

Appendix

State Laws on Human Cloning

There are no federal laws regulating human cloning in the United States, with the exception of laws and policies restricting the federal government from funding human cloning research. However, many states have passed laws on human cloning. Of the states with cloning laws,

- 7 states (Arizona, Arkansas, Michigan, North Dakota, Oklahoma, South Dakota, and Virginia) clearly prohibit both cloning-to-produce-children and cloning-for-biomedical-research;
- 10 states (California, Connecticut, Illinois, Iowa, Maryland, Massachusetts, Missouri, Montana, New Jersey, and Rhode Island) prohibit cloning-to-produce-children while permitting cloning-for-biomedical-research, therefore legally requiring any cloned human embryos to be frozen in perpetuity or destroyed (so-called “clone-and-kill” laws); and
- 1 state (Minnesota) has a statute that would *seem* to prohibit cloning-for-biomedical-research while not addressing the issue of cloning-to-produce-children.

Other states have laws that indirectly address human cloning, either by providing or prohibiting government funding for cloning research, or by explicitly protecting doctors who object to human cloning on grounds of conscience.

Alabama. There are currently no laws in Alabama that prohibit human cloning, whether for biomedical research or to produce children.

Alaska. There are currently no laws in Alaska that prohibit human cloning, whether for biomedical research or to produce children.

Arizona. All forms of human cloning have been prohibited in Arizona since 2010, when the state amended its statutory code to forbid any “attempt to create an *in vitro* human embryo by any means other than fertilization through the combining of a human egg with a human sperm.”¹

The law also states that “a person shall not intentionally or knowingly engage in destructive human embryonic stem cell research.”² The state also prohibits public funds from being used for “somatic cell nuclear transfer, commonly known as human cloning.”³

Arkansas. All forms of human cloning are banned in Arkansas. In 2003, the state passed a law prohibiting the production, purchase, sale, and transportation of human clones. The law defines “cloning” as “human asexual reproduction, accomplished by introducing the genetic material from one or more human somatic cells into a fertilized or unfertilized oocyte whose nuclear material has been removed or inactivated so as to produce a living organism, at any stage of development, that is genetically virtually identical to an existing or previously existing human organism.”⁴

In addition, the law makes it illegal to “ship, transfer, or receive, in whole or in part, any oocyte, embryo, fetus, or human somatic cell, for the purpose of human cloning.”⁵ The law still permits research using nuclear transfer for producing “molecules, DNA, cells other than human embryos, tissues, organs, plants, or animals other than humans,” as well as for conducting IVF and other reproductive techniques, so long as the procedures are not used for the intentional “gestation or birth” of human clones.⁶

California. Cloning-to-produce-children is illegal in California, while cloning-for-biomedical-research is protected under the state’s constitution and is funded by a state agency. The state originally passed a cloning law in 1997, amending its Health and Safety Code to make it illegal to “clone a human being.”⁷ The law defined cloning as “the practice of creating or attempting to create a human being by transferring the nucleus from a human cell from whatever source into a human egg cell from which the nucleus has been removed for the purpose of, or to implant, the resulting product to initiate a pregnancy that could result in the birth of a human being.”⁸ The 1997 law included a sunset provision by which the law would expire on January 1, 2003.⁹

An amended version of the 1997 law was enacted in 2002.¹⁰ The new law made it illegal to “clone a human being or engage in human reproductive cloning,” and slightly amended the definition of cloning to include the use of “nonhuman” as well as human egg cells.¹¹ (This change was presumably made in order to ensure that the law will prohibit interspecies cloning at least for reproductive purposes.) “Human reproductive cloning” was defined as “the creation of a human fetus that is substantially

genetically identical to a previously born human being,”¹² though the state’s Department of Health Services was given authority to “adopt, interpret, and update regulations, as necessary, for purposes of more precisely defining the procedures that constitute human reproductive cloning.”¹³

In 2004, the Proposition 71 ballot initiative was approved by the state’s voters, amending California’s constitution to protect explicitly cloning-for-biomedical-research: “Pluripotent stem cells may be derived from somatic cell nuclear transfer.”¹⁴ Proposition 71 also established the California Institute for Regenerative Medicine, which provides funding for stem cell research, including cloning-for-biomedical-research.¹⁵

It is worth noting that California law prohibits cloning *for the purpose of* initiating a pregnancy, rather than prohibiting *the actual initiation of* a pregnancy by transferring cloned embryos to a woman’s uterus. This means that California does not expressly require the destruction of all cloned human embryos, as some states do, but given that cloning-for-biomedical-research is expressly protected by the state’s constitution, the result is effectively the same: researchers can create embryos through cloning, but can only do so if they intend to destroy them to create embryonic stem cells.

California law prohibits researchers from paying for egg cells,¹⁶ and the state’s stem cell research guidelines do not allow research on stem cell lines derived from cloned embryos created using egg cells that have been paid for by scientists.¹⁷

Colorado. There are currently no laws in Colorado that prohibit human cloning, whether for biomedical research or to produce children.

Connecticut. Cloning-for-biomedical-research is legal in Connecticut, while cloning-to-produce-children is against the law. In 2005, Connecticut passed a law prohibiting human cloning, somewhat bizarrely defining cloning as “inducing or replicating a living human being’s complete set of genetic material to develop after gastrulation commences.”¹⁸ The law defines gastrulation as “the process immediately following the blastula state when the hollow ball of cells representing the early embryo undergoes a complex and coordinated series of movements that results in the formation of the three primary germ layers, the ectoderm, mesoderm and endoderm.”¹⁹ Under these definitions, Connecticut law prohibits cloning-to-produce-children but permits cloning-for-biomedical research.

Delaware. There are currently no laws in Delaware that prohibit human cloning, whether for biomedical research or to produce children.

Florida. There are currently no laws in Florida that prohibit human cloning, whether for biomedical research or to produce children.

Georgia. There are currently no laws in Georgia that prohibit human cloning, whether for biomedical research or to produce children.

Hawaii. There are currently no laws in Hawaii that prohibit human cloning, whether for biomedical research or to produce children.

Idaho. Idaho state law currently does not include any statutes prohibiting either cloning-for-biomedical-research or cloning-to-produce-children. However, in 2010, Idaho enacted a conscience-protection law that includes “human embryo cloning” among the “health care services” to which health care professionals may object on grounds of conscience.²⁰

Illinois. It is legal to conduct cloning-for-biomedical-research in Illinois, but cloning-to-produce-children is outlawed in the state. The Stem Cell Research and Human Cloning Prohibition Act of 2008 makes it illegal “to transfer to a uterus or attempt to transfer to a uterus anything other than the product of fertilization of an egg of a human female by a sperm of a human male for the purpose of initiating a pregnancy that could result in the creation of a human fetus or the birth of a new human being.”²¹ By prohibiting the transfer of a cloned human embryo to the uterus of a woman, this law would require embryos created through cloning—or through some other experimental techniques—to be either frozen in perpetuity or destroyed. The 2008 law also explicitly permits public funds to be used to support cloning-for-biomedical-research.²²

Indiana. Indiana law does not directly prohibit human cloning either for the purposes of biomedical research or to produce children, though the state does have laws that indirectly restrict all forms of cloning. In 2005, Indiana passed a law on stem cell research and cloning²³ that declared cloning to be “against public policy,”²⁴ prohibited state funding for human cloning, and prohibited state educational institutions or employees from participating in cloning.²⁵ Furthermore, any hospital that knowingly allows its facilities to be used for human cloning or its employees to participate in human cloning will have its license revoked by the state’s health

commissioner.²⁶ Indiana law defines “cloning” as “the use of asexual reproduction to create or grow a human embryo from a single cell or cells of a genetically identical human.”²⁷

Indiana’s cloning law is somewhat ambiguous, since the law is directed primarily against hospitals and state educational institutions. Researchers at a private university, biotechnology company, or assisted reproduction clinic not licensed as a hospital may not face legal consequences for engaging in either cloning-for-biomedical-research or cloning-to-produce-children.

Iowa. Iowa prohibits cloning-to-produce-children but permits cloning-for-biomedical-research. In 2007, the state enacted the Iowa Stem Cell Research and Cures Initiative, which prohibits “human reproductive cloning.”²⁸ The law defines human reproductive cloning as “human asexual reproduction, using somatic cell nuclear transfer, for implantation or attempted implantation into a woman’s uterus or substitute for a woman’s uterus.”²⁹ The Iowa law’s definition of “human reproductive cloning” also explicitly states that the term’s meaning does not include “somatic cell nuclear transfer performed for the purpose of creating embryonic stem cells.”³⁰ This means Iowa law permits the creation of cloned human embryos for the purpose of stem cell research, but requires that cloned human embryos be frozen in perpetuity or destroyed.

Kansas. There are currently no laws in Kansas that prohibit human cloning, whether for biomedical research or to produce children.

Kentucky. There are currently no laws in Kentucky that prohibit human cloning, whether for biomedical research or to produce children.

Louisiana. There are currently no laws in Louisiana that directly prohibit human cloning, whether for biomedical research or to produce children. In 1999, Louisiana did enact a law that prohibited cloning-to-produce-children while permitting cloning-for-biomedical-research, but that law included a sunset provision, and it expired without being renewed in 2003.³¹ In 2008, Louisiana amended its statutory code to prohibit the state from providing funding for somatic cell nuclear transfer, effectively barring the state from funding either cloning-for-biomedical-research or cloning-to-produce-children.³² A 2009 Louisiana conscience-protection law also includes “human embryo cloning” among the health care services that “no person shall be required to participate in.”³³

Maine. There are currently no laws in Maine that prohibit human cloning, whether for biomedical research or to produce children. The state does, however, prohibit the “use [of]...any live human fetus, whether intrauterine or extrauterine...for scientific experimentation or for any form of experimentation.”³⁴ While this law prevents research on cloned human fetuses, it does not prohibit the destruction of cloned human embryos to create stem cells.

Maryland. Maryland prohibits cloning-to-produce-children while permitting cloning-for-biomedical-research. In 2006, the state enacted the Maryland Stem Cell Research Act,³⁵ establishing a fund for stem cell research³⁶ and prohibiting “human cloning.”³⁷ The law defines human cloning as “the replication of a human being through the production of a precise genetic copy of nuclear human DNA or any other human molecule, cell, or tissue in order to create a new human being or to allow development beyond an embryo.”³⁸ The law further stipulates that “nothing in this part may be construed to prohibit the creation of stem cell lines to be used for therapeutic research purposes,”³⁹ making it clear that cloning-for-biomedical-research is permitted in the state. The law also specifies that anyone conducting state-funded research shall not “engage in any research that intentionally and directly leads to human cloning.”⁴⁰

Massachusetts. Massachusetts prohibits cloning-to-produce-children while permitting cloning-for-biomedical-research. In 2005, Massachusetts enacted a law prohibiting “reproductive cloning” without specifically defining the term.⁴¹ While the state prohibits the creation of human embryos through fertilization for research purposes, it explicitly allows “the creation of a pre-implantation embryo by somatic cell nuclear transfer, parthenogenesis or other asexual means for research purposes.”⁴² The state also prohibits payment for gametes, including human egg cells.⁴³

In its practical effect, the Massachusetts law is not very different from most of the “clone-and-kill” laws enacted elsewhere, and by prohibiting scientists from creating embryos for research in some cases, it arguably reduces the opportunities for the exploitation of human life. However, in another respect, the law represents an even more troubling variation of the “clone-and-kill” model. In most other states with “clone-and-kill” laws, the implicit principle justifying the exploitation of embryos for research is that they are developmentally immature and so lack the requisite moral status for protection. Under the Massachusetts law, however, the moral status of

an embryo depends on the method through which it was created; embryos created through experimental techniques such as cloning are singled out for destructive exploitation.

Michigan. Michigan prohibits both cloning-for-biomedical-research and cloning-to-produce-children. In 1998, Michigan amended its public health law to prohibit human cloning, defining cloning as “the use of human somatic cell nuclear transfer technology to produce a human embryo,” with human embryo defined as “a human egg cell with a full genetic composition capable of differentiating and maturing into a complete human being.”⁴⁴ The state also passed a law in 1998 that prohibited the use of state funds for human cloning.⁴⁵

Minnesota. While there are no Minnesota state laws that explicitly prohibit either cloning-to-produce-children or cloning-for-biomedical-research, the state’s 1973 Human Conceptus Statute *may* prohibit cloning-for-biomedical-research (though not cloning-to-produce-children). The law prohibits “the use of a living human conceptus for any type of scientific, laboratory research or other experimentation except to protect the life or health of the conceptus,” and makes it illegal “to buy or sell a living human conceptus.”⁴⁶ The law defines “human conceptus” as “any human organism, conceived either in the human body or produced in an artificial environment other than the human body from fertilization through the first 265 days thereafter.”⁴⁷ “Fertilization” is not defined in the law, so there is some ambiguity as to whether the law would apply only to embryos created through the union of sperm and egg cells, or also to embryos created through other means such as cloning.

In 2009, lawmakers amended the state’s higher education appropriations act to prohibit the University of Minnesota from using state funds for cloning research.⁴⁸

In 2011, the state legislature passed the Human Cloning Prohibition Act, which would have prohibited human cloning, defining cloning as “human asexual reproduction accomplished by introducing nuclear material from one or more human somatic cells into a fertilized or unfertilized oocyte whose nuclear material has been removed or inactivated so as to produce a living organism at any stage of development that is genetically virtually identical to an existing or previously existing human organism.”⁴⁹ However, the bill was vetoed by Governor Mark Dayton,⁵⁰ who also vetoed a bill that would have prohibited the state from funding cloning research.⁵¹

Mississippi. There are currently no laws in Mississippi that prohibit human cloning, whether for biomedical research or to produce children.

Missouri. Missouri prohibits cloning-to-produce-children but permits cloning-for-biomedical-research. In 2006, Missouri amended Article III of its constitution with section 38(d), titled the “Missouri Stem Cell Research and Cures Initiative.”⁵² This change to the Missouri constitution made it illegal to “clone or attempt to clone a human being,”⁵³ where cloning means “to implant in a uterus or attempt to implant in a uterus anything other than the product of fertilization of an egg of a human female by a sperm of a human male for the purpose of initiating a pregnancy that could result in the creation of a human fetus, or the birth of a human being.”⁵⁴ The Missouri constitution thus requires that all human embryos created through cloning or through other experimental technologies must be frozen in perpetuity or destroyed. The constitution also prohibits the creation of human embryos solely for research, but only if those embryos are created through fertilization—leaving scientists free to create embryos through techniques like cloning solely for the purpose of exploitative research.⁵⁵

However, the constitution does make it illegal to “purchase or sell human blastocysts or eggs for stem cell research,”⁵⁶ a measure that is sure to make it difficult for cloning-for-biomedical-research to proceed in the state.

Montana. Montana prohibits cloning-to-produce-children but permits cloning-for-biomedical-research. The state enacted a law in 2009 prohibiting any attempt “to perform reproductive cloning,”⁵⁷ defining reproductive cloning as “human cloning intended to result in the gestation or birth of a child who is genetically identical to another conceptus, embryo, fetus, or human being, living or dead.”⁵⁸ The law explicitly carves out an exception for “research into the use of nuclear transfer or other cloning techniques to produce molecules, deoxyribonucleic acid, tissues, organs, plants, cells other than human embryos, or animals other than humans.”⁵⁹

The law is ambiguous: it mentions human embryos only to exclude them from the list of explicitly permitted uses of nuclear transfer, but the law does not actually *forbid* the creation of human embryos through nuclear transfer. The state seems to permit cloning-for-biomedical-research. However, the law does not explicitly require that cloned human embryos be kept frozen in perpetuity or destroyed, but rather prohibits the act of creating cloned human embryos with the intention to transfer them to a woman’s uterus to produce a child.

Nebraska. Nebraska has no laws directly prohibiting either cloning-for-biomedical-research or cloning-to-produce-children, but a 2008 law does prohibit the Nebraska government from funding somatic cell nuclear transfer, which effectively prohibits state funding for any form of human cloning.⁶⁰

Nevada. There are currently no laws in Nevada that prohibit human cloning, whether for biomedical research or to produce children.

New Hampshire. There are currently no laws in New Hampshire that prohibit human cloning, whether for biomedical research or to produce children.

New Jersey. New Jersey permits cloning-for-biomedical-research and prohibits cloning-to-produce-children. Under a 2004 New Jersey law, “cloning of a human being” is defined as “the replication of a human individual by cultivating a cell with genetic material through the egg, embryo, fetal and newborn stages into a new human individual.”⁶¹ However, the law permits “research involving the derivation and use of human embryonic stem cells, human embryonic germ cells and human adult stem cells, including somatic cell nuclear transplantation.”⁶² The law does not expressly prohibit the act of transferring cloned embryos to a woman’s uterus; rather, the law employs the more vague language of “cultivating a cell.”⁶³ Nonetheless, New Jersey’s law requires all cloned human embryos to be either kept frozen in perpetuity or destroyed. In 2007, the citizens of New Jersey voted down a ballot initiative to establish a stem cell research fund, which would have funded cloning-for-biomedical-research by issuing \$450 million in bonds.⁶⁴

New Mexico. There are currently no laws in New Mexico that prohibit human cloning, whether for biomedical research or to produce children.

New York. New York law does not directly prohibit cloning-to-produce-children or cloning-for-biomedical research. In 2007, the state created the Empire State Stem Cell Board, a panel that guides the state’s expenditures on stem cell research; the board is prohibited from funding research on “reproductive cloning.”⁶⁵ In 2009, the board decided to permit funding for research on stem cell lines derived from embryos that had been created using eggs paid for by researchers.⁶⁶

North Carolina. There are currently no laws in North Carolina that prohibit human cloning, whether for biomedical research or to produce children.

North Dakota. North Dakota prohibits all forms of human cloning. In 2003, North Dakota amended its statutory code to prohibit human cloning, where “human cloning” means human asexual reproduction, accomplished by introducing the genetic material of a human somatic cell into a fertilized or unfertilized oocyte, the nucleus of which has been or will be removed or inactivated, to produce a living organism with a human or predominantly human genetic constitution.”⁶⁷ The inclusion of the phrase “predominantly human genetic constitution” presumably is intended to ensure that the law will prohibit interspecies cloning.

Ohio. There are currently no laws in Ohio that prohibit human cloning, whether for biomedical research or to produce children.

Oklahoma. Oklahoma prohibits all forms of human cloning. In 2009, the state amended its statutory code to prohibit human cloning, defining human cloning as “human asexual reproduction, accomplished by introducing the nuclear material of a human somatic cell into a fertilized or unfertilized oocyte whose nucleus has been removed or inactivated to produce a living organism (at any stage of development) with a human genetic constitution.”⁶⁸ The law also makes it illegal to “ship, transfer, or receive the product of human cloning for any purpose” and to “import the product of human cloning for any purpose.”⁶⁹

Oregon. There are currently no laws in Oregon that prohibit human cloning, whether for biomedical research or to produce children.

Pennsylvania. There are currently no laws in Pennsylvania that directly prohibit cloning, whether for biomedical research or to produce children.

Rhode Island. Rhode Island permits cloning-for-biomedical-research while prohibiting cloning-to-produce-children. The state has in fact passed three cloning laws, each with sunset provisions. The first, passed in 1998, was due to expire in 2003.⁷⁰ The law was renewed in 2002, but that law expired in 2010⁷¹ before a new law was again passed in 2013; it is set to expire in 2017.⁷² The current law makes it illegal to use “somatic cell nuclear transfer for the purpose of initiating or attempting to initiate

a human pregnancy”; it also prohibits the creation of “genetically identical human beings by dividing a blastocyst, zygote, or embryo.”⁷³ The prohibition against dividing embryos is likely meant to forbid doctors from using embryo-splitting techniques to induce twinning in IVF embryos, a form of cloning-to-produce-children that is often ignored by legislators. However, the law explicitly permits somatic cell nuclear transfer, making it mandatory in Rhode Island for scientists either to freeze in perpetuity or to destroy any cloned embryos they create.

South Carolina. There are currently no laws in South Carolina that prohibit human cloning, whether for biomedical research or to produce children.

South Dakota. South Dakota prohibits all forms of human cloning. A 2004 law makes human cloning illegal, defining human cloning as “human asexual reproduction accomplished by introducing the nuclear material of a human somatic cell into a fertilized or unfertilized oocyte whose nucleus has been removed or inactivated to produce a living organism, at any stage of development, with a human or predominantly human genetic constitution.”⁷⁴ This law therefore prohibits all forms of human cloning; its inclusion of organisms with a “predominantly human constitution” is presumably intended to ensure that the law will prohibit interspecies cloning.

Tennessee. There are currently no laws in Tennessee that prohibit human cloning, whether for biomedical research or to produce children.

Texas. There are currently no laws in Texas that prohibit human cloning, whether for biomedical research or to produce children.

Utah. There are currently no laws in Utah that prohibit human cloning, whether for biomedical research or to produce children.

Vermont. There are currently no laws in Vermont that prohibit human cloning, whether for biomedical research or to produce children.

Virginia. Virginia prohibits cloning-for-biomedical-research as well as cloning-to-produce-children. Virginia law is unusual insofar as its prohibitions against cloning appear to be redundant, and its prohibition of cloning-to-produce-children includes language commonly found in “clone-and-kill” laws.

A state law enacted in 2001 prohibits human cloning, which it defines as “the creation of or attempt to create a human being by transferring the nucleus from a human cell from whatever source into an oocyte from which the nucleus has been removed.”⁷⁵ Under this definition, the law would appear to prohibit all forms of human cloning.

The law also makes it illegal to “ship or receive the product of a somatic cell nuclear transfer in commerce for the purpose of implanting the product of somatic cell nuclear transfer into a uterine environment so as to initiate a pregnancy” and illegal to “possess the product of human cloning.”⁷⁶

The law also prohibits implanting or attempting to implant “the product of somatic cell nuclear transfer into a uterine environment so as to initiate a pregnancy.”⁷⁷ This language is similar to that found in other states’ “clone-and-kill” laws, but given Virginia’s prohibitions against creating or possessing cloned embryos, this provision does not have the same effect as in other states; it seems to be a redundant measure.

The law also explicitly permits the use of “somatic cell nuclear transfer or other cloning technologies to clone molecules, including DNA, cells, or tissues”—an apparent conflation of different meanings of the term “cloning.”⁷⁸

Washington. There are currently no laws in Washington that prohibit human cloning, whether for biomedical research or to produce children.

West Virginia. There are currently no laws in West Virginia that prohibit human cloning, whether for biomedical research or to produce children.

Wisconsin. There are currently no laws in Wisconsin that prohibit human cloning, whether for biomedical research or to produce children.

Wyoming. There are currently no laws in Wyoming that prohibit human cloning, whether for biomedical research or to produce children.

Territories, Protectorates, and the District of Columbia. Neither in the U.S. territories and protectorates nor in the District of Columbia are there currently any laws that prohibit human cloning, whether for biomedical research or to produce children.