

The welfare problems associated with the production and use of GM mice include those that can be associated with the surgical procedures used in obtaining fertilised eggs and in tissue sampling, and those caused by genetic changes that predispose animals to pain, suffering, distress or lasting harm.

The report covers methods of producing GM mice, technical improvements aimed at reducing the number of animals used in production, training and competence, husbandry, health status, tissue biopsy collection for genotyping, transport, and assessing the welfare of GM mice. Regarding the latter, the report encourages observation and, where appropriate, objective measures of a variety of parameters including: number of live births, pre- and post-weaning mortality, developmental abnormalities, movement and posture, growth rates, and post-mortem analysis and histopathology of target tissues and primary organs.

This is a comprehensive and valuable review of the potential welfare problems associated with the production of GM mice and the range of measures that should be undertaken to minimise these risks of harm to welfare.

**Refinement and reduction in production of genetically modified mice** (2003). Report of the BVAAWF/FRAME/RSPCA/UFAW Joint Working Group on Refinement. Robinson V, Morton D, Anderson D, Carver JFA, Francis RJ, Hubrecht R, Jenkins E, Mathers KE, Raymond R, Rosewell I, Wallace J and Wells DJ. *Laboratory Animals* 37 (Suppl 1): S1-S51

### Remote monitoring of animals in scientific procedures

The technology for remote monitoring of physiology and behaviour has developed greatly in recent years. The development of silicon chip electronics and compact long-life batteries paved the way for production of small implants that can transmit data on a remarkable range of parameters. These are being used in research into a variety of aspects of animal biology and they offer a method for hands-off monitoring of indices of welfare in experimental animals.

The BVAAWF/FRAME/RSPCA/UFAW Joint Working Group on Refinement chose to review this subject as the topic of its seventh Report, the first part of which has been published recently. The aim was to help scientists, animal technicians, veterinarians and members of animal use and care committees to refine all aspects of telemetry procedures in animals used for scientific procedures. As stated in the Report: "Telemetry is often presented as a refinement, in that it can reduce or eliminate stress caused to animals (eg by restraint), but it is vital to remember that telemetry, like all other procedures on animals, also needs to be refined". This is the scope of the review.

This comprehensive 38-page document includes sections on the harms and benefits associated with the use of telemetry, legal issues, selecting or designing devices, methods of attachment or implantation, post-surgery monitoring, and telemetry studies in the field or using wild animals. It contains a great deal of practical and clearly presented advice

on how risks to welfare can be minimised at all stages of animal telemetry.

Part B of the Working Group's Report, which addresses refinements in husbandry of rodents, dogs and non-human primates in which telemetry is used, is to be published shortly.

**Refinements in telemetry procedures** (2003). Part A of the seventh Report of the BVAAWF/FRAME/RSPCA/UFAW Joint Working Group on Refinement. Hawkins P, Morton D, Bevan R, Heath K, Kirkwood J, Pearce P, Scott E, Whelan G and Webb A. *Laboratory Animals* 37: 261-299

### Veterinary surveillance strategy in the UK

One of the new initiatives in the UK animal health and welfare strategy that is to be launched by the regulatory authorities next year relates to enhancing veterinary surveillance. In advance of this, the Surveillance Group of Defra and the other UK administrations has now published a 10-year strategy for veterinary surveillance in the UK. The core objectives of this will be: "to deliver earlier warning and more rapid detection and analysis of disease threats, provide open and transparent prioritisation of surveillance activities, to give a clear, well defined evidence base for all animal health and welfare related policies, and to make better use of the data collected". The recent BSE and foot-and-mouth disease epidemics in the UK were factors involved in prompting the development of this strategy. These have been dramatic reminders of the enormous welfare, economic and other devastation that some animal diseases can cause. The risks of such events arising from the introduction of non-indigenous infectious agents are likely to continue to grow in line with the massive increase in human and animal transport around the world.

The strategy document has sections on the five strategic goals: 1) to strengthen collaborations; 2) to develop a prioritisation process; 3) to derive better value from surveillance information and activities; 4) to share information more widely; and 5) to enhance the quality of assurance of outputs. A set of objectives is presented and discussed under each of these headings, and a table is presented at the end of the document providing a detailed timetable for the implementation of the various components of the process.

Disease surveillance presents notoriously difficult challenges. The strategy set out here appears a sensible framework. However, a number of apparently new committee and board structures and a new IT system called RADAR (Rapid Analysis and Detection of Animal-related Risks) are involved. Since the behaviour of both these kinds of machinery can be subject to some of the same uncertainties that are encountered in disease surveillance, implementation of the strategy is perhaps unlikely to be entirely plain sailing.

The principles listed as those that will guide surveillance are as follows:

- to protect public health
- to protect the interests of the wider economy and society