

Pandemic prevention schemes threaten diversity, experts warn

Fear of a bird flu pandemic is threatening the survival of many rare avian species—and could ultimately put people in developing countries at greater risk of disease, experts say.

The deadly H5N1 bird flu virus has struck at least 84% of known avian species. In a bid to forestall human infections, governments have ordered culls of millions of both healthy and infected birds.

Depleting the numbers of species cuts down on the genetic diversity of bird populations, putting future generations—and people—at risk, experts say.

If all birds had a similar genetic make-up, a particular viral strain might be able to wipe out an entire species, notes S. Reuben Shanthikumar, a veterinarian and former epidemiologist with the Food and Agriculture Organization. “This is certainly going to cause lack of animal protein and malnutrition and death of people, especially children, because it is the cheapest animal protein in many developing countries,” he says.

When virulent strains of bird flu are detected in a region, officials generally slaughter every bird within a designated radius, turning lakes into shooting ranges.

In April 2004, for instance, several poultry flocks in Fraser Valley, British Columbia, tested positive



Collateral damage: When bird flu strains are detected, governments cull millions of birds, including some rare wild species.

for the H7N3 bird flu virus. Only about 7% of the 19 million birds in the region tested positive, but the Canadian Food Inspection Agency ordered all the birds killed. The valley provided at least 75% of British Columbia's poultry.

The practice may be destructive both economically and ecologically, but it is still the best way to contain the virus, some experts argue. Vaccines for birds can stop the spread of the disease if a region is equipped with proper surveillance and security techniques, but is often not practical, particularly in developing countries.

“How are you going to vaccinate 30 million chickens?” asks Edward Holmes, a biologist at Penn State University.

Although H5N1 has only recently begun to dominate headlines, breeders have battled other bird flu strains for decades. Less virulent strains strike birds every year. To defend their flocks, poultry breeders are upping security measures, such as roofs over the pens. Others are dispersing their birds to several different regions to minimize loss should any given area become infected.

The H5N1 strain is unusually potent and has killed more than 100 people since 1997. But in the documented human cases, the infection resulted from direct contact with birds. For an avian flu virus to be able to spread between people, it must first genetically evolve through a series of human-specific mutations. Most strains cannot bind to human tissue, and those that can are often doused by the immune system.

To prevent a bird virus from adapting to humans, culling poultry is a reasonable strategy, says Holmes. “But you can't purge a virus from nature,” he says. “If it's wild birds that don't come in contact with humans that you're culling, that's a different story.”

Emily Waltz, Louisville

UK eyes single source of funds for biomedical research

The UK government is seeking feedback on its proposed scheme to establish a single funding agency for both basic and clinical research. The plan also suggests scrapping the traditional peer-review system for allotting research funds to universities.

Both initiatives, announced in late March by Gordon Brown, Chancellor of the Exchequer, build on discussions about improving medical research in the country.

Public funding for medical research in the UK is split between the Medical Research Council (MRC), which funds basic research, and the more clinical National Health Service (NHS). For the fiscal year 2006, the MRC had an annual budget of \$874 million and the NHS had set aside \$1.4 billion for research.

Under the new scheme, a single \$1.9 billion annual fund would be jointly held by the MRC and the NHS.

MRC funding is distributed on a highly competitive basis, but the bulk of funds from the Department of Health, which oversees the NHS, is in the form of institutional grants.

In contrast to the MRC, “the NHS was strikingly ineffective, with a nominally large budget which funded minnow, and often ill-conceived, projects,” says Steve Bloom, chief of metabolic medicine at Hammersmith Hospital in London. “Most of the money was, in reality, going to prop up the health service,” he says.

MRC chief executive Colin Blakemore says that the scheme offers the UK a chance to improve the quality of its clinical research. But “we should not underestimate the problems to be solved if NHS and MRC funds are to be combined,” Blakemore says.

For instance, it is not clear whether the new body would be accountable to both the Office of Science and Innovation and the Department of Health. “If so,” he asks, “would it be truly at arm's length from ministerial interference?”

Others note that the combined total of the two funding streams exceeds the proposed \$1.9 billion budget. “Perhaps the biggest risk will be a temptation to reduce overall research expenditure,” says Richard Hobbs, head of primary care at the University of Birmingham.

The new proposal for allocating funds to university research is also making some scientists nervous. The quality of research in universities and subsequent distribution of their funds is now assessed by peer review. But the exercise requires huge administrative costs and a lot of time and does not reward interdisciplinary research.

The new procedure will be implemented after a 2008 ‘transitional’ exercise and will be based on readily available figures such as research income, publications and numbers of research students.

“The proposed move to a purely metric system based on electronic databases will simply concentrate even more money in those few medical schools who already have the lion's share of the national resources,” warns Woody Caan, professor of public health at Anglia Ruskin University in Chelmsford.

Consultation on the government's proposals will run until October this year.

Xavier Bosch, Barcelona