

“A bonfire of much of the idiotic new health and safety regulations that say I am supposed to put on a space suit before I can enter the animal house to study my chickens.”

Steven Rose, neuroscientist, Open University, Milton Keynes, UK.

C. HUGHES/PANOS

“Very high on my wish list of discoveries for 2005 would be the development of a molecule that would elicit broadly reactive neutralizing antibodies against HIV.”

Anthony Fauci

Director, National Institute of Allergy and Infectious Diseases, Bethesda, Maryland

Those attending July's XV International AIDS Conference in Bangkok, Thailand, heard one refrain repeated over and over: we have the tools to treat the epidemic — but they're not reaching the majority of the 39 million people living with HIV. The epidemic is deeply entrenched in sub-Saharan Africa, home to more than 60% of people with HIV; and it threatens to take off in Russia and China, as well as India, which has the second highest number of HIV infections. But the antiretroviral medications that could treat patients are still too costly for most to afford. Faced with this daunting prospect, leaders are calling for preventative treatments that can stop the spread of AIDS once and for all.

But progress on an AIDS vaccine is slow. Although there are at least a dozen vaccines in clinical trials, researchers do not have high hopes that any will completely prevent people from contracting HIV. Many experts are convinced that what is needed to meet this goal is a vaccine that will stimulate antibodies that recognize and neutralize all forms of HIV. Structural biologists are now hard at work trying to identify these ‘broadly neutralizing’ antibodies.

“A time controller. This would allow — at least subjectively — the flow of time to be increased, decreased or stopped. I believe some drugs have this effect!”

Arthur C. Clarke
Science-fiction author



“We are facing increasing risk of new emerging infections. I wish for constant vigilance, and for the resources to combat this threat with good science, surveillance and public policy based on science not politics.”

Paul Tam

Acting pro-vice-chancellor, University of Hong Kong

Severe acute respiratory syndrome, or SARS, may now seem like a distant threat, with no new cases so far this winter. But there are other viruses to worry about. This year, bird flu led to the death by disease or slaughter of tens of millions of birds in countries across southeast Asia, and it killed at least 32 people in Thailand and Vietnam.

Evidence has emerged that the viral strain of greatest concern, H5N1, is present in pigs in China — an animal that could provide the perfect place for bird and human viruses to meet and mix, producing a lethal, highly transmissible version. Alarmingly, H5N1 seems to have passed from person to person in one case, when a Thai girl probably passed the disease to her mother. If the virus adapts to pass more easily between people, a deadly pandemic similar to those in the twentieth century is likely.

“The next pandemic is inevitable. In fact it's overdue,” says David Ho, an infectious-disease expert at Rockefeller University in New York. And surveillance and healthcare systems in the developing countries may not be able to cope, he says.

Scandals

Missing plague

After reporting several vials of plague bacteria missing from his lab, and then admitting he might have accidentally destroyed them himself, US microbiologist Thomas Butler was sentenced to two years in prison for fraud this March. This is more lenient than the penalty sought by US prosecutors, who called for millions of dollars in fines and at least ten years in prison. But some researchers say it was unfair to make an example out of a 62-year-old, respected researcher with no terrorist ambitions.

For art's sake

A US university geneticist and an artist were accused of mail and wire fraud because of the way they allegedly obtained bacteria for art exhibitions. The investigation began when laboratory equipment, bacteria and books on biowarfare were found in the home of performance artist Steven Kurtz. The bacteria were found to be harmless, but both he and Robert Ferrell were accused of defrauding the supplier by using the organisms for non-research purposes outside the lab. Kurtz's case is set for a hearing on 11 January, while Ferrell's has been put on hold due to illness.

Autism paper 'flawed'

Medical journal *The Lancet* took the unusual step of distancing itself from one of its own papers and attacking its findings. In February, editors declared that Andrew Wakefield's 1998 paper linking the measles, mumps and rubella vaccine with autism was “flawed” owing to conflicts of interest and should not have been published. Wakefield said that there was no conflict. The paper caused many parents in Britain to decline the triple vaccine, and, as a result, measles incidence increased.

Cloning paper pulled

Fertility researcher Panayiotis Zavos had a peer-reviewed paper on human cloning pulled — because he publicized his work. Zavos created a fuss in the newspapers in September when he announced that he had created cloned embryos by mixing genetic material from dead people with cow eggs. The *Journal of Assisted Reproduction and Genetics* then pulled a paper on similar work, although Zavos claims it was a different study.

Locked out

A vetted Iranian physicist was banned from his workplace at the Stanford Linear Accelerator Center, a US Department of Energy lab in California. Colleagues told *Nature* that no explanation was offered for his expulsion. Shahram Rahatlou suspected his ban resulted from heightened security checks after 11 September 2001. Other Iranians said that it was now harder for them to work at, or even visit, government facilities. Rahatlou has since been offered a four-year position in Rome.