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## Human stem cell cloning: How slippery is the slippery slope?

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ON April 22, legislation was proclaimed which banned all forms of human cloning in Canada. This means that the use of cloning as a reproductive technology is now a criminal offence. Unfortunately, it also means that the therapeutic cloning of human embryos for medical research or for the treatment of disease is banned.

No one is likely to lament the Canadian ban on cloning as a tool for making babies. Most advanced nations have imposed a similar legal prohibition. As a reproductive technology, cloning is so dramatically unsafe for babies (at present) that no loving parent would dream of trying to use it; and, even if an infertile couple were so foolish or wrongheaded as to request it, no ethical physician would participate in the project.

On the other hand, therapeutic human embryonic stem cell cloning holds out the promise of a medical breakthrough in the treatment of many terrible degenerative diseases, including diabetes, Alzheimer's, heart disease and stroke. The potential benefit to patients and to their families is immense. Canadians recognize this, and polls (such as the one in Thursday's online *Globe and Mail*) consistently show a 75 per cent level of support for therapeutic cloning.

Stem cell research may also, in the more distant future, enable doctors to grow a supply of transplantable organs from embryonic stem cells which have been specially tweaked so that they exactly match a patient's own immune system. This could introduce the dawn of a new kind of medicine: regenerative medicine.

Some caution and skepticism are needed. The technology may not ultimately be successful or may turn out to have dangerous side-effects. The isolation and cloning of stem cells is so recent that no one can as yet be confident of its therapeutic utility. Early experimental results are promising, but potential problems lie ahead: For example, once cell growth is turned on, it may be difficult to turn it off. Cells that cannot be turned off could destroy the health or life of the patient into whose body they've been introduced. Even if the technology works, it will be many years before it will be proven safe and effective.

A few days ago, Britain's Human Fertilisation and Embryology Authority (HFEA) gave its approval to a team of Newcastle researchers who propose to clone early human embryos. They are aiming to create insulin-producing cells that could be transplanted into diabetic patients. This kind of cloning (for research and therapy), though now banned in Canada, has been made legal in Britain and a number of other countries, including Sweden, Japan, Belgium and China.

So why has Canada (along with the United States) banned therapeutic cloning?

There is a powerful religious lobby that considers a human embryo to be the moral equivalent of a person. Since the extraction of stem cells from the cloned human embryo results in its destruction, they see this as killing a human being. Anti-abortion campaigners, especially in the United States, have persuaded President Bush to withhold all federal funds from any organization conducting embryonic stem cell research. As a morally preferable alternative, critics argue that adult stem cells should be harvested instead of embryonic stem cells.

Research is continuing on the potential benefits of employing adult stem cells, such as those present in bone marrow; and, if it turns out to be the case that adult stem cells work as well as embryonic stem cells, then that would be the preferred option and ethical controversy would diminish. At present, however, many scientists believe that embryonic stem cells will offer therapeutic benefits not available from adult stem cells, and they want to continue their research full steam ahead.

Proponents of embryonic stem cell research reply to their critics that stem cells are extracted from the embryo when it is nothing more than a microscopic blob. The early-stage human embryo (called a blastocyst) is not a person, they insist, since personhood requires a functioning brain and nervous system. Indeed, since the blastocyst could still divide into twins or triplets, it cannot even be said to be an individual being.

Even some opponents of embryonic stem cell research concede that it has enormous potential to benefit humankind. They tend to argue, however, that no matter how great the potential benefits may be, we ought to reject the technology because it is inherently wrong and against the will of God. As well, critics often invoke the slippery slope argument: If we develop and improve the technology of cloning human embryos for purposes of research and therapy, there will be scientists who misuse the technology for purposes of human reproduction. That is, some Dr. Frankenstein will take the cloned human embryos and instead of extracting stem cells from them, when they are a few days old, these evil scientists will allow the embryos to continue their development until they can be implanted into a woman's womb, leading to the birth of a human clone.

Defenders of embryonic stem cell cloning reply that religious dogma should not be allowed to perpetuate avoidable human suffering and death. And they reject the claim that we are on a slippery slope towards cloning as a way of making babies.

Virtually all governments have now passed strong legislation prohibiting the use of cloning to make babies -- because it poses completely unacceptable health risks to mothers and babies.

Moral life requires that we make distinctions. There is a world of difference between putting at risk the health of mothers and babies, on the one hand, and developing a technology which has the potential to rid humankind of the scourge of diabetes and Alzheimer's, on the other.

Because the British have recognized this distinction, stem cell research is likely to flourish there, while American (and to some extent Canadian) scientists watch enviously on the sidelines.

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