

which cause liver injury and the markers which predict reduction in liver function; assessment and prediction of liver fibrosis by non-invasive biomarkers, and interference with fibrosis from small chemical compounds or traditional Chinese medicines; prediction of the development, metastasis, and prognosis of HCC by molecular typing; and the identification of important signal transduction pathways in HCC and the development of new small chemical compounds to target HCC.

To measure the results, the Government also set goals that corresponded to these research projects. The goals include: completion of the immunoprophylaxis strategy, such as HBV vaccine, to decrease the incidence of HCC by more than 10%; identification of molecular biomarkers, and the creation of molecular typing diagnostic kits for the prediction of the therapeutic response; the development of regimens to treat HBV; the identification of biomarkers to predict the aggressiveness of severe hepatitis B and the development of a kit for early diagnosis of liver cirrhosis; the identification of markers (biological and genomic, and small molecules) for early diagnosis and to predict recurrence and metastasis, and the development of new drugs for HCC, to increase the rate of early diagnosis by more than 20% and 5-year survival by more than 5%. The fight against HBV and its related disorders is a long-term one, but even a little progress would be a stride in changing the Chinese situation for the better.

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DF is the chief editor of *The Lancet's* Chinese Edition. JL declares that he has no conflict of interest.

- 1 Lai CL, Ratzliff V, Yuen MF, Poynard T. Viral hepatitis B. *Lancet* 2003; **362**: 2089–94.
- 2 Liang XF, Chen YS, Wang XJ, et al. A study on the sero-epidemiology of hepatitis B in Chinese population aged over 3-years old: the report from Chinese Center for Disease Control and Prevention. *Chin J Epidemiol* 2005; **26**: 655–58.
- 3 Liu GT, Si CW, Wang QH, et al. Comments on the prevention and research of chronic hepatitis in China. *Natl Med J China* 2002; **82**: 74–76.
- 4 Si CW. Current status and problem of chronic hepatitis B. *Clin Med J* 2006; **4**: 1–2.
- 5 Jia JD, Zhuang H. The overview of the seminar on chronic hepatitis B. *Chin J Hepatol* 2004; **12**: 698–99.
- 6 Wang XJ, Zhang RZ, Hu YS, Liang XF. Analysis on epidemic status of viral hepatitis in China: the report from Chinese Center for Disease Control and Prevention. *Dis Surveillance* 2004; **19**: 290–92.
- 7 Cui FQ, Wang XJ, Liang XF. Epidemiological analysis on reported hepatitis B under 15 years in China: the report from Chinese Center for Disease Control and Prevention. *Chin J Vaccines Immunization* 2006; **12**: 206–08.
- 8 Sung JJ, Wong ML, Bowden S, et al. Intrahepatic hepatitis B virus covalently closed circular DNA can be a predictor of sustained response to therapy. *Gastroenterology* 2005; **128**: 1890–97.
- 9 Lok AS. The maze of treatments for hepatitis B. *N Engl J Med* 2005; **352**: 2743–46.
- 10 Janssen HL, van Zonneveld M, Senturk H, et al. Pegylated interferon alfa-2b alone or in combination with lamivudine for HBeAg-positive chronic hepatitis B: a randomised trial. *Lancet* 2005; **365**: 123–29.
- 11 Zhuang H. The challenge of hepatitis B infection in China. *Chin J Infect Dis* 2005; **23** (suppl): 2–6.
- 12 Ministry of Science and Technology of the People's Republic of China. <http://www.most.gov.cn> (accessed April 7, 2007).
- 13 National Natural Science Foundation of China. <http://www.nsf.gov.cn/Portal0/default99.htm> (accessed April 7, 2007).

## Can the US congress slow down and get FDA reform right?

On Feb 21, 2007, 40 experts, and four times as many reporters and students, assembled at the George Washington University School of Public Health for a meeting organised by Scientific Knowledge and Public Policy (SKAPP).<sup>1</sup> The attendees listened to four former commissioners from the US Food and Drug Administration (FDA) dissect their experiences—Donald Kennedy, Frank Young, David Kessler, and Jane Henney. What is wrong with the FDA, and how can it be fixed? Kessler confessed that this meeting was the first time he had talked publicly about his stint at the FDA. Among the stories, the consensus was that FDA drug regulation had come to reflect the needs and demands of the drug industry. Thus future legislation must focus on public health: better epidemiology, limiting or eliminating user fees, building research capacity, and getting a stronger authority to act.

Susan Wood, who quit her job in 2005 as chief of women's health at the FDA, organised the two part meeting for SKAPP. For the next day's closed session, Wood tapped three groups of experts: former FDA managers, lawyers, and scientists; current and former congressional staff; and a few independent scholars. Neither consumer advocates, such as Public Citizen, nor drug-company representatives were invited, but some of the former FDA participants currently work for consumer groups or for pharmaceutical firms. They discussed three groups of issues: science, resources, and independence.

A sense of urgency emerged in the second session. The user-fee law that funds drug reviews is about to expire. Could this ad-hoc group of experts present ways to reinforce public health or would the President's newly

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appointed FDA commissioner, Andrew C von Eschenbach, and the drug industry prevail supporting the minimal reforms in pending legislation and the FDA's proposal? In Congress, eight or nine FDA bills are heading into hearings, to be merged into a single bill for mark-up. Would it be worth asking Congress to delay some of the legislation? Could anyone advocate effectively for new resources of the magnitude needed, perhaps an order of magnitude increase in the FDA's budget?

Kennedy recalled FDA's once strong research capacity in biological agents, such as the vaccine against *Haemophilus influenzae* type B. Advocating a culture of science, the experts called for transparency, accountability, oversight, and checks and balances. Would a research programme (such as that at the US National Institutes of Health [NIH], both intramural and extramural), provide the FDA with answers to questions in regulatory science, improve decision-making, and create a constituency beyond drug companies to support the FDA? Surely industry will not do this research, and for university-based researchers in the USA grant money is a limitation. One participant mostly blamed the drug industry and, showing a slide of mountain climbers, concluded that "FDA's ropes of trust are badly frayed".

The former commissioners worried about the Prescription Drug User-Fee Act (PDUFA). The worries became more real when one of the scholars described the detrimental consequences of speedier drug approvals and the increased likelihood that such approvals would be flawed. To comply with the user-fee law, the FDA has shifted appropriated funds into the drug-approval process, diminishing all resources available for other mandated functions across the whole agency. Surely shortchanged in this

process is the epidemiology of adverse reactions in already approved drugs.

The strongest consensus emerged about the need for a very sizeable increase in resources. Despite money from drug makers, allocated in secret negotiations with the FDA—"a corporatist model"—far larger appropriation is needed, not only for the activities mandated by law but also to increase the science capacity and communicate the public-health mission more effectively. Participants were envious about how the NIH's constituency of researchers and patients' advocates had delivered on a plan to double the Institutes' budget. Could the new FDA Alliance do the same?<sup>2</sup>

Wood seemed caught off guard by the general agreement and feistiness. With no clear route to closure, what to do next? As one Congressional staffer said, "the train is leaving the station!" But might it be possible to ask congress to slow down and get it right? With public health at stake, SKAPP has organised an effort to delay the reauthorisation of PDUFA.<sup>3</sup> Congressional caution will surely generate greater drug-industry pressure to move quickly and avoid serious reform. As more than one participant suggested, perhaps the drug companies like the ineffective and toothless regulation by FDA.

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Susan Wood from SKAPP saw a draft of this Comment. I am a member of SKAPP's planning committee, and was invited to attend the closed meeting as an observer.

- 1 DefendingScience.org. SKAPP advances conversation on strengthening FDA. <http://defendingscience.org/newsroom/Advancing-FDA-Conversation.cfm> (accessed April 13, 2007).
- 2 The FDA Alliance. [www.StrengthenFDA.org](http://www.StrengthenFDA.org) (accessed April 13, 2007).
- 3 DefendingScience.org. Scholars issue open letter on FDA reform. March 14, 2007: <http://defendingscience.org> (accessed April 13, 2007).

## Greenhouse-gas costs of clinical trials

One of the most important but widely misunderstood words of modern times is sustainability. Not surprisingly, we cherish our way of life and hence are reluctant to contemplate radical change. But we can also now see that it might not be our decision—nature may have the last word. Our wellbeing, health, and life ultimately depend on sustained processes of the natural world.<sup>1</sup> We have been slow to recognise the escalation of

ecological disruption caused regionally and globally by expansion of human enterprise, and slow to understand the accompanying threat to healthy life. Instead, we focus attention on sustaining our economy, property, recreational options, and the iconic wonders of the natural world.

The Stern report<sup>2</sup> thunders about how climate change could damage the world's economic system. Yet, the