ It does mean, however, that the developing organism, particularly at the very early stages of embryogenesis, does not have the moral status associated with personhood. It also means that other competing values can come into play in relation to an evaluation of possible uses of that organism.

Because the blastocyst has a value deriving from simply being alive and possessing the human genome—but not the value of personhood—an argument can be made to use this organism if donated for research purposes, though few donors have actually come forward.¹⁸ This position could also permit generating such blastocysts for research purposes though this should be a last resort, if, for example, attempts to procure stem cells from adult sources fail. This position is also open to so-called therapeutic cloning to generate specific tissues for use in a particular patient. There are two immediate reasons not to proceed with this. First, the cloning procedure itself is not scientifically established even in animals and, therefore, work on human material is premature. Second, because the therapeutic applications of cloning are limited to the generation of specific cells to be used for a particular individual in a clinical context, this procedure excludes the wider range of possible applications than the uses of a developed stem cell line would permit. Should embryonic stem cell research go forward, the initial work should be directed to the public good, not the benefit of an individual patient. (Though therapeutic cloning is the term of choice for the

ing: Religious and Ethical Issues,” *Valparaiso University Law Review* 32 (1998) 773–92.

¹⁷ Implicit recognition of this moral standing is given by the fact that not many people want to be involved in the actual destruction of the frozen embryos. See Gina Kolata, “The Job Nobody at the Fertility Clinic Wants,” *New York Times*, 26 August 2001, A20.

¹⁸ Already questions are being raised about the availability of such embryos for research as well as the integrity of the 64 cells lines approved by President Bush. See Gina Kolata, “Researchers Say Embryos in Labs Are Not Available,” *New York Times*, 26 August 2001, A1 and A20.

generation of specific tissues, I think clinical cloning would be a much better term. The act of cloning itself is not therapeutic, whereas the uses of the developed cell lines are.)

Human embryonic stem cell research should be conducted in full awareness that the research material is derived from a living human blastocyst and that in fact we are using this human tissue as a means to an end: improved health care and possible cures. Given the less than personal status of the blastocyst, I think the initial research necessary to determine the efficacy of embryonic stem cell therapy can be justified—as one element in a larger research program to determine the efficacy of stem cells from all other sources. Additionally the moral status that the blastocyst does have argues for the highest level of integrity in the design and implementation of that research as well as the availability of such research for some sort of public scrutiny. Finally, should the efficacy of adult stem cells be validated, cell lines from this source should then be generated and be the major source of cells to develop therapeutic interventions.

A second ethical question, then, is that of cooperation, specifically using materials that have been obtained in ethically compromised circumstances. This traditional problem in moral theology has recently been subject to renewed discussion particularly with respect to the mergers of Catholic hospital systems with those of other faiths or secular perspectives.¹⁹ But now another critical area for discussion will be: can stem cells from already destroyed embryos be used as envisioned in the Bush proposal? The essential question is: are there circumstances under which an individual or institution may participate in or benefit from an ethically compromised action of another?²⁰ President Bush gave one resolution in an op-ed essay: “While it is unethical to end life in medical research, it is ethical to benefit from research where life and death decisions have already been made.”²¹ The analogy he used here was the use of aborted human fetal tissue to develop live chickenpox vaccine that ultimately had widespread health benefits. The debate over cooperation has a long history and probably will not be resolved by the position cited above. This is particularly clear given another analogy for such research identified by Wendy Wright, the com-

¹⁹ For discussions of this see M. Cathleen Kaveny and James F. Keenan, S.J., “Ethical Issues in Health-Care Restructuring,” *Theological Studies* 56 (1995) 136–51; James F. Keenan, S.J., “Prophylactics, Toleration and Cooperation: Contemporary Problems and Traditional Principles,” *International Philosophical Quarterly* 29 (1989) 205–20.

²⁰ For a discussion of this with respect to the stem cell controversy, see “Fact Sheet: Embryonic Stem Cell Research and Vaccines Using Fetal Tissue,” USCC, Pro-Life Activities (www.nccbuscc.org/prolife/issues/bioethics/vaccfac2.html).

²¹ George W. Bush, “Stem Cell Science and the Preservation of Life,” *New York Times*, 12 August 2001, Week in Review 13.

munications director for Concerned Women for America: "We should be horrified at the prospect of participating in research on embryos who are deliberately killed for the same reason that we are horrified that gold fillings were taken from the teeth of Holocaust victims."²² Richard Doerflinger, the USCC spokesperson on bioethics, articulated the problem this way. "His [Bush's] moral principle seems to be, if the killing has already been done, we can fund this research. But by the time the scientists come forward with the next group of cell lines, that destruction will already have been done, too. And on we go. Where is the moral limit? On what basis will the president say no? I think it is an untenable and unstable policy."²³

One assumption in the traditional discussion of cooperation is that the act with which one cooperated was in fact a moral evil. Given that the act in question is the removal of cells from a blastocyst, that assumption may have to be revisited or at least reexamined. Given my previous analysis for the moral standing of the blastocyst, its destruction would certainly be a premoral evil, but not a moral evil. Since the blastocyst does not have the moral standing of full personhood, its destruction is killing but not murder for there is no person who can be the subject of such a moral wrong. The scientists who accept such cells for research are not, on this analysis, cooperating in a morally evil act.

A second question is whether a patient could make use of vaccines derived from embryonic stem cells. Several responses can be given. First, the patient need not intend the destruction of the embryos and thus any cooperation would not be formal. Second, the moral distance between the use of the vaccine by the patient and the original research is so great as to render any cooperation remote at best. Finally, the original act must itself be immoral and that at least can be questioned as noted immediately above.

Perhaps there is a better moral question: is the science of embryonic stem cell therapy sufficiently established to justify the killing of the blastocyst for research purposes? I think a cautious answer "yes" can be given, but only insofar as the research that should go forward is well controlled and publicly monitored. Various programs, perhaps federally funded, should be used as kind of pilot programs to gain critical information so that the next stage of research will be on scientifically sound grounds.

These positions discussed above, however, do not in themselves justify proceeding with stem cell research. What I have argued thus far is a possible justification of the use of embryonic stem cells in research. This

²² Laurie Goodstein, "Abortion Foes Split Over Plan on Stem Cells," *New York Times*, 12 August 2001, A22.

²³ *Ibid.*

argument does not resolve several other issues that I think are at least equally, if not more, important for the stem cell debate.

PUBLIC POLICY ISSUES

I have argued that an ethical case can be made for using human embryonic stem cells in research. In this section, I wish to step back and identify two other issues: If the research goes forward, how should it be conducted; second, should it go forward?

First, if the research goes forward—and indeed it will—I argue that such research, including the development of new cell lines from embryonic tissues from IVF clinics, should be conducted so that the research process will have at least some minimal monitoring. For example, such research could be subject to review by an Institutional Review Board and be subject to the traditional peer review process associated with grant reviews. Or there could be scrutiny by a federal agency such as the Food and Drug Administration or perhaps an analogue to the National Institutes of Health Recombinant DNA Advisory Committee. The national debate revealed that private laboratories are conducting cloning research on human embryos as well as generating embryos for research. It is in the public interest to have such research conducted with public review or under the direction of a licensing board such as the United Kingdom²⁴ has established. Even though investors are currently avoiding biotech stocks,²⁵ market incentives are present and may intensify with the consequence that those concerns rather than ethical standards may drive the research. For example, when human trials with specialized stem cells begin, who will monitor these trials? Some biotech companies such as Geron in California and ACT in Massachusetts do have ethics committees to review their scientific research. Will these same committees review their animal experiments and human studies? Because the resolution of President Bush provides federal funds only for the 64 stem cell lines already in existence, embryonic stem cell research in the United States may continue unmonitored in private labs. There is not a group of “mad scientists” creating monsters in private labs—though the three scientists who are insisting on their right to engage in reproductive cloning do demonstrate the presence of extremists even among scientists. Market forces, the fiscal incentives for patents, licensing fees and market shares, as well as fame, fortune and prestige will shape how research is done. A publicly monitored and regulated (and perhaps

²⁴ For a brief review of the United Kingdom model, see Nicholas Wade, “Stem Cell Studies Advance in Britain,” *New York Times*, 14 August 2001, A1 and A14.

²⁵ Andrew Polack, “The Promise in Selling Stem Cells,” *New York Times*, 26 August 2001, Money and Business Section 3, 1 and 11.

funded) process, such as a licensing board as in the British model, a variant of the Investigational New Drug Application from the Food and Drug Administration, or perhaps an analogue to the National Institutes of Health Recombinant DNA Advisory Committee might be more beneficial in the long run for the integrity of the research as well as patient well being.

There are many other complicated issues such as intellectual property rights, licensing fees, and royalties that have yet to be resolved. For example, the resolution of the problem proposed by President Bush apparently gives a head start on the research to the private labs that have already developed stem cell lines with tissue from aborted fetuses or donated embryos. But such may not be the case. The Wisconsin Alumni Research Foundation at the University of Wisconsin holds Patent 6,200,806. This patent “which covers both the method of isolating the cells and the cells themselves, gives the Wisconsin foundation control over who may work in the United States with stem cells, and for what purpose.”²⁶ Previous licensing arrangements of the foundation with Geron Corporation are complicating the use of stem cells by other researchers, although some progress has been made for their use in basic research.²⁷ How this patent will control U.S. stem cell research, even if the stem cells are obtained from the offshore labs, remains totally unresolved—as well as any international implications this patent may have.

But there is a second question that is seldom asked: Should this research be done at all? This serious question raises the issue of what kind of health care system is appropriate in the United States as well as a question of social justice—the distribution of the benefits of research.

Research initiatives such as stem cell therapy continue to replicate the dominant trend of high tech, high cost rescue medicine that has driven the U. S. health care system for the past several decades. The focus will continue to be cure rather than prevention. In part this focus has dominated because of the great success in curing many diseases and those successes, combined with better diets, improved sanitation, and clean drinking water, helped more and more people to live longer and longer. And since no good deed goes unpunished, many now experience a whole new range of diseases that are proving to be exceptionally difficult to cure. The war against cancer has been going on for at least three decades, that on AIDS for at

²⁶ Sheryl Gay Stolberg, “Patent on Stem Cell Studies Puts U.S. Officials in Bind,” *New York Times*, 17 August 2001, A1.

²⁷ Agreement of an accord with the Wisconsin Alumni Research Foundation permitting the use of such cells was recently reported. The agreement applies only to government-employed scientists, and covers only basic research; if scientists want to use the cells as therapies, they will have to renegotiate.” Sheryl Gay Stolberg, “Many Approved Stem Cell Lines Aren’t Ready to Study. U.S. Says,” *New York Times*, 6 September 2001, A20.

least two decades, and we are beginning to invest more money into curing very complex diseases such as Alzheimer's. The cures are no closer, though significant progress has occurred, particularly with certain forms of cancer. But the fact remains that curing is an attempt to reverse the harm done by the disease, a process much more complex than attempts to prevent the disease initially.

Should health care continue to go in this direction? The question should at least be debated. Present U.S. health care policy, particularly the allocation of research dollars, seems to be driven by lobbying groups or moral extortion. The diseases with the best celebrity spokespersons—who themselves may or may not be afflicted with the disease—testify before congressional committees. Parents show up pleading for research funding so their children, who are also at the hearings, will not die. The strong suggestion is that Congress will be morally accountable for the fate of the sick if they do not provide funding. A concomitant problem, of course, is who is able to testify before such committees? One does not see in congressional hearing rooms the poor, the marginally insured, or the uninsured—all of whom suffer because they cannot obtain decent health care, or perhaps even decent housing or diets, factors that also have a profound impact on one's health.

It is clear beyond all doubt that adequate funding cannot be provided to seek cures for all diseases. How then might U.S. citizens go about debating how this country's resources are to be allocated? I am not arguing against research into the cure of diseases, but I am arguing that the current funding mechanisms that are essentially driven by the group that has the best lobby are totally inadequate and unjust.

Perhaps the most critical issue that needs debating is not the ethics of embryonic stem cell research but the very system of high tech health care that is predominant in the United States. Perhaps it is time to think of an emphasis on prevention rather than cure or on the availability of minimal health care services for all citizens. Such an emphasis would benefit many more people through its focus on prenatal care, well baby care, vaccinations, proper nutrition, avoiding of smoking and excess drinking (though the recent study by Phillip Morris for Czechoslovakia did demonstrate the long-term financial benefits to the state, such as fewer payments for long-term health care for the elderly, of not discouraging smoking, a practice that leads to early death).²⁸ Poverty and poorly constructed and maintained housing, for example, are major contributors to diseases such as asthma. Funding decreases in programs such as WIC (Women, Infants, and

²⁸ For the full text of this enlightening analysis, see www.americanlegacy.org/Czech.

Children)—a program offering nutritional supplements to those individuals—resulted in higher long-term health care payments.

Prevention is a hard sell. It makes for boring TV. Who wants to watch a physician counseling a person to stop smoking when he or she could be watching the fast-paced medical drama “ER” with all its exciting high tech interventions (even though the success rates of such interventions are inflated).²⁹ Who wants to add an exercise routine to an already over-scheduled day? Who wants to be moderate all the time? And increased smoking rates, drug use, and drinking among the young certainly indicate a very difficult health care future.

Yet I would still argue that the most critical issue that needs to be faced is not the ethics of embryonic stem cell research or any of the other questions raised in light of the human genome project. These questions are important and must be confronted. But the more critical issue is access to health care and insurance. If stem cell therapy proves successful but one’s insurance plan does not cover such treatment or if one has no insurance to begin with, of what good is this research? How will it benefit the millions of uninsured or underinsured citizens? The U.S. health care system has developed as a fee for service business and is in a transition to various forms of managed care. That the market will not resolve the current health care crisis is shown by the failure of many Health Maintenance Organizations to remain viable while providing minimal, let alone, adequate care. Trying to resolve the health insurance problems through private employment works to some degree for the employed—but what about all the rest of the citizenry?

The embryonic stem cell debate can provide a moment of pause in which to reflect on health care in the United States. Should current health care policies continue? Clearly this direction will bring benefits to many, but I suspect many, many more will not receive those future benefits because they are currently not receiving many of the benefits the health care system already provides. Perhaps, then, the more critical question to be debated is not the moral standing of the blastocyst and its use in research but the justice of the current U.S. health care system.

²⁹ For an analysis of these claims with regard to cardio-pulmonary resuscitation, see, David L. Wheeler, “A Sociologist in the ER Punctures the Myth of CPR,” *Chronicle of Higher Education*, 15 October 1999, A21. The article notes: “Although one study found that cardio pulmonary resuscitation works about 75 per cent of the time on television, a variety of regional studies suggest it works at less than 3 percent of the time in real life.”