

The Future of Veterinary Medicine: A Practitioner's View

Keith E. Sterner, D.V.M.
2650 Ernest Rd.
Ionia, MI 48846, U.S.A.

Ladies and gentlemen, I would like to thank you and the World Buiatric Congress for the opportunity to be one of the keynote speakers at this year's meeting. I have been challenged to look into the future of veterinary medicine from the perspective of a private clinical practitioner. From my vantage point, I see specific challenges that must be dealt with and a limitless number of opportunities that assure a bright future.

We must all acknowledge that the world political climate is a profoundly different one now than it was at the start of 1989. It is difficult to predict what impact the social currents underlying these truly remarkable events will have on veterinary medicine but I will attempt to suggest a few possibilities. The world is progressing to a much more global community than ever before. It is likely that there will be a heavy reordering of resource priorities to the production of consumer foodstuffs in Eastern Europe and the Soviet Union while the "peace dividend" in the west may allow for increased financial resources available for education. Veterinary medical expertise as it applies to food animal productivity will be in demand as never before both by governments and companies seeking to expand opportunities in food production.

With regard to specific challenges facing practice today, we are increasingly required to give consideration to concerns of food safety, biotechnology and animal welfare. A casual perusal of almost any western newspaper or magazine in the past twelve months reveals headlines and articles pertaining to the safety of the food which we consume. These articles may leave the unsuspecting consumer with the impression that our food supplies have grown ever more contaminated with a wide variety of adulterants ranging from chemicals to every variety of pharmaceutical compound imaginable. The consuming public is led to believe that actresses turned "toxicologists" have a better understanding of risk assessment than any scientific panel embodied to deliberate and report on its findings. For example, in the decision to ban the chemical Alar, used in the United States to control the ripening of apples, it appears that the opinions of actress Meryl Streep were weighted far more heavily than those of legitimate scientific experts.

Keynote paper presented at the XVI World Buiatrics Congress, Salvador-Bahia-Brazil, August 13-17, 1990.

Clearly, we must discard the complacency that our profession has felt with regard to the assumption that science will ultimately prevail over emotion. One only need to look to the trade barriers erected by the EEC against hormone implants used in raising beef in the United States to find another example of emotion and socio-economic criteria triumphing over scientific merit. The same holds true as the debate rages over the use of recombinantly derived products designed to enhance productivity. Global markets cannot afford this trend. On the domestic side, entrepreneurs are already preparing to prey on consumer fears and ignorance by offering for sale so called "natural" or "organic" milk and meat products. If there were ever a word in the English language which has come to be mis and overused, it is "natural." My challenge to these people is that they should be required to demonstrate according to some measurable scientific criteria that in fact so called natural products are superior. It is irresponsible for us to accept an unsubstantiated claim that these products are somehow better or more wholesome.

Our charge must be to help educate the consuming public with regard to the real threats to food safety, namely microbiological contamination. We must encourage development of measures to control or minimize the likelihood of such contamination. This is not to infer in any way that we should become complacent with regard to responsible pharmaceutical usage and appropriate residue avoidance measures. It is our professional obligation to work to assure the ultimate wholesomeness of foods of animal origin for consumers. Clearly there is much work to be done in developing residue avoidance measures and screening methods for all categories of contaminants. The march of technology manifests itself through our increasing ability to detect minute quantities of chemical and biological residues in food. Unfortunately our ability to detect outpaces the determination of what constitutes an acceptable human health risk.

In the field of biotechnology we have let the genie out of the bottle, now the question becomes can we harness its potential? The debates which are currently raging should serve as a graphic reminder of the promise which nuclear energy first appeared to hold but now have proven unacceptable risks for most societies to tolerate. Never has our agricultural future held so much promise and yet so much potential for failure due to public acceptance. For exam-

ple, the controversy surrounding recombinant BST magnifies this point. The word hormone has a very negative connotation in the eyes of most consumers, not because of a poor track record in human food safety. Cancers that developed in the offspring of DES treated mothers resulted from use of the compound as therapy for human infertility, NOT from the consumption of DES in the food chain. Few know, much less care, that BST is a polypeptide protein hormone biologically inert in humans and that is degraded through digestion the same as any other ingested protein.

For years, our emphasis has been to search for therapeutic agents that could "cure" an animal's malady. Perhaps no better example exists than that of mastitis and yet despite great advances in antimicrobial therapy, the disease is as prevalent as ever. Despite the fact that no strain of *S. Agalactia* has ever demonstrated resistance to penicillin and numerous control strategies have been devised which effectively eliminate the organism from milking herds, the organism continues to flourish in most dairying areas of the world. Our ability to manipulate and enhance the bovine immune system while still in its infancy, will eventually enable us to reduce or eliminate such universal problems as bovine mammary disease, enteric disease and respiratory disease. Our greatest challenge will be to educate the consuming public about the intrinsic safety of this technology. Often the most convincing mechanism turns out to be the economic benefits that utilization of these methods brings both to the producer and consumer.

Throughout my talk, I have alluded to improved productivity and consumer confidence; animal welfare is an integral component of these concerns. Our affluent societies demand that the days of painful procedures performed without anesthesia or analgesia draw to a close. Veterinarians may be surprised to find that employment of these agents yield benefits beyond those accruing directly to the animal. Producers and veterinarians have a fundamental and overriding concern for the welfare of the animals under their charge. As veterinarians, we must constantly devise new methods which address the concerns of the unapprenticed public. At the same time, we must continually revisit what have been the standard paradigms of today's agricultural practices. Yet changes in husbandry practices must be made with an understanding of the physiological and behavioral requirements of the species involved. We must also be aware that like Newton's Laws of Physics, we often create equal and opposite reactions when we devise new methodologies. For example, when we move cattle from confined contact to pastures, we may be trading protozoan parasite problems for those caused by helminths. Are we equipped to diagnose and deal with those new problems? Likewise, I have personally observed schemes which were successful in reducing neonatal mortality only to become victims of their own success. The increasing number of surviving calves simply

overwhelmed the facilities and resources available to raise them. It would be easy to label our initial success at decreasing neonatal mortality as inhumane due to the problems created as the calves got older. As this example shows, animal welfare challenges will continue to confront us in all phases of animal production.

As the profession moves into the twenty first century, we must recognize the changing demographics at work from within. Gone are the days when applicants to veterinary schools came primarily from agrarian backgrounds. We must realize that if we are to produce sufficient numbers of graduates to enter the food animal arena, we must actively recruit and foster the interests of the best and the brightest. We can no longer assume that our new graduates have an appreciation of the subtleties and economics of today's animal husbandry principles and methods. Yet this understanding lies at the heart of any successful production medicine program. Despite the predictions that computer aided learning and XPERT systems will play a major role in veterinary education, I remain skeptical that these can become viable substitutes for clinical experience. One only need think about the theory and knowledge of pregnancy diagnosis versus the manual skills of palpation and its vagaries to know that we must still provide our students with hands on experience.

One of the universal roadblocks to effecting change remains in our communications skills. In food animal veterinary medicine, we have been reluctant to recognize that perhaps our greatest challenge is to effect change on the part of managers and workers on any given livestock operation. We all have been faced with situations where we can easily correct a disease or other technical problem with currently available knowledge only to be thwarted and frustrated by an owner, manager or worker who refuses to make needed changes. When we propose a new program for clients they are faced with essentially four choices. They can work additional time and implement the changes. They can put off some of the normal daily routine and replace it with the new program. They can hire additional help to accomplish the added duties, or they can do nothing. This last choice most often prevails since inertia to change is a fundamental aspect of human nature. There are a whole host of skills which the profession must learn in this arena before we are going to realize tangible results in our programs. All too often our clients judge us by the competence we demonstrate in the more mundane aspects of individual cow treatment and find it difficult to embrace more complicated concepts of production medicine programs.

Finally, with a certainty, the practice of veterinary medicine in the ensuing decades will be vastly different due to developments in food safety, biotechnology, animal welfare and changing demographics. It is certain that our future is bright and filled with opportunity for those willing to meet the challenges.