

Advancing animal welfare standards within the veterinary profession



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Abstract

Historically, expenditure on animals and attitudes toward animal welfare have improved, with increasing social affluence. However, recent events suggest veterinary attitudes may be lagging behind those of the general public. Despite widespread public opposition to, and in some cases the passage of legislation against, the force-feeding of ducks and geese during *foie gras* production, the export of live sheep, the caging and 'forced' molting of

laying hens, the confinement of sows in gestation crates, and several other farming practices, the American Veterinary Medical Association (AVMA) and the Australian Veterinary Association have continued to support such practices. To gain insights into the attitudes of veterinarians toward animal welfare, the positions of the AVMA on a broad range of practices believed to result in poor welfare were ascertained. While the AVMA did not support all such practices, it did support a range of them, in

some cases contrary to substantial scientific evidence. Such poor positions on animal welfare issues may result from deficiencies in the selection and education of veterinarians, or from misrepresentation of the opinions of veterinarians by the AVMA. Solutions could include consideration of animal welfare awareness and critical reasoning ability during the selection of veterinary students, bioethics and critical reasoning training during veterinary education, continuing education credits for veterinarians who participate in such post-graduate training, the replacement of remaining harmful animal use in veterinary curricula with humane alternatives, and the encouragement of more active involvement of veterinarians in their professional associations.

Keywords: Animal welfare, ethics, bioethics, veterinary education

Introduction

Historically, the role of the veterinary profession was primarily agricultural, and centered around assisting farmers to maximize the production and profitability of their animals, or providing assistance to horse owners. In modern, developed societies, however, increasing social affluence has resulted in increased expenditure on companion animals, to the point where the overwhelming majority of contemporary veterinarians work almost entirely with these species. To some extent increasing social affluence has also allowed greater provision of veterinary services to agricultural species; however,

intensification of farming practices and increased market competition have also limited these trends. Over time, social attitudes toward animal welfare have improved concurrently with increased knowledge about animals, increasing social affluence, and the urbanization of society, and to some extent the attitudes of veterinarians have similarly advanced. However, recent events suggest veterinary attitudes toward animal welfare may now be lagging behind those of the general public.

Foie gras production

Pate de *foie gras* is made from the excessively fattened livers of ducks and geese force-fed via esophageal tubes, resulting in hepatic lipidosis, and — not uncommonly — additional diseases and injuries. Due to welfare concerns it has been banned in Switzerland, and in 2004 a bill was passed in California that will outlaw its production and sale. Similar legislation is pending in New York, Massachusetts, Illinois and Oregon (1). However, in 2005 the American Veterinary Medical Association (AVMA) rejected member resolutions to oppose the force feeding of ducks and geese to produce *foie gras* (2).

Live sheep exports

The deaths of hundreds of thousands of sheep among millions shipped annually from Australian ports primarily to Middle-Eastern destinations has resulted in widespread public opposition to the trade within Australia. However, at its 2005 annual general meeting, the Australian Veterinary Association rejected a call for veterinarians to oppose the live sheep export trade (3).

Forced molting of laying hens

'Forced' or 'induced' molting involves starving hens for two weeks or longer, to 'shock' their bodies into a new egg laying cycle. Resolutions to discourage forced molting have been presented to the AVMA annually since 1999, but only in 2004 did the AVMA adopt a policy discouraging forced molting to some degree.

Sow gestation crates

Intensively-farmed sows are commonly confined in metal cages only slightly larger than their bodies during their four month gestation period. Overwhelming concern about the poor welfare of such crated sows resulted in Floridians voting to amend their state constitution to prohibit gestation crates, on November 5, 2002. However, in early 2002, the AVMA formally voted to endorse their use.

Other issues

Other animal production practices supported by veterinary associations such as the AVMA that are the subject of considerable public concern on welfare grounds — with resultant bans in various regions of the world — include the close confinement of laying hens within so-called 'battery' cages, the close confinement of 'veal' calves within small crates, and the tail docking of pigs.

Such examples justify a closer inspection of the attitudes of veterinarians toward animal welfare. With more than 72,000 veterinary members working in private and corporate practice, government, industry, academia, and the uniformed services, by 2005 — the

largest membership of any veterinary association worldwide — and claiming to act as "*a collective voice for its membership and for the profession*" (4), the AVMA is ideally suited to this purpose.

Methods

The positions of the AVMA on a broad range of practices commonly believed to result in poor animal welfare were determined from its Animal Welfare Position Statements (5).

Results

Guiding principles

In its Guiding Principles, the AVMA stated that it has a "*long-term concern for, and commitment to, the welfare, humane treatment, and care of animals.*" In its General Comments on Food Animals, the AVMA stated that, "*veterinarians should assume a leadership role to help eliminate cruelty, abuse, and neglect of animals in modern livestock production.*"

Poor animal welfare: practices supported by the AVMA

Poultry

The AVMA supported the forced molting, beak trimming, and caged housing of laying hens.

Other agricultural animals and horses

The AVMA supported the force feeding of geese and ducks for the production of *foie gras* (2); the confinement of 'veal' calves in stalls, provided that calves are able to "*stretch, stand, and lie down comfortably,*" and that they "*receive a daily diet that is nutritionally adequate to maintain health;*" swine castration, ear notching and tail

docking (in the first week of life); and livestock branding.

Companion animals

The AVMA supported declawing of cats, providing *"attempts have been made to prevent the cat from using its claws destructively or when its clawing presents a zoonotic risk for its owner(s);"* ear cropping of dogs, although it advises that *"veterinarians should counsel dog owners about [the] pain and distress, and, ... inherent risks of anesthesia, blood loss, and infection ... before agreeing to perform these surgeries;"* and the euthanasia of unwanted companion animals.

Spectator sports

The AVMA supported spectator events such as dog racing, dog sled racing, animal exhibitions, rodeos, polo, horse racing, cutting, reining, and jumping, and field trials, provided that these are *"conducted in a manner that minimizes injury."*

Toxicity testing

The AVMA supported the human toxicity testing of pharmaceuticals and other chemicals using animals.

Poor animal welfare: practices opposed by the AVMA

Poultry

The AVMA was opposed to the smothering of unwanted chicks or poults in bags or containers.

Other agricultural animals and horses

The AVMA was opposed to the soring of horses (the deliberate wounding of legs or feet aimed at altering the gait); the electroimmobilization of *"food"* animals for restraint (e.g., to allow

invasive procedures); and flank ovariectomy (removal of the ovaries during sterilization) of cattle without anesthesia.

Companion animals

The AVMA was opposed to the tail docking and ear cropping of companion animals for cosmetic reasons; canine devocalization unless *"as a final alternative after behavioral modification efforts to correct excessive vocalization have failed;"* and transportation of loose or tethered dogs in open cargo areas of pickup trucks.

Spectator sports

The AVMA was opposed to bleeding using live prey (e.g., of greyhounds), and animal fighting such as cock fighting, dog fighting and bull fighting.

Other

The AVMA was opposed to the use of steel jaw leg-hold traps for hunting wild animals.

Discussion

The forced molting, beak trimming and caging of laying hens are thought by many to represent the greatest violations of animal welfare inflicted on large number of animals anywhere in the world, and consequently deserve close examination.

'Forced' molting of laying hens

'Forced' or 'induced' molting is used to shorten the dormant period at the end of the natural annual laying cycle in commercial laying hens. The three main methods used are (i) elimination or limitation of food and/or water; (ii) feeding low nutrient rations deficient, for

example, in protein, calcium or sodium; and, less frequently, (iii) the administration of drugs and metals including methalibure, chlormadinone, and progesterone, high levels of iodine, dietary aluminum, and zinc (6-7). Additionally, artificial light-dark manipulation is often used. For example, a one week pre-molt cycle of 16 hours of light/eight hours of darkness may be followed by a molt schedule consisting of eight hours of light/16 hours of darkness (8). Or a one-week pre-molt cycle of 24 hours of continuous light may be followed by eight hours of light, which is increased on day 20 by 0.25 hours/week, back up to the standard 16-17 hours of continuous light (9). US Department of Agriculture statistics indicate that at any given time in the United States over six million hens are undergoing food limitation or withdrawal during forced molting operations (10).

As would be expected, the welfare of hens is markedly compromised during forced molting, as indicated by increased but economically acceptable mortality levels, body weight decreases as high as 35% in the survivors (11), increased levels of plasma corticosterone, and notable behavioral changes, such as initial aggression and heightened alertness, followed by lethargy (12). In an attempt to obtain nutrients, hens also pluck and consume the feathers of adjacent hens, causing further pain and stress (13).

The severe stress of forced molting also decreases cellular and humoral immunocompetence (7), and alters intestinal flora (14), predisposing to Salmonellosis, in particular.

Salmonella enteritidis bacteria contaminate feathers for long periods, and are readily spread by starvation-induced feather consumption (13). The result is increased consumer risk from *Salmonella*-contaminated eggs.

The AVMA supported forced molting, stating that acceptable practices include "*reduction of photoperiod (day length) and dietary restrictions (including diets of low nutrient density)*," although it did recommend that neither water nor food be completely withdrawn (5).

Beak trimming of laying hens

The natural hierarchical pecking order of laying hens is compounded in the so-called 'battery' cages used in intensive production systems, by excessive crowding and the inability to dust-bathe or perch. Consequently, hens lower on the 'pecking order' particularly suffer from their inability to escape increased feather pecking by cage mates. De-beaking is routinely performed at one to 10 days of age to decrease resultant skin and feather damage. Up to half of the maxilla and a third of the mandible are commonly excised using a hot blade or wire (contrary to UK Codes of Practice specifying that not more than one third of the upper and lower beak may be removed; 15). As chick beaks are tiny, and the process mechanical and executed with production line speed, additional beak may be removed. If beaks have re-grown, producers may repeat the procedure just prior to or during the laying period (16-17).

Chickens have nociceptors (sensory pain receptors) in the beak, with response characteristics similar to those of mammals (18). Consequently de-beaking is a highly painful procedure, producing both immediate responses — including visible reactions, profound shock, and an economically acceptable proportion of deaths — and long-term responses, such as phantom and stump pain, due to the exposure of sensitive nerves and the growth of neuromas (17, 19). Decreased time spent pecking, drinking, preening and engaged in associated head shaking and beak wiping is thought to reveal guarding behavior indicative of severe pain. This is estimated to last at least three to five weeks (19), although experts such as Broom (20) have estimated that these neuromas may be painful for the rest of the bird's life. Consequently, long term increases in dozing, general inactivity (21) and depression (22) are observed.

Alternatives to de-beaking include decreasing crowding, the provision of litter and perches (which markedly decreases aggression; 23), and genetic selection for increased docility.

Consequently, the European Commission Scientific Veterinary Committee Animal Welfare Section (24) has recommended that de-beaking *“should be banned as soon as practicable since it is known to cause pain both during and after the operation.”* This recommendation was reiterated in the SVC's 1996 *Report on the Welfare of Laying Hens* (17). The UK Ministry of Agriculture's *Code of Practice*

stipulates that de-beaking *“should be carried out only as a last resort”* (15).

The AVMA continued to support de-beaking prior to 10 days of age, although it stated that alternative methods such as genetic selection, or management of light or nutrition, are preferable (5).

Caging of laying hens

To maximize economies of scale, around 95% of laying hens in developed countries are housed in so-called 'battery' cages, usually with three to four cage mates — although numbers as high as seven have been recorded. Typically, each has an area less than the size of an A4 sheet in which to live. For example, Australia has around 10 million 'battery' hens, each of which are required to be provided with 450 cm² of space. Cages installed since 2001 must provide hens with just 550 cm² of space each, which is still smaller than an A4 sheet.

The extreme space restriction and barren nature of battery cages prevent normal behavior patterns such as wing-stretching, exercising, foraging, dust-bathing and nesting, resulting in substantial suffering (16-17, 24). Additionally, hens suffer feather damage and skin abrasions from rubbing against the wire sides of their cages, attempting to dust-bathe on the wire floors, and from feather pecking by cage mates. Hens suffer foot damage, including broken claws and footpad dermatitis, due to the wire floors and the absence of litter (16). Chronic exercise inhibition results in bone fragility and fractures sufficient to cause over a third of all

mortalities (25), and can lead to Fatty Liver Hemorrhagic Syndrome, with additional mortalities (17).

Alternatives include percheries (in barns), deep litter, free range and enriched cage systems (26).

The battery cage has been condemned on welfare grounds by a succession of official bodies, including the UK House of Commons Agriculture Committee (1981), the European Parliament (1987), and the European Commission's Scientific Veterinary Committee (17, 24). A 1997 poll showed that 89% of the British public believe it is cruel to keep hens in battery cages (27). A similar poll of Australian consumers (28) found that 79.1% of respondents were concerned that battery hens do not have "*the freedom to move around, stretch their wings, and lay their eggs in a nest.*" Even the fast food giant McDonald's Corporation now requires its suppliers to use layer hen cages significantly larger than the industry standard, and to not employ forced molting (29).

However, the AVMA supported housing layer chickens in cages and did not set a minimum space requirement, but did suggest that "*all hens should be able to stand comfortably upright in their cages*" and that "*feeder space should be sufficient to permit all birds to eat at the same time*" (5).

Comparison of public and AVMA positions

Opinion polls have consistently shown that a majority of citizens oppose various husbandry practices that have become standard on

modern farms (30). A 2005 Ohio State University survey found that more than half of Ohioans would pay more for meat, poultry, or dairy if it were labeled as coming from humanely treated animals. 92% agreed it is important for farm animals to be well cared for, with 85% agreeing their quality of life is important even when raised for meat. 81% agreed that "*the well-being of farm animals is just as important as the well-being of pets,*" and 75% agreed that "*farm animals should be protected from feeling physical pain*" (31). A 2003 Gallup poll showed that 75% of US citizens want the well-being of farm animals guaranteed by legislation (32), and a 2005 survey of Irish households found that 76% considered animal welfare to be an important government goal (33).

While the AVMA did not support all practices believed to result in poor animal welfare, it clearly supported a range of such practices, in some cases contrary to both substantial scientific evidence and public opinion. Possible causes include deficiencies in the formal selection and education of veterinarians, and misrepresentation of the opinions of the majority of veterinarians by the AVMA.

Selection of veterinary students

The highly demanding nature of a veterinary education warrants the selection of students able to demonstrate a strong record of academic success. Generally speaking, such success is most easily demonstrated in advanced mathematics and science subjects, which are considered among the most difficult. Despite the lack of

relevance to veterinary practice of some of these disciplines, this selection tool most rapidly results in quantitative, objective outcomes, when compared to alternatives such as assessments of character or work experience, and both historically and in many countries today remains the major selection method for veterinary students.

However, the high attrition rate of veterinarians in the first few years post-graduation has resulted in increasing recognition of the importance of substantial prior veterinary work experience, which has now become an important part of the selection process in countries like the US.

Despite increasing recognition that good communication skills are essential to success in veterinary practice, rigorous examination of these are not yet incorporated within most selection criteria.

And despite increasing social concern regarding animal welfare issues – about which veterinarians are widely expected by the general public to possess a considerable degree of expertise – selection criteria rarely, if ever, examine knowledge of animal welfare issues, underlying compassion for animals, or critical thinking ability. It may be hoped, however, that those wishing to embark upon a veterinary education are more likely than average to possess at least some of these attributes.

The results are that almost all populations of veterinary students internationally are academically very strong, particularly in the sciences;

may or may not possess substantial prior veterinary work experience; and may not possess communication skills, knowledge of animal welfare issues, underlying compassion for animals, or critical thinking ability much different from that of the general student population.

Education of veterinary students

The importance of educating veterinary students about animal welfare issues, and of assisting their development of the critical thinking skills needed to successfully negotiate these controversies, is increasingly recognized, and the incorporation of bioethics and critical reasoning courses within veterinary curricula worldwide is increasing. However, the proportion of veterinary students receiving such formal education remains small.

On the other hand, there is a 'hidden curriculum' endorsing harmful animal use which remains commonplace within veterinary education worldwide. Students are typically required to harm and kill animals in preclinical subjects such as anatomy (dissection, often of purpose-killed animals or animals from ethically-debatable sources), and physiology, biochemistry and pharmacology ('demonstration' experiments on living animals, usually of long established scientific concepts, with animals usually killed during or after the experiment). Students are typically required to practice surgical and anesthetic skills via anesthetizing healthy animals, conducting surgical procedures on them, and killing any survivors at the end (not all survive

these typically extended operations) (34).

Humane alternatives to harmful animal use in veterinary education include computer simulations, videos, 'ethically-sourced' cadavers (obtained from animals euthanized for medical reasons, or that have died naturally or in accidents), preserved specimens, models, diagrams, non-invasive self-experimentation, and supervised clinical and surgical experiences. Alternatives at the preclinical level are focused mainly upon imparting knowledge, while those at the clinical level impart clinical and surgical skills as well (34).

Alternative veterinary surgical courses ideally comprise a number of stages. In the beginning students learn basic manual skills such as suturing and instrument handling using knot-tying boards, simulated organs, and other models. They then progress to simulated surgery on ethically-sourced cadavers, and finally students observe, assist with, and then perform beneficial surgery under close supervision on real patients (frequently by assisting with animal shelter sterilization programs) similarly to the training of physicians (34).

Increasing numbers of veterinary schools around the world have introduced non-harmful teaching methods, which have sometimes been accompanied by educational evaluations. At least 33 papers sourced primarily from the biomedical and educational literature covering virtually all educational levels and disciplines have described studies examining

the ability of humane alternatives such as these to impart knowledge or clinical or surgical skills, in comparison to traditional harmful animal use (35).

Of eleven distinct studies of veterinary student learning outcomes published from 1989 to 2006, nine assessed surgical training — historically the discipline involving greatest harmful animal use. 45.5% (5/11) demonstrated superior learning outcomes using more humane alternatives. Another 45.5% (5/11) demonstrated equivalent learning outcomes, and 9.1% (1/11) demonstrated inferior learning outcomes. Twenty one distinct studies of non-veterinary students in related academic disciplines were also published from 1968 to 2004. 38.1% (8/21) demonstrated superior, 52.4% (11/21) demonstrated equivalent, and 9.5% (2/21) demonstrated inferior learning outcomes using humane alternatives (34).

Twenty nine papers in which comparison with harmful animal use did not occur illustrated additional benefits of humane teaching methods in veterinary education, including time and cost savings, enhanced potential for customization and repeatability of the learning exercise, increased student confidence and satisfaction, increased compliance with animal use legislation, elimination of objections to the use of purpose-killed animals, and integration of clinical perspectives and ethics early within curricula (34).

The evidence clearly demonstrates that veterinary educators can best

serve their students and animals, whilst minimizing financial and time burdens, by introducing well-designed teaching methods not reliant on harmful animal use. Concerns about the costs and other issues relating to harmful animal use have led to the increasing implementation of humane alternatives within veterinary curricula internationally. A decade ago, all but a handful of the 27 US veterinary schools required students to perform 'terminal' (non-recovery) surgeries and other procedures. By 2005, 12 had eliminated these laboratories from their core courses, of which 6 had also eliminated them from elective courses (36). The newest US veterinary school at the Western University of Health Sciences in Los Angeles — which accepted its first students in 2004 — is based on a "*reverence for life*" philosophy. Its students are not required to harm animals at any stage of their education (37).

Following student campaigns at all four established Australian veterinary schools, in 2005 it became possible to graduate from each without harming animals during surgical training, and the University of Sydney Faculty of Veterinary Science went even further, completely eliminating terminal surgical laboratories in 2000. Sporadic campaigns, usually led by students, have also eliminated widespread harmful animal use in physiology and other disciplines at various veterinary schools, such as those at Western Australia's Murdoch University, New Zealand's Massey University, and the University of Illinois.

Nevertheless, the majority of veterinary students today receive minimal or no formal education in animal welfare issues or critical reasoning, and are directly required by some of their professors to harm and kill animals during their education. These professors are seen by many students as the leaders of the veterinary profession, and the 'unwritten' message delivered is that harming and killing healthy animals is not only condoned, but is required, in order to become a veterinarian, and further, that animal welfare concerns are subservient to human interests of debatable merit.

Unsurprisingly, the decreasing awareness of veterinary students of animal sentience (specifically, the hunger, pain, fear and boredom of dogs, cats and cows) over the duration of their veterinary courses (38), the decreased likelihood of fourth year students to provide analgesia when compared to second or third year students (39), and the inhibition of normal development of moral reasoning ability during the four years of veterinary school (40), have all been described in veterinary journals. Such desensitization-related phenomena are psychological adaptations that enable previously caring students to withstand what could otherwise be the intolerable psychological stresses that result from being required to harm and kill sentient creatures in the absence of overwhelming necessity (41).

Misrepresentation of veterinary opinions by the AVMA

Part of the reason for the deficient positions of the AVMA on animal

welfare issues may be that the welfare standards of veterinarians are in fact not poor, but that these are not accurately represented by the AVMA.

A 2005 survey of 157 large or 'food' animal faculty from 27 US veterinary colleges with a 31% response rate revealed that 71% of respondents characterized their attitude toward farm animal welfare as, *"we can use animals for the greater human good but have an obligation to provide for the majority of the animals' physiologic and behavioral needs."* An additional 19% were more, and 10% were less concerned about farm animal welfare. Those more concerned included females, those with more liberal political views, and those who cited lower religiosity. No relationship between attitude and age was observed (42).

A 2004 survey of US veterinarians on several controversial farming practices revealed that a strong majority of respondents believed the farming practices to be *"very objectionable"* or *"objectionable."* Around four fifths objected to all of the practices relating to confinement (veal crates and tethers — 82%, gestation crates — 83%, and battery cages — 80%), and to reduced or withheld diets (deficient veal calf diets — 80%, forced molting of hens — 78%), and nearly three quarters objected to tail docking of pigs and cows without anesthesia — 70% and the transporting, marketing, and slaughtering of downed animals for human food — 73% (30).

The low response rate of 2.1% (1,245/70,913) substantially limits the value of the conclusions that may be drawn from this survey, although it was consistent with average direct mail response rates. Respondents included small and large animal veterinarians from all US states, and many who took the time to respond are likely to have held strong opinions about these farming practices, both for and against. This would be consistent with what appears to be some degree of polarization in the responses. Veterinarians living and working in the Northeast and the West found these farming practices much more objectionable than their colleagues in the South or Midwest. Ninety percent of Northeastern and 89% of Western veterinarians found all practices objectionable, compared to 79% of Southern and 70% of Midwestern veterinarians. Nevertheless, a clear majority from all regions found all of these farming practices objectionable.

These objections occurred contrary to the explicit endorsement or tacit support of nearly all of these practices, including the use of cages and forced molting for laying hens, sow gestation crates, tail docking of pigs, and crates for 'veal' calves, by the AVMA.

Surveyed veterinarians raised a number of other practices they considered objectionable, most frequently the dehorning and castration of cattle, and feedlotting. Others frequently mentioned included kosher slaughter, horse slaughter, hormone production, and the conditions of farmed animals during transport or shipping. A

number of comments made specific reference to the AVMA, a large majority of which disagreed with or criticized the AVMA's positions on animal welfare in general, and on specific farming practices.

A 1991 survey of 308 randomly selected Dutch veterinarians, with a 72% (221/308) response rate, found that 95% of respondents would ideally consider pain, health and welfare in moral decision-making about the treatment of animals. Sixty four percent considered animal interests as having priority over client interests in cases of conflict. Groups more likely to put animals first included companion animal practitioners and female practitioners (43).

Hence, it seems apparent that many veterinarians do have strong animal welfare standards. It is possible, therefore, that these standards are not accurately represented by veterinary associations such as the AVMA.

Increasing animal welfare standards within the veterinary profession

At least five strategies appear warranted to increase animal welfare standards within the veterinary profession:

1. First, some weighting must be given to awareness of animal welfare issues, positive attitudes toward animal welfare, and critical reasoning ability, during the selection of veterinary students.
2. These foundations must be built upon during formal veterinary

education, by the incorporation of animal welfare, bioethics and critical reasoning courses within veterinary curricula. The 'Concepts in Animal Welfare' syllabus created by the World Society for the Protection of Animals (44) and University of Bristol School of Clinical Veterinary Science in 2003 (revised in 2007), which is being integrated into many veterinary courses worldwide, provides an excellent example (45-46). This one- or two-semester curriculum in animal welfare science provides training in critical reasoning skills and a range of animal welfare issues, including farm and companion animal welfare, wildlife, and the use of animals in experiments. The methodology is interactive, and promotes critical analysis of issues from different perspectives.

3. The participation of practicing veterinarians in appropriate post-graduate training should be encouraged through the provision of continuing education credits and other formal recognition. In their survey of 308 Dutch veterinarians, Rutgers and Baarda (43) found that 71% of respondents wanted the veterinary profession to take a clear stand on certain ethical issues, and 78% of practitioners wanted greater support in dealing with animal welfare issues, including through discussion groups (51%) and post academic education (34%).

The UK Royal Veterinary College (RVC) distance education course

in animal welfare, and the Michigan State University online animal welfare course, provide examples of courses available via the internet. Appropriate post graduate qualifications for veterinarians include the RVC Certificate and Diploma in Animal Welfare Science, Ethics and Law, the Australian College of Veterinary Scientists Membership in Animal Welfare Science, Ethics, Policy and Law, the MSc in Animals and Public Policy at the Tufts University Cummings School of Veterinary Medicine, and the MSc in Applied Animal Behaviour and Animal Welfare at the University of Edinburgh.

4. The replacement of remaining harmful animal use in veterinary education with humane alternatives must be accelerated.
5. Finally, veterinarians must become more actively involved in veterinary associations such as the AVMA, in order to ensure these accurately reflect their positions.

Conclusions

Increasing public concern about animal welfare issues are reflected by recent controversies about – and in some cases legislation outlawing – farming practices such as *foie gras* production, sow gestation crates, and live sheep exports. Additionally, opinion polls have shown that a majority of citizens oppose several other intensive husbandry practices, such as the forced molting, beak trimming and caging of laying hens.

Despite substantial scientific

evidence demonstrating that the latter practices in particular result in poor animal welfare, they remain supported by the AVMA, as do a range of other practices believed to result in poor welfare, such as the force feeding of geese and ducks, the confinement of 'veal' calves in stalls, swine castration, ear notching and tail docking, livestock branding, declawing of cats, and various spectator events. On the other hand, the AVMA guiding principles do support animal welfare, and the AVMA is opposed to some practices likely to result in poor welfare, such as the smothering of unwanted chicks or poults, the soring of horses, the electroimmobilization of 'food' animals, unanesthetized flank ovariectomies of cattle, cosmetic tail docking and ear cropping of companion animals, bleeding of greyhounds using live prey, animal fighting, and the use of steel jaw leg-hold traps for hunting wild animals.

While the AVMA does not support all practices commonly resulting in poor animal welfare, it clearly supports a range of practices that do, in some cases contrary to both substantial scientific evidence and public opinion. Possible causes include deficiencies in the formal selection and education of veterinarians, and misrepresentation of the opinions of the majority of veterinarians by the AVMA.

Solutions could involve consideration of animal welfare awareness and critical reasoning ability during the selection of veterinary students, the incorporation of bioethics and critical reasoning training into veterinary

undergraduate and continuing education, the replacement of remaining harmful animal use in veterinary curricula with humane alternatives, and the encouragement of more active involvement of veterinarians in their professional associations.

The application of such strategies would be consistent with the recently-stated support of the World Organisation for Animal Health (Office International des Epizooties, OIE) for a more active role for veterinary educators in advancing the animal welfare education of veterinary students. The OIE considers it important to encourage the teaching of animal welfare and animal ethics within veterinary curricula worldwide (47).

Such initiatives could all be expected to increase animal welfare standards within the veterinary profession, with the result that the profession might someday become a leader — rather than a follower — of evolving social standards on animal welfare issues, as expected by society, and implied by statements within veterinary Guides to Professional Conduct (48).

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