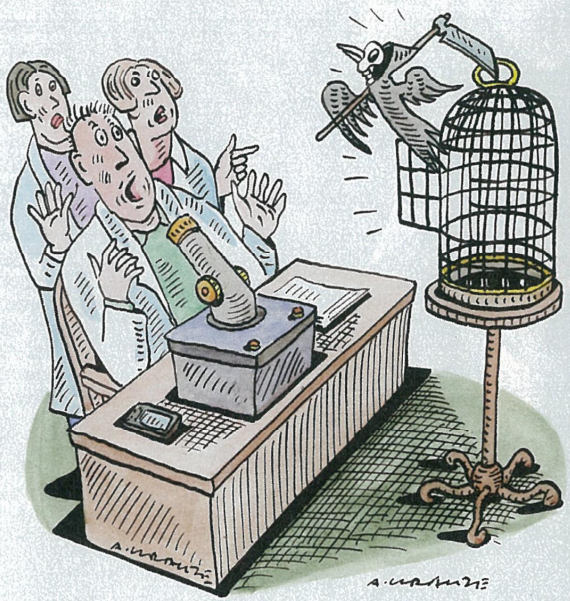
Flu fighters

Now we know the true scale of the threat from H5N1 we should put the people who know how to stop it in charge, says **Debora MacKenzie**

WHEN bird flu first burst onto the world stage in 2004, virologists were quick to warn of a deadly pandemic. That it has not happened yet has led to accusations they were crying wolf, and questions over whether the virus is even capable of creating mayhem.

We now know nobody is crying wolf and mayhem could be just around the corner. Two research teams have found that a handful of mutations allow H5N1 to spread like ordinary flu while staying just as deadly, at least in ferrets.

Given that ordinary flu can infect a third of humanity in a season and that half the people who catch H5N1 die, the implications are not hard to fathom. Of course, it isn't certain that the mutations that made flu so contagious in ferrets will do the same in people – but do you want to take that chance?



So what do we do now? We must do what worked for other big, imponderable threats from ozone depletion and nuclear materials to genetic modification: organise, and fast. In a few weeks, the scientists who work on H5N1 transmission will meet in Geneva to decide how to publish the ferret work safely. They may go further and organise to take charge of the H5N1 threat. They must. Only global science can fight it. And if scientists don't take charge soon, they could unintentionally make things worse.

Let's settle something first. The ferret research was undeniably risky, but it was necessary. Yes, the virus could escape. Yes, it could conceivably be exploited by terrorists (though more likely as a bargaining chip than as a weapon). But the research finally proved that we cannot ignore H5N1. Today's virus may not spread easily between people, but it is entrenched in millions of animals across Eurasia and Africa – and is mutating all the time. In December a Chinese man died of an emerging strain with 22 recent mutations in one of its surface proteins. Four of the five experimental mutations that turbo-charged the ferret virus were in the same protein.

So as a bare minimum we must step up H5N1 surveillance in animals worldwide. At least we now know some of the mutations to watch out for.

But surveillance is not the only issue. There is also the question of how we control sensitive information. When the ferret studies are published, crucial details will be omitted – the first time scientific publications of unclassified, non-military research will be censored. The omitted details will be released on a need-to-know basis.

But who should control that information, and how? Tony Fauci, head of the US National Institute of Allergy and Infectious Diseases, which funded both research projects, rightly insists access to such data must be controlled internationally. Yet for now the US is effectively acting unilaterally, according to virologist Ab Osterhaus of the Erasmus Medical Centre in Rotterdam, the Netherlands, head of the lab where one of the ferret experiments was done.

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That must be resolved before it undermines a global deal, signed last May, to promote international collaboration on flu. Under the deal countries where H5N1 is present provide foreign labs with virus samples in return for access to the results. Such exchange is vital for both research and surveillance. The ferret work was done with an Indonesian virus supplied in 2005; in 2006 Indonesia stopped supplying H5N1 samples, claiming it got little in return. It resumed after the May agreement, but restrictions on information imposed by the US could undo the good work. Rules are not just needed for flu: I have learned that the editor of a major journal is holding back a similarly sensitive paper on the plague bacterium until a procedure is in place.

Meanwhile, flu labs have agreed to halt experiments on H5N1 transmission for 60 days, or until the publishing dilemma is resolved. They will eventually start again, though, with who knows what safety precautions, and might inadvertently release a monster. Such unregulated science could be the biggest threat of all.

This all tells us two things. First, the global system for managing deadly disease organisms is a shambles. And second, we have a chance to fix it.

The debate over the H5N1 studies must be the trigger for action. Pathogen researchers worldwide must come together to decide if any data should be restricted. Biosecurity experts must be involved, but public health interests must come first.

Scientists should also be the ones to judge whether projects are worth the risks and have sufficient safeguards. Smallpox virologists already do this.

Most importantly, scientists must plan what research we need to face this threat. That must be global: it extends from tracking the H5N1 virus that is killing crows in India, to telling a lab it shouldn't do an experiment without better containment, to coordinating vaccine development.

The World Health Organization has taken the first step on such a collaboration but it needs to be more ambitious. The Intergovernmental Panel on Climate Change is one good model for how scientists can talk to each other and governments.

Some are calling this an "Asilomar moment", after the 1975 conference in Asilomar, California, where, after an eight-month research moratorium, biologists voluntarily drafted rules for managing the risks of genetic engineering. The Asilomar rules are still relevant, and have evolved along with the science – unlike more heavy-handed rules for germ research hatched by governments.

We need that approach now. Scientists, unite! You have nothing to lose but the blame – which will surely come if you don't protect us, not only from flu but from yourselves. ■

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