Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Profile

Hongjie Yu: monitoring avian influenza in China

To many people the prospect of taking charge of an immunisation programme for an area twice the size of Texas would be daunting, especially when their brief was to eradicate polio—a disease rarely seen today in the west. But when Hongjie Yu was offered the chance, shortly after graduating from China Medical University, in 1994, to join the Center for Disease Control and Prevention in Liaoning he didn't hesitate. Yu was to spend 7 years in Liaoning—a province in northern China with a population of 40 million—during which time he travelled in the province coordinating the delivery of polio and other vaccines to remote towns and villages. "When I arrived there were many gaps in the vaccination system", he explains. "The experience helped me understand China's broad range of public health needs".

Today, Yu, who at 37 years old is Deputy Director of the Office for Disease Control and Emergency Response, Chinese Center for Disease Control and Prevention (China CDC), has an even more daunting task: to monitor outbreaks of H5N1 and other emerging animal pathogens before they can trigger global panics. According to Jeremy Farrar, Director of the Oxford Clinical Research Unit in Ho Chi Minh City, Vietnam, and a Wellcome Trust funded researcher who works closely with Yu on avian influenza, the Chinese are invaluable partners in this work. "Over the last few years I have repeatedly read in newspapers of the difficulties of working with Chinese scientists on flu. That has never been my experience. Hongjie and everyone I have come across at China CDC have been incredibly welcoming, open, and willing to share data and samples as needed", says Farrar.

Yu's work on immunisation against polio, and later measles, brought him to the attention of officials at China CDC. So when, in 2001, China CDC set up a field epidemiology training programme with WHO and the US Centers for Disease Control and Prevention, Yu was one of ten trainees selected. His arrival in Beijing also coincided with a major refurbishment of China CDC's headquarters. However, his big break came 2 years into the training, in 2003, when severe acute respiratory syndrome (SARS) emerged in Guangzhou and he was sent to investigate. "At that point we didn't know that SARS was a respiratory disease so we wearing ordinary surgical masks, not the N95s we wear now", he recalls. "The epidemic exposed our weaknesses. It was a scary time."

SARS also underlined the need for better monitoring to contain future outbreaks of new respiratory diseases. With his valuable experience on the ground, on graduating Yu was appointed leader of the China CDC's respiratory infectious disease team. A few years later, his brief expanded to encompass avian influenza, and in 2006 he was appointed his current post in Beijing, where he heads a rapid response team of 20 epidemiologists.

Monitoring outbreaks in a country with a population of 1·3 billion is a huge challenge, but as Yu points out, "The Americans have just one CDC, in Atlanta. We have 1539, one for each province, prefecture, and county." Yu also works closely with Shu Yuelong, director of China's National Influenza Centre, making use of an internet-based, nationwide surveillance system. One of Yu's first tests came in 2005, when a boy from XiangTan County presented with a high temperature and evidence of pneumonia; it was the first H5N1 case identified in China. Since then, Yu and his team have confirmed 35 more cases. The most worrying case was in 2007, when a salesman from Jiangsu province and his father suddenly fell ill with lower respiratory tract disease. Fearing human-to-human transmission of H5N1, Yu, who was abroad with a Chinese Ministry of Health delegation, immediately returned. "It was potentially a very serious and sensitive development and it was my job to take charge of the situation", he says.

The salesman died, but in an unusual approach the father received plasma from a woman who had received an inactivated H5N1 vaccine, and he lived. As in other H5N1 cases, the salesman had most likely been exposed to the virus as a result of visiting a fresh poultry market. Yu and his colleagues reported the case in this journal as a case of limited person-to-person H5N1 transmission. To stop further human infections, Yu now wants to see Chinese fresh poultry markets disinfected weekly and the birds slaughtered under close supervision, as occurs in Hong Kong, Special Administrative Region. He would also like to see all birds sold in markets vaccinated. "We can't change Chinese and Asian people's love of fresh poultry, but we can bring in tighter regulations and a better public health strategy", he says.

That will be music to the ears of Tim Uyeki of the Influenza Division of the US Centers for Disease Control and Prevention, who has been working with China CDC on a series of studies looking at H5N1 and has been greatly impressed by what he calls the team's "dedication to excellence". From Yu's point of view, international collaboration also has benefits for China. Indeed, his aim now is to use the knowledge and expertise gleaned from working with leading influenza experts to "improve the practice of public health in China at all levels". His first project: a study of the public health burden of pneumococcal disease. "Interventions such as vaccines against pneumococcal disease and influenza have benefited people in other countries for many years", Yu explains. "But in order to roll out such vaccines in China we first need a better evidence base. This is what motivates me going forward."

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For more on **limited H5N1 transmission** see **Articles** *Lancet* 2008; **371:** 1427–34.