

The Lancet's paper of the year 2010

Between Jan 18 and Jan 31, *Lancet* readers voted for the research paper published in 2010 that they felt was most likely to influence practice and research. Two randomised trials led the field. Mark Loeb and colleagues' (figure) study¹ of the effect of influenza vaccination in children on community infection rates won with 38% of the vote. A close second, with 35% of the vote, was a study (CAPRISA 004) of the effectiveness of tenofovir gel to prevent HIV infection in women.²

Loeb and co-authors' study was published by *JAMA* in March, 2010, when the influenza A H1N1 pandemic was still ongoing and the question was being asked about how to maximise the effectiveness of vaccination strategies. Observational work had suggested that vaccinating children could provide community protection.³ With Hutterite religious colonies as the unit of randomisation, nearly 1000 children aged 3–15 years were vaccinated against seasonal influenza or against hepatitis A. In those who were not immunised, 39 individuals (3.1%) in the influenza-vaccinated communities developed laboratory-confirmed influenza, compared with 80 (7.6%) in the communities whose children received hepatitis A vaccine.

Although vaccination policies that target the elderly and other groups most at risk of influenza are unlikely to change until more data are gathered, Loeb and colleagues' findings provide good evidence that vaccinating children against influenza has indirect benefits for herd immunity. The next challenges will be to measure the effectiveness of immunising children in more integrated populations, in which the dynamics of viral circulation could differ, and to establish the effect on clinical outcomes, such as service use, morbidity, and mortality.

CAPRISA 004 examined individual protection from HIV transmission in nearly 900 HIV-negative women aged 18–40 years in KwaZulu-Natal who were randomised to a 1% tenofovir vaginal gel or to a placebo gel to be used vaginally before and after sex. The event-driven analysis, published in *Science*, showed that 38 women in the tenofovir group contracted HIV compared with 60 women in the placebo group, an incidence rate ratio of 0.61 (95% CI 0.40–0.94). The atmosphere was electric when the results of CAPRISA 004 were presented last July in Vienna at a packed special session of the XVIII International AIDS Conference. Here at last was proof of concept that a microbicide gel that was acceptable to women could protect against HIV-transmission. Although more work is needed to improve adherence and reduce the 5.6 per 100 women-year incidence rate of HIV transmission with tenofovir gel, these results will certainly renew enthusiasm for microbicides and HIV control.

These studies show how, in different settings, viral transmission can be broken to the benefit of both individuals and communities. We congratulate all members of the research teams of these two important trials.

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- 1 Loeb M, Russell ML, Moss L, et al. Effect of influenza vaccination of children on infection rates in Hutterite communities: a randomized trial. *JAMA* 2010; **303**: 943–50.
- 2 Abdool Karim Q, Abdool Karim SS, Frohlich JA, et al, on behalf of the CAPRISA 004 Trial Group. Effectiveness and safety of tenofovir gel, an antiretroviral microbicide, for the prevention of HIV infection in women. *Science* 2010; **329**: 1168–74.
- 3 Piedra PA, Gaglani MJ, Kozinetz CA, et al. Herd immunity in adults against influenza-related illnesses with use of the trivalent-live attenuated influenza vaccine (CAIV-T) in children. *Vaccine* 2005; **23**: 1540–48.

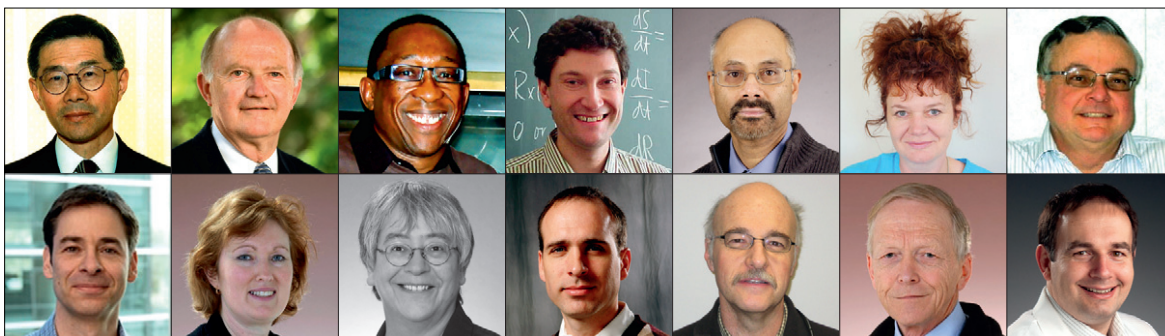


Figure: The authors of *The Lancet's* paper of the year 2010

Top row, from left: Fred Aoki, Lorne Babiuk, Khami Chokani, David J D Earn, Kevin Fonseca, Julie Fox, Gregory Horsman. Bottom row, from left: Mark Loeb, Lorraine Moss, Margaret L Russell, Paul van Caesele, Mark Vooght, Stephen Walter, Richard Webby.