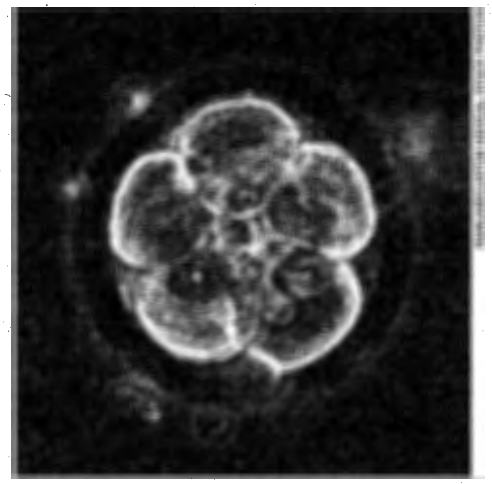
Catholic UPDATE

C0102

STEM-CELL RESEARCH

HOW CATHOLIC ETHICS GUIDES US



BY THOMAS A. SHANNON

Over the last two decades scientific developments have been proceeding at a rapid pace. Nowhere has this been more true than in human genetics. One cannot pick up the daily paper or listen to a news show without hearing of yet another new discovery, development or application of a new procedure.

There are two main problems with this steady stream of information: The information itself is becoming more and more complex and the applications are predicted to be revolutionary. Frequently the research is only at the very beginning stages. Much of this research has an ethical dimension. In this *Update* we'll take a look at the field of stem-cell research. We'll explain what stem cells are and why there are ethical concerns.

Most Americans have had some sort of a biology course in high school; some have had a college-level course; but few have had specific courses in molecular genetics or bioengineering. Thus we may have some sort of general idea of the topic, but not grasp the real core issues. Several ethical issues were raised with the recent near-completion of the Human Genome Project (the project that identified and mapped the structure of human DNA)—privacy, potential disqualification for insurance, the possibility of predicting some aspects of one's health at birth, to name just a few. The technology goes forward, however, and often without sufficient breathing room to understand the technology, much less consider its implications.

This happened again with the debate over embryonic stem-cell research. Research on adult and embryonic stem cells of animals and humans has been going on for several years, and a national bioethics commission made some recommendations about this research. On August 9, 2001, President Bush announced his decision to allow the federal government to provide funding for research on 64 lines of embryonic stem cells. These lines came from destroyed human embryos obtained from in vitro fertilization clinics. The president's decision caused an enormous debate in terms of both science and ethics. Many commentators, religious leaders, scientists and members of the public weighed in on various sides of the debate, and an advisory committee will now monitor the research. But what is the debate about?

WHAT ARE STEM CELLS, ANYWAY?

First, what are stem cells and why are they so important? Essentially, stem cells are cells that have the potential to become many different kinds of cells. They are the means by which cells in the body can be replenished. In the very early embryo these cells are *totipotent*—that is, they have the potency to become any kind of body cell. In adult stem cells, the cells are *pluripotent*—they have the capacity to become a variety of cells, but not all. Scientists hope to obtain lines of these embryonic stem cells—large numbers of them grown from a common source—and coax them into becoming specific kinds of cells.

For example, a biologist at my college recently succeeded in having blood cells from bone marrow grow into nerve cells. Other scientists have recently reported success in having embryonic stem cells grow into three different types of blood cells. The goal of this research is to use these stem cells to develop various tissues that can then be used to repair damaged tissues in the body—heart tissue to repair a damaged

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heart, nerve tissue to repair a damaged spinal column or reverse the effects of Alzheimer's disease. The research is very interesting, complex and promising.

WHICH STEM CELLS?

Now let's look at a particular kind of ethical problem. Which stem cells should be used for research, adult or embryonic? Many have argued that adult stem cells are difficult to obtain, very hard to coax into developing into other tissues and, consequently, their use would involve much more time and money to obtain the desired results. Up until very recently, this was generally true.

But now research has shown that adult stem cells can be isolated and developed. If this research continues to be successful, there may no reason whatsoever to use embryonic stem cells, which requires destruction of early embryos and poses a serious ethical problem. Many argue that adult stem cells are where the resources for stem-cell research should be directed. Continued success in this area would essentially eliminate the need for embryonic stem cells—and put an end to a major ethical problem.

But the problem is that the Bush proposal—and indeed the desire of many scientists and many in Congress—is to use federal funds to support research on stem cells extracted from *already destroyed* human embryos. Is this ethical? There are actually two ethical questions here: First, is the destruction of the very early embryo immoral? Second, if a vaccine or tissue is generated from these human embryonic stem cells, would someone act unethically in using it?

Over the last few decades there has been a strong affirmation by the pope and bishops that the human embryo is to be valued and, in effect, treated as a person from the time of fertilization forward. It is not to be destroyed or seen as disposable tissue that can be used in research as any other tissue might be. Nor should such embryos be generated specifically for research purposes. This of course is possible, given the technology of in vitro, "outside the body," fertilization. And in fact, one fertility clinic in Virginia has reported that in fact that is exactly what it is doing.

REACTIONS FROM POPE AND BISHOPS

What is the moral status of the early embryo? Pope John Paul II gave his perspective on this debate in an address to President Bush on July 23, 2001, during his papal visit. The pope rearticulated 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." The pope also called for the United States to show the world that we 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, then president of the U.S. Conference of Catholic Bishops, 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."

These claims are reflective of the traditional teaching recently restated, for example, in the Instruction from the Congregation for the Doctrine of the Faith, *Donum Vitae,* 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" (I, 1).

The Instruction is careful to note that the Church has not taken a philosophical position on the time of ensoulment. However, "From the moment of conception, the life of every human being is to be respected in an absolute way..." (*Donum Vitae,* Introduction).

While the hierarchy of the Catholic Church has left open the resolution of the actual time of ensoulment, it has in fact insisted that the prudent response would be to recognize that as a practical matter ensoulment is coincident with fertilization. This position, combined with the traditional respect-for-life position of the Church, is what propels its opposition to embryonic stem-cell research.

THE BEGINNING OF LIFE

Some, while respecting this teaching of the Church, make further ethical observations about the early embryo. First, fertilization is a process that takes about 24 hours to complete and therefore is not a specific moment one can point to. As a side note, should a human be cloned, there would be no fertilization at all because the nucleus of one cell is placed into another cell that has its nucleus removed and is stimulated to begin cell division. The life of that individual would not begin at fertilization.

Second, the whole development of an embryo into a fetus and eventually into a child is a process, not a series of sharply defined steps. This is important because it is really difficult to tell precisely where a fetus is in the process of development. One knows where the fetus is after the stage has been entered into. It is not easy to make precise developmental statements and then

moral judgments made in relation to them.

But more specifically, many ethicists focus on the fact that up until about a week or so into the pregnancy, the fertilized egg has the capacity to divide and become identical twins. In some cases it has been observed that such divided eggs blend back together into one blastocyst (what the fertilized egg is called at around 4-5 days of development).

And if the egg is fertilized in vitro, one cell can be removed (to have its genetic structure analyzed) and the developmental process is not harmed. In fact, all the cells of the blastocyst can be separated and each has the capacity to become a whole human being. This point is clearly important biologically: These cells can become either a whole organism or be coaxed into becoming any specialized cell in the body.

But this is important philosophically also. Because the cells of the blastocyst can be divided so that each part can become a whole, the blastocyst lacks true individuality—the capacity not to be able to be divided.

If one were to divide me, you would wind up with two halves. If one divides the cells of the blastocyst, one obtains several cells all capable of becoming individuals. The reason why this is philosophically important is that if the organism is not first an individual, it is difficult to understand how it could be a person. Being an individual organism is a first necessary, though certainly not sufficient, stage for being a person.

On the basis of the argument that the blastocyst is not yet an individual, some would argue that while the blastocyst is a living organism, possessing the human genetic code, such an organism is indeed valuable, but its value is not yet that accorded to a person.

Therefore some would conclude that killing the human blastocyst is not murder because there is as yet no personal subject to experience that wrong. Such a killing is a disvalue, to be sure, but a disvalue that might be offset by other positive values, such as health. The conclusion that some would draw, then, is that at least a case can be made for the use of human embryos in stem-cell research.

Once again, the Church does not endorse this view. The specific reason for the rejection of this position is the affirmation that fertilization, the time when egg and sperm merge and form a new genotype, is considered to be the biological beginning of the new human life. Together with this affirmation is the correlative presumption that this is the time of the infusion of the soul. Although there is no official doctrine on this position, the attitude of the Church is that moral priority should be given to this position.

The second problem is, could someone use a vaccine or tissues from such research in an ethical way? The term for this problem in moral theology is called *cooperation*. It can be either *formal* or *material*. Formal cooperation involves a person directly intending to participate in the evil act of another. For example, a person would be formally cooperating with a moral wrong if he or she obtained drugs and helped prepare them so they can be used for euthanasia.

Cooperation may be material, not formal, if a person does not intend the evil act but may be involved in some of its consequences. For example, a nurse who is opposed to abortion but works in a hospital where abortions are occasionally performed may still provide nursing care for the woman who came for abortion.

In the case of stem-cell research, this framework of degrees of cooperation allows several responses to be proposed. First, the patient need not intend the destruction of the embryos and thus any cooperation would not be formal. Thus, one could use the vaccines without an ethical breach. 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.

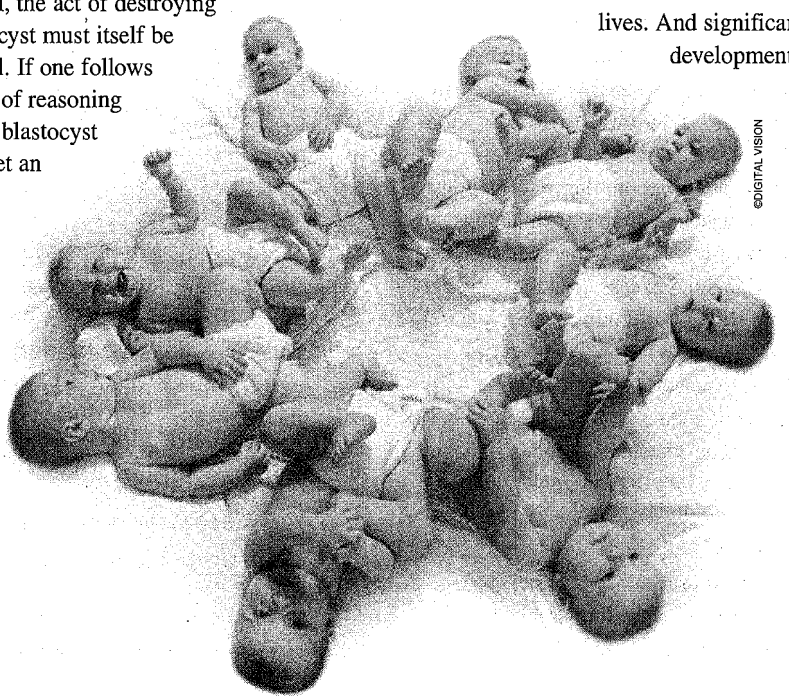
Finally, for use of the research to be immoral, the act of destroying a blastocyst must itself be immoral. If one follows the line of reasoning that the blastocyst is not yet an individual and, therefore, not yet a person, its killing would certainly be a disvalue but would not be a moral evil having the equivalence of murder. Thus individuals would be able to use the clinical products that come from such research.

Such reasoning would be unacceptable to the teaching of, for example, *Donum Vitae* or the encyclical letter of John Paul II *Evangelium Vitae*. The basis for rejecting such procedures is the recognition of the human embryo's being accepted as a full human person from the moment of conception and, therefore, having an intrinsic dignity and value that cannot be compromised in the name of other values.

THE BROADER ETHICAL QUESTION

But there is another question that is, I think, equally as important as the ethics of the use of human embryos in research. That question is a public policy question: Should we continue with our policy of research into high-tech, expensive therapies that may not be available to many citizens because they are uninsured, underinsured, or because their insurance plans might not cover experimental treatments?

The dominant trend in American medicine is high-tech intervention to cure or try to maintain the status quo of a patient. The implantation of a new model of an artificial heart is another example of such high-tech intervention. Clearly many of these interventions do save lives. And significant developments



have been made in the treatment of many forms of cancer. But some perceptions of the success of these interventions are inflated. One study showed that on television shows the success rate of cardiopulmonary resuscitation is over 70%. In real hospitals, however, the success rate is under 5%. This is not in itself a reason not to do CPR, but perhaps we might question whether it is appropriate in the particular circumstances of this patient.

The stem-cell debate might be an opportunity for us to ask if we should not, as a nation, begin to focus on prevention rather than cure as our dominant health-care strategy.

Prevention will not prevent all diseases and will not help if there is a trauma such as a car accident. But a strategy of prevention including services such as care for pregnant women including proper diet information, well-baby exams including vaccinations, and information on lifestyle issues such as diet, smoking and excess drinking would go a long way to preventing the early onset of many diseases.

The resistance to removing or restricting the use of soda and candy machines in elementary and secondary schools shows that we have a long way to go in even thinking about the most elemental forms of prevention of disease.

Of course prevention is rather boring. It certainly would make for very dull TV shows. Who would not rather watch the fast-paced, high-tech ER than a physician instruct a person in a proper diet? Anyway, who wants to watch his or her diet all the time? Who has time for exercise and all the other things we learn are good for us? Prevention is a hard sell. But, in the long run, it is better to try to prevent heart disease than repair a damaged heart. It is better to manage one's diet than take insulin continuously or have a leg amputated because of circulation problems resulting from diabetes.

SPENDING CAREFULLY

I am not arguing that we should abandon research or high-tech medicine. I am arguing that we as a country seriously need a national debate on health care and the kind of interventions that would be beneficial for all citizens, not just the wealthy.

Currently, it seems like much research on specific diseases is driven by powerful lobbying groups who have celebrity spokespersons who sometimes have the disease for which funding is sought. Parents whose children are afflicted with terrible diseases bring their children to congressional hearing rooms. The implication is that if Congress does not fund this particular legislation and a relative dies, it is the direct fault of Congress. But we know that we cannot fund research for all diseases, and certainly we cannot fund them equally.

While all of us are sympathetic to the plight of the sick and suffering, a genuine ethical question is, who get access to such congressional hearings? One seldom sees the poor, the socially marginalized, the unemployed, the underinsured moving about in these circles. How does health-care policy affect their lives, particularly since they probably have no insurance to begin with?

What I am arguing here is that the stem-cell debate focuses our attention on yet another critical and important technical development in the fight against disease. Yet it also should make us question whether we as a country should channel all our resources to this form of research, or should we also begin to devote resources to prevention. Our health-care budget is limited; thus the question of the justice of how such resources are allocated is a critical one.

In addressing all of the questions covered in this *Update*, it's important to remember the Church does not wish merely to be a naysayer against development and scientific progress. In fact, the Church is very positive and supportive about advances in science that improve the quality of human life.

Most of the world knows that the Church works in many places, often in areas of high poverty, seeking to help liberate the human family from disease. In evaluating how to move ahead, whether it is in the laboratory or in society at large, always we are to remember an underlying principle: to value the dignity of human life.

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UPDATE

Question Box

1) What is the moral difference between embryonic and adult stem-cell research?

2) How do you approach complex ethical questions?

3) Has access to health care been an issue for you? How?

IMPRIMATUR: +CARL K. MOEDDEL, V.G. AND AUXILIARY BISHOP, ARCHDIOCESE OF CINCINNATI, NOVEMBER 16, 2001