



Stem Cells in a Pluralistic Society: Consequences of Proposed Canadian Legislation

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In December 2001, following an initiative taken by France and Germany, the United Nations put in place an Ad Hoc Committee to prepare an *International Convention against the Reproductive Cloning of Human Beings*. Recently, the possibility of a *Convention* was called into question when the United States demanded an international ban on therapeutic cloning as well. On December 26th, 2002 the announcement by Clonaid of the supposed birth of a “cloned” baby caused worldwide consternation. Whether science fiction or reality, policymakers around the world need to act or be seen to act.

These recent events have rekindled legislative interest in banning all procedures labeled cloning, even when certain procedures are not intended to create a baby. Stem cell research is embroiled in anti-cloning laws. In this initial edition of **GenEdit**, which will become a regular feature of HumGen (www.humgen.umontreal.ca), we will briefly examine the state of the science, followed by the legal, ethical, religious, and cultural issues surrounding embryonic stem cell research.

A. Science

Stem cells have the power to produce a wide variety of cells that can create, repair or regenerate different tissues. They have the potential to repair the ravages of many degenerative diseases, including Alzheimer’s disease, Parkinson’s disease, diabetes, and more. Although promising experiments have been conducted with animals, there are as yet no clinically useful results for humans. Results may require many years. There are two primary sources of stem cells: embryos and adults. Embryonic stem cells (ES cells) are taken from an embryonic structure found 6-7

days post-fertilization called the blastocyst. The embryos used to extract stem cells are surplus embryos from *in vitro* fertilization (IVF) treatment, i.e., they are no longer part of a parental project and would otherwise be donated or destroyed. The embryos used for stem cell research will necessarily be destroyed.

Another and more controversial source of stem cells is the procedure called somatic cell nuclear transfer (SCNT), better known as therapeutic cloning. The nucleus of a differentiated adult cell is transferred into an enucleated ovum. Then, the ovum is stimulated to divide into an embryo. “Therapeutic cloning” is not the same as reproductive cloning; the embryo develops only long enough to produce stem cells (6-7) days. The particularity of this technique is that the stem cells obtained are genetically matched to the recipient. Stem cells are also found in umbilical cords and in adults (e.g. bone marrow). Like SCNT, the use of one’s own adult stem cells would avoid immune rejection. There is general scientific consensus that embryonic cells, whether from spare embryos or from SCNT will prove to be the most effective. To date only ES cells have been shown to be capable of making all 200 cell types in the body, while “adult” cells have only been shown to make about six.

B. Legal Positions

Most countries in the world have not addressed stem cell research in legislation. Only as regards human reproductive cloning are there legal prohibitions. We will focus our discussion below on ES cells and SCNT.

In the case of stem cell research on spare embryos and therapeutic cloning, we can

differentiate five approaches. The prohibitive approach, (e.g. Ireland or Austria) bans all embryo research with the possible exception of treatments beneficial to that particular embryo or treatments necessary to achieve pregnancy. Prohibitive approaches tend to contribute to: the slowdown of scientific advances, the exodus of researchers, patients shopping for procedures in other countries, laws difficult to change in response to scientific advances. Finally, this approach does not ultimately prevent embryo research. Indeed, it causes research to migrate to countries where there is little ethical oversight. The second is the compromise approach. It attempts to satisfy all sides by setting a cut-off date after which stem cells may not be taken from surplus embryos, but permits research on stem cells that have already been derived before the cut-off date (e.g., Australia, Germany). A compromise approach is a partial antidote to prohibition. Third, the cautious approach (e.g., Canada), tries to permit research but publicly bans controversial areas. Under this third approach, stem cell research on spare embryos from IVF treatment is permitted but the creation of embryos for research purposes is prohibited. The cautious approach assumes that cutting-edge research will be done elsewhere. Fourth, the liberal approach (e.g., UK, Japan, Israel, Singapore) permits the creation of embryos for research purposes (if a sufficient number of embryos cannot be obtained by any other means) as well as stem cell research and therapeutic cloning. Liberal approaches are pragmatic; they are flexible. Yet, they do regulate in the interest of patients, public health and societal concerns. They also include overall prohibitions of activities such as reproductive cloning, the creation of hybrids, or payments for embryo donations. They favor scientific development with ethical and safety oversight regulation. Finally, there is the laissez-faire approach. The United States constitutes the best example of an unregulated private sector. The disadvantage of the laissez-faire approach is that it prevents an international approach. Whatever is prohibited in some countries will eventually take place in others, provided that there is a demand for it.

Countries may retain a laissez-faire approach to attract biotechnology industry or in order to become leaders in research. This approach also fails to respond to the issues raised by the social values at stake.

C. Religious Positions

Different religions also have positions on stem cell research and therapeutic cloning. Views on the subject are based on perception of the status of the embryo. The doctrine of the Vatican is opposed to stem cell research and any embryo research generally. Protestant views vary. Some denominations support stem cell research and others do not. According to the Jewish point of view, the embryo outside the mother's womb does not have the same value and so supports stem cell research and therapeutic cloning. Generally, Islamics tend to allow stem cell research but more conservative views do not agree with it.

D. Ethical Positions

Ultimately, legislators will have to balance the interests and welfare of a group of about 100 cells (the size of the point of a pin) that cannot feel pain, against the dignity, interests, and welfare of persons already born who suffer from chronic diseases or disabilities. In a pluralistic society, there are different general legal approaches. A "non-moral" approach is based on the "interests" of constituents, without weighing the ethical issues. In contrast, the "moralist" approach enforces the morals of one group upon others, often by referring to abstract principles. Finally, the "consequentialist approach" examines the consequences of various legal and regulatory actions for society as a whole and for various sub-groups. In the absence of a universal agreement on a moral issue, the consequentialist approach is the most ethical since it considers the consequences for all parties involved.

There are a few interesting points to consider in the consequentialist approach. The

fate of the embryo is the same regardless of prohibitions. The embryo will ultimately be destroyed. If the embryo had a choice—which it cannot—would it perhaps choose to help others before expiring? Isn't helping others, being part of society, an element of human dignity? Furthermore, some persons with disabilities or degenerative diseases such as Alzheimer's, Parkinson's, diabetes, multiple sclerosis, and heart disease may benefit from treatments arising from research, though at this early point it is important not to be over-optimistic. A ban on research would cut off this potential avenue of treatment, and persons with disabilities would endure the natural course of their disease or degenerative process.

A major argument used by proponents of bans is that destroying early embryos to derive stem cells, or "playing God" by creating embryos through SCNT (therapeutic cloning) could change the moral order by lessening the value of all human life. Nevertheless, in view of the very early stage of the embryos, the absence of human features, and their place in laboratories rather than in the body, it seems doubtful that most societies would equate them with full human status.

Even in the absence of outright bans, ethical and legal oversights are possible (including quality control, safety requirements, informed consent requirements, regulation of patenting, licensing, and equitable distribution of benefits). Bans would drive research to other countries, underground, or to the private sector (including offshore). There it will occur without oversight. Sometimes laws intended to prevent abuses lead to other abuses. Indeed, while patenting, restrictive licensing, commercialization, commodification of embryos and eggs are all possible in the absence of a ban, this is only true if there is total lack of regulation. Bans on research could help prevent such abuses, but this can be done without banning the research itself.

A major reason for forbidding therapeutic cloning is the fear that it might

inadvertently lead to attempts at reproductive cloning. An enforceable worldwide ban on reproductive cloning is a laudable goal that has not been reached. Banning therapeutic cloning will not prevent the development of reproductive cloning somewhere else in the world. When that occurs, cloning will be used only by a desperate few who can afford its extreme cost. It will not be the end of our moral world, of human dignity, or of the "lottery" of human reproduction as we know it. In balance, it would be unjust to ban a technique that could help millions of people because the technique might be misused by a few. It would be better to ban misuses, such as reproductive cloning, rather than the technique (SCNT) itself, which could be regulated. Finally, prohibitive laws, once passed, tend to be difficult to amend or repeal.

Conclusion

Laws can have many beneficial and non-controversial uses in the stem cell debate. Many regulations protective of public health and of patients can be implemented in the absence of total, overreaching prohibitions. Some of these regulations could effectively prevent reproductive cloning and premature use of stem cells for treatments.

It is important to avoid passing laws that Canada will regret in ten years time. Today's laws may become tomorrow's embarrassments when new technologies appear. Absolute prohibitions on research may serve neither embryos nor human health. Germany, Sweden, and Denmark passed laws prohibiting embryo research long before stem cells came on the scene. Once passed, such laws became impossible to change, even though many patients would like to see research proceed. Putting therapeutic cloning in the same class as reproductive cloning is throwing out the baby with the bath water. Better to let such research proceed cautiously under carefully controlled conditions.

**Table 1: Legislation on Reproductive/Therapeutic Cloning, Stem Cell Research, Embryo Research
By Dorothy Wertz, Marie-Hélène Régnier and Bartha Maria Knoppers, CRDP, Université de Montréal**

Country	Rep. Cloning	Therap. Cloning (SCNT*)	Stem Cell Research on Spare Embryos	Research on Embryos (gen'lly)	Sources
Argentina	NO				Decree No. 200 of March 1997: A Prohibition on Human Cloning Research;
Austria	NO	NO	NO	NO	Reproductive Medicine Law 1992; (Creation of embryos for reproductive purposes only)
Australia (federal)	NO	NO	YES	YES	Research Involving Human Embryos Act 2002; Prohibition of Human Cloning Act 2002 (Embryos created before April 5, 2002 for stem cell and embryo research; Subject to licence)
Canada	NO	NO	YES	YES	CIHR Guidelines; Bill C-13 An Act Respecting Assisted Human Reproductive Technologies and Related Research (Surplus embryos only; Subject to licence)
Costa Rica		NO	NO	NO	Decree no. 24029-S. A Regulation on Assisted Reproduction, Feb. 3, 1995
Denmark	NO	NO	NO	NO ^a	Act no. 460 of 10 June 1997 on Assisted Procreation ^a as interpreted by the Danish Council of Ethics
Finland				YES	Medical Research Act no. 488, April 9, 1999
France	NO	NO	YES	YES	Projet de loi relatif à la bioéthique, tel qu'adopté par le Sénat (January 30, 2003) (Subject to licence)
Germany	NO	NO	YES	NO	Embryo Protection Law 1990; Stem Cell Act, 2002 (Imported stem cell lines created before January 1 st , 2002; Subject to licence)
Iceland	NO	NO	NO	YES	Ministry of Health and Social Security, Regulation No. 568/1997 on Artificial Fertilization;
Ireland	NO	NO	NO	NO	Constitution of Ireland art. 40 para.3 (3 ^o)
Israel	NO	YES	YES	YES	Prohibition of Genetic Intervention Law (1999); (Five year moratorium: ad 2004); Bioethics Advisory Committee of the Israel Academy of Sciences and Humanities (Section 8 – surplus embryos only)
Japan	NO	YES	YES	YES	The Law Concerning Regulation Relating to Human Cloning Techniques and Other Similar Techniques (Art.3) The Guidelines for Derivation and Utilization of Human Embryonic Stem Cells (Surplus and created embryos; Subject to licence)
The Netherlands	NO	YES ^b	YES	YES	Act Containing Rules Relating to the Use of Gametes and Embryos (Embryos Act), October, 2001; ^b after moratorium
Norway	NO	NO	NO	NO	Norwegian Law on Assisted Reproduction and Genetics, 1994
Peru	NO	NO	NO	NO	General Law No. 26842 of 9 July 1997 on Health
Russia	NO				Law on Reproductive Human Cloning, April 19, 2002
Spain			YES	YES	Law no 42/1988 of 28 December 1988 on the Donation and Use of Human Embryos and Foetuses or their Cells, Tissues, or Organs
Sweden		NO	YES	YES	Law 115 of March 14, 1991, Act Concerning Measures for the Purposes of Research or Treatment in connection with Fertilized Human Oocytes, as interpreted by the Swedish Research Council's Guidelines for Research-Ethical Review of Human Stem Cell Research, Dec. 4, 2001;

Country	Rep. Cloning	Therap. Cloning (SCNT*)	Stem Cell Research on Spare Embryos	Research on Embryos (gen'ly)	Sources
					Swedish Council on Medical Ethics, Statement of Opinion on Embryonic Stem Cell Research, Jan. 17, 2000
Switzerland	NO	NO	NO	NO	Constitution fédérale de la Confédération suisse, 1999.
United Kingdom	NO	YES	YES	YES	Human Reproductive Cloning Act 2001(extends to Northern Ireland); Human Embryology & Fertilisation Act 1990 (Subject to licence)
United States	NO	YES ^c	YES ^c	YES ^c	No federal law to date; No federal funds for embryo research nor for creation or derivation of stem cell lines after August 9, 2001; ^c Private sector is unaffected.

Updated February 10th 2003

Table 1A: Views of International Organizations Regarding Therapeutic Cloning, and Embryonic Stem Cell Research

By Dorothy Wertz, Marie-Hélène Régner and Bartha Maria Knoppers, CRDP, Université de Montréal

Organization	Reproductive Cloning	Therapeutic Cloning (SCNT*)	Stem Cell Research with Spare Embryos	Organizational Citation and Website
World Medical Association (WMA)	Voluntary moratorium			World Medical Association; Resolution on Cloning, Hamburg, November 1997; http://www.wma.net/e/policy/20-2-97_e.html
UNESCO	NO	NO	No consensus. Discussion should take place at national level.	Universal Declaration on the Human Genome and Human Rights, Geneva, 11 November, 1997 http://www.unesco.org/ibc/en/genome/projet/index.htm The Use of Embryonic Stem Cells in Therapeutic Research: Report of the IBC on the Ethical Aspects of Human Embryonic Stem Cell Research, Paris, April 6, 2001; http://www.unesco.org/ibc/en/reports/embryonic_ibc_report.pdf
WHO	NO	YES		Cloning in Human Health - Report by the Secretariat (A52/12); Geneva, 1999 http://www.who.int/gb/EB_WHA/PDF/WHA52/ew12.pdf

Organization	Reproductive Cloning	Therapeutic Cloning (SCNT*)	Stem Cell Research with Spare Embryos	Organizational Citation and Website
HUGO (Human Genome Organization)	NO	YES		Statement on Cloning; 1999 http://www.biol.tsukuba.ac.jp/~macer/hugoclone.html Statement on the Patenting of DNA Sequences - In Particular Response to the European Biotechnology Directive, 2000; http://www.gene.ucl.ac.uk/hugo/patent2000.html
Vatican State Secretary	NO	NO	NO	Reflections on Cloning, 1997 http://www.vatican.va/roman_curia/pontifical_academies/acdlife/documents/rc_pa_acdlife_doc_30091997_clon_en.html Declaration on the Production and the Scientific and Therapeutic use of Human Embryonic Stem Cells, 2000; http://www.vatican.va/roman_curia/pontifical_academies/acdlife/documents/rc_pa_acdlife_doc_20000824_cellule-staminali_en.html
Pontifical Academy for Life	NO	NO	NO	Reflections on Human Cloning, 1997; http://www.priestsforlife.org/magisterium/cloning.htm
Islamic Organization for Medical Sciences (IOMS)	Recommends further study of questions			Human Reproduction in Islam, 1983; http://www.islamset.com/bioethics/firstvol.html
International Council of Nurses (ICN)	Needs further debate	Needs further debate		Position Statement Cloning and Human Health, 1998; http://www.icn.ch/pscloning.htm
International Federation of Gynecology and Obstetrics (FIGO)	NO	YES	YES	Guidelines produced by the FIGO Committee for The Study of Ethical Aspects of Human Reproduction and Women's Health, 1998; http://www.figo.org/default.asp?id=/00000091.htm
International Society of Bioethics (SIBI)	NO	NO	Only if embryo is not destroyed	Bioethics Declaration of Gijón 2000 http://www.sibi.org/ingles/declaracion.htm

Updated February 10th 2003

Table 1B: Views of Regional Organizations Regarding Therapeutic Cloning, and Embryonic Stem Cell Research

By Dorothy Wertz, Marie-Hélène Régnier and Bartha Maria Knoppers, CRDP, Université de Montréal

Organization	Reproductive Cloning	Therapeutic Cloning	Stem Cell Research on Spare Embryos	Citation and Website
Council of Europe	NO	NO, in nations that define early embryos as human persons. Does not apply to nations that already have laws permitting creation of embryos for research.	NO, in nations that define early embryos as human persons	Additional Protocol to the Convention for the Protection of Human Rights and Dignity of the Human Being with regard to the Application of Biology and Medicine, on the Prohibition of Cloning Human Beings - ETS 168, 1998; http://conventions.coe.int/treaty/en/Treaties/Html/168.htm
European Group on Ethics in Science and New Technologies (European Commission) (EGE)	NO	Premature; Calls for prudence; Process should not be patentable.	YES - Subject to national laws - Stem cells legally patentable only if modified - Calls for compulsory licensure to prevent unreasonable fees - Rejects commercialization	Opinion No. 15 Ethical Aspects of Human Stem Cell Research and Use, 2000; http://europa.eu.int/comm/european_group_ethics/docs/avis15_en.pdf Opinion No. 16 Ethical Aspects of Patenting Inventions Involving Human Stem Cells, 2002; http://europa.eu.int/comm/european_group_ethics/docs/avis16_en.pdf
European Society of Human Reproduction and Embryology (ESHRE)	NO, Voluntary moratorium starting in February 1997	YES	YES	I. The Moral Status of the Pre-Implantation Embryo, 2001; http://humrep.oupjournals.org/cgi/content/full/16/5/1046 Voluntary Moratorium on Cloning Human Beings, 1999; http://www.eshre.com/trymain.asp?P=151&M=310&S=190&C=424
European Science Foundation (ESF)	NO	YES	YES Recommends public funding	Human Stem Cell Research: Scientific Uncertainties and Ethical Dilemmas, 2000; http://www.esf.org/articles/3/ESPB14.pdf

Organization	Reproductive Cloning	Therapeutic Cloning	Stem Cell Research on Spare Embryos	Citation and Website
Nordic Committee on Bioethics	NO	NO "Slippery slope" to reproductive cloning	YES	Opinion from the Nordic Committee on Bioethics based on the Workshop "Ethical Issues in Human Stem Cell Research", 2000; http://www.ncbi.org/Html/eng_stem_cell.htm
Human Genetic Society of Australasia (HGSA)	NO	No consensus Individual nations should decide	YES	Human Cloning, 1999; http://www.hgsa.com.au/policy/hc.html

Updated February 10th 2003

Table 1C: Views of National Organizations Regarding Therapeutic Cloning, and Embryonic Stem Cell Research

By Dorothy Wertz, Marie-Hélène Régner and Bartha Maria Knoppers, CRDP, Université de Montréal

Organizations	Reproductive Cloning	Therapeutic Cloning	Stem Cell Research With Spare Embryos	Citation and Website
Australia				
Australian Academy of Science	NO	YES	YES	On Human Cloning: A Position Statement, 1999; http://www.science.org.au/academy/media/clone.pdf
Australian Medical Association	NO	YES		Human Genetic Issues, 2000; http://domino.ama.com.au/AMASWeb/Position.nsf/2450dc7198e39dd84a2568ea0045ca07/f0f4b9505aaaf46d4a2568ee001341d5?OpenDocument

Organizations	Reproductive Cloning	Therapeutic Cloning	Stem Cell Research With Spare Embryos	Citation and Website
Canada				
Canadian Institutes for Health Research (CIHR)		NO	YES	<p>Human Stem Cell Research: Opportunities for Health and Ethical Perspectives, A Discussion Paper, 2001; http://www.cihr.gc.ca/publications/ethics/stem_cell/preamble_stem_cell_e.shtml</p> <p>Human Pluripotent Stem Cell Research: Guidelines for CIHR-Funded Research http://www.cihr-irsc.gc.ca/publications/ethics/stem_cell/stem_cell_guidelines_e.shtml</p>
Medical Research Council, Natural Sciences and Engineering Council, Social Sciences and Humanities Research Council (Tri-Council)	NO	NO	YES	<p>Tri-Council Policy Statement — Ethical Conduct for Research Involving Humans, 1998; http://www.nserc.ca/programs/ethics/english/ethics-e.pdf</p>
Juvenile Diabetes Research Foundation	NO	YES	YES	<p>JDRF Welcomes Federal Bill to Allow Embryonic Stem Cell Research, 2002; http://www.jdrf.ca/press/pressrelease.cfm?id=78</p> <p>Juvenile Diabetes Research Foundation Canada Supports Federal Funding for Embryonic Stem Cell Research, 2001; http://www.jdfc.ca/press/pressrelease.cfm?id=71</p>
Canadian Conference of Catholic Bishops (CCCB)	NO	NO	NO	<p>Presentation by the Canadian Conference of Catholic Bishops To the House of Commons Standing Committee on Health On the Draft Legislation The Assisted Human Reproduction Act, 2001; http://www.cccb.ca/english/default_e.htm</p>

Organizations	Reproductive Cloning	Therapeutic Cloning	Stem Cell Research With Spare Embryos	Citation and Website
Denmark				
Danish Council of Ethics	NO	NO	NO	Working Paper on Cloning, 1997; http://etisk.inforce.dk/graphics/03_udgivelser/html/CLONING.HTM
France				
National Consultative Ethics Committee for Health and Life Sciences (CCNE)	NO	Members are divided but the majority is in favor	YES	Opinion (No. 67) on the Preliminary Draft Revision of the Laws on Bioethics, 2001; http://www.ccne-ethique.org/english/start.htm
Germany				
Deutsche Forschungsgemeinschaft	NO		YES, Protest over bureaucratization of stem cell imports	Statement by the Deutsche Forschungsgemeinschaft on the Bill on Stem Cell Imports, 2002; http://www.dfg.de/english/press/stammzellen_statements_e.html
Greece				
National Bioethics Commission		YES	YES	Recommendations on the Use of Stem Cells in Biomedicine and Clinical Medicine, 2002; http://www.bioethics.gr/mod/userpage/images/stem%20cell%20report%20in%20english.pdf
India				
Department of Biotechnology – Government of India	NO	NO	YES	Ethical Policies on the Human Genome, Genetic Research and Services, 2001; http://dbtindia.nic.in/ethical.html
Italy				
National Bioethics Committee	NO	No consensus, Undecided	No consensus	Opinion of the National Bioethics Committee on the therapeutic use of Stem Cells, 2000; http://www.governo.it/bioetica/english/cells.html#3

Organizations	Reproductive Cloning	Therapeutic Cloning	Stem Cell Research With Spare Embryos	Citation and Website
Singapore				
Bioethics Advisory Committee Singapore	NO	YES	YES	Ethical, Legal and Social Issues in Human Stem Cell Research, Reproductive and Therapeutic Cloning, 2002; http://www.bioethics-singapore.org/bac/upload/pdf/206report.pdf
Spain				
Bioethics and Law / Observatori de Biomètica i Dret		YES	YES	Opinion Group- Declaration on Embryo Research, 2000
United Kingdom				
British Medical Association (BMA)	NO	YES	YES	BMA Position on Human Cloning, 2001; http://www.bma.org.uk/ap.nsf/Content/Ethics+BMA+position+on+human+cloning
Chief Medical Officer's Expert Advisory Group on Therapeutic Cloning	NO	YES	YES	Stem Cell Research: Medical Progress with Responsibility, 2000; http://www.doh.gov.uk/cegc/stemcellreport.pdf
Human Genetics Advisory Commission (HGAC)	NO, Recommend re-examination in 5 years	YES	YES	Cloning Issues in Reproduction, Science and Medicine, 1998; http://www.doh.gov.uk/hgac/papers/papers_c.htm
Nuffield Council on Bioethics	NO	YES	YES	Stem Cell Therapy: The Ethical Issues, 2000; http://www.nuffieldfoundation.org/bioethics/press/pr_0000000131.html

Organizations	Reproductive Cloning	Therapeutic Cloning	Stem Cell Research With Spare Embryos	Citation and Website
The Royal Society	NO	YES	YES	Therapeutic Cloning: A submission by the Royal Society to the Chief Medical Officer's Expert Group, 2000; http://www.royalsoc.ac.uk/files/statfiles/document-104.pdf Whither Cloning?, 1998; http://www.royalsoc.ac.uk/files/statfiles/document-65.pdf
Department of Health (UK)	NO, Re-examine in 5 years	YES	YES	Cloning Issues in Reproduction, Science and Medicine - Government Response to the Report by the Human Genetic Advisory Commission and the Human Fertilisation and Embryology Authority on Cloning Issues in Reproduction, Science and Medicine, 1999; http://www.doh.gov.uk/cloning.htm
Church of Scotland	NO			Cloned Babies - the Height of Irresponsibility, 2001; http://dSPACE.dial.pipex.com/srtscot/clonin61.htm
Wellcome Trust	NO		YES	Wellcome Trust Interim Position Statement on Stem Cell Research, 2001; http://www.wellcome.ac.uk/en/1/awtv/ispolstm.html
Foresight Healthcare Panel			YES, want to see UK industry at forefront	Health Care 2020, 2000; http://www.foresight.gov.uk/
United States				
National Advisory Commission (NBAC) *no longer exist	5-year moratorium starting summer 1997	YES in private sector; Gov. should not fund	YES with surplus embryos from IVF. Gov. should fund	Ethical Issues in Human Stem Cell Research. Vol. I. Report and Recommendations, Rockville, MD, September 1, 1999. Vol. II. Commissioned Papers, January 2000. Vol. III. Religious Perspectives, June 2000; http://bioethics.georgetown.edu/nbac/stemcell.pdf
President's Council on	NO	Recommend		Human Cloning and Human Dignity:

Organizations	Reproductive Cloning	Therapeutic Cloning	Stem Cell Research With Spare Embryos	Citation and Website
Bioethics (Bush's Commission)		s 4-year legal moratorium (10-7 vote)		An Ethical Inquiry, 2002; http://www.bioethics.gov/cloningreport/
American Association for the Advancement of Science (AAAS)	NO, but continue open dialogue	YES, Gov. should oversee both private and public sector	YES, Criticizes paucity and quality of stem cell lines allowed federal funding under Bush policy	Statement on Human Cloning, 2002; http://www.aaas.org/spp/dspp/sfrl/cloningstatement.htm President Bush's Stem Cell Policy - A Statement of the American Association for the Advancement of Science, 2001; http://www.aaas.org/spp/cstc/stemstmt.htm Stem Cell Research and Applications - Monitoring the Frontiers of Biomedical Research, 1999; http://www.aaas.org/spp/dspp/sfrl/projects/stem/report.pdf
National Research Council/ Committee on the Biological and Biomedical Applications of Stem Cell Research	NO	YES	YES	Stem Cells and the Future of Regenerative Medicine, 2002, http://search.nap.edu/books/0309076307/html/
American Society for Human Genetics			YES	Statement on Stem Cell Research, 2001; http://www.faseb.org/genetics/ashg/policy/pol-44.htm
Association of American Medical Colleges (AAMC)			YES	Stem Cell Research, 2001; http://www.aamc.org/advocacy/research/stemcell/start.htm
Association of American Universities (AAU)	NO, but legal ban should be reconsidered at 5-year interval	YES	YES	AAU Statement on Human Cloning, 2002; http://www.aau.edu/research/cloning4.02.html
American Infertility Association (AIA)			YES	American Infertility Association Sounds New Call for Patient Education-AIA Continues Focus on Unused Pre-Embryonic Cells, 2001; http://www.americaninfertility.org/media/aia_stemcell_position.html

Organizations	Reproductive Cloning	Therapeutic Cloning	Stem Cell Research With Spare Embryos	Citation and Website
Kidney Cancer Association (KCA)			YES	Public Policy Activity: National Institutes of Health: Comments on Proposed Stem Cell Guidelines, 2000; http://www.kidneycancerassociation.org
National Coalition for Cancer Research (NCCR)			YES	National Coalition for Cancer Research Legislative Update, 2001; http://www.cancercoalition.org/priorities.html
National Patient Advocate Foundation (NPAF)			YES	NPAF Comments Commending the National Institute of Health for its Work in Developing Guidelines for Federally Funded Research, 2000; http://www.npaf.org/statements.php?p=74
American Society for Cell Biology (ASCB)	NO	YES		Position Paper on Cloning, 2001; http://www.ascb.org/publicpolicy/cloning.htm
Federation of American Societies for Experimental Biology (FASEB)	NO	YES	YES	FASEB statement on Human Cloning and Human Cloning Legislation, 2001; http://www.faseb.org/opar/ppp/humclone.html
National Partnership for Women & Families		YES, but need to protect women from exploitation		Leading Women's Organization Supports Therapeutic Cloning : National Partnership Says Brownback Legislation is Harmful to Women and Families, 2002; http://www.nationalpartnership.org/content.cfm?L1=8&L2=5.0&NewsItemID=464
Council for Secular Humanism	YES	YES	YES	Declaration in Defense of Cloning and the Integrity of Scientific Research, 1997; http://www.secularhumanism.org/library/fi/cloning_declaration_17_3.html
General Convention of the Episcopal Church		YES		Resolutions of the General Convention of the Episcopal Church Relating to the Issues Surrounding Genetic Testing, 1985;

Organizations	Reproductive Cloning	Therapeutic Cloning	Stem Cell Research With Spare Embryos	Citation and Website
General Assembly of the Presbyterian Church			YES	Presbyterian Vote in Favor of Foetal, Embryonic, and Stem Cell Research, 2001; http://www.eurekaalert.org/pub_release/2001-06/SaRN-Pvif-1406101.php
United Church of Christ			YES	Support for Federally Funded Research on Embryonic Stem Cells, 2001; http://www.ucc.org/synod/resolutions/res30.htm
Missouri Synod Lutheran Church			NO	A Letter to the Nationl Institutes of Health Regarding Stem Cell Research, 2000; http://www.lcms.org/president/statements/stemcell.asp
United Methodist Church			NO	GBCS General Secretary Letter to President Bush to Extend Moratorium on Human Embryo Stem Cell Research, 2001; http://www.umc-gbcs.org/gbpr118a.htm
Southern Baptist Convention			NO	Resolution No 7 – On Human Embryonic and Stem Cell Research, 1999; http://www.sbcannualmeeting.org/sbc99/res7.htm
Biotechnology Industry Organization	NO	YES	YES	BIO's Recommendations for the National Bioethics Advisory Commission Regarding the implications of Cloning Technology, 1999; http://www.bio.org/laws/nbac.html
Geron Corporation	NO		YES	The First Derivation of Embryonic Stem Cells: A Scientific Breakthrough for Transplantation Medicine, Pharmaceutical Research and Development, and Human Developmental Biology, 1998; http://www.geron.com/print.pr_110598bkgr.html

Organizations	Reproductive Cloning	Therapeutic Cloning	Stem Cell Research With Spare Embryos	Citation and Website
Council for Responsible Genetics (CRG)	NO	NO		Council for Responsible Genetics Statement on Embryo Research, 2001; http://www.genewatch.org/programs/cloning/embryo-statement.html Position Statement On Cloning, 2000; http://www.genewatch.org/educational/human_cloning_PP.pdf

Updated February 10th 2003

* SCNT: Somatic Cell Nuclear Transfer