

NEWS

Pandemic 'dry run' is cause for concern

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A cluster of avian flu cases in Indonesia last month is being seen by many experts as a dry run for the handling of an emerging pandemic virus. But although the World Health Organization (WHO) says that all went well, some critics allege that the response to the virus — thought to have been moving between humans — shows how ill-prepared the international community and affected nations still are.

"Any chance of containment was absolutely hopeless," says Andrew Jeremijenko, who until March was head of influenza surveillance at the US Naval Medical Research Unit 2 in Jakarta. "If this was a test to see whether Indonesia could contain a virus, then they just failed miserably."

The difficulties encountered also raise questions as to the practicality of a plan to try to stop an emerging pandemic in its tracks by rapid intervention. Modelling studies predict that if a pandemic virus emerges, the WHO would have at most three weeks to help the affected country to quarantine all carriers and treat those infected with antivirals (N. M. Ferguson *et al. Nature* 436, 614–615; 2006).

The first case in the cluster fell ill on 24 April and died on 4 May. Samples were not taken, however, and alarm bells only rang when her relatives started going to hospitals in the days that followed. In total, eight members of an extended family in the village of Kubu Sembelang in north Sumatra became infected with H5N1. Six more of them have since died.

Jeremijenko says the response was slow and disorganized. The first WHO official and a team of local officials didn't reach the village until 12 May. Other international experts did not reach the village until the following week, at least in one case because of difficulties getting an invitation from Indonesia's ministry of health, according to Jeremijenko. Villagers also refused to cooperate with the team initially. Several of the H5N1 patients fled hospitals, returning coughing to the community.

Spreading the news

The WHO made the outbreak public on 18 May. Health officials — and stock markets — worldwide trembled five days later when the WHO budged from its previous standard line that "the most plausible source" of the cluster was infected poultry, and acknowledged for the first time since the emergence of H5N1 that an extended chain of human transmission was the most likely explanation.

Steven Bjorge, a WHO official in Jakarta, disputes the allegation of unnecessary delays



Johannes Ginting is thought to have caught bird flu from a relative. Seven members of his family have died.

and bungling, arguing that the WHO and the Indonesian government reacted promptly. "The team was in the field early, and the Indonesians are doing a good job," he says. The abscondments from hospital were "an unusual experience," he adds.

Concerns over the cluster itself have eased as no new cases have since been reported nearby, and the WHO says the virus's sequence shows "no evidence of significant mutations". The sequences have not been made public yet. The all-clear will not be given for another two weeks or so, however, and the pharmaceutical company Roche has been put on standby to send antiviral drugs to the region.

Teams on the ground are trying to monitor fresh cases. But thousands of Indonesians die every day from tuberculosis, dengue and other infectious diseases, and almost all go untested

for H5N1. On 29 May, the WHO announced six more cases in other areas of Indonesia, two of which were also a family cluster.

"There have been a number of family clusters where only one person was tested," says Jeremijenko, adding that there is "only limited testing, in large cities such as Surabaya, Medan, Bandung and Jakarta. We know we are missing cases, especially in rural areas."

What caused the suspected human-to-human transmission at Kubu Sembelang is still a mystery. *Nature* has learned that the cases differed from past Indonesia cases, in that they had much higher viral loads in the throat and nose. Human-to-human transmission is more likely through droplets coughed from the nose and throat than from infections further down the respiratory tract.

Mutations in cases in Turkey earlier this

"If this was a test to see whether Indonesia could contain a virus, they failed miserably."



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Murders halt rainforest research

Following the murder of two guards by illegal goldminers, scientists have been evacuated from a research station in the Nouragues nature reserve in French Guiana. The assassins were caught last week in Régina, a village lying 40 km from the station.

The bodies of Domingo Ribamar da Silva and Andoe Saaki ('Capi') were found on 18 May at the Arataï ecotourism centre where they worked, a few kilometres from the Saut Pararé and Inselberg research sites — all run by France's basic research agency, the CNRS. They had been shot, and the centre ransacked.

Alain Pavé, the head of CNRS in French Guiana, ordered the temporary closure of the research station the day after the discovery of the bodies. Fourteen staff and their equipment were evacuated by helicopter to Cayenne, 100 km away. The gendarmerie is protecting the few remaining staff, and the sites' facilities. The research station will not be reopened until security can be guaranteed, says Pavé.

"Apparently this murder is deliberate, probably to chase the scientists and managers of the Nouragues reserve from the area," says Pierre Charles-Dominique, the tropical ecologist who heads the research station.

The miners, or 'garimpeiros', most of whom come from neighbouring Brazil, have been a constant security concern for scientists, he adds. His station was ransacked by miners in 2004. The thieves made off with equipment worth €75,000 (US\$100,000), and delayed a major research project (see *Nature* 430, 127; 2004).

Illegal goldmining is a growing problem in the reserve, says Patrick Jansen, an ecologist at the University of Groningen in the Netherlands. The miners cause substantial ecological damage: they suction riverbeds for gold nuggets, fell trees, and pollute waterways with mud and mercury.

Before the recent murders, scientists at the reserve were preparing to celebrate completion of the project delayed by the 2004 ransacking. The Canopy Operation Permanent Access System (COPAS) is designed to give scientists unprecedented access to the canopy of a tropical rainforest. It consists of a huge helium balloon and basket, which allows two scientists at a time to move vertically and horizontally within the canopy along a system of cables. Domingo and Capi had lunched with the COPAS research team at Saut Pararé the Saturday before they were killed, researchers recall, as they put the final touches to the treetop system.

All scientific work has now been put on hold. After the 2004 ransacking, the gendarmerie stepped up actions against the miners, introducing helicopter missions to find and destroy the mining sites, and arrest the miners, for example. But Charles-Dominique says that

is not enough. "We cannot continue our research without a permanent military guard at the entrance of the reserve, and strong repressive action throughout the park," he says. And that's no easy task in the vast forest.

Catherine Bréchnignac, president of the CNRS, visited the centre on 25 May, as part of a scheduled visit to inaugurate COPAS. In response to the fears of some researchers that the station might be closed, she says "certainly not!". After discussions with local government, she promised that the centre will be protected by the gendarmes and the military until the CNRS finds a private firm of armed security guards to assist it.

"I made the decision last night: two murders is inadmissible, we can't let visiting scientists work under such conditions," she says. "I don't know much it will cost, but the science here is very important. The CNRS is committed to it and we will pay whatever it takes." As *Nature* went to press, scientists were due to return to the station on 30 May, and COPAS will now be officially launched next week.

Still, the incident has left researchers badly shaken. Ecologist Pierre-Michel Forget worked at the station from 1984 until 2003, when he decided that the situation was too dangerous and returned to his native France. "Not everyone agreed with me in the scientific community," he says. "But today, unfortunately, I see that I was right to do so. We often stayed at the Arataï river camp when reaching the forest and the station by boat. This could have been me."

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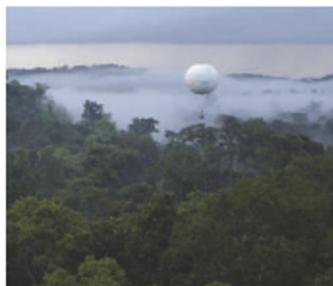


year showed a substitution of glutamic acid with lysine at position 627 in the PB2 component of the polymerase gene. The mutation is thought to allow the virus to survive in the cooler nasal regions. This mutation has not been publicly reported in Indonesia previously, but *Nature* has learned that it occurred in at least one case in August 2005.

Another explanation is that the first case in last month's cluster had a particular genetic susceptibility to the virus, making her a 'super-spreader'. But it is too soon and the data are too sparse to know for sure, says Bjorge.

Malik Peiris, a virologist at the University of Hong Kong who sequenced the virus, declined to comment on any mutations, saying that making sequences public is not his call. "Our job as a WHO reference lab is to report back to the originating country and the WHO," he says. The WHO also declined to give any details. "We will leave that to the government of Indonesia, the owner of the data," says Bjorge.

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A balloon will give scientists access to the forest canopy once work resumes.

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