mortality did not differ when patients who were given antiviral drugs and immune globulin were compared with transplant recipients maintained on antiviral drugs alone. More detailed examination of the contribution that antibodies against glycoprotein B make to the total neutralising capacity of various commercial preparations of cytomegalovirus immune globulin will inform the future management of solid-organ transplant recipients at risk of cytomegalovirus infection. Finally, the success of the study described by Griffiths and colleagues[5] synergises nicely with the efficacy described for the glycoprotein-B/MF59 vaccine in prevention of cytomegalovirus infection in young women reported in a randomised, placebo-controlled, phase 2 study.[11] That trial showed efficacy against acquisition of primary cytomegalovirus infection of 50%.[11]

Although licensure of a vaccine to control cytomegalovirus disease in transplant recipients is a laudable goal, the greatest public health impact of a cytomegalovirus vaccine will ultimately be the prevention of disability for the congenitally infected newborn baby. The success of the glycoprotein-B vaccine in transplantation and non-transplantation settings suggests that one vaccine might be appropriate for licensure for both populations of patients. Moreover, the fact that Griffiths and colleagues noted substantial boosting of immune response in seropositive patients is also interesting, because non-primary infections account for most of the disease burden associated with congenital cytomegalovirus.[12] There might be a strong rationale to vaccinate women of childbearing age who are already seropositive for cytomegalovirus to prevent reinfection with, and subsequent fetal transmission of, new and antigenically distinct cytomegalovirus strains that they might be exposed to. Clinical trials to test these concepts in phase 3 studies are a high priority.

Mark R Schleiss
Center for Infectious Diseases and Microbiology Translational Research, Division of Pediatric Infectious Diseases, Department of Pediatrics, University of Minnesota Medical School, Minneapolis, MN 55455, USA
schleiss@umn.edu

I have received support from NIH HD044864, HD038416, and research funding for my laboratory from GlaxoSmithKline Vaccines (Rixensart, Belgium). I have served as a consultant to Merck vaccines.

1 Balfour HH Jr. Cytomegalovirus: the troll of transplantation. *Arch Intern Med* 1979; **139:** 279–80.
2 Hodson EM, Jones CA, Webster AC, et al. Antiviral medications to prevent cytomegalovirus disease and early death in recipients of solid-organ transplants: a systematic review of randomised controlled trials. *Lancet* 2005; **365:** 2105–15.
3 Torres-Madriz G, Boucher HW. Immunocompromised hosts: perspectives in the treatment and prophylaxis of cytomegalovirus disease in solid-organ transplant recipients. *Clin Infect Dis* 2008; **47:** 702–11.
4 Legendre C, Pascual M. Improving outcomes for solid-organ transplant recipients at risk from cytomegalovirus infection: late-onset disease and indirect consequences. *Clin Infect Dis* 2008; **46:** 732–40.
5 Griffiths PD, Stanton A, McCarrell E, et al. Cytomegalovirus glycoprotein-B vaccine with MF59 adjuvant in transplant recipients: a phase 2 randomised placebo-controlled trial. *Lancet* 2011; **377:** 1256–63.
6 Walter EA, Greenberg PD, Gilbert MJ, et al. Reconstitution of cellular immunity against cytomegalovirus in recipients of allogeneic bone marrow by transfer of T-cell clones from the donor. *N Engl J Med* 1995; **333:** 1038–44.
7 Plotkin SA, Starr SE, Friedman HM, et al. Effect of Towne live virus vaccine on cytomegalovirus disease after renal transplant: a controlled trial. *Ann Intern Med* 1991; **114:** 525–31.
8 Adler SP, Starr SE, Plotkin SA, et al. Immunity induced by primary human cytomegalovirus infection protects against secondary infection among women of childbearing age. *J Infect Dis* 1995; **171:** 26–32.
9 Snydman DR, Werner BG, Dougherty NN, et al, for the Boston Center for Liver Transplantation CMVIG Study Group. Cytomegalovirus immune globulin prophylaxis in liver transplantation: a randomized, double-blind, placebo-controlled trial. *Ann Intern Med* 1993; **119:** 984–91.
10 Hodson EM, Jones CA, Strippoli GF, et al. Immunoglobulins, vaccines or interferon for preventing cytomegalovirus disease in solid organ transplant recipients. *Cochrane Database Syst Rev* 2007; **2:** CD005129.
11 Pass RF, Zhang C, Evans A, et al. Vaccine prevention of maternal cytomegalovirus infection. *N Engl J Med* 2009; **360:** 1191–99.
12 Wang C, Zhang X, Bialek S, Cannon MJ. Attribution of congenital cytomegalovirus infection to primary versus non-primary maternal infection. *Clin Infect Dis* 2011; **52:** e11–13.

New medical data and leadership on tobacco control in China

Published Online March 24, 2011 DOI:10.1016/S0140-6736(10)61391-8

30% of the world's smokers are in China[1] and news has emphasised the persistence of the problem. The China Global Adults Smoking Survey, which was done by the China Center for Disease Control and Prevention, reported that 53% of men aged 15 years and above are smokers; about the same number as in 2002.[2] Furthermore, it is estimated that 72% of non-smokers, including 180 million children, are exposed to second-hand smoke.[2–4] Smoking cessation rates in China are very low—only 11% of smokers successfully quit, and 82% have never even thought about quitting.[2]

There are several reasons for China's lack of progress in tobacco control, including weak support from the government and strong resistance from the tobacco industry. Furthermore, China's medical community has not been sufficiently active in tobacco control. Medical and nursing students do not have adequate curricular exposure to the harmful health effects of smoking,

few hospitals offer clinical cessation services, and little anti-tobacco work is done by professional medical associations. Even worse than inadequate leadership is that many Chinese doctors themselves smoke. The prevalence of smoking among Chinese health-care professionals is as high as 40%, nearly the same level as in the general population.[2] Many health professionals smoke in front of their patients.[5] One study[6] found that more than a quarter (29%) of non-smoking physicians accepted cigarettes as gifts. Unfortunately, smoking is as imbedded in China's medical culture as it is in broader Chinese society. Studies in China show that, compared with non-smoking doctors, doctors who smoke are less likely to advise patients about the health risks of smoking and the benefits and means of quitting.[7] In realising the crucial health importance of smoking, and in compliance with WHO's Framework Convention on Tobacco Control, China's Health Minister Chen Zhu declared that "Medical workers and those who take the decisions regarding people's health should take the lead to quit smoking and completely ban indoor smoking to set a good example for their patients and others who look up to them. International experience has it that when doctors give up smoking, it encourages a lot of others to kick the habit."[8]

In 2009, the Chinese Ministry of Health issued the Decision on Banning Smoking in All Health Facilities by 2011,[9] requiring that 50% of the health facilities in China should be smoke-free by the end of 2010. According to the Ministry, achievement of smoke-free hospitals should be assessed by ten criteria (panel). The Ministry should be commended for making this landmark policy, but several major challenges must now be tackled. First, the new policy is not codified in law. In China, a governmental decision with no statutory power might not be vigorously implemented. Second, the regulatory and administrative capacity of the Ministry is limited. The Ministry was already short-staffed when China's Health-care Reform Plan was announced in May, 2009; therefore resources for the necessary implementation, monitoring, and evaluation are inadequate. The decentralised fiscal and administrative system in China complicates uniform implementation. Public hospitals—which account for more than 90% of the market share—are owned and operated by different governmental divisions (ie, provincial, city, district, and county) and by state-owned enterprises. In 2009, the Ministry of Health had direct control over only 12 of 14 086 public hospitals.[10] If local governments (especially those with a vested interest in supporting their local tobacco industries) are not motivated to cooperate in tobacco-control initiatives, the Smoke-Free Hospitals campaign could easily be undermined. Local governments have more power than the Ministry to hold local hospitals accountable for their compliant behaviour.[11] Third, there is insufficient technical knowledge to successfully implement the new policy for reducing smoking rate among medical professionals and patients. Study after study have shown that inadequate training in smoking-cessation tools and counselling skills constrain the ability of doctors to either quit smoking themselves or to help their patients to quit.[12]

In a bid to accelerate progress, the Chinese Ministry of Health's Smoke-Free Health Facilities Campaign Office announced in May, 2010 that the Ministry itself would launch a campaign to ban smoking in all their offices and in all Ministry-supervised health facilities (eg, Peking Union Medical College Hospital).[13] If the Ministry's example is to be replicated throughout China, difficult challenges need to be overcome. The Smoke-Free Health Facilities campaign is just another new beginning, albeit an important step, in the long march towards a tobacco-free China.

***Panel:* Ten criteria to assess smoke-free hospitals in China**

1. Incorporate a smoke-free environment into hospitals' strategic plans
2. Establish a system of rewards and penalties
3. Post visible non-smoking signs and enforce completely smoke-free indoor environments
4. Designate staff to monitor behavioural compliance
5. Start tobacco-control campaigns
6. Inform health workers about their responsibilities for health education
7. Encourage health workers to quit smoking
8. Ban the sale of tobacco products in hospitals
9. Equip health workers with the knowledge and skills to educate patients to quit smoking
10. Establish a smoking cessation unit and hotline

Yuanli Liu, Lincoln Chen
Harvard School of Public Health, Population and International Health, Boston, MA 02115, USA (YL, LC); and China Medical Board, Cambridge, MA, USA (LC)
yuanliu@hsph.harvard.edu

We declare that we have no conflicts of interest.

1 Jha P. Avoidable global cancer deaths and total deaths from smoking. *Nat Rev Cancer 2009;* **9:** 655–64.
2 Center for Disease Prevention and Control, Chinese Ministry of Health. GATS China Report. Beijing: China CDC, 2010.

3 Ministry of Health. 2007 China tobacco control report. May, 2007. http://tobaccofreecenter.org/files/pdfs/reports_articles/2007%20China%20MOH%20Tobacco%20Control%20Report.pdf (accessed June 2, 2010).

4 Yang GH, Ma JM, Liu N, Zhou LN. Smoking and passive smoking in Chinese, 2002. *Chin J Epidemiol* 2005; **26:** 77–83 (in Chinese).

5 Shi Y, Yu C, Luo A, Huang Y, Warner DO. Perioperative tobacco interventions by Chinese anesthesiologists: practices and attitudes. *Anesthesiology* 2010; **112:** 338–46.

6 Ceraso M, McElroy JA, Kuang X, et al. Smoking, barriers to quitting, and smoking-related knowledge, attitudes, and patient practices among male physicians in China. *Prev Chronic Dis* 2009; **6:** A06.

7 Zhou J, Abdullah AS, Pun VC, Huang D, Lu S, Luo S. Smoking status and cessation counseling practices among physicians, Guangxi, China, 2007. *Prev Chronic Dis* 2010; **7:** A15.

8 Bland B. China tells doctors to quit smoking to set example to patients. *BMJ* 2009; **338:** b993.

9 Chinese Ministry of Health. Decision on banning smoking in all health facilities by 2011. May 22, 2009. http://www.moh.gov.cn/publicfiles/business/htmlfiles/mohbgt/s9510/200905/40804.htm (accessed June 1, 2010) (in Chinese).

10 The Chinese Ministry of Health. Health statistical digest. 2009. http://www.moh.gov.cn/publicfiles/business/htmlfiles/mohwsbwstjxxzx/s8208/201001/45652.htm (accessed June 3, 2010) (in Chinese).

11 Gonhuan Y. China wrestles with tobacco control: interview by Weiyuan Cui. *Bull World Health Organ* 2010; **88:** 251–52.

12 Yan J, Xiao S, Ouyang D, Jiang D, He C, Yi S. Smoking behavior, knowledge, attitudes and practice among health care providers in Changsha city, China. *Nicotine Tob Res* 2008; **10:** 737–44.

13 Chinese Ministry of Health. Press conference on China's nursing and smoke free health facilities. May 10, 2010. http://www.moh.gov.cn/publicfiles/business/htmlfiles/wsb/pxwfb/index.htm (accessed Sept 15, 2010) (in Chinese).

Intensified glucose control in type 2 diabetes—whose agenda?

Published Online November 19, 2010 DOI:10.1016/S0140-6736(10)61112-9

How solid is the evidence for glucose lowering in people with diabetes? The Diabetes Control and Complications Trial showed that glucose control slows progression of microvascular complications in type 1 diabetes,[1] and the UK Prospective Diabetes Study (UKPDS) showed the same for type 2 diabetes.[2] The main difference between the studies was the high incidence of arterial disease in type 2 diabetes (22% of UKPDS participants had a coronary or stroke event within 10 years of enrolment). What was needed, therefore, was an unequivocal demonstration that macrovascular disease would respond to tight glucose control in type 2 diabetes. But combined analysis of four major trials (some 27 000 patients) suggested that lowering glycosylated haemoglobin (HbA_{1c}) by around 1% had a minor effect on heart disease (6·3 coronary heart events prevented for every 1000 individuals treated for a mean of 4·4 years), and no effect on stroke, cardiovascular mortality, total mortality, blindness, or renal failure.[3,4] The onlooker might imagine that a relatively minor benefit such as this would have prompted policy makers to reconsider the role of aggressive blood-glucose lowering in type 2 diabetes.[5] Not so.[6]

Science Photo Library

If the benefits of intensive glucose lowering in type 2 diabetes are only minor, what are the merits of population screening? A recent analysis from the American Diabetes Association (ADA), supported by an educational grant from three drug companies involved in diabetes care, modelled gains in quality-adjusted life-years (QALYs) with different approaches to screening in the USA.[7] The optimum model estimated that between 138 and 208 people would need screening to prevent one myocardial infarction over 50 years of follow-up, with similar numbers to prevent one person becoming blind. It was concluded that screening would be cost effective when started between 30 and 45 years of age, and repeated every 3–5 years, assuming that all those diagnosed would be treated to a target HbA_{1c} below 7%. One additional result would be a diagnosis of diabetes for an additional 10–12% of the senior US population.

The model assumes that pharmacological glucose lowering fully reverses the impact of hyperglycaemia on complications, and has no effect on quality of life (disutility). The first assumption has been challenged in both observational[8] and interventional studies.[3,4] The second seems optimistic, because at least two-thirds of those diagnosed are likely to require multiple injection regimens plus blood-glucose monitoring within 15 years