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Lab-testing of Animals on the Rise Here

By Shobana Kesava

Used to test drugs, vaccines and surgical techniques, such animals are considered part of a critical step in the long and expensive process of approving a new treatment or medicine for human use.

Singapore is home to 24 licensed research facilities housing hundreds of thousands of animals. According to the Agri-Food and Veterinary Authority (AVA), mainly rats, mice and fish are used in experiments. Rabbits, dogs, pigs and monkeys also feature in some.

Most are euthanised at the end of a trial, which usually lasts days. But if they are approved for use in more than one project where there is little or no pain, it could be years.

Their numbers are believed to have risen in recent years in tandem with the Government's decision to push biomedical research as a key pillar of growth.

Mice are the most commonly used animals. They are often used in cancer, genetic and stem cell research while primates like macaques may be used in vaccine and Alzheimer's studies and to research healing processes.

To make sure the creatures were treated in an ethical manner, the National Advisory Committee for Laboratory Animal Research (Naclar) was set up in 2003.

Its guidelines for the humane treatment of animals in laboratory research were made part of the Animals and Birds Act in November 2004. An errant scientist found treating a lab animal cruelly can be fined up to \$10,000 and jailed for a year. None has been found flouting the law here so far.

Explaining the need for animal testing, Naclar chairman Bernard Tan said it was part of the process before international bodies like the United States Food and Drug Administration consider drugs and therapies for approval. Such testing was made compulsory in the Nuremberg Code, drawn up after Nazi doctors were tried for conducting scientific experiments on humans during World War II.

'Singapore needs to be seen as a professional place fit for the best research to be done here, and this includes making sure the standards of animal care are world class,' he said.

Each research organisation that has an animal facility now has an Institutional Animal Care and Use Committee (IACUC) comprising at least five people, including a scientist experienced in the use of animals, a lab animal veterinarian, a non-scientist such as an ethicist or lawyer and a representative not affiliated to the research organisation.

Their job is to determine if the scientific experiments proposed on animals are warranted, ethically conducted and reduced to the bare minimum to produce scientifically valid results.

In addition, the facilities of institutions like the National University of Singapore (NUS) and the Experimental Medicine Centre (where heart problems, healing and joint problems, among others, are studied), which doctors under the SingHealth group use, are internationally certified.

Pigs, because of their similar organ functions and responses to humans, are induced to have heart attacks, for example. They would then be treated with the researcher's proposed therapy or drug.

A heart stent for humans was developed at the facility this way.

SingHealth, NUS and the Agency for Science, Technology and Research (A*Star) all told The Straits Times that they had independent experts checking on their operations.

AVA's head of laboratory animal welfare, Dr Leow Su Hua, said a small team of AVA officers inspect all animal research facilities at least once a year, to ensure facilities comply with Naclar guidelines. 'There's a huge amount of documentation they need to put in place. During the audits, we examine this, tour the facilities and highlight any deficiencies observed for the facilities to rectify.'

All researchers also undergo 'stringent training' said chairman of A*Star's IACUC, Dr Sathivel Ponniah.

A*Star neurobiologist Gerald Udolph, who is on the committee, said this is made up of two days of theory and a day of practical sessions in the labs. 'There are very high standards here. Even overseas scientists come for the training by scientists with decades of experience from the US,' he said.

Singapore's standards are based on governing bodies of the US, Canada, Australia and New Zealand. Anything with a backbone, from fish to non-human primates, falls under the rules.

Researchers must prove the need to use animals at all. For example, to find out how a chemical would behave in cells, it could be placed in a petri dish with these cells grown from stem cells, instead of being injected into an animal.

Where animal use is unavoidable, they must show they have minimised their use to the committee, and get veterinary advice on how to limit the pain inflicted.

At NUS, zoologist Peter Ng, who is director of the Tropical Marine Science Institute, said his labs now get spot-checked 'all the time' and the difference in young scientists' attitudes from 10 years ago is stark. 'I used to find things like junior scientists keeping some of their lab rats in dingy conditions before they began their experiments,' he said.

Now they would have to be housed in clean cages with fresh bedding and enough room to run around. Some are provided tubes, tunnels or igloos to run through for enrichment.

They must also be euthanised humanely before any undue stress is caused.

Said Professor Udolph: 'If a tumour gets too big, there is no point allowing the mouse to suffer when we've already learnt the impact of the disease, for example.'

WHY EAT MEAT THEN?

'Most Singaporeans are happy to eat all the meat they want and, on the flipside, they'll tell me scientists are evil, because we kill animals during research. Yet they want medical verification of products. This has to be done through testing on cells, followed by animals, then humans.'

Professor Peter Ng, director of the Tropical Marine Science Institute

POSITIVE CONTRIBUTION TO MANKIND

'Being a veterinarian at an animal research facility may not be as glamorous as working in a small animal practice, but it does make a positive contribution to animal welfare and mankind.'

Trained veterinarian Leow Su Hua, head of laboratory animal welfare at the Agri-Food and Veterinary Authority

RESTAURANT CONDITIONS WORSE

'You just need to visit restaurants where it is accepted that frogs, crabs and live fish are kept in crowded glass cages. Our animals are treated much better.'

Institutional Animal Care and Use Committee member Gerald Udolph. Up to five mice are allowed in one lab cage.

ALLEVIATING HUMAN SUFFERING

'It could take anything from 50 years to never to eliminate animal research, because we do not know the complexity of organisms' cells and tissues. At the end of it all, we want to alleviate human suffering; so if you want to quarrel with that, quarrel with that.'

Naclar's Prof Bernard Tan, on whether Singapore should look at cutting back on research using animals

LOOK FOR ALTERNATIVES

'We have never viewed lab facilities here, but we feel more funds and effort should be put into finding alternatives.'

Mr Louis Ng, executive director, Animal Concerns Research and Education Society