

World Human Cloning Policies

By Kathryn Wheat and Kirstin Matthews, Ph.D.

The information in this section is provide to illustrate the diversity of approaches various different parts of the world are taking with regard to regulation of human cloning and embryonic stem cell research. The brief summary is based on a review of relevant literature and websites and should be considered preliminary.

Overview

World policies on human or reproductive cloning range from complete prohibition to no policies on record. Thirty-one countries, including France, Germany, and Russia, have banned human cloning altogether. Fifteen countries, such as Japan, the UK, and Israel, have banned human reproductive cloning, but permit therapeutic cloning. Some countries like Hungary and Poland do not explicitly prohibit embryonic stem cell research or therapeutic cloning, partially because their legislation was drafted before embryonic stem cells were first produced (1998). Many countries, similar to the United States, have yet to pass any official legislation concerning human cloning, thus allowing all types of stem cell and cloning research to occur.

United Nations

The United Nations (UN) is currently considering two different draft resolutions regulating human cloning - one from Costa Rica and one from Belgium. The Costa Rican draft calls for an international convention to prohibit both therapeutic and reproductive cloning, while the Belgian draft calls to ban reproductive cloning only and permits the decision on therapeutic cloning to be up to each country. All countries agree on a ban of reproductive cloning, but some countries prefer the Costa Rican draft because they believe that therapeutic cloning disrespects human dignity and has potential for abuse. Advocates for the Belgian proposal believe that therapeutic cloning findings should be shared internationally so each country can make their own decision. On October 22, 2004, the UN postponed a decision on the resolutions for one year leaving the issue unresolved. (This was the second such postponement.)

World Cloning					
	ESC*	Ther.			
United States	✓	✓	Latvia	✓	
Canada	✓	✓	The Netherlands	✓	
Mexico	✓	✓	Norway		
Costa Rica			Poland	✓	✓
Panama	✓		Portugal	✓	
Trinidad & Tobago			Russia	✓	
Argentina	✓		Slovakia	✓	
Brazil			Slovenia	✓	
Chile	✓		Spain	✓	✓
Columbia	✓	✓	Sweden	✓	
Ecuador			Switzerland		
Peru	✓		UK	✓	✓
Uruguay	✓		China	✓	✓
Austria			India	✓	
Belgium	✓	✓	Japan	✓	✓
Denmark	✓		Singapore	✓	✓
Finland	✓	✓	South Korea	✓	✓
France	✓		Thailand	✓	✓
Georgia	✓		Vietnam	✓	
Germany	✓		Australia	✓	
Greece	✓		New Zealand	✓	✓
Hungary	✓	✓	Israel	✓	✓
Iceland	✓		Turkey	✓	✓
Ireland			South Africa	✓	
Italy			Tunisia	✓	

*Some prohibit the derivation of embryonic stem cells, but do not specifically prohibit the research using existing lines.

North America

United States

- Officially, embryonic stem cell research, therapeutic cloning and reproductive cloning are legal as there is currently no federal regulation or policies overseeing it.
- Reproductive and therapeutic cloning are specifically not federally funded. However, research on human embryonic stem cells is federally funded if these cell lines were created before August 9, 2001. Private industry research is not affected by these policies and is allowed to proceed with the creation of new stem cell lines.
- Some individual states have made their own laws against reproductive and/or therapeutic cloning. (See page 15 “State Cloning Legislation”).

Canada

- Embryonic stem cell research and therapeutic cloning are permitted, but reproductive cloning is banned.
- Researchers can use an embryo from IVF if it is no longer needed for reproductive purposes and consent is given by the donor. Creating a human clone is restricted to improving or providing instruction in assisted reproduction procedures.
- In 2003, the Canadian House of Commons passed a bill allowing the Assisted Human Reproductive Agency the ability to grant permission for embryonic stem cell research and therapeutic cloning.

Mexico

- Embryonic stem cell research and therapeutic cloning are permitted, but reproductive cloning is banned (the laws were just amended in 2004).

Costa Rica

- Embryonic stem cell research as well as therapeutic and reproductive cloning is banned.
- Any manipulation of an embryo's genetic code is prohibited, as well as any experimentation on the embryo (two laws as of 1995 and 1998).

Panama

- Embryonic stem cell research is not specifically prohibited, but therapeutic and reproductive cloning and the funding of such activities are as of 2004.

Trinidad and Tobago

- Embryonic stem cell research as well as therapeutic and reproductive cloning is banned.
- The law states that the manipulation of **ovum**, **zygotes**, and/or embryos for the purpose of producing one that is genetically equivalent to a living or deceased human being, embryo, zygote, or fetus -- or implantation of this -- is prohibited. The ovum may not be retrieved to be fertilized, to mature outside of the human body, or to be implanted (as of 1999).

South America

Argentina

- Embryonic stem cell research is permitted, but all forms of cloning (reproductive and therapeutic) are banned.
- The law specifically states that experiments concerning cloning of human cells in order to generate human beings are prohibited.

Brazil

- Embryonic stem cell research as well as therapeutic and reproductive cloning is banned.
- The current policy prohibits the genetic manipulation of the germline (or a gene which can be passed to ones offspring) and intervention of the human genetic material *in vivo*.
- As of 1995, the Brazilian Biosafety Technical Commission of the Ministry of Science and Technology concluded that this law inherently bans human cloning. The law is currently under review.

Chile

- Embryonic stem cell research is not specifically prohibited, but therapeutic and reproductive cloning and the funding of such activities are as of 1993. This law is currently under review
- The law states that the cloning of human beings and interventions which results in the creation of a human being genetically identical to another is prohibited.

Columbia

- Embryonic stem cell research and therapeutic cloning are permitted, but reproductive cloning is banned.
- The criminal code (2000) prohibits fertilization of a human ovum with intent other than procreation and prohibits genetic manipulation for the purpose of reproductive cloning. The code does allow the fertilization of human **ova** for research and diagnostic purposes, if they is a therapeutic goal.

Ecuador

- Embryonic stem cell research as well as therapeutic and reproductive cloning is banned.
- Research on human embryos (and therefore cloning) is prohibited as of June 1998.

Peru

- Embryonic stem cell research is not specifically prohibited, but therapeutic and reproductive cloning are banned.
- Fertilization of a human ovum with intent other than procreation is prohibited, as well as human cloning (General Health Law, 1997).

Uruguay

- Embryonic stem cell research is not specifically prohibited, but therapeutic and reproductive cloning are as of 2003.

- The law states that human cloning is prohibited, as is manipulating human cells or genetic materials by cloning in order to create an identical human being, pre-embryo (blastocyst), or embryo.

Europe

Austria

- Embryonic stem cell research as well as therapeutic and reproductive cloning is banned.
- Reproductive medicine is acceptable only within stable heterosexual relationships for the purpose of reproduction. Embryos can be used only for implantation in the woman who has donated the **oocytes**, and for no other purposes. Donation of embryos or **gametes** is prohibited (Federal Law of 1992 Regulating Medically Assisted Procreation).

Belgium

- Embryonic stem cell research and therapeutic cloning are permitted, but reproductive cloning is banned as of May 2003.

Denmark

- Embryonic stem cell research is not specifically prohibited, but therapeutic and reproductive cloning and the funding of such activities are as of 2003.
- The law states that research on human reproductive cloning and somatic cell nuclear transfer is forbidden, thereby prohibiting therapeutic cloning.

Finland

- Embryonic stem cell research and therapeutic cloning are permitted, but reproductive cloning is banned.
- Research done for the purposes of curing or preventing serious hereditary disease is allowed, but reproductive cloning is prohibited (Medical Research Act of 1999).

France

- Embryonic stem cell research is allowed, but therapeutic and reproductive cloning are banned.
- Research on human embryonic stem cells is now allowed until embryos are 6-8 days old. However, there is no government funding for such research. Embryos cannot be created specifically for research -- scientists must use existing embryos from IVF. Embryonic stem cell lines are typically imported from abroad.
- A new agency for biomedicine is to be created in Jan 2005, which will regulate embryonic stem cell research.

Georgia

- Embryonic stem cell research is not specifically prohibited, but therapeutic and reproductive cloning are.
- Human cloning through the use of genetic engineering is prohibited (1997 Law on Health Care).

Germany

- Embryonic stem cell research is permitted, but all forms of cloning (reproductive and therapeutic) are banned.
- It is illegal to create any new stem cell lines after December 2001.
- In a recent report, the National Ethics Council said that cloning for research purposes should not be allowed.

Greece

- Embryonic stem cell research is permitted, but all forms of cloning (reproductive and therapeutic) are banned.
- The law states that reproductive cloning is prohibited, as well as the creation of human embryos solely for research purposes (as of 2003).

Hungary

- Embryonic stem cell research and therapeutic cloning are not specifically prohibited, but reproductive cloning is.
- The national law (1997) does not explicitly address or prohibit embryonic stem cell research or therapeutic cloning.

Iceland

- Embryonic stem cell research is not specifically prohibited, but therapeutic and reproductive cloning are (Act on Artificial Fertilisation, 1996).

Ireland

- Embryonic stem cell research as well as therapeutic and reproductive cloning is banned.
- Human cloning is prohibited because the "right to life of an unborn child is equal to that of the mother" as stated in the Constitution of Ireland.

Italy

- Embryonic stem cell research as well as therapeutic and reproductive cloning is banned.
- The law prohibits embryo manipulation, germline modification and human cloning for reproductive or therapeutic research purposes (Assisted Medical Procreation Law, 2004).

Latvia

- Embryonic stem cell research is not specifically prohibited, but therapeutic and reproductive cloning and the funding of such activities are, as of the 2002 Law on Sexual and Reproductive Health.
- Human cloning and the use of medical techniques to create a human being genetically identical to another, alive or dead, is prohibited.

The Netherlands

- Embryonic stem cell research is permitted, but all forms of cloning (reproductive and therapeutic) are banned.
- Human reproductive cloning is prohibited, and research on embryos is strictly regulated (The Embryos Act, 2002).

Norway

- Embryonic stem cell research, as well as therapeutic and reproductive cloning is banned.
- Research on embryos and the use of techniques aimed at the production of genetically identical individuals is prohibited (The Medical Use of Biotechnology, 1995).

Poland

- Human reproductive cloning prohibited, but therapeutic cloning and embryonic stem cell research is not explicitly prohibited (as of 1993). This bill is currently under review.

Portugal

- Embryonic stem cell research is permitted, but reproductive cloning is banned and therapeutic cloning is implicitly prohibited.
- The law states that the cloning of human beings is prohibited (National Council of Ethics for the Life Sciences, 1997).

Russia

- Embryonic stem cell research is not specifically prohibited, but therapeutic and reproductive cloning are.
- For a five-year period starting in 2002, human cloning is prohibited, as well as the import and export of human cloned embryos (Law on Temporary Prohibition of Human Reproductive Cloning, 2002).

Slovakia

- Embryonic stem cell research is not specifically prohibited, but therapeutic and reproductive cloning are.
- No human beings may be created with identical genes; therefore, cloning is prohibited (as of 1994 and 2003).

Slovenia

- Embryonic stem cell research is not specifically prohibited, but therapeutic and reproductive cloning are.
- Human cloning for reproductive and therapeutic purposes is prohibited by the Law on Medically Assisted Reproduction (2000) and the Penal Code (2002).

Spain

- Embryonic stem cell research and therapeutic cloning are permitted, but reproductive cloning is banned.
- Any therapeutic intervention, investigation, or research activity in pre-embryos *in vitro*, pre-embryos, or embryos and fetuses *in utero* will be authorized only if it does not alter the genetic makeup of the embryo, and as long as it is not aimed at one particular individual or race-selection. Research on *in vitro* embryos is allowed with parental consent, after the embryos have been frozen for five years or more.
- The law was passed in 1998 and amended in 2003 and 2004.

Sweden

- Embryonic stem cell research is permitted, but therapeutic and reproductive cloning are banned.
- These issues are covered in the *in vitro* Fertilization Law of 1988 and 1991 Law (Act Concerning Measure for the Purposes of Research or Treatment in Connection with Fertilized Human Oocytes, 1993).

Switzerland

- Embryonic stem cell research as well as therapeutic and reproductive cloning is currently banned.
- The law is currently being reviewed and an election is scheduled for November 28, 2004 to permit therapeutic cloning.
- Any form of cloning and any intervention involving the genetic heritage of human gametes and embryos is prohibited. Only the number of human oocytes that are to be implanted in medically assisted procreation methods may be developed to the embryo stage outside the body of a woman (Federal Order of December 1998).

United Kingdom

- Embryonic stem cell research and therapeutic cloning are permitted, but reproductive cloning is banned.
- Therapeutic cloning is regulated by Human Fertilization and Embryology Authority (HFEA) in order to understand the development of embryos and to develop treatments for serious disease.
- HFEA gave the first license to Newcastle Centre for Life (Aug 2004), where therapeutic cloning will be used.

Asia

China

- Embryonic stem cell research and therapeutic cloning are permitted, but reproductive cloning is banned.
- "Guidelines for Research on Human Embryonic Stem Cells" released in 2004 by China's Ministry of Science and Technology, and Ministry of Health.

India

- Embryonic stem cell research is permitted, but all forms of cloning (reproductive and therapeutic) are banned.
- There are specific principles for human genetics research, while all research on cloning is prohibited.
- The Indian Council of Medical Research released the Consultative Document on Ethical Guidelines for Biomedical Research on Human Subjects (2000), which cover the guidelines.

Japan

- Embryonic stem cell research and therapeutic cloning are permitted, but reproductive cloning is banned.
- Production of cloned human embryos will be limited to basic research or regenerative medicine only (Bioethics Committee of the Council for Science and Technology Policy).

Singapore

- Embryonic stem cell research and therapeutic cloning are permitted, but reproductive cloning is banned.
- The law allows the harvesting of stem cells from cloned human embryos, but it prohibits cloned embryos from developing more than two weeks.

South Korea

- Embryonic stem cell research and therapeutic cloning are permitted, but reproductive cloning is banned.
- The government approved research on somatic cell nuclear transfer based on guidelines of National Ethics Committees.
- As of January 2004, reproductive cloning is banned.

Thailand

- Embryonic stem cell research and therapeutic cloning are permitted, but reproductive cloning is banned.
- The law is stated in "Regulations on Human Cloning, 2002", by the Medical Council of Thailand, and in "Stem Cell Guidelines" by BIOTEC and National Health Foundation.

Vietnam

- Embryonic stem cell research is not specifically prohibited, but therapeutic and reproductive cloning are.
- Human cloning and surrogacy banned as of May 2003.

Oceania

Australia

- Embryonic stem cell research is permitted, but all forms of cloning (reproductive and therapeutic) are banned.
- The law specifically states that one cannot intentionally create a human embryo clone; you may only harvest and do medical research with human embryos from donors (Prohibition of Cloning Act, 2002).

New Zealand

- Embryonic stem cell research and therapeutic cloning are permitted, but reproductive cloning is banned.
- In 2004, the Human Assisted Reproductive Technology Bill was amended to ban reproductive cloning and genetically engineered babies.

Middle East

Israel

- Embryonic stem cell research and therapeutic cloning is permitted, but reproductive cloning is banned.
- Human reproductive cloning and germline genetic engineering is prohibited.
- The law was amended on March 2004 - Prohibition of Genetic Interventions (Human Cloning and Genetic Manipulations of Reproductive Cells).

Turkey

- Embryonic stem cell research is not specifically prohibited.
- Therapeutic cloning is allowed, but reproductive cloning is not (as of 1996).

Africa

South Africa

- Embryonic stem cell research is permitted, but all forms of cloning (reproductive and therapeutic) are banned.
- The law specifically states that the cloning of human cells is prohibited, and genetic manipulation of gametes or zygotes outside of the body is also prohibited (as of 1983).

Tunisia

- Embryonic stem cell research is not specifically prohibited, but therapeutic and reproductive cloning are as of 1997.
- The law states that any technology of related to human cloning is banned.

Further Suggested Readings

World Human Cloning Policies

- (1) The Database of Global Policies on Human Cloning and Germ-line Engineering:
<http://www.glphr.org/genetic/genetic.htm>
- (2) The Institute on Biotechnology and the Human Future:
http://www.thehumanfuture.com/topics/humancloning/clon_policy.htm
- (3) Stem Cells: <http://robby.nstemp.com/photo6.html>
- (4) Global Lawyers and Physician for Human Rights
- (5) North America: http://www.glphr.org/genetic/n_america.htm
- (6) Asia: <http://www.glphr.org/genetic/asia2.htm>
- (7) Europe: <http://www.glphr.org/genetic/europe.htm>
- (8) New Zealand: <http://www.glphr.org/genetic/oceania.htm>
- (9) Foreign Press Center (Japan): <http://www.fpcj.jp/e/shiryō/jb/0427.html>
- (10) International Society for Stem Cell Research:
<http://www.isscr.org/scientists/legislative.htm>
- (11) World Health Net: <http://www.worldhealth.net/p/416,1565.html>
- (12) Wellcome Library Bioethics Web:
<http://bioethicsweb.ac.uk/browse/mesh/C0027978L0027978.html>