

## Not Waiting for Congress to Act, Some States Move to Ban Human Cloning

The November 2001 announcement that researchers had successfully cloned a human embryo—despite the dismissal of that claim as premature by other scientists—has, predictably, renewed debate over enacting a nationwide ban. The House had already passed legislation the previous July outlawing human cloning for any purpose, and the Senate is poised this year to consider that option and others. State legislators, however, may not wait to see whether Congress comes to a consensus.

Since 1997, five states have enacted legislation explicitly banning some or all forms of human cloning (see chart). The laws differ in a key respect. The Virginia and Michigan statutes ban the creation through cloning of a human embryo for any purpose. Laws in California, Louisiana and Rhode Island, in contrast, prohibit cloning in order to produce a pregnancy—“reproductive cloning”—but allow the use of the technology in research toward other medical goals—“therapeutic cloning.” Many scientists and patient-advocacy groups have asserted that stem cell research, including that involving cloned embryos as a source of the cells, may be key to treatment of a wide variety of diseases (“Nationwide

Human Cloning Ban Stymied as Impact Beyond Stated Goal Is Debated,” *TGR*, April 1998, page 3 and “Human Embryo and Fetal Research: Medical Support and Political Controversy,” *TGR*, February 2001, page 3).

The laws also differ in that the three that address only reproductive cloning impose temporary moratoriums (each expiring in 2003), as opposed to permanent bans. In addition, the laws vary in their definitions of cloning and in the penalties they set (which range as high as 10 years in prison and a \$10 million fine, in Louisiana).

Existing state laws prohibiting research on fetuses or embryos also could apply to human cloning, particularly therapeutic cloning. One that certainly does was enacted in 2000 by South Dakota. That law prohibits research that destroys a human embryo (defined to include a single-celled zygote), subjects it to substantial risk of injury or death, or uses cells or tissues derived by such research. Its language clearly bans therapeutic cloning as a source of embryonic stem cells (although not reproductive cloning).

Ten other states have research bans that, if interpreted broadly, could

apply to therapeutic cloning, including Michigan (which explicitly bans it anyway) and Louisiana and Rhode Island (which otherwise only ban reproductive cloning). However, these laws were written in the 1970s and 1980s to target earlier types of research. In some, the terms “fetus” or “embryo” are never defined and may not include cells at the earliest stages of development, when therapeutic cloning (and stem cell) research takes place. They may also refer to a fetus “whether before or after expulsion from its mother’s womb”; the cells involved in cloning research were never in the woman’s body. Other laws have definitions of “fetus” or “embryo” that apply from fertilization to birth; fertilization is a process that cloning technically bypasses.

Such linguistic problems show that legislators have difficulty crafting restrictions on technologies that do not yet exist, and future discoveries may pose similar questions for today’s cloning bans. Notably, some cloning bans actually ban a specific cloning technique, somatic cell nuclear transfer, and may not prevent scientists from using alternative methods of cloning. Rhode Island’s ban, for instance, is the only existing one that also bans splitting an embryo to artificially create twins.

Restrictions on or outright prohibition of human cloning will almost certainly be hot topics in state legislatures this year. As of the end of January, bills in 15 states had already been introduced on the subject, a substantial increase over the previous few years.—A. Sonfield ☉

STATE LAWS EXPLICITLY PROHIBITING HUMAN CLONING

STATE	YEAR ENACTED	LAW PROHIBITS		DURATION
		REPRODUCTIVE CLONING	THERAPEUTIC CLONING	
CALIFORNIA	1997	X		EXPIRES 2003
LOUISIANA	1999	X	*	EXPIRES 2003
MICHIGAN	1998	X	X	PERMANENT
RHODE ISLAND	1998	X	*	EXPIRES 2003
VIRGINIA	2001	X	X	PERMANENT

\*A separate state law governing embryo research could be interpreted to prohibit therapeutic cloning.