

VETERINARY EDUCATION – MORE THAN JUST SCIENCE IS NEEDED

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Thank you for the opportunity to address you about the introduction of humane education into the veterinary curriculum. I have been fortunate to teach students in veterinary departments of universities schools over the last twelve years, which has given me time for reflection on how simply giving the students a sound scientific grounding in veterinary medicine could lead to their entering the profession with an inadequate understanding of animal welfare issues.

Before coming to the veterinary curriculum, I would like us to consider animal welfare management more generally. Is it just the responsibility of the vets, or are there other disciplines involved? And I think we'd all recognise that, as well as veterinary medicine, we need to have components of animal welfare in programs such as Animal Science and Agriculture, Philosophy, Bio-ethics and Social Science. In some countries we are seeing the emergence of dedicated animal welfare studies streams in universities. This is yet to happen in Australia, but where it has happened, in the UK in particular, it's been very successful.

It is important to consider what the roles of veterinarians are in relation to animal welfare before describing how their course could be improved. They have a key role in relation to their practice, in which they have a unique function in both clinical and non-clinical activities. So their diagnosis and treatment of diseases is important, but also prophylaxis - treatment to prevent disease. And the role of veterinarians is strengthened by the new legislation and the codes that we've seen emerge, particularly concerning the duty of care, as opposed to just prosecuting on the basis of cruelty being observed or witnessed. In teaching, as well, there's a key role for vets. Approximately 5% of veterinary graduates go into teaching, according to a survey of the University of Sydney graduates. Some will be involved in teaching other veterinarians, and veterinary nursing students, but many will be involved in agriculture or animal science programmes.

Some veterinary graduates go into research, but probably not enough. At the end of a long, arduous five or six year program, for the vets to do another three years' research training is pretty daunting. It doesn't happen all that often and therefore there is a dearth of vets

entering the research community. It's a long, vocationally-orientated degree, and there's a lack of specialisation. So, whereas animal science students will be specialising in their fourth year, and that will give them a head start in relation to research, the veterinary students have little or no opportunity to specialise.

Veterinary graduates also get involved in government work, in the case of Sydney University approximately 5% enter into government work, and there they play a crucial role in amending, redefining and administering legislation and codes of practice. In the recently emerging activities of considering animal welfare internationally, in particular through the auspices of the World Animal Health Organisation, we've seen that the vets there play a very strong role in guiding and governing welfare practices.

Veterinarians will be also involved in more minor roles – the ethical approval of research, for example, since Australian Animal Ethics Committees all have to have a (Category A) veterinary member. And many veterinarians become involved in legal cases, providing expert witness and opinion.

The role of veterinarians is not solely identified by the universities that are administering the course, because the practice of veterinarians is in many countries governed by legislation through Act of Parliament. Thus a statutory body exists in most countries – in this country, the Veterinary Surgeons Board. In the UK, students are admitted to the Royal College of Veterinary Surgeons (RCVS) at or soon after graduation, in a ceremony that recognises that welfare is of paramount importance in their qualification. Graduating students swear an oath, which acknowledges the prime importance of their welfare responsibilities:

“I promise, above all, that I will pursue the work of my profession with uprightness of conduct and that my constant endeavour will be to ensure the welfare of animals committed to my care.”

The RCVS has also defined essential competencies, many of which are in clinical areas where they have to recognise specific diseases and treat them effectively. But, in addition several relate to welfare and ethics (Table 1). The students, on graduating, have to be aware of their ethical responsibilities and the emotional climate in which they function, which will govern the treatment that they give. They have to be aware of the ethical codes, of their own personal limitations, and seek treatment from elsewhere, where they feel that they can't conduct the necessary surgery. They have to be aware of legislation relating to welfare, they have to promote welfare. They should euthanase with sensitivity to the feelings of the owner of the animal, address and implement welfare records and advise on accepted welfare

standards. So, welfare is very central – at least in the RCVS' eyes, to the competence of a graduating veterinarian.

Table 1 Core competencies established by the Royal College of Veterinary Surgeons (RCVS) that relate to animal welfare and ethics

- Being aware of ethical responsibilities
- Awareness of 'emotional climate'
- Ethical codes
- Personal limitations re treatments
- Legislation relating to welfare
- Promotion of welfare
- Euthanasing animals with sensitivity to feelings of owner
- Assessing and implementing welfare records
- Advising on accepted welfare standards

In some of the Australian universities teaching veterinary medicine, the importance of adequate instruction in animal welfare and ethics is recognised. The University of Sydney has defined similar attributes to the RCVS so that the graduates have to have an adequate understanding of animal welfare. For example, in relation to research and enquiry, the students have to be able to generate, apply and disseminate new knowledge to benefit animal health and welfare. In relation to personal and intellectual autonomy, they have to make independent, informed, professional decisions, and implement them in managing animal health and welfare, and they have to have an ethical social and professional understanding, again, recognising the importance of welfare. They have to practise veterinary science professionally, with primary consideration for the welfare of animals and to uphold the ethical standards of the profession. The principles of animal welfare must be applied to humane management and euthanasia of animals.

What are the skills required of veterinarians and where is welfare positioned amongst that framework? The veterinarians have to be exceptionally skilled in disease detection and reporting, including epidemiology, population medicine, preventive medicine, surgical treatment, drug therapy, as well as understanding animal behaviour, nutrition and

reproduction sufficiently well to advise how to prevent or cure disease. They have to make treatment decisions in accord with ethical norms, and they have to know and apply relevant animal law and codes of practice. They have to handle their patient and the owner well, particularly in relation to small animal practice. And very often – especially here in Australia – they have to manage their own business.

Clearly there are high levels of skills required of the veterinarians. Why do they need ethics? Essentially because they are attempting to balance the requirements and demands of a number of different bodies: they have to meet the clients' needs – quite possibly the farmer - but also, they have responsibilities to the public, in term of their ethical standards, responsibilities to other vets, in terms of maintaining professional standards well. And they have responsibilities to the patients. So they're attempting to balance all of these, which can create quite a high degree of what's been called 'moral stress'.

How does welfare fit into the curriculum for vets? These are the current core subjects in veterinary medicine: animal husbandry, animal behaviour, often at the foundation part of the program, anatomy, physiology, biochemistry, pharmacology, pathology, biology of diseases, epidemiology, oncology, reproduction, nutrition, species medicine and clinical practice. Is there a space for welfare to be taught as a subject in its own right? To some extent everything that the veterinary students learn is about improving and promoting animal welfare. This is not quite true, because they have a responsibility to control some zoonotic diseases, with the ultimate beneficiary being humans rather than animals, and some toxicants, such as cadmium, have little effect on animals until they reach humans, the terminal consumer and therefore subject to the greatest problems of accumulation..

Optional subjects in most veterinary programs include professional practice, which is usually focused on client and business management communication, skills, etc, and may include Animal Welfare Management. And Animal Welfare is still – at least in Australia – an optional subject. Not all the universities include it as a subject in its own right. Wildlife and Exotic Animal Medicine is optional. Poultry Medicine, with a declining number of vets employed in the industry, is now taught to only a very limited degree and could be considered optional. In relation to advanced Ruminant Nutrition, the RCVS specifies that their veterinarians should not be advanced nutritionists, in particular in relation to dairy cow nutrition, since there are others who will take this role.

The veterinarian qualifies with clinical, para-clinical and non-clinical skills. Many, but not all of the clinical skills are unique to veterinarians, and they are derived from a sound medical knowledge. And just as in human medicine, where the amount of knowledge is increasing

very rapidly, so it is in veterinary medicine, and the need to bring more and more science into the program is accelerating all the time, as the clients' demands are increasing for more and more sophisticated treatment, in particular, on small animals.

Para-clinical skills, such as in animal behaviour, epidemiology, production medicine, nutrition are very important nowadays. Usually veterinarians have studied these and developed an advanced knowledge. Finally there are the non-clinical skills – health and welfare management, economics, animal ethics, role of animals in society, client management, etc. In this field, the level of skills will probably depend on the level of interest of the student and the particular interests of the university faculty.

But these skills are not static. They're changing, and there's a strong transition from farm to small animal work. Most veterinary graduates enter small animal practice, in the case of Sydney University graduates about 71%. Only about 20% of these enter large animal practice, and the rest enter small animal or mixed practices. This increasing focus on small animal practice requires a transition from some of the clinical skills to include more para-clinical and non-clinical skills, such as animal behaviour, a sound knowledge of nutrition of small animals in particular, client management skills – because the problems of the animal in the small animal practices may well be related to the problems of the clients.

In relation to animal ethics, I conducted a small survey of Australian and UK vet schools in preparation for this talk. I asked the Veterinary Faculty Deans where animal welfare teaching was placed in their veterinary program, and how they approached the ethical issues about use of animals in the curriculum?" Responses were varied, from an acknowledgement by one university that they taught very little animal welfare science in the veterinary curriculum because of time restraints, to attempts by several universities to give this subject a greater profile and to respect the diversity of views held by students.

Some were exemplary, in terms of their inclusion of animal welfare, but this was largely due to staff interests. The University of Sydney particularly acknowledged professional practice outcomes, that the students must know the range of views on animal welfare and ethics, understand that importance of sentience and consciousness to animal welfare, understand the balance between welfare and economics, put it in a production perspective, and understand the main welfare issues involved in the varied animal uses. At the University of Queensland, students are taught animal welfare in their first and third year of study. In the first year they learn about welfare measurement, its relation to behaviour, physiology and disease, human animal interactions and welfare legislation. In the third year, they learn to place animal welfare in the context of the competing demands on the animal managers, in

particular in the production industries. At the University of Glasgow, they have introduced dedicated welfare and ethics teaching, and they envisage that this will continue to develop and expand as they devise a new curriculum. Student feedback on fifth-year ethical tutorials was very positive and apparently resulted in more time being devoted to the topic.

One of the influential factors in incorporating welfare and ethics into a veterinary program has been the 'gender switch' in veterinary education. Soon the majority of all veterinarians practising in developed countries will be female. At the beginning of the 1980s, there were approximately 92% male and 8% female students on veterinary courses, and now it's almost reversed, approximately 20%-30% male and 70%-80% female, in most of the developed world. The reasons are numerous, including females performing better academically in late teens, female emancipation (which is an across-discipline trend), the job characteristics of low salary and long hours), transition from farm to small animal work and females being often more patient than males. Women are also keener to work with small animals, especially if this includes regular working hours, and they are particularly keen to have good workplace relationships. The traditional image of women struggling to cope with an extended calving is far from the truth about which gender is more suited to the work on the farm. Women, with their small hands, may be better at maneuvering lambs in a malpresentation than men. However, the increasing science content of veterinary medicine courses favours men, with greater demand for advanced surgery in companion animals leading the veterinary profession into much more detailed and elaborate surgery, and that is requiring that increased science content. Subjects such as oncology were barely considered 20 years ago, whereas today it is an important part of small animal medicine.

Females tend to be naturally more concerned about animal welfare than males. We surveyed the attitudes of male and female students from a number of different countries towards welfare issues and on a scale of 1-7, with 1 representing little concern and 7 a major concern, females rated the issues on average 4 out of 7 and males only 3.6¹.

One of the important components of veterinary medicine education is teaching correct attitudes to animals. Terminal surgery practicals are considered by many to be essential, because they expose students to many surgical practices which would be difficult to achieve using alternative teaching methods. Because of the controversy surrounding the use of dogs for this purpose, many institutions use other animals, such as pigs and sheep, which will

¹ Phillips, C. J. C. and McCulloch, S. 2005. Attitudes of students of different nationalities towards animal sentience and the use of animals in society, with implications for animal use in education. *Journal of Biological Education* **40**, 17-24.

provide a less valuable learning experience. However, there are concerns about the use of pound dogs, one of which is the risk of desensitisation to unnecessary death, since all the dogs have to be euthanased after the practical. There is a risk of stress and trauma to some of the students, particularly if they start with an apparently healthy dog, which is then operated upon and euthanased by the students. The advantages and disadvantages of this particular use of dogs should be assessed by the Animal Ethics Committees that are responsible in Australia for approving the practicals. If students are suffering stress and trauma, veterinary faculties should be providing counselling facilities before, during and after a particular practice.

And one of the concerns in relation to student concerns about their learning experiences is that many vet schools have no conscientious objection policy. The University of Sydney is an exception, with a comprehensive policy and other universities are now starting to follow them to devise those policies. The response of universities to objectors is often to refer the issues to Animal Ethics Committees or to the authorising bodies, and it's of note that the American Veterinary Medical Association (AVMA) and the RCVS at least have accredited schools with 'no harm or kill' policies.

Other students, particularly those from non-Christian countries, may have concerns about studying food production animals. Muslim students are likely to have concerns about learning pig medicine, and Hindi students may be concerned about cattle meat processing lectures in their course. The Australian veterinary schools are increasingly taking students from South East Asia and the students should have the opportunity to have their ethical objections considered. There may be concerns amongst some students about visiting abattoirs, a topic which has been increasing in importance in the veterinary curriculum. Whilst the reason for this is unclear, it should be acknowledged that there are better ways in which students could be taught about veterinary public health. The different persuasions of students must be acknowledged, as they are sincerely held and it takes courage for students to stand up against a majority view. The veterinary accreditation bodies should give careful consideration to allowing students to specialise in areas of animal medicine that are most appropriate to them, rather than requiring them to be able and by inference, willing, to treat all types of animals.

The approach of Glasgow and Sydney universities was perhaps exemplary in their use of animals in the course. Live animals are only used for non-invasive teaching and demonstration, so there is a greater emphasis on associating the students with clinical cases, and learning through experience, rather than involvement in a large number of invasive practicals. And similarly, with handling and examination, veterinary students at

these universities associate themselves more with trained veterinarians. The learning method is probably more time-consuming and more expensive, and it puts significant demands on the practising vets. But it is a trend that is evident throughout the UK courses, and I believe, to some extent, in Australia. And in the two universities mentioned, all basic surgery training is on cadavers, and Glasgow anticipated that the use of live animals is likely to decrease with the increase in innovative alternatives.

What are the alternatives? Donated cadavers and pound-sourced cadavers are one source. The use of models has not advanced to anything like the same extent in veterinary training as it has in medical training, which has for example an excellent centre in Adelaide where the human surgeons are trained, using models up to a certain degree, and using cadavers as well.

The use of models and videos can be advanced significantly, and recently staff at my Centre did a review of exotic disease recognition by veterinarians and how to train veterinarians in that practice, and concluded that it probably wasn't necessary for animals to be deliberately infected with the diseases to demonstrate the diseases to veterinarians, provided adequate videos and models were available. Guided teaching of veterinarians in commercial practices, shelters or pounds already occurs, but could be used to a greater extent. And less guided learning, on surplus animals or animals in developing countries could also be used more effectively.

In conclusion, the veterinary profession is changing pretty rapidly. There are many more women, which may be beneficial because they tend to be more caring to animals than men, and there is a greater focus on companion animals. And the long-term trend is for an increasing demand for science in the course, in response to public demand. But the students are very concerned, often, about the ethics of animal use. The options that are available may include considering a lengthening of the course? Some of the UK courses are now six years, as opposed to the five year undergraduate courses or postgraduate courses that are employed in this country. Finally, we should consider the introduction of specialisations, so that students can specialise, for example, on food animals or on companion animals.

Q – Delegate:

Clive, that at Murdoch University we have an Animal and Human Bio-Ethics Course, with Theresa Collins, which is mandatory for first-year vets. So a lot of the biology students go through that as well; that's been there for probably seven or eight years, and I co-developed that course.

I am giving a farm animal education lecture at the end of this month to her students. They also receive a talk on animal welfare from the Department of Agriculture in their final year, and I take them for another lecture in relation to animal welfare, so Murdoch does that, too. They don't use pound dogs anymore. That was something that was phased out, and they do have a conscientious objection policy.

Q – Delegate:

Dredging back into the recesses of my mind at vet school, there were good lecturers and bad lecturers, effective lecturers and not-so-effective, and the characteristics of the effective ones were engagement, competence - those things that Terry Lovat spoke about yesterday. But academics come to teaching without formal qualification in the discipline. What are your thoughts on, or how do lecturers get exposure to the theories and practices that Terry was talking about yesterday, to improve the effectiveness of their education?

I think that quite a lot of the veterinary staff come out of practice. They might do five, six years in practice, and then decide they want that academic challenge again; perhaps, they want to go back into learning. Maybe they're attracted by possibly more congenial hours. (No, of course, we don't have limited hours!) So, there are many vets coming in with pretty substantial experience.

And I think the vet schools are diverging, for better or worse. They want to engage at the forefront of science, so I think that so many of the academics that are entering the top veterinary schools are research focused.

We had that at Cambridge, and it was deliberate. And I think rightly deliberate. So, much more than other Departments, we would have a spectrum - from lecturers that were pretty much 'all research' to lecturers that were pretty well 'all teaching', and a very few in the middle. I was one of the few in the middle. And I think it is right that they should do that. Most Departments will have most in the middle.

Q – Delegate:

There have actually been a number of studies undertaken that show that students who use alternatives in veterinary science perform equally and, in some cases, even better than students who use live animals in their research, and you even touched on the subject about the desensitisation of those students.

And interestingly, you mentioned that Sydney University has a better understanding of welfare issues and they actually ceased their terminal animal labs about seven years ago. Has Queensland University considered implementing these alternatives, or even considered establishing an ethically-sourced cadaver program?

It certainly is considering it, yes. It is a difficult situation because I think there's no doubt that the majority of students probably benefit from some of the more invasive surgery practicals and aren't necessarily traumatised or have ethical problems with those particular practicals. And that would, in fact, lead to a positive welfare benefit, overall, because they would be better surgeons when they start in practice. So I think we're reluctant to throw out all the practicals that some students might be reluctant to engage in. What we want to do is try and develop opportunities for all the students to have suitable forms of education in those advanced surgical skills.
