

epidemics has long been controversial, but the panel argues that new tests and changes in rules governing sale of meat from countries that use “emergency” vaccination remove many of the objections. The panel’s recommendation “is a great step forward,” says Martin Hugh-Jones, a veterinary epi-

chair Brian Follett, vice chancellor at the University of Warwick, who presented the report here at a press conference. In addition, in May the Office International des Épidémiologies—which writes regulations aiming to stem the global spread of animal diseases—agreed to cut to 6 months the minimum wait before a country could apply for disease-free status after vaccinating its herds. Those steps led the panel to conclude that although there would still be a role for culling, “emergency vaccination should now be considered as part of the control strategy from the start of any outbreak of FMD.”

Several issues must be resolved before emergency vaccination becomes an avowed strategy, the panel notes, starting with assurances from the U.K. government that meat from vaccinated animals could be sold on the domestic market. In addition, the report notes, scientists need to validate the new tests that discriminate between infected and vaccinated animals. These issues “are not insuperable,” Follett says, and could be worked out by the end of 2003.

The report also highlights the woeful state of U.K. data collection on animal diseases, including the use of handwritten notes and poor dissemination. The panel calls for the creation of a virtual center to bolster animal health R&D. “We need to get this in place as quickly as possible and make data available at the earliest possible opportunity,” says Neil Ferguson of Imperial College in London, who led one of the teams that modeled last year’s outbreak (*Science*, 20 April 2001, p. 410). “What is really needed is a change in culture,” he says, in which “detailed data on animal populations are provided to scientists as a matter of course.”

Hugh-Jones would like to see the government take even stronger steps to tackle the data problem. He says a special forensic team might be necessary in the next outbreak to make an independent assessment. “When all the dust has settled,” he says,

“one must be able to sit down and work out, without blame, what went right and what could have been done better.” Although the Royal Society panel lacked such a resource, Hugh-Jones and others believe that it has come up with sound advice.

—RICHARD STONE

## RESEARCH INTEGRITY

### U.S. Universities Urged To Do a Better Job

Over the past decade, the U.S. research community has agonized over a definition of scientific misconduct, while the federal government has struggled with how to police it. This week, an Institute of Medicine (IOM) panel suggested ways to prevent it, calling on universities to make ethical conduct a bigger part of the academic culture.

The report’s recommendations, which are aimed at all university research, will cost money to implement, its authors say, and are likely to be controversial. “I imagine we’ll get quite a lot of flak,” says panel chair Arthur Rubenstein, dean of the University of Pennsylvania School of Medicine in Philadelphia. But panelists say the report’s emphasis on self-review is better than forced compliance through new regulations. Institutions prefer voluntary programs to federal mandates, such as a misconduct education requirement that was proposed earlier and then suspended for further review (*Science*, 2 March 2001, p. 1679).

The report, *Integrity in Scientific Research*, was requested by the Department of Health and Human Services’ Office of Research Integrity (ORI), which wanted advice on how to evaluate academic integrity programs. Under “integrity,” the panel includes the treatment of human subjects and animals as well as explicit research misconduct such as plagiarism and faking data. Yardsticks for what works don’t exist, it concluded, recommending that ORI finance research on surveys and other tools.

The lack of data doesn’t mean that universities shouldn’t forge ahead, however. Integrity should be “embedded” in research, Rubenstein says, and go far beyond a 1-hour course for grad students. That could include workshops and counting ethics activities in tenure decisions. Institutions should also conduct “self-assessments” with outside reviewers, and integrity programs should be part of the standard for accreditation. “They’re asking for something quite ambitious,” says ORI director Chris Pascal.

To pay for the improvements, the report suggests that federal agencies might need to provide funding for integrity programs. IOM plans a public meeting in October to discuss the report.

—JOCELYN KAISER



**New approach.** Sophisticated antibody tests have tipped the equation in favor of emergency vaccination, says inquiry chair Brian Follett (right).

demologist at Louisiana State University in Baton Rouge. Other recommendations receiving praise include accelerated research on a vaccine conferring sustained immunity to FMD and an upgrade in the U.K.’s antiquated veterinary data-collection system.

Last year’s outbreak of FMD led to the slaughter of 6 million cows, pigs, and sheep. Images of livestock pyres haunted the nightly news, and tourism in the affected regions plummeted. The British agriculture industry alone lost an estimated \$4.8 billion.

Britain has been under attack for having relied on culling to contain the epidemic. Vaccines against FMD exist, but they confer immunity for only several months. Moreover, vaccinated animals can become infected with the foot-and-mouth virus, and until recently it was virtually impossible to distinguish infected from noninfected vaccinated animals. Agricultural officials were also faced with the prospect of a 1-year delay after an FMD outbreak before the country could export meat with the coveted “disease-free without vaccination” status. With culling, the delay is only 3 months.

The panel notes, however, that more sophisticated antibody tests can now distinguish vaccinated from vaccinated-infected animals. “These have really changed the situation on the ground,” says panel



**Burning issue.** Mass culls like this one last year in southern Scotland will be history if the Royal Society panel holds sway.

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