

NEWS

Bird-flu experts question advice on eating poultry

Can people catch the H5N1 avian flu virus from eating infected poultry? Colin Blakemore, chief executive of the UK Medical Research Council, says the public need not worry. "There is no evidence of transmission to people by eating cooked eggs or chicken," he said on BBC radio last week, adding that the only food risk he could see was from "drinking swans' blood".

Blakemore's sound bite came a day after Britain's first case of H5N1 in a wild bird was confirmed — a dead swan found floating in a harbour in Cellardyke, Scotland. And it echoes a slew of recent reassurances by governments worldwide and by the World Health Organization (WHO), all conscious of damaging public confidence and the poultry industry.

But many flu scientists are concerned that, although the risks are low compared with those associated with contact with diseased birds, there is not enough evidence to say that the virus cannot be transmitted by eating infected poultry. "Oral transmission is an open question," says Masato Tashiro, a virologist at the National Institute of Infectious Diseases in Tokyo. "Direct evidence of oral infection is lacking, but so too is proof against."

On 23 March, the European Food Safety

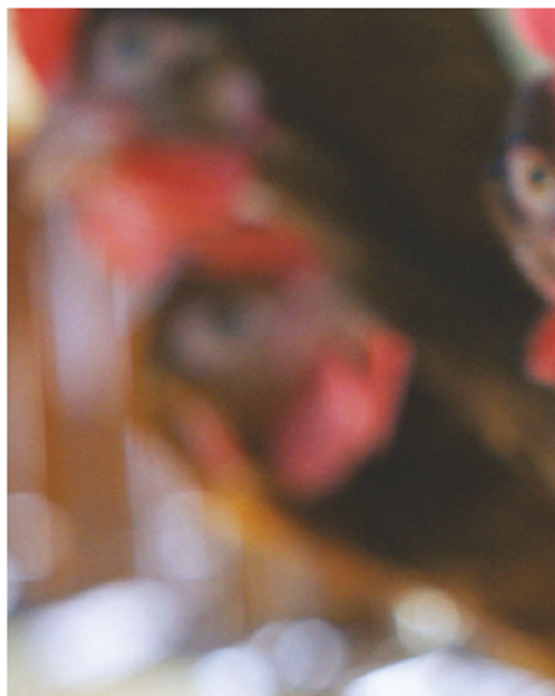
Authority (EFSA) published a prominent scientific risk assessment (*EFSA J.* 74, 1–29; 2006). Its advice is that poultry products are safe to eat and have "not been implicated in the transmission of the H5N1 avian influenza virus to humans".

H5N1 is present in the meat and eggs of infected birds, and animals have become infected by eating diseased birds. But the EFSA plays down this route in humans, arguing that "humans who have acquired the infection have been in direct contact with infected live or dead birds".

That overstates the case, says Jody Lanard, a physician and risk-communication consultant based in Princeton, New Jersey, who has recently advised the WHO about pandemic communication. She points out that the report itself acknowledges elsewhere that in many instances there is not enough epidemiological evidence to identify the source of infection, and that poor preparation and cooking of food cannot be excluded as the cause. "Such cases could equally well indicate a likely gastrointestinal portal of entry," agrees Menno de Jong, a virologist at the Hospital for Tropical Diseases in Ho Chi Minh City, Vietnam.

The report also dismisses the idea that H5N1

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Don't panic: official advice is that despite bird-flu fears, chickens are safe to eat

F. VELLA/GETTY

can enter the body via the human gut, concluding that there is "no proof that virus replicates in the human intestine". Although it mentions the presence of diarrhoea in infected humans, together with the detection of viral RNA in intestines and the virus in rectal swabs, it says these "do not allow one to conclude that the GI tract is a portal of entry or a target organ".

De Jong, who has treated many of the cited diarrhoea cases, says the report's authors are

Patients warned about unproven spinal surgery

Pressure is mounting on a Beijing neurosurgeon to prove that his popular treatment for spinal-cord injury works. In an article published last month, a group of spinal experts concludes that the treatment, which involves implanting fetal cells into the spine to promote nerve-cell regeneration, has significant side effects and does not provide any benefit.

Hongyun Huang's technique is based on the theory that olfactory ensheathing cells (OECs), which normally help to link nerve cells in the nose and the brain, can help regenerate nerve cells at the site of an injury. Since 2001, Huang, who

works at Chaoyang Hospital, has treated around 600 patients with tissue from aborted fetuses that he says contain OECs (see *Nature* 437, 810–811; 2005).

Three spinal-cord experts have now published a critique of his methods (B. H. Dobkin, A. Curt and J. Guest *Neurorehabil. Neural Repair* 20, 5–13; 2006); the researchers followed seven of Huang's patients before and after treatment, reviewed his publications and visited his lab.

They say Huang's surgical techniques are good. But despite Huang reporting at a February 2004 meeting that there had been no adverse effects of more than 500

implantations, the researchers found that five of the seven patients experienced side effects including meningitis. They also question whether the cells used by Huang are OECs. "We don't know what those cells are but they are not pure OECs," says first author Bruce Dobkin, a neurorehabilitation specialist at the University of California, Los Angeles.

The most damning claim in the critique is that none of the patients showed any improvement after treatment. For example co-author Armin Curt, a neurologist at the International Collaboration on Repair Discoveries (ICORD) at the University of British Columbia,

Canada, measured muscle responses to nerve signals, and found no change in the three patients he studied before and after the procedure. "There is a good chance patients are just wasting money and expectations," says Curt.

Huang vigorously defends his technique and calls the report a "pack of lies", pointing out that the third author, James Guest of the Miami Project to Cure Paralysis, has previously reported observations that support his procedure (J. Guest, L. P. Herrera and T. Qian *Spinal Cord* 44, 135–142; 2006). Several patients contacted by *Nature* claim that they have

**BIRD FLU ON THE MOVE**

Visit our website to find a timeline of the H5N1 virus's spread from Asia to Europe.

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points to the countless infections with *Salmonella* worldwide, and complains that most risk assessments fail to acknowledge that in reality few people follow guidelines for the safe handling and cooking of poultry. These involve cooking chicken right through to 70 °C and eggs until they are hard, using separate knives and chopping boards for raw and cooked foods, and hand-washing between operations.

An EFSA spokesperson says the agency stands by the report's conclusions. Several scientists are also convinced that avian flu carries no food risks. "Avian influenza has never been and should never have been seen as a food safety issue," says Les Sims, a consultant for the UN's Food and Agriculture Organization (FAO). Bird-flu concerns over food, he says, "have a devastating impact on the livelihood of millions of farmers globally and demonstrate that risk communication on this has been a total failure".

But Lanard maintains that to say bird flu is not a food issue is an "overstatement". She says that such advice shows that little has been learnt about risk communication since the British agriculture minister publicly fed his young daughter a hamburger at the height of the crisis over bovine spongiform encephalitis. A 2005 European Commission poll showed that almost half of European citizens believe authorities favour economic interests over consumer health, she points out. "These over-reassuring statements discount the future — they are set up for public distrust," she says. "Although there is no direct evidence that transmission can occur through poorly cooked infected poultry, all animal evidence to date unfortunately suggests that this is possible." ■

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"formally right" to say there is no proof that the virus replicates in the intestine. But there is no proof that it doesn't either, he says, noting that some of the diarrhoea cases had no respiratory symptoms.

"Available evidence suggests that the gastrointestinal tract in humans is a portal of entry for H5N1," agrees Albert Osterhaus, a virologist at the Erasmus Medical Center in Rotterdam. He carried out a recent study in which cats became infected with H5N1 after being fed infected chickens (T. Kuiken *et al.* *Nature* 440, 741–742; 2006) — evidence also dismissed

by the EFSA report as "unproven".

Of course, to pose a risk the virus must enter the human food chain. The EFSA and other authorities point out that this is unlikely, at least in industrialized countries. But some scientists, including Osterhaus, say it cannot be excluded — for example, if the virus enters poultry a few days before clinical signs appear.

The final argument of the EFSA and the WHO is that even if the virus did enter the food chain, it would be killed by cooking or pasteurization, in the same way as bacterial pathogens such as *Salmonella*. But Lanard

experienced benefits. A nurse practitioner in California says her son showed various improvements, such as reduced sweating, muscle spasm and pain, and a better sense of balance since he had the surgery in November 2004, and accuses Dobkin of focusing on particularly difficult cases.

But Dobkin says such testimony can be misleading, because patients are so desperate to believe that they have improved after forking out US\$20,000 (or \$3,700 for Chinese patients) and undergoing a risky procedure. "They forget what they were like before," he says. The surgery itself could also lead to short-lived improvements by relieving pressure in the area, adds John Steeves, a spinal-cord injury

specialist at ICORD. "You really need long-term follow-up," he says. Steeves, who has visited Huang's lab, says Huang has consistently ignored advice on how to use blind assessment, randomized controls and long-term observation.

Other spinal-cord treatments offered in countries such as Brazil and Portugal are also gaining popularity despite the lack of such data. This has prompted a group of international researchers to draft guidelines to help patients and clinicians evaluate treatments. Sponsored by the International Campaign for Cures of Spinal Cord Injury Paralysis, the guidelines

include recommendations and hard data to help distinguish the effects of a given treatment from other factors, says contributor Mark Tuszynski, a neuroscientist at the University of California, San Diego. For example,

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40% of individuals show some spontaneous recovery after acute spinal-cord injury, so anecdotal stories of improvement don't necessarily mean a treatment works. The guidelines will be submitted to an academic journal this summer, and a simplified version translated into many languages.

But getting the word out may not be easy. Paul Lu is a postdoctoral student in Tuszynski's lab who

entered neurology after he was paralysed from the waist down in a car accident. A Chinese native, Lu has been trying to warn patients in China about Huang's procedures, but says his translation of the *Neurorehabilitation and Neural Repair* article was rejected by several journals and science-based newspapers. "Chinese journals like to claim that China is leading the world in cell transplants," says Lu. "They'd lose face if they print this."

Last week, however, the *Chinese Journal of Spine and Spinal Cord* agreed to publish the translation in June. Readers will have to balance such reports with Huang's confidence, buoyed by patient testimony, in his therapy. ■
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