

In February, the Administration created a panel of outside experts to review policies on information technology, including issues of network access. But last month, two dozen senators complained in a letter to presidential science adviser Jack Gibbons that 11 of the first 20 members (five more appointments are expected shortly) of the panel live in California, that rural states were not represented, and that the proposed NGI "leaves our states outside the loop."

Testifying before the committee, panel co-chair and computer scientist Ken Kennedy of Rice University in Houston said his group is concerned about the issue of equity and plans to discuss it at its next meeting later this month. "There's no question that the rural states have problems with access," Kennedy said after the hearing. But he added, "I'm not sure that a research project is the right place to fix that."

Some senators at the hearing made it

clear, however, that they are looking for signs that the Administration will address the needs of rural America. "If you don't do a better job," said Senator Ron Wyden (D-OR), "there's a risk that Congress will not fund the initiative. Senator Slade Gorton (R-WA) went even further: "What you heard [from Stevens] wasn't a question; it was a statement from the chair of the appropriations committee."

—Jeffrey Mervis

BIOMEDICAL ETHICS

Clinton Urges Outlawing Human Cloning

In the next few months, cloning a human being is likely to become a crime in the United States, thanks in part to recommendations issued this week by the President's National Bioethics Advisory Commission (NBAC). This 18-member panel of experts—chaired by Princeton President Harold Shapiro—met on 7 June to hammer out the final details of a report on cloning requested by the president. Two days later, Shapiro and the NBAC members delivered the document to President Clinton at the White House. Their main recommendation is strong but narrow: "Federal legislation should be enacted," NBAC says, "to prohibit anyone from attempting, whether in a research or clinical setting, to create a child through somatic cell nuclear transfer cloning." While such a ban would cover both public and private labs, it apparently would not limit biomedical research now under way.

Clinton adopted this recommendation, announcing that he is immediately sending legislation to Congress that "prohibits anyone in either public or private sectors from using these techniques to create a child." Clinton declared that human cloning "has the potential to threaten the sacred family bonds at the very core of our ideals and our society." In a seeming afterthought, he noted that "There is nothing inherently immoral or wrong with these new techniques," if they are not used to clone humans, because they "hold the promise of revolutionary new medical treatments and lifesaving cures."

These messages were both reassuring and disquieting to biomedical researchers. For example, Roger Pedersen, a developmental biologist at the University of California, San Francisco, was relieved that NBAC "did not seek legislative control" over all cloning experiments. But he deplors what he views as an "unprecedented proposal to criminalize an area of research." This action, he says, "makes the specter of human cloning more real than the experimental data" suggest it is. He also worries that once the precedent of outlawing research has been set, "it might lead legislators to draw the line somewhere else," with disastrous consequences.

The NBAC's review began in March, shortly after Ian Wilmut of the Roslin Institute in Edinburgh, Scotland, announced that he had cloned the DNA of an adult sheep into the now-famous lamb, "Dolly." This success triggered an explosion of concern about the cloning of humans. Congress began to talk about new laws, and President Clinton joined the fray. He ordered a moratorium on the use of federal funds for the cloning of humans and asked NBAC to report back in 90 days with recommendations.

In its 90-day analytical sprint, NBAC heard from religious leaders, legal scholars, professional ethicists, scientists, and opinionated citizens—all offering views of a bio-



Mutual applause. President Clinton likes advice presented by NBAC chair Harold Shapiro.

medical event that has not yet occurred. In the end, the 107-page report says, NBAC did not base its policy recommendations on any particular religious or moral view of cloning, because "no single set" of values "enjoys universal acceptance." Instead, it focuses on safety. Noting that it took Wilmut 277 attempts to clone a single healthy lamb, the report concludes that an attempt to clone a child would be "a premature experiment" with "unacceptable risks." It might also do psychological harm. "This in itself," the report says, "is sufficient to justify a prohibition on cloning human beings at this time."

Until a new law prohibiting human cloning is in effect, the NBAC report asks the president to continue the current moratorium on federal

funding of human cloning experiments. It also calls on private medical practitioners, researchers, and scientific societies to "comply voluntarily with the intent of the federal moratorium," observing that "any attempt to create a child" by cloning would be "irresponsible, unethical, and unprofessional."

Despite its emphatic tone, NBAC seeks to draw a clear line between forbidden medical practice and allowable research. The report would prohibit only experiments in which DNA from a human somatic cell is placed in an enucleated human egg "for the purpose of creating an embryo which would then be implanted in a woman's uterus and brought to term." It adds that such a ban should include a "sunset clause" to guarantee that the need for a ban is reviewed by a competent group within 3 to 5 years and possibly ended. (Clinton said he is seeking a 4- to 5-year sunset provision.) Furthermore, the report says, "No new regulations are required" on the cloning of human DNA sequences, cell lines, or animals. The report is silent on the possibility of "twinning" humans by separating early embryonic cells. It also deliberately avoids discussing the cloning of human embryos for research, noting that the president and Congress have already restricted publicly funded human embryo research, although they have not attempted to control private embryo research.

The momentum for some kind of legislative action to limit cloning is certain to increase with this new endorsement, but NBAC hopes its report will head off some of the more extreme proposals. According to the report, 10 states have now proposed laws that would ban human cloning, some of them worded so broadly that they might prohibit the cloning of certain cells and tissues used in research.

In Congress, too, Clinton's proposal is only one of many. Three bills had already been introduced in Congress—one in the Senate, two in the House—that would outlaw or permanently prevent the use of federal funds for human cloning, using what some regard as imprecise language. The next move is up to the lawmakers.

—Eliot Marshall