

SARS virus returns to China as scientists race to find effective vaccine

SARS returned to China's Guangdong Province last month prompting a mass cull of wild animals suspected of contributing to the spread of the disease. However it is unlikely that vaccines being developed by scientists in Canada, China, the United States and other countries will be ready for an outbreak in 2004.

Chinese authorities and WHO officials said on 5 January that a 32-year-old Chinese television producer had tested positive for the SARS virus that infected about 8098 people and killed 774 people in 26 countries last year. People who had been in close or normal contact with him have not developed symptoms. It was the first confirmed case of SARS since last summer, apart from two research scientists in China (Province of Taiwan) and Singapore who became infected while conducting laboratory experiments in September and December.

A 20-year-old waitress who fell ill on 25 December was put in an isolation ward with a suspected case of SARS on 31 December. The woman, a migrant worker from Henan Province, worked in a restaurant in Guangzhou, the capital of Guangdong, the Chinese region where the virus is thought to have first surfaced in November 2002.

It was still unclear whether Chinese authorities have another "outbreak" on their hands or isolated cases. Under new WHO guidelines due to be issued in January, if one person infects another, this would constitute "an outbreak." However, no link has been established between the television producer and the waitress, according to WHO.

Scientists are investigating the TV producer and the waitress in the hope this will lead them to the source of the virus which could be in animals, humans or the environment. Following an investigation of the restaurant where the waitress worked, WHO said on 16 January that it had found strong evidence that civet cats — a gastronomic delicacy in China — are linked to the

disease. The restaurant is believed to have served wild animal meat including civet.

"I think there is very good evidence to think animals are the reservoir and the way the disease gets started," said WHO researcher, Dr Robert Breiman. The television producer, however, told Chinese media after being discharged from hospital on 8 January that he had never eaten civet cat.

More than 100 people who had been in contact with the television producer and the waitress were placed under quarantine or observation, but have not shown any symptoms.

A 35-year-old man was isolated on 6 January and identified by Chinese health authorities as a third suspected SARS case in Guangdong Province this year, but laboratory analysis has yet to confirm that his illness was SARS. The third new suspected case has fuelled fears of a new SARS outbreak.

An obstacle to tackling such an outbreak is the lack of early diagnosis. A polymerase or chain-reaction (PCR) test can only identify the virus 8 or 9 days after infection, by which time the



One of the enclosed beds designed to contain disease-infected travellers at the border checkpoint in Nanjing, China's eastern Jiangsu Province.

patient may already be infectious. In the absence of effective early diagnosis, the race to find a vaccine is on.

Dr Marie-Paule Kieny, Director of WHO's Initiative for Vaccine Research, said that although there were many projects under way to find a SARS vaccine, effective immunization would not be available for at least one and a half to two years.

Beijing Kexing Bio-product Company, a subsidiary of Chinese firm Sinovac Biotech Ltd, have announced that they will initiate phase one clinical trials in humans in January 2004, using a killed SARS vaccine which produced good results in monkeys. Kieny said that this project appears to be more advanced than a plethora of rival projects.

The University of Pittsburgh in the US State of Pennsylvania, is developing a genetically engineered vaccine that has gained a lot of attention. Kieny explained that it was based on a recombinant adenovirus. "They have had good results in monkeys, but as far as I know they will not be ready to start clinical trials before the second half of 2004," said Kieny.

Researchers on a project led by the Pasteur Centre in Hong Kong Special Administrative Region have also come up with a vaccine and are currently immunizing mice. Kieny explained that "this involves the preparation of candidate vaccines based on various forms of the spike glycoprotein purified from mammalian cells."

There are several other SARS vaccine projects using killed virus, like those being developed by big pharmaceuticals Chiron in the United States, Aventis Pasteur, the vaccines business of French pharmaceutical giant Aventis, and Baxter International Inc. In Switzerland, a measles-based attenuated viral vector is being investigated by Berna Biotech.

"It's impossible to say at this stage which of these vaccine candidates will succeed and make a real product," said Kieny. ■

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