Letters and perspectives

Humane teaching methods in veterinary education

Animal use resulting in harm or death has historically been integral to veterinary education. However, many non-harmful alternatives now exist, including computer simulations, high quality videos, 'ethically-sourced cadavers' from animals euthanased for medical reasons or that died naturally or accidentally, preserved specimens, models, surgical simulators, non-invasive self-experimentation and supervised clinical experiences.[1]

Humane veterinary surgical courses ideally comprise several stages. Students learn basic skills such as suturing and instrument handling using knot-tying boards, plastic organs and similar models, progress to simulated surgery on ethically-sourced cadavers, and finally observe, assist with and perform necessary surgery under close supervision on real patients that actually benefit from the surgery — as distinct from healthy animals that are later killed — similar to the manner in which physicians are trained. Animal shelter sterilisation programs are a popular component of many such courses.

Protracted struggles by veterinary students in Australia and elsewhere have shown that some veterinary academics remain opposed to introducing humane teaching methods. While a student at Murdoch University in 1998, I had to initiate legal action and media exposure of curricular animal killing before Murdoch allowed their use. To its credit, Murdoch responded positively by introducing Australia's first formal policy allowing conscientious objection, agreeing to provide students with humane learning and assessment activities on request. Similar policies have since been adopted by at least one other Australian (University of Sydney) and American veterinary school (University of Illinois).

In 2000 a classmate and I became Western Australia's first veterinary students to be granted alternatives to all fourth year terminal surgical laboratory classes. Because certain academics were opposed to humane alternatives, we were required to arrange our own practical instruction externally in private veterinary clinics and animal shelters. We also had to source our own animals, and neuter them at Murdoch under the critical eyes of those same instructors. If our surgery or anaesthesia fell short of their high standards we would be failed. We still had to attend all the terminal surgical laboratories as observers, which was similar to requiring people conscientiously opposed to the death penalty to witness multiple executions. Many alternative veterinary surgical courses exist worldwide. To my knowledge, this was the only such course in which the academics charged with providing non-harmful practical instruction were unwilling to do so because of their opposition to the concept.

Despite such obstacles, the alternative program was outstandingly successful. Jointly we refused to participate in at most 13 terminal surgeries at Murdoch. We performed or assisted with at least 62 additional live animal surgeries instead—almost five times as many—performed under supervision, mostly in private practice. Included were 21 dog and cat spays. It felt wonderful to contribute positively to the pet overpopulation problem through neutering, thereby preventing unnecessary deaths instead of causing them. The skill and confidence deficiencies normally experienced by new graduates beginning surgical practice were substantially reduced in our case. In 2006 Murdoch trialled an animal shelter sterilisation program that will similarly benefit all veterinary students. Such a program was established at the University of Sydney in 2000, which also adopted several other positive policies regarding humane alternatives including eliminating all terminal surgical laboratories.

Since then, veterinary students at all of Australia's other veterinary schools have experienced similar opposition when requesting humane learning methods. Some were successful, and by 2005 the first students had graduated from all four established Australian schools without killing animals during their surgical training.

Faculty opposition to humane teaching methods is not uniquely Australian. In 2002 the United States Department of Agriculture cited nearly every US veterinary school for non-compliance with their Animal Welfare Act, mostly for failing to search for alternatives to harmful or lethal animal use, or to provide adequate explanations for why non-harmful alternatives were not used.

Psychological phenomena may explain the marked resistance of some faculty members to humane teaching methods. Maintenance of a belief in their invalidity may be necessary to avoid personal guilt associated with the large-scale killing of animals in veterinary courses. Gruber & Dewhurst[1] asserted that:

'Human vanity… should not be underestimated. For many university teachers it is not acceptable to diverge from the methods one was taught and which one has always used in a life of teaching. Aversion towards accepting alternatives that were not developed in one's own country also plays a role.'

The concerns most commonly cited by academics opposed to humane teaching methods are regarding their educational efficacy. It was refreshing to see a recent systematic review[2] of studies of biomedical student learning outcomes using humane teaching methods compared with terminal live animal use. Five studies examined veterinary students: two resulted in superior, and three in equivalent learning outcomes when alternatives were employed in surgical and physiology teaching laboratories. The authors concluded that 'alternatives are a viable method of instruction in the field of biomedical education.'

Non-terminal harmful animal use was not considered, despite the existence of other potentially harmful procedures within veterinary education such as equine nasogastric intubation when conducted by novices, and repetitive bovine rectal palpation. I conducted a more comprehensive systematic review of studies of veterinary student learning outcomes.[3] Nine of 11 studies assessed surgical training. Five demonstrated superior learning outcomes using more humane alternatives, another five demonstrated equivalent and only one demonstrated inferior learning outcomes. Twenty-nine papers in which comparison with harmful animal use did not occur illustrated additional benefits of humane teaching methods, including time and cost savings, easier customisation and repeatability of the learning exercise, increased student confidence and satisfaction, elimination of objections to using purpose-killed animals, and

integration of clinical perspectives and ethics early in the curriculum. See www.HumaneLearning.info.

Besides saving many animal lives, humane teaching methods increase compliance with the legally enforceable Australian Code of Practice for the Care and Use of Animals for Scientific Purposes, which requires alternatives to the use of animals for educational purposes wherever possible.

Studies indicate that veterinary education may result in decreased student awareness of animal sentience, decreased empathy for animals, decreased use of peri-operative analgesics and impeded moral reasoning ability. The harmful use of animals within veterinary education is a likely cause, along with inadequate curricular attention to animal welfare science, the human-animal bond and development of critical reasoning ability and ethics. These desensitisation-related phenomena may represent psychological adaptations enabling students to withstand otherwise intolerable psychological stresses resulting from curricular requirements to harm sentient creatures without overwhelming necessity. Replacing harmful animal use with humane teaching methods is likely to result in veterinarians with more positive attitudes towards animal welfare, which is likely directly to benefit animal patients.

In conclusion, recent systematic reviews of student learning outcomes clearly establish that veterinary educators can best serve their students and animals, while minimising financial and time burdens, by introducing well-designed teaching methods not reliant on harmful animal use.

With the exception of the University of Sydney program, Australian alternative veterinary surgical courses remain among the worst in the world. Nowhere else are they so poorly supported that students must arrange their own practical instruction outside the school and source their own animals for conducting elective surgeries within the school for assessment purposes.

Instead of maintaining our dubious status among the world's worst instructors of humane veterinary surgical courses, it is time we aimed to be counted among the best. Such achievement is not beyond our ability; it simply requires a fundamental change in attitude.

For further information see Jukes & Chiuia,[4] www.vetmed.ucdavis.edu/Animal_Alternatives, www.clive.ed.ac.uk, www.HumaneLearning.info, www.EURCA.org and www.virtualsurgery.vision.ee.ethz.ch.

1. Gruber FP, Dewhurst DG. Alternatives to animal experimentation in biomedical education. ALTEX 2004;21(Suppl 1):33-48.

2. Patronek GJ, Rauch A. Systematic review of comparative studies examining alternatives to the harmful use of animals in biomedical education. Journal of the American Veterinary Medical Association 2007;230(1):37-43.

3. Knight A. Humane teaching methods demonstrate efficacy in veterinary education. In Dandie G. (Ed.). ANZCCART Conference 2006: Proceedings. University of Adelaide, South Australia: Australian & New Zealand Council for the Care of Animals in Research and Teaching (ANZCCART). 2007; in press.

4. Jukes N, Chiuia M. From Guinea Pig to Computer Mouse: Alternative Methods for a Progressive, Humane Education. 2nd Edn. Leicester, UK: InterNICHE. 2003. Available at www.InterNICHE.org.

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