

Cloning in Canada? Don't hold your breath

Health Minister Allan Rock has unveiled legislation that would prohibit the cloning of humans in Canada, but some think it will be outdated before it becomes law in 2003. And others question whether criminal law is even the right way to approach the issue.

"This area is moving so quickly that before this bill is passed there'll be some new issue that we wish was covered," says Tim Caulfield, research director at the University of Alberta's Health Law Institute.

Caulfield sat on the advisory group that drafted the Canadian Institutes of Health Research principles that until now have guided research in these areas. Rock's legislation has adopted many of those principles, but instead of placing moratoriums on human cloning and creating embryos for research purposes it would ban these and 10 other practices (see sidebar), and make offences punishable under the Criminal Code.

Rock also wants a new national regulatory body — he favours a stand-alone agency — to license the research and govern the use of assisted human repro-

duction activities. "This isn't legislation like any other," Rock said, "and these are not issues like any other. These involve a human and an ethical dimension that surpasses technical or scientific matters."

After public hearings this fall, an all-party committee has until January 2002 to make recommendations. Passage through Parliament should then take a year, and it will take an additional year before a new body to oversee the regulations is operational. The delays have prompted criticism from those who remember the fate of the Royal Commission on Reproductive Technologies, which called for strict regulations in 1993.

"It's very important that this move as fast as possible," says Dr. Janet Rossant, a senior scientist at Toronto's Mount Sinai Hospital who conducts stem-cell research using mice. "It's been much too long, and we need [legislation] for everybody's protection."

Dr. Jeffrey Nisker, who cochaired the committee that advised Rock on the legislation, says the chance of human cloning taking place in Canada in the



A cloned calf in Quebec: legislation applies the brakes to human cloning

near future is slight. "We have canvassed all the labs and people are saying they are not doing it," says Nisker, a professor of obstetrics at the University of Western Ontario. "I don't think it will ever happen in Canada."

But the lack of regulation for reproductive technologies means that Canadians have no way of knowing what is happening in private laboratories, Nisker acknowledged.

Canada's first animal clones were produced in 1999, when Montreal-based Nexia Biotechnologies announced that it had cloned triplet goats using the "Dolly technique." That famous ewe was cloned by British scientists in 1997 using somatic cell nuclear transfer.

But there's a big difference between successfully cloning animals and cloning humans, says Nisker. "There's so much we don't know that cloning human beings at this time is inappropriate."

And Dr. Kathleen Glass, director of bioethics at McGill University, says there is no reason to clone humans when there are many other ways for people to have children. Rock agrees. "Do we really need human cloning?" he said. "I would think not." His draft proposals state that human cloning "would be banned because it treats human beings as though they were objects and does not respect individuality."

However, Caulfield says an urgent need to clone human organs for transplantation purposes may eventually arise, and he worries that the criminal law is too cumbersome a tool to allow for changes like this. "Criminal law is our

Assisted human reproduction: banned activities

The federal government's draft legislation governing assisted human reproduction would ban the following activities:

- the cloning of human beings;
- changing the genetic code to pass modifications on to descendants (germ-line genetic alteration); Health Canada says this is designed to prevent the creation of "designer children";
- the development of embryos outside a woman's body beyond 14 days;
- the creation of embryos solely for research purposes;
- the creation of an embryo from another embryo or fetus;
- the transplantation of reproductive material from animals into humans: "It would be contrary to human dignity to allow human reproductive material that has spent any time in an animal to be transplanted or gestated in a woman";
- the use of human reproductive material previously transplanted into an animal;
- actions designed to increase the probability of a particular sex (gender selection);
- the sale and purchase of human embryos;
- the purchase, barter or exchange of human gametes;
- commercial surrogacy arrangements.

Other activities related to human reproduction would be regulated, including the storage of human sperm, eggs and embryos. The legislation would also set up a registry to collect information about sperm, egg and embryo donors so that children conceived from donated material could gather medical information. Regulations would also cover informed consent, the need for counselling of donors and recipients, and safety standards in laboratories and clinics.

most permanent, the bluntest instrument that any government has," Caulfield says.

He prefers a regulatory framework that imposes moratoriums, which could be lifted if science evolves to a point where practices now prohibited become justifiable. "The Brits have already accepted the argument for embryo cloning for research purposes. They've said that they will consider applications. France is considering amending its legislation."

Rossant is adamant that any regulatory body be independent. She cites the success of Britain's Human Fertilisation and Embryology Authority (1991), which licenses and monitors clinics there. "That has turned out to be a pretty successful way of doing things," says Rossant. "But it's only as good as the

powers that it has and its arm's-length independence from any form of interference by either government, private clinics, university researchers, anybody."

The British example also reinforces the concerns of those who believe legislation is too restrictive. The original British law permitted embryo research into the causes of birth defects, identifying new targets for contraception and infertility studies. However, it did not mention the use of spare embryos to treat Parkinson's and other degenerative diseases, says Dr. Roger Gosden, research director in the Department of Obstetrics and Gynecology at Montreal's Royal Victoria Hospital. Last December, the UK legislation was amended to permit researchers to use

early-stage cloned embryos to create stems cells for research in these areas.

As debate surrounding this legislation begins, no one is speaking out against the general idea of regulation. What is being debated, however, are the form the regulatory body will take, and which practices it will prohibit and which it will merely control.

"The scientific community and medical communities in general have historically self-regulated, and there's always that reluctance to give that up," says Glass. "But when you have issues that have wide social repercussions and impact, and that people have spiritual and moral questions about, I think it's a good thing to move it into the regulatory area." — *Laura Eggertson, Ottawa*

ON THE NET

Occupational health finds a home on the Net

Primary care physicians are often the first contact patients with occupational and environmental health concerns have with the health care system. Focus groups have indicated that many doctors feel incapable of dealing properly with these problems because of inadequate training and other issues, such as a lack of knowledge about available resources. Participants said doctors want or need to know more about:

- the physician's role in return-to-work issues;
- how to recognize occupational diseases;
- specific substances with which a patient may be working.

One recent online offering is from the Physician Education Project in Workplace Health of the Ontario Workplace Safety and Insurance Board (www.wsib.on.ca), which offers a manual, *Injury/Illness and Return to Work/Function: a Practical Guide for Physicians*. Information on specific conditions is also available.

Backguide (www.backguide.com/), developed by the Institute for Work & Health (IWH), is a useful resource for physicians who treat low back pain. The IWH site (www.iwh.on.ca) also provides clinicians with the institute's latest re-

search into the prevention and treatment of work-related musculoskeletal disorders.

Asthma is another common occupational illness, and the American Lung Association has a site devoted to the topic (www.lungusa.org/asthma/astocasthm.html), as does Dr. Raymond Agius (www.agius.com/hew/resource/ocasthma.htm).

Doctors hoping to improve recognition of work-related disease should try using the simple, 5-question test (WHACS) developed by the Medical University of South Carolina (www.musc.edu/oem/ofrmset.html).

Data on toxicity or adverse effects of specific substances can be found at TOXNET (toxnet.nlm.nih.gov/), while useful fact sheets are available at www.atsdr.cdc.gov/toxfaq.html. Also check out the Canadian Centre for Occupational Health and Safety (www.ccohs.ca, go to OSH Answers).

For those seeking educational resources, try www.agius.com, which contains a variety of educational material and describes both the effect of work on health (occupational asthma) and the effect of health on work (arthritis in a sculptor). It also includes a clinical case study of occupational asthma (www.agius.com/hew/clin/1a



.htm). Other curricular materials and case studies can be viewed at www.secondnature.org or www.ceem.org/niehs.

Two excellent environmental health case studies are available at medstat.med.utah.edu/envirodix; large collections of links to further resources can be reached from the Occupational and Environmental Medicine Association of Canada site at www.oemac.org/links.htm and at a US site, www.occenvmed.net.

Those wishing to subscribe to an email list dealing with occupational/environmental health topics can subscribe to the "Duke University list" at archive.occhealthnews.com. — *Gary Liss*, Department of Public Health Sciences, University of Toronto, and coordinator, Physician Education Project in Workplace Health; *Lily Cheung*, corporate medical director, Selco