
Review Article

Past and Present Trends in Veterinary Education in Pakistan and Some Suggested Remedial Measures

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ARTICLE HISTORY

Received: January 01, 2016

Revised: February 10, 2016

Accepted: February 20, 2016

Key Words:

Profession

Measure

P R E L U D E

The responsibilities of veterinary profession are deeply rooted in our society's need for wholesome food in adequate amounts, animal companionship, human health and well-being. As enunciated in the remarks of M. Martinez Baez cited here from Schwabe (1984). The final objective of veterinary medicine does not lie in the animal species that the veterinarian commonly treats. It lies very definitely in man and above all in humanity.

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To Cite This Article: M. Ghulam, I. Rashid, S. Firyal, F. Deeba, M. Saqib and L.A. Lodhi, 2016. Past and Present trends in veterinary education in Pakistan and some suggested remedial measures. Scholar's Adv. Anim. Vet. Res., 3(1): 1-6.

As veterinarians, we ought to play an important role in optimizing food animal production by protecting the health of animals and by helping to ensure that the food of animal origin is free of potential agents of human diseases (zoonotic pathogens) and free of residues of medicaments used to treat animals. Through treatment and control of diseases of companion animals (pets), we fulfill another important need of the society. Research on animal diseases (many of which also occur in human) is yet another dimension of veterinary activity, the breakthroughs and findings of which may have potential spin-off applications in human medicine. Five years DVM degree program with the objective of producing a well-rounded veterinarian (well-versed with both production and animal health aspects) was initiated in 2003. This program has recently been revised under directive of Pakistan Veterinary Medical Council and Higher Education Commission. However, there are some glaring deficiencies/inadequacies in this program, some of which have been discussed (along with the recommendations to address these) in the ensuing part of this article.

PAST AND CURRENT PAKISTANI TRENDS IN VETERINARY EDUCATION AND SUGGESTED REVAMPING MEASURES

Up until now, the focus of training in DVM degree program has been on the treatment of sick animals (sometimes called the 'fire engine practice of veterinary medicine'). Very little attention has been paid to didactic and practices related to control/prevention/eradication of major epidemics like foot- and- mouth disease (FMD), *peste des petits ruminants* (PPR) and other diseases that bedevil our livestock economy. It is high time that we shift emphasis from curative veterinary medicine to preventive veterinary medicine in our DVM degree program. The idea and practice of according

preference to preventive medicine over curative medicine is not new. The Nei-ching (the classic Chinese text on internal medicine, 221 BC-220 AD) is the oldest existing medical book in the People's Republic of China. It is a seminal text on Traditional Chinese Medicine (TCM), attributed to the legendary Yellow Emperor, Huangdi. The underlying philosophy of the text is 'Superior doctors do not treat disease. They prevent it'. This underpins the importance in TCM of trying to prevent disease, rather than waiting to cure it. From the viewpoint of Nei-ching, Sustainable Medicine (SM) is a preventive medical system, based on effective, safe, readily available, inexpensive and renewable natural products. Nonetheless, the need for good clinical medicine still remains because modern circumstances do not permit sole reliance on preventive medicine (Lin *et al.*, 2003).

Little attention seems to have been given to the production aspect of animal agriculture in the curriculum of DVM degree. Udo Ter Meulen (1992), a German livestock expert who worked for some time in Pakistan in 80's described the pathetic livestock training and extension situation as thus: 'A practical farm training leading to a final qualification does not exist in Pakistan. It is possible to study agriculture [veterinary and animal husbandry] but there is no infrastructure. Advice on livestock feeding and management is practically non-existent. There are advisory officers in some livestock departments but they deal just with animal health and artificial insemination. They are qualified veterinary officers. Fodder growing, fodder production and ration formulation come under the Department of "Agriculture Advice" but so far no advice has been given in this field'. This undesirable trend does not seem to have changed much even to date. Livestock owners generally regard veterinarians as very good at treating the animals but they rate them very poor in advising them about nutrition, management, breeding, animal

housing, evaluation of farm economics, farm feasibility counseling etc. The initiation of composite 5-year degree program with the mandate to train veterinary students in animal health as well as production is a very welcome and wholesome development but the level of practical training in the realm of animal production leaves a lot to be desired. As per Regulation No.24 of Pakistan Veterinary Medical Council (Standards of Conduct and Professional Ethics of Veterinary Practitioners) Regulations, 2002, both animal production and health are the mandates of veterinarians. This regulation reads thus:

A veterinarian shall strive for the betterment of animal production through timely advice on scientific management involving economically viable and hygienic housing, adoption of scientific breeding schedules, disease prevention routines, reproductive health monitoring, hygiene and systematic care, care of new born, hygienic collection of farm products and proper disposal of animal products and wastes.

He [she] shall strive to educate the public and para-veterinary staff regarding timely insemination and aseptic handling during artificial insemination and discourage the unscientific and unhygienic inseminations.

It follows therefore that practical training of DVM students in the area of animal production (management, nutrition, breeding, housing etc.) needs to be beefed up. Unfortunately, however, an adequate infrastructure, paraphernalia and faculty needed to address the deficiency in the training of DVM students in the area of animal production does not exist at any veterinary educational institution in Pakistan. Whereas thousands of dairy farms/poultry farms operating on scientific lines have recently sprung up in the country, animal housing, breeding, nutritional and management practices at the dairy farms/poultry farms attached with the veterinary educational institutions are so archaic that they do

not dovetail with the training needs of DVM students who are supposed to be the future stewards of dairying/poultry farming in Pakistan.

It is important for the veterinary education to be relevant to the current and future expectations of farmers as well as employers which may be government agencies, private poultry and dairy industry, military, pharmaceutical industry and regulatory agencies etc. The needs and expectations of the employers have been neglected in the training thus far. Veterinary education institutions should periodically hold meetings with the employers of veterinary graduates and other stakeholders and solicit their opinions and expectations concerning the areas in which veterinary students should be trained and also try to spot areas where training needs to be strengthened (Khan, 2008).

Veterinary education institutions have poor linkages with extension activities. As a corollary, there is inadequate feedback on farmer's problems and aspirations that could influence the re-structuring of courses and syllabi (Muhammad *et al.*, 1992).

Veterinary education has been geared towards training of veterinary students as general practitioners. They are expected to treat a wide variety of species such as cattle, buffalo, poultry, small ruminants, equine and dogs. Thus the exposure of trainee veterinarian in DVM degree program is 'a mile wide and one-half inch deep' so to speak. There is a need to evolve a mechanism of imparting specialty training with focus on a single species or a class of animals. The first known veterinarian of the world, Shalihotra (c. 2350 BCE) dealt principally with the horses (<http://en.wikipedia.org/wiki/Shalihotra>). Palakapya, who lived in Rigvedic period (2000-4000 BC.) dealt almost exclusively with elephant health (Somvanshi, 2006). Urlugladinna (2200 BC.), the oldest known healer of the Mesopotamia was principally a bovine obstetrician (Schwabe, 1984). It is an oddity that

species speciality training does not exist in the present day DVM degree program. Courses on such species specialities as equine medicine, companion animal medicine/surgery, poultry medicine, dairy herd health, small ruminants health etc. can be introduced as electives in the 5th year of the DVM degree program.

Up until recently, there has been no extramural training of the veterinary students. Thus the much needed exposure of the students to the realities of the 'real world' has been lacking. The Internship Program in the current veterinary degree program addresses some deficiencies in training of the students in 'real world' but this program is beset with many problems right in its heart. In addition to internship program, the veterinary students should undergo a preceptorship program at least once during their summer semesters of 5-year DVM degree program by spending 1-2 months with an experienced practicing veterinarian. Each student must be rotated periodically during the internship (after completion of 9 semesters) on government and private dairy farms, zoo, poultry farm, goat farm, feed mills, equine breeding studs, army dog center etc. Internship on civil veterinary hospitals should be discouraged.

Clinical training of DVM students has sustained a setback in the revised scheme of study of DVM 5-years degree program. As a remedial measure, students should take additional clinical courses during one of the summer semesters after qualifying 5th semester of DVM. Niche and space for additional courses of animal health in the already crowded veterinary curricula can be created by reducing the courses of animal production. After all in B.V.Sc. and B.Sc. (A.H) (a twin degree on veterinary sciences and animal husbandry analogues to current 5-year DVM degree program) started in 1960's in Pakistan, the ratio of veterinary/animal husbandry courses was around 2:1 (Muhammad *et al.*, 1992).

All DVM students should take Proficiency Determination Exam of pre-clinical subjects after qualifying 5th semester and before taking clinical courses. Similarly, after completing 10 semesters, there should be a Proficiency Determination Exam of clinical courses to assess students competence for clinical practice.

In order to give animal exposure to the students, rotations to Veterinary Medical Teaching Hospitals should be introduced in 1st and 2nd year of the DVM degree program.

Although, veterinary degree is offered by a score of institutions, there is no mechanism to test and grant equivalence to the 'product' churned out by different colleges/universities. It is critically important to uphold the straight standards of veterinary education as most of the veterinary educational institutions in Pakistan are churning out 'half-baked' veterinarians, so to speak. Pakistan Veterinary Medical Council in collaboration with National Testing Service should initiate a theory and practical test of veterinary graduates earning their veterinary degree from any veterinary college/university in Pakistan. This test should be meant for appraisal of standard and quality of veterinary graduates and also for granting license of practice. It should be analogous to National Board Exam (North American Veterinary License Examination; NAVLE) of veterinarians in USA.

Although, there is a sizeable number (over 5 thousands) of commercial dairy farms in the country each maintaining at least 50 animals, the focus of training has exclusively been on individual animals and not on herd. A niche should be created in the DVM degree program for a separate course of dairy herd health. It goes without saying that dairy is far more important in the national economy than disciplines like poultry health for which a designated course already exists in the syllabi of 5-year DVM degree program.

A mechanism for distant learning to address the current deficiencies of field veterinarians is a dire need of the time. Pakistan Veterinary Medical Council (PVMC) and Livestock and Dairy Development Departments pressing are urged to approach Virtual University to fulfill this need by launching a tele-veterinary medicine program.

There are extremely compelling and cogent reasons to embrace and integrate Complementary and Alternative Veterinary Medicine (CAVM) in the curriculum of DVM degree program. Almost every case presented to a veterinarian has first been treated by the owners (Egenolf, 1990) by using indigenous therapies (ethno-veterinary medicine). A variety of ethno-veterinary recipes/potions, nostrums are now available in the market. Furthermore, there are several homeopathic preparations available in Pakistani market to treat a variety of disease conditions of animals. Paradoxically, however, the current training program/syllabi of 5-year DVM degree program do not give even a fleeting touch to the practices of Complementary and Alternative Veterinary Medicine (CAVM) that includes acupuncture, Reiki (spiritual practice developed in 1922 by Japanese Buddhist Mikao Usui), ayurvedic medicine, AcuTherapy, chiropractic and physical therapy, massage therapy, homeopathy, botanical medicine and nutraceutical medicine etc. Integrating CAVM into a veterinary medical curriculum does not constitute a blind endorsement; rather, veterinary schools have the responsibility to prepare their graduates for real-life practice situations, which includes assisting clients in making prudent healthcare decisions for their animal companions. The need for alternative medicine is being felt even in medical schools in USA. Nearly 2/3 of US medical schools in 1998 had included contents related to Complementary and Alternative Medicine (CAM) as part of a required course (Narda and Robinson, 2007; Noor, 1998; Barzansky *et al.*, 2000). Factors, including limited time availability in

an already crowded veterinary medical curriculum and inconsistent institutional support as an integral and legitimate part of the veterinary medical curriculum can make introduction of CAVM a daunting task for even a moderately receptive institution. The suggestion by some CAVM practitioners to “leave your ‘Western’ mind at the door” in order to wallow CAVM information uncertainly has no place in university-based veterinary medical training programs.

Of late, Pakistan has witnessed a growing proclivity of according priority to research and putting teaching and cognitive skill development on the ‘back burner’. Without venturing to belittle the importance of research, one can justifiably conclude that this is an unhealthy trend. To quote from Silver (1978) “a medical [veterinary] education that glorifies research while ostensibly preparing students for practice will provide society with neither the best doctors [veterinarians] nor the best investigators”. There is therefore, a need to strike a balance between teaching / training and research.

For each course, an expert should be identified who should act a Focal Person of that course for all veterinary teaching institutions in the country. This focal person should oversee and try to help improve the teaching of that course in all veterinary education institutions in the country.

DVM courses and syllabi pay little attention to indigenous livestock and in consonance with curricula of European countries, horse and dog are used as the ‘type’ animals particularly for teaching and dissection in the subject of veterinary anatomy. Teaching material related to important indigenous livestock (buffalo, camel, goat etc.) is scanty (Muhammad *et al.*, 1992). It is suggested that an appropriate focus on the indigenous livestock species focus be placed.

There are several redundancies in animal husbandry courses which if done away with will create room for more emphasis on animal health

courses, as well as for new topics like global warming, animal welfare, a practice ethics, organic farming, disaster management, and least cost feed formulations using software.

EPILOGUE

In sum, the future veterinary education in Pakistan ought to be considered as integrated whole with production and health being regarded as two sides of the same coin. After the completion of the DVM degree, students should be able to run their own enterprise (dairy farm, poultry farm, goat farming and private veterinary practice etc.).

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Scholar's Adv. Anim. Vet. Res., 2016, 3(1): 1-6.

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