

Vaccination in utero may cut vertical transmission

Abi Berger *BMJ*

Vaccination in utero may reduce the vertical transmission of infectious diseases. Canadian scientists have introduced a DNA herpes vaccine into the amniotic fluid of fetal lambs and elicited a powerful immune response to it. Their hope is that this approach may eventually reduce the need for caesarean sections in women at high risk of passing on infections such as herpes and hepatitis to their offspring (*Nature Medicine* 2000;6:929-32).

Dr Philip Griebel and his team at the Veterinary Infectious Disease Organisation, University of Saskatchewan, sought to develop a DNA vaccine for use in utero that could protect against perinatal infectious diseases—a treatment that would be compatible with the technology already in use, such as amniocentesis. They chose the herpes vaccine because they had used it in previous research, and they chose lambs because their immune system functions are similar to those of humans.

DNA vaccines consist of small

non-pathological sequences of naked DNA encoding a single gene from a specific pathogen. No carrier agent is required, and the DNA does not become integrated into the host's cells, making it a safe procedure. Dr Griebel's team introduced the herpes vaccine directly into the mouths of third trimester fetal lambs by making a small insertion into the abdomen, locating the head of the fetus and passing a needle through the uterine wall and positioning it in the fetus's



Vaccination in utero may boost fetal immunity

mouth. Just before birth, the team sought evidence of systemic immunity by looking for specific serum antibodies and for evidence of local mucosal immunity in the form of antigen specific cells in the lymphoid tissue around the mouth.

Mucosal immunity is important because most infectious agents enter newborns through mucosal tissue. All lambs tested in this way showed a strong immune response. Dr Griebel confirmed that the antibodies produced by all these animals are capable of neutralising antigen in vitro, but he has not yet carried out a disease challenge in any neonatal animals vaccinated in this way. He expects that a perinatal booster will also be required, as with most immunisation processes, and that the process in humans will be made technically easier by the use of ultrasound to guide the vaccine needle into the fetal oral cavity.

Further work is needed to ascertain the best time for vaccination in utero to minimise any risk to mother and fetus, while still achieving a protective immune response. "This work challenges the view that neonates are not immune competent at birth," said Dr Griebel. □

Drug firms use legal loopholes to safeguard brand names

Scott Gottlieb *New York*

Drug companies are using legal loopholes to extend patents for their most lucrative brand name products and delay the entry of cheaper generics on to the market, according to a report from the National Institute for Health Care Management.

Intellectual property protections enacted over the past two decades have increased the average patent life of new drugs by at least 50%, according to the report. Although patent protections were intended to provide incentives for innovation, they have brought higher prices for consumers and hefty profits for brand name makers. Brand name drugs now have patent lives averaging 14-15 years, compared with eight years in the early 1980s.

The report charges that drug companies have used legal loopholes to extend the active life of patents covering their most lucrative drugs, thus keeping cheaper generics out of the market. "Congress has passed a lot of laws, all well intentioned, but they have been a great windfall for the pharmaceutical industry," said Nancy Chockley, president of the non-profit group that prepared the report. "The current system appears to be out of balance, and it is costing Americans billions of dollars."

Pharmaceutical Research and Manufacturers of America, the main industry trade group, sharply criticised the report. Citing the fact that the non-profit group behind the report gets some funding from managed care companies, the group's president, Alan Holmer, said: "The sponsors' self serving agenda is to reduce patent terms for medicines to save money for themselves." The report comes as Congress is embroiled in a debate over how to lower drug costs, especially for elderly people without insurance. □

G8 countries accused of ignoring debt relief

Joe Lamar *Okinawa, Japan*

Leaders of the world's eight most powerful nations were accused of treating the symptoms rather than the causes of poverty in the developing world last weekend after they promised action on disease, education, and technology but failed to progress on debt relief.

At a G8 summit in Okinawa, the heads of the United States, Japan, Germany, France, Britain, Italy, Canada, Russia, and the European Union noted that the world economy is in its best shape for many years. They committed themselves to share these benefits with poorer countries.

The leaders pledged support for a United Nations goal for 2010 to have cut HIV infection

and AIDS by 25%, tuberculosis by 50%, and malaria by 50%. Britain will double its contribution to this cause, from £50m (\$75m) to £100m, and Romano Prodi, president of the European Commission, said that more funds would be spent in this area.

On education, the G8 said that it would strengthen its efforts to achieve the target of universal primary education by 2015. The US president, Bill Clinton, announced an extra \$300m to provide free school meals for nine million children to encourage people into classrooms. Japan has allocated an extra \$18bn for developing countries, most of which will be used to improve information technology. The G8 leaders will also set up a task force to study how to close the digital divide between the technology "haves" and "have nots."

Critics said that such actions were a distraction from the G8's failure to live up to its commitment at the Cologne summit last

year to ease the loan burden of 41 heavily indebted nations by \$100bn.

Only nine countries have met the strict conditions for debt forgiveness, but although the British prime minister, Tony Blair, and other leaders expressed frustration at the slow pace of the system, they made no progress on how to speed it up.

Comparing this failure with the luxurious hospitality provided by Japan, which spent a record 81 billion yen (£506m; \$760m) on the summit, Ann Pettifor, director of Jubilee 2000, said: "This reminds me of Marie Antoinette dining at her table. When the poor of Paris banged on her door she said, 'Let them eat cake.'" Médecins Sans Frontières welcomed the initiative to reduce infectious diseases, but it noted that developing countries spend twice as much a year in debt repayments as on health and education combined: "We will monitor the G8 to ensure more concrete action and fewer empty promises." □