scientific advances by answering basic questions about the genetic underpinnings of embryonic development.

Both "reproductive" and "therapeutic" cloning begin with scientists removing the genetic material from an egg cell and replacing it with the genetic material from an adult cell. When nudged into dividing, the manipulated cell can continue to split and develop into an embryo. Reproductive cloning would then require implanting the cloned embryo into a woman's uterus where it could develop into a baby.

During therapeutic cloning, by contrast, the cloned cell is prevented from developing into an advanced-stage embryo and is instead turned into cell lines for research use. Embryos produced through cloning could be used to generate stem cells — cells that are capable of differentiating into a wide variety of specialized cell types.

Given the widespread agreement on a reproductive cloning ban, some nations supported a two-step approach that would immediately ban reproductive cloning while allowing more time to discuss the question of therapeutic cloning. However, those in favour of the Costa Rican proposal refused such a plan and continued to push for a total ban.

As a result of this dispute, the treaty's outcome remains unresolved. The working group's report was to be discussed before the UN's Sixth (Legal) Committee on 20 and 21 October, but an agreement appeared unlikely, said Alex Capron, Director of WHO's Department of Ethics, Trade, Human Rights, and Health Law.

In the wake of the UN impasse, the Human Cloning Policy Institute (HCPO), a US-based group of scientists and law experts, has called on the UN General Assembly to request an advisory opinion from the International Court of Justice declaring human reproductive cloning a "crime against humanity." The outcome of the HCPO drive is unclear, but one thing is certain: the cloning debate will not be settled anytime soon. ■

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Developing countries overstate vaccination coverage

Official national reports of several developing countries tend to overstate the number of children fully vaccinated against childhood diseases, according to WHO experts (*Lancet* 2003;362:1022-7). This finding indicates that, although such reports are generally the most widely available data for assessing vaccination coverage, their validity for measuring changes in coverage over time is "highly questionable."

To reach these conclusions, researchers with WHO's Department of Health Service Provision, compared vaccination coverage reported between 1990 and 2000 in the official reports of 45 developing countries with that assessed in 67 Demographic and Health Surveys (DHS). These household surveys were conducted, with government approval, by Macro International in collaboration with local counterparts and under the auspices of USAID. DHS are considered a "gold standard" for evaluating immunization rates, but they are relatively costly to implement.

The researchers also focused on DTP (diphtheria–tetanus–pertussis)3 vaccinations, which protect against DTP, or whooping cough. However, unlike the measles vaccine, the DTP serum must be administered in three separate doses. (Hence, the '3' in its acronym.) Ideally, the first dose should be given when a child is at least six weeks old and the two subsequent doses at a minimum of four weeks apart. All three injections should be completed by a child's first birthday.

"Since this vaccine is a little more demanding, we thought that it better represents access to health services and access to quality care," says Bakhuti Shengelia, who led the study. "It's also widely used for the assessment of immunization programmes."

Using DHS data, Shengelia and his colleagues estimated that *valid* (i.e. those that followed the recommended timetable) DTP3 vaccination coverage rates ranged from 11% to 77% in the 45 countries studied. However, official national reports of valid DTP3 coverage were "systematically high" in comparison, with more than half of them indicating vaccination rates at least 20% higher than the DHS estimates. The researchers also noted that the higher the officially reported DTP3 coverage, the bigger the gap between the official rate and the DHS estimate.

The researchers suspect that the discrepancies are due to multiple causes. These range from relying on records that report all vaccinations, not just those delivered in accordance with the recommended schedule, to the weak health information systems used for transferring data from the people giving the injections all the way to the officials who tally them up.

Another problem may be intentional inflation of the numbers in order to receive the financial incentives given to governments that increase the absolute number of children vaccinated. However, "it's difficult to say how important a role [incentives] played," says Shengelia. "We didn't have the possibility to control for that in this study."

Improvements in vaccination reporting procedures are already under way. In 2000, for example, reporting forms were changed to diminish the number of unintentional errors. According to Shengelia, vaccination reporting can be made even more accurate by improving health information systems.

He also recommends using data from multiple sources and subjecting it to scrupulous scientific assessment when evaluating the cost of health programmes. "We often see studies and reports that measure access without reference to the quality," says Shengelia. "But access to poor quality service could be harmful, or at least not as beneficial to the population as policy-makers had intended. So, the international community has to be really concerned with the quality of the services they deliver." ■

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