

Human cloning a decade after Dolly

Ten years ago this month, Ian Wilmut and colleagues from the Roslin Institute in Scotland published an article in *Nature* unceremoniously entitled: “Viable offspring derived from fetal and adult mammalian cells.” This was, of course, the publication that announced the birth of Dolly the cloned sheep.

The paper immediately made headlines around the world and stirred international debate. The scientific community hailed it as a major technical advance that could, among other things, facilitate the creation of animals for research, the production of pharmaceuticals and xenotransplantation. *Science* selected it as the scientific breakthrough of the year. And, with concomitant advances in embryonic stem cell research, speculation began about using somatic cell nuclear transfer, the technique that created Dolly, to engineer human tissue for the purposes of transplantation — a technique dubbed “therapeutic cloning.”

But it was the potential social issues that created the biggest stir. The creation of Dolly led to concerns about cloning a human being — a thought that reportedly horrified Wilmut. This concern spurred policy-makers everywhere to action. Indeed, the United Nations (UN) spent 3 years trying to negotiate an international ban on human cloning. Bogged

down by differing views on the ethical acceptability of “therapeutic cloning,” in 2005 the UN General Assembly settled on an ambiguous non-binding Declaration that calls upon countries to prohibit all forms of human cloning that are “incompatible with human dignity.”

In Canada, the Assisted Human Reproduction Act bans all forms of human cloning.

Since 1997, there have been many other cloning controversies, including a 2002 human cloning hoax perpetrated by the Canadian cult, the Raelians, and, most recently, fraudulent somatic cell nuclear transfer research in Korea.

Where is cloning today? There is no evidence that anyone has successfully cloned a human, but the hoped for therapeutic breakthroughs have also been slow to emerge. And despite the hype and controversy, somatic cell nuclear transfer remains a relatively marginal research activity. Still, many researchers remain optimistic about the scientific potential of somatic cell nuclear transfer, including Wilmut. He recently switched his research focus to the cloning of human tissue for research purposes, an activity that remains illegal in Canada. — Timothy Caulfield, Edmonton

DOI:10.1503/cmaj.070182

Timothy Caulfield holds a Canada Research Chair in Health Law and Policy at the University of Alberta.

Revised Quarantine Act has serious limitations

The federal government has taken a tentative step toward bolstering national capacity to handle global health threats by enhancing its authority to deal with suspected cases of communicable diseases at international entry points like airports.

But the revamped Quarantine Act neither applies to domestic travel nor compels provinces to share information about disease outbreaks within their borders. Nor does it give Ottawa the authority to declare or manage a public health emergency within a province. Given these limitations, critics fear the Act falls well short of oversight measures recommended in the aftermath of the SARS outbreak.

The Act does enable officials to take action at ports by denying entry or compelling passengers to disembark for transfer to quarantine centers (essentially any facility, including hotels, which the government designates and commandeers for the purpose of isolating, examining and treating infected passengers or those who may have been exposed to a communicable disease.

The new law also allows officials to divert a plane or vessel to another location. And it requires the airline and shipping industries to report an illness or death of a passenger before arrival or departure. Failure to do so, or other willful or reckless contravention of the regulations, causing risk of imminent death is punishable by stiff penalties ranging from a fine of \$1 million to 3 years in prison.

Quarantine officers will also be authorized to obligate travelers to report to local public health authorities, detain people who refuse medical examination and prevent Canadians from traveling abroad while infectious. They can also order the decontamination, or even the destruction, of conveyances like airplanes and cargo ships.

But Acting Director General of the Centre for Emergency Preparedness and Response within the Public Health Agency of Canada Dr. Howard Njoo says the Act doesn't address issues such as provincial surveillance and reporting requirements, information exchange or



Canapress

Dolly died in 2003, but the debate about the ethics of cloning continues.

interprovincial travel limitations in the event of a flu pandemic or a disease outbreak, as recommended in the final report of the National Advisory Committee on SARS and Public Health (*CMAJ* 2003;169:824).

“We are very cognizant of that recommendation but we sort of have to do it in a step-wise fashion,” Njoo said, adding that such jurisdictional issues remain the subject of intergovernmental negotiations towards a Memorandum of Understanding (MOU) about public health emergency protocols and surveillance requirements.

In the absence of an MOU, the Act falls short of meeting Canadian obligations under the WHO’s International Health Regulations, argues Dr. Kumanan Wilson, University of Toronto professor of medicine and health policy, management and evaluation.

Reviews of the SARS outbreak indicate information exchange from local to national levels is critical in the management of outbreaks, Wilson says.

The second issue centred on defining the federal government’s legislative authority when a public health emergency is confined to a single province. Wilson says provincial officials may be reluctant to declare a public health emergency, or share information for fear of the economic consequences. “We sort of experienced that to a certain extent with SARS, when it was clear the federal government didn’t get all the information that it was hoping to get. It’s disconcerting.”

Wilson argues the revamped Act should be embedded within a broader legislative framework that clearly states federal authority and protocols for managing outbreaks.

Wilson is also skeptical about the likelihood of an imminent intergovernmental MOU. Such an agreement has been under negotiation since 1995 and the Auditor-General has twice expressed concern. Wilson says conditional funding is needed because of the expense of surveillance and public health infrastructure. “The provinces say, ‘We will perhaps agree to do all of this in exchange for you helping us develop the capacity to do all of this.’ And then there’s an argument over how much and what responsibilities the provinces have and that inevitably is where it runs into problems.”

However, Njoo argues that an MOU is within reach. “In principle, the provinces are certainly on board. In terms of the final product, obviously, there’s a little bit of a ways to go.”

Moreover, a broader legislative framework articulating federal authority to oversee disease outbreaks is unnecessary, he says. In the event of an emergency, existing national security laws or “other acts of last resort” would provide Ottawa with the requisite authority, Njoo says. “I don’t think we need to ever get to that type of situation” as there’s a “good history of collaboration” between levels of government. — Wayne Kondro, *CMAJ*

DOI:10.1503/cmaj.070158

Connection and communication vital to handling a pandemic in Ontario

If Ontario had regionalized its health care delivery system like many other provinces, would Toronto’s 2003 severe acute respiratory syndrome (SARS) outbreak have been handled better? Would a decentralized and regionalized system mean better

integration and communication among the players? It’s a question that has been raised by many both within and outside the Ontario system.

Ontario Health Minister George Smitherman concedes that the question “might be a fair comment,” but others are more equivocal. “Maybe,” says Professor Colleen Flood, scientific director of the Institute for Health Services and Policy Research of the Canadian Institutes of Health. “But the fact of regionalization itself would not have ensured a better response,” she adds.

BC, which has a regionalized health system, handled the SARS outbreak more effectively than Toronto, but Dr. David Patrick, director of communicable diseases and epidemiological services for the BC Centre for Disease Control is loath to link Ontario’s lack of regionalization with SARS as “causation.” While there are advantages to regionalization, there are a lot of different models, he adds. “The important thing is preparedness and communication, whatever the underlying structure.”

Two major reports have now indicated that communication and connection among hospitals and other health care institutions was clearly a problem in Toronto during the SARS outbreaks.

The recently released final report (*CMAJ* 2007;176:434-5) of the Commission to Investigate the Introduction



Every hospital had its own rules and procedures during the 2003 SARS outbreak.