

# **Professional ethics in veterinary science - considering the consequences as a tool for problem solving**

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## **Professional ethics**

**Being a professional entails making decisions of consequence and to help ensure these are morally acceptable, the necessary principles and tools are provided by professional ethics.**

Veterinarians are professionals who must make ad hoc decisions that influence the fate of animals and affect the lives of the people who own or look after them. They also have to address issues of public interest, such as public health. The central role they play in decision-making implies considerable collective and individual responsibility. However, not every decision requires a unique ethical or moral consideration or judgement, although, no matter in what field a veterinarian works, be it clinical practice, research, education, or public health, he or she will always be faced with dilemmas that have no obvious solution. In these situations they have to make a decision, but in the knowledge that afterwards it may be questioned or have an outcome that was never intended. In the process of making decisions there are invariably different interests at stake, all of which must be considered; there are those of the animal, the owner, a third party (which may be society as a whole) and of the veterinarian.

## **The animals' interests**

The immediate interest of an animal is to live in an environment that it can adapt to in the absence of lasting pain or impairment of health. Man bestows values on animals, including those of economic, recreational, intrinsic and naturalistic origin [1], although they are clearly not aware of this fact. The context and population within which an animal belongs are determining factors for the way in which the veterinary profession relates to it, and are beyond the influence that respect for an individual animal might have.

For very obvious reasons veterinary ethics are more complicated than medical ethics:

1. The informed opinion of the animal in question is never available
2. To sustain the life of an individual animal is not a central issue because most domestic animals do not complete their natural life span
3. At best, the reasons for keeping animals are not contradictory to their interests

## **The role of the veterinary profession**

The veterinary profession is essential for the proper care of animals kept in captivity and, to a lesser extent, for the health and welfare of wild fauna. If there were no veterinary medicine, it would surely be invented for the benefit of animals and mankind. This does not mean, however, that veterinarians always do 'the right thing'. Only an acute awareness of ethical dilemmas, and an ability to critically reflect, can assist in the making of appropriate decisions and the finding of acceptable compromises.

## **Policy and legislation on animals**

Fortunately, it is now generally accepted that the well being of animals in captivity must be given reasonable consideration; this is certainly the case in most industrialised countries. The last two decades have seen the implementation of a substantial body of new, or renewed, legislation to address issues such as the welfare and use of farm and laboratory animals, the methods used for slaughtering animals and the performance of routine surgical interventions. Zoos, and similar institutions, have also made a concerted effort to improve their husbandry practices and to broaden their aims. They now run breeding programmes to help conserve endangered species as well as programmes to educate the public on the habits and natural environment of animals.

Many more difficulties are faced when genuine attempts are made to regulate the practice of selective animal breeding, which has affected the well being of some domestic species and breeds because of physiological or behavioural abnormalities. It is also much harder to address welfare issues when animals are kept as pets, perhaps because it leads to direct confrontation with the pet owning public, many of whom are neither open to criticism nor willing to change their behaviour. Collectively, the pet owning public is large and therefore represents a significant number of people with substantial political influence. Animal welfare organisations also play a major role in policy-making processes but they, too, meet barriers when the interests of their members are affected. Thus, they concentrate their attention on commercial businesses that keep and use animals primarily for profit [2].

## **The veterinarian as the animals' advocate**

The veterinary profession is a follower rather than an initiator in the development of policies that aim to safeguard and improve the welfare and moral status of animals. Codes of ethics for veterinarians focus mainly on professional conduct in relation to colleagues and clients, such as advertising and the adoption of one another's clients. Meanwhile, the interests of animals are considered implicit rather than being discussed explicitly.

Time and again, veterinarians are confronted with situations that result from other people's actions and therefore are beyond their control. They must apply their professional judgement to situations where there are no strict rules or regulations. Inevitably, this gives rise to moral dilemmas, the most common of which are mentioned below. Also mentioned are decision-making frameworks, based on thinking through the consequences of all available options.

## **Curative veterinary medicine**

This first example of a typical dilemma faced by a veterinarian in practice is relevant to small animal practice, but could be equally well applied to other situations.

A puppy is presented with front limb lameness. The condition results from a disproportionate growth of the radius and ulna causing the radius to curve, which subsequently puts excessive stress on the distal joints of the leg. Certain short-legged breeds are predisposed to this abnormality, but it is possible to treat the condition surgically. In the very worst cases repeated surgical intervention may be required. The only alternative is to euthanise the animal. Although the condition is severe enough to necessitate veterinary intervention, it does not present an emergency situation and therefore there is time to think before a decision has to be made.

There are numerous interests involved in this scenario. First, those of the puppy. Its life is dependent not only on the prognosis made by the consulting veterinarian, but also on the amount and duration of pain and post-operative immobility it is likely to experience. Although the prognosis of treatment is generally good, it is anticipated that the amount and duration of post-operative discomfort will be long lasting and severe. Consequently, the normal psychological and physical development of the animal will be impaired, or at best delayed. The only way to prevent this discomfort, and any other problems, is to choose euthanasia.

The interests of the owner are more diverse. The reasons for acquiring a puppy of this particular breed are undoubtedly personal. However, if the owners are breeders there are several reasons why they may choose to euthanise the puppy. The alternative treatment is costly, the puppy cannot be sold before it is completely cured which makes it too old to sell because most clients want to buy a young puppy and, finally, a conscientious breeder would not breed from an animal with a condition that has a genetic predisposition. In contrast, if the owner is a family with young children and the puppy is to serve as the family pet, the situation is very different. Money may not be a problem, but there are still moral and emotional issues to consider. It can be assumed that the family is emotionally attached to the puppy, perhaps more so because of its difficult start in life. The children's development of a sense of 'animal awareness' may have been an important reason why the parents acquired a pet in the first place and thus the puppy became a family member the moment it arrived. To decide a member of the family should be euthanised is no small matter and to replace the puppy with another may be unacceptable to the family when it is confronted with the situation. In summary, the family is willing to do whatever it takes to provide a good life for their puppy.

At this point in the decision-making process, the veterinarian's prognosis and advice become crucial. He can advise on the severity of the condition, on its likely causes and on the required treatment and post-operative care and expected quality of life for the puppy. We can assume he is a highly skilled and optimistic individual; he wants to do all he can to help because he likes the family. Furthermore, orthopaedic surgery is something that his clinic is very capable of performing and it will provide a substantial income. If he recommends euthanasia there is a chance that this client will seek a second opinion and if the therapy is then performed successfully elsewhere the client is unlikely to return. Thus, there are matters of business to consider in the decision-making process.

Finally, there are the interests of third parties to consider. A breed's predisposition to abnormal growth in a front limb may easily become exaggerated when there is a practical solution to the problem, such as surgery. However, this is not something the individual practitioner can influence. Once a form of therapy has been developed, it is only a matter of time before it is made available to the public. The practitioner must decide whether to provide the therapy, to refer the customer to another clinic, or to refrain from recommending the treatment altogether. In these situations, the veterinary profession can only hope that the breed society tries to prevent the problem from arising by the implementation of selective breeding. Nevertheless, there remain some professional responsibilities to consider. Could or should the breeder of this puppy be informed of the defect? Are the present owners the best people to do this, given their lack of professional knowledge and the inevitable disappointment felt after purchasing the puppy? Should the veterinarian contact the puppy's breeder? Whichever, the practitioner should certainly recommend that the new owners of the puppy never use it for breeding and he might even propose that immediate castration/vasectomy or ovariectomy be performed.

Analysis of this case, with a view to developing a model for decision-making and identifying the relevant professional responsibilities, might lead to the following scheme, which summarises the interests of all parties concerned:

- Animals' interests: the availability of therapy, the chance of therapy being successful, the quality of life after recovery from therapy and the amount and duration of pain and distress during the period of treatment and healing.

- Owners' interests: consideration for the health and well being of the animal, the emotional bond with the animal, the costs of treatment - monetary and labour, the chances of successful treatment and the suitability of the animal for its intended use after healing.
- Veterinarians' interests: consideration for the health and well being of the animal, his relationship with the client and the professional challenge and commercial interest the case offers.
- Interest of the population to which the animal belongs: the absence of inheritable problems that cause serious defects.

This scheme may be applied to conditions observed and treated routinely in veterinary practice, such as entropion in dogs and cryptorchidism in horses. It is rewarding to find that many interventions become quite acceptable from a veterinary point of view. The scheme reveals how important the intended use of an animal is when choosing a form of therapy and also how the specific interests of the animal can be included. It is useful to the veterinarian for the analysis of situations that are ethically complicated and helps him to include all the relevant issues needed for making decisions. By using such a scheme, veterinarians improve their communication with clients and colleagues.

## **Veterinary research**

When clinical cases, such as the puppy with a deformed front limb, are extrapolated to the clinical research environment it is clear that the development of diagnostic and therapeutic tools leads automatically to their application, unless the cost of their application is truly excessive. For this reason, the possible implications of research projects should be analysed and discussed at regular intervals, particularly during the initial stages of planning. During discussions, however, care should be taken to avoid extrapolating information pertinent to man to animals and vice versa. A few examples in which this danger is relevant are given below.

### **1. Infectious diseases**

Major efforts have been, and continue to be, made in order to develop vaccines against infectious diseases that affect man. When patients do become infected they usually receive good medical care and, if necessary, are treated in isolated units. However, for animals the situation is quite different; there is a much wider range of treatment strategies to consider. The most drastic course of action is the destruction of all diseased animals as well as those that are clinically healthy but have had contact with possible sources of the disease. To select the optimum strategy for animals affected by disease, man must consider the differential moral status he assigns to domestic animal species; for instance, diseases affecting production animals may be eliminated by the large scale destruction of animals. Complex legislation and international treaties have been designed for the organised control of animal diseases by such means. In contrast, equally serious diseases in companion animals are more likely to lead to the development of vaccines.

### **2. Cloning and stem cell technology**

The recent development of nuclear transfer technology has enabled the production of many genetically identical offspring from a single adult animal [3]. Briefly, the technique involves the transfer of nuclei from donor cells into enucleated fertilised ova, which are deposited into the uterus of unrelated recipient females; novel but genetically identical individuals are born. The scientific potential of this technique is immense. It enables the development not only of fundamental research into the function of genes, but also of basic research into phenomena such as ageing. Not too surprisingly, it has raised many moral objections, the most prominent being its potential application for the production of human clones. Pressure groups that oppose the use of the technique in animals foresee major trouble if the technology were ever to be applied to man. Some people predict that powerful individuals might attempt to produce the equivalent of the "Boys from Brazil" (clones derived from Adolf Hitler), or that extremely wealthy people may wish to clone themselves in order to guarantee a supply of fully compatible tissues and organs for transplantation, in case they should need them later in life. The only way to make such

scenario's unlikely is the enforcement of moral and legislative restrictions rather than there being a limitation on available technology.

Interestingly, the development and use of a very similar technique, namely stem cell technology, has been given a novel impulse recently and is related to the much debated and controversial topic of xenotransplantation (organ transplantation between species). The development of xenotransplantation arose because the demand for donated human organs and tissues for transplantation far outweighs their availability, there is a practical bottleneck to the development of transplantation therapy. It is well known that pigs are the most likely candidate animals to serve as donors of organs and tissues for human patients, but animal welfare organisations have objected to this novel 'instrumental' use of them that bears no relation to meat production. They claim that the animals' welfare would be adversely affected by keeping them under the required Specific Pathogen Free (SPF) conditions. However, this argument is not really valid because pigs can be kept very comfortably under these conditions, so long as cost is not an issue. There are also technological and biosafety problems that must be solved prior to the experimental clinical application of organs in human patients. In addition to overcoming the immunological barriers that exist between species and lead to the rejection of transplanted organs, there are other aspects of xenotransplantation that require extensive research [4]. The first is the proper functioning of an organ after transplantation, including its physiological compatibility and longevity, and the second is the putative risk of activating retroviruses from their dormant state in the genome of the donor animal. The latter is estimated to be the most complex problem because of its possible epidemiological significance.

Many of the biological problems presented by xenotransplantation, ignoring for a moment the ethical dilemmas, could be overcome by instead using the more sophisticated stem cell technology. The potential uses of this technology are immense and have been quickly recognised by the biomedical industry. For instance, the corporate policy of one British biotechnology company, already involved in xenotransplantation developments, switched immediately to human stem cell technology after the country changed its legislation on the use of human embryonic material in research to enable more extensive experimentation. Briefly, the technology involves the removal of nuclei from a patient's cells and their transfer to enucleated fertilised ova. The cells are then cultured under very specific conditions that lead to their differentiation into the type needed to treat the failing organ. The technology is dependent on nuclear transfer and generates omnipotent embryonic cells, which means it is essentially the same as the method for cloning humans. Thus, the prudence gained over the cloning of animals appears to have evaporated rapidly. In addition, the human embryonic material required to further develop stem cell technology can only come from human embryos, which introduces numerous ethical dilemmas concerning research with material that has or had the potential to develop into a unique human, even though the intention now is to restrict the use of embryos to only those 'left-over' after women have received infertility treatment.

In conclusion then, the cloning of animals has been, and continues to be, a much debated topic because of its potential application and misuse in man. However, the development of this and related technologies, like stem cell technology, also has the potential to be enormously beneficial to man. As a result, key aspects in the ethical debate on the cloning of animals are now being considered with considerable urgency.

## **Animals and humans have a different moral status**

Extrapolation from situations relevant to animals to similar ones involving man, and vice versa, is not only invalid but also a weak point in any discussion on ethics or policy. Moral standards within a community, and the legislation resulting from their establishment, are of much greater importance. For example, it is generally accepted that farm animals are slaughtered for their meat. This does not mean that the intentional killing of people is similarly deemed acceptable. Thus, the moral basis of a society, as defined by its laws, determines the differential treatment of animals and humans. Because science and

technology know no geographical barriers, industrialised and many developing countries share the same research potential. Therefore, protection of the well being and integrity of man and animals requires international harmonisation of all relevant legislation.

It is not easy to consider all elements necessary to design a research policy. The ultimate aim of a project should not be the sole justification for its execution; thought must also be given to the consequences of the research and the way in which the results might be used. Ideally, this process should be carried out by peer review and should include discussions with 'educated' lay people, who are likely to be less biased in their analysis of a project and, therefore, will offer a wider perspective on the research under consideration. In general, it is only the use of animals in specific research projects that is subjected to ethical review and not the consequence of the research project's results. During the last decade, the ethical review of animal experiments has become an established policy in many countries. Members of the ethical committees tend to be multidisciplinary and include scientists, experts on ethics and lay people. These committees are not consulted, however, on strategic decisions for research policy. They simply review individual projects or experiments and rely on prior scientific evaluation to determine the quality and significance of the research itself. Their main function is to assess whether the experimental design and procedures use a minimum number of animals and inflict minimal harm upon them. This evaluation system is very effective at improving the treatment of laboratory animals but is not instrumental in strategic decision-making for the planning of research programmes.

## **Veterinary hygiene and public health**

Finally to return to the direct responsibilities of the veterinarian, the subject of veterinary hygiene should be addressed. Some of the major contagious animal diseases have important economic consequences and must be eliminated from a population at almost any price, one example being foot-and-mouth disease that affects many ungulate species. There are other animal diseases, such as anthrax, that are important because they cause disease in man even though they are not important animal pathogens.

With the tremendous increase in international trade and travel, the risks of disease are no longer restricted to states or even continents. Air travel enables transportation around the globe within 24 hours. The more enterprising tourists travel increasingly to remote areas which may harbour species that provide a disease reservoir, particularly those diseases with a sub-clinical carrier state in wild fauna. It is quite possible that a veterinarian will be the first person confronted with an animal infected with an agent that is of great threat either to other animals (population) or to human (public) health. There is, of course, a legal obligation to report suspicious cases to the authorities, however, drastic measures are likely to follow and so should be anticipated beforehand. It would be quite impossible to 'explain away' reports of a suspected case of disease that subsequently results in negative findings. If this were to happen, substantial damage would be inflicted upon the owner of the animals, not only economic but also social and emotional. Recent outbreaks of classical swine fever and isolated cases of BSE have not only demonstrated how animal products may be boycotted by consumers, leading to a drastic fall in their market value, but also how difficult it is for farmers to cope with the isolation of their farms or destruction of their livestock. And it is not only the farmers who are affected in these cases; there will be many businesses with direct economic links to the farms which will also suffer. Thus, the consulting veterinarian is in a very awkward position and must decide exactly what to do, how to do it and when to do it. Of course, there is no dilemma the moment a case becomes confirmed by strong evidence or an established diagnosis. However, it is the initial decision of whether to submit samples for analysis or to report the case to the authorities that is most difficult, knowing that there might be substantial damage caused by a misinterpretation either way.

Below is a list summarising the factors that play a role in the ethical evaluation of policies and actions on suspected cases of animal diseases:

- Animals' interests:
  - incidental - the benefits of clinical treatment versus destruction
  - structural - the absence of epidemic diseases in the population
- Owners' interests:
  - short-term - the risk of drastic animal hygiene precautions and the loss of autonomy on decisions made about the animals. In most instances, direct economic loss is fully or partially compensated
  - long-term - the absence of economically important animal diseases within the population to which the animals belong
- Veterinarians' interests:
  - consideration for the health and wellbeing of animals
  - relationship with the client
  - responsibility towards public health
  - responsibility towards economic value of a product, such as beef
- Interests of an animal population:
  - absence of animal diseases that might become epidemic and jeopardise the continuity of the population
- Public health interests:
  - risks to workers or consumers
  - availability of nutritious and safe foodstuffs at a reasonable cost.
- Economic interests:
  - availability of animal products at a reasonable cost continuity of business for primary producers and related businesses

### **Concluding remarks**

By now, it should be clear that the average practicing veterinarian meets ethical dilemmas on a day-to-day basis. The term 'dilemma' implies that generally accepted moral standards, or formal rules and regulations, do not provide clear guidance towards a morally just solution. There is an ever-increasing awareness of animal welfare amongst the general public and an increasing notion that animals represent a moral subject 'in their own right', quite independent from their usefulness to man. Thus, the professional dilemmas faced by veterinarians are becoming more complicated and although moral intuition is indispensable it is not sufficient to solve these complex problems. Consent on ethical aspects of commonly occurring dilemmas should give rise to the adoption of a collective policy, which can then be formalised legally when it is considered necessary. However, novel dilemmas cannot be solved in this way which is when the 'professional' must be capable of dealing with the situation. The interests of all parties concerned, including those of the animal(s), should be considered carefully and then discussed with other professionals and with lay people, to give the debate a wider perspective. This process of informed decision-making requires skills, not only prior knowledge, which the veterinary profession should make an effort to acquire.

Finally, the development of decision-making schemes clearly enhances the quality of communication because there is a protocol to follow, which may be described to anyone who questions the conclusion. The overall result is greater justification of any moral decisions made.

## References

1. Animals in Philosophy and Science: Recognizing the intrinsic value of animals, Beyond animal welfare, M. Dol, M. Fentener van Vlissingen, S. Kasanmoentalib, T. Visser, H. Zwart, Eds. Van Gorcum, Assen, The Netherlands (1999).
2. Rollin, B.E. (1989). Veterinary and animal ethics. In: Law and ethics of the veterinary profession. Ed. J.F. Wilson. Priority Press Ltd, Yardley, PA, USA.
3. Wilmut, I., Schnieke, A.E., McWhir, J., Kind, A.J. and Campbell, K.H.S. (1997) Viable offspring derived from fetal and adult mammalian cells. *Nature* 385: 810-813.
4. Cozzi, E. and White, D.J.G. (1995) The generation of transgenic pigs as potential organ donors for humans. *Nature Med.* 1: 964-966.