A Status Report of Veterinary Education in Ethiopia: Perceived Needs, Past History, Recent Changes, and Current and Future Concerns

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ABSTRACT
Ethiopia, which owns the most important livestock resources in Africa, opened its first faculty of veterinary medicine in 1979. In 2003, in response to a government mandate to increase the number of veterinarians, four new veterinary faculties were founded, but these facilities still have very limited resources. Currently, quality standards and controls for veterinary studies are not established in Ethiopia, and the country does not have any type of veterinary council or oversight body to establish such standards or the essential evaluation and credentialing procedures. The veterinary degree, as currently obtained in Ethiopia, is not internationally recognized. A second specific concern for veterinary education in Ethiopia is that it is not well adapted to the special needs of the country. Clearly, quality control of veterinary education needs to be established, and teaching methods and materials need to be adapted to the special needs of the country.

So far, the veterinary faculty in Ethiopia has been more interested in partnerships with universities from developed countries than in partnerships and cooperation with other African universities. In 2002, after six years of cooperation with a German university, the Veterinary Faculty at Addis Ababa started its own post-graduate program, with some key contributions from foreign instructors and some foreign funding. While this has been a service to Ethiopian veterinary medicine, the cooperation of the Ethiopian veterinary schools with African universities must also be strengthened. Overall, the good efforts to date in Ethiopian veterinary medicine have only barely scratched the surface of its critical needs. In order to meet Ethiopia’s needs for both a reliable and high-quality veterinary education and a trustworthy animal disease surveillance mechanism, it is important that veterinary education in Ethiopia be improved.

VETERINARY SERVICES NEEDS IN ETHIOPIA
Ethiopia has the most important livestock resources in Africa: an estimated 41 million cattle, 24 million sheep, 18 million goats, 7 million equines, 1 million camels, and over 50 million poultry.1 The majority of the population relies heavily on agriculture and animal husbandry. At present, Ethiopia has 616 veterinarians, 3,993 animal health assistants and technicians, and 1,375 community-based animal health workers. Over 87% of the veterinarians and 98% of the animal health assistants and animal health technicians work in the public sector.2 Until recently no private sector existed, but this has begun to change after the strong privatization efforts promoted by the Pan-African Control Program of Epizootics (PACE). The first private veterinary practices have now appeared, built on loan schemes, and now 12.5% of veterinarians are working in such private practices. Livestock is Ethiopia’s most important income source, and the Ethiopian government wants to improve the export of meat and other products of animal origin. A functioning system of animal health control and care is clearly of major economic importance, especially in relation to international trade requirements. Four new veterinary faculties opened in 2003 in Ethiopia, as a consequence of government insistence on the need for more trained veterinarians in order to be able to promote the export of meat, hides, and skins to the European Union and other countries.

THE ESTABLISHMENT, HISTORY, AND CURRENT PROGRAM OF THE VETERINARY FACULTY IN ADDIS ABABA
Until 1950, the only veterinary faculties in Africa were located in South Africa, Sudan, Egypt, and Nigeria.3 In 1963, an Institute for Animal Health Assistants was founded in Ethiopia, where animal health assistants were trained in a two-year diploma program.4 Ethiopian students who wanted to study veterinary medicine had to do so in foreign countries, such as the Soviet Union, East Germany, Cuba, France, and the United Kingdom. In 1979 the Faculty of Veterinary Medicine was founded at Addis Ababa University (AAU). The veterinary faculty is located in Debre Zeit, a small town about 50 km (30 mi) from Addis Ababa, in the immediate neighborhood of the National Veterinary Institute and the International Livestock Research Institute’s experimental station. In addition to these, Debre Zeit is in the midst of a large livestock-owning community and commercial farms of beef, poultry, and swine.

In 1989, the Institute of Animal Health Assistants was integrated into the Faculty of Veterinary Medicine (FVM). The FVM now runs two educational programs: a five-year doctoral degree in veterinary medicine (DVM), and a two-year diploma for animal health assistants. To date, the faculty has trained 488 veterinarians (of whom less than
10% are female) and 1,941 animal health assistants. The Addis Ababa FVM has nine academic departments: Basic Sciences, Anatomy and Embryology, Physiology, and Pharmacology and Biochemistry (pre-clinical); and Pathology and Parasitology, Microbiology, Infectious Diseases and Veterinary Public Health, Clinical Studies, and Zootec-nology (clinical). The faculty has one "open-air" veterinary clinic but no teaching hospital. It hosts the British non-governmental organization Donkey Trust, which performs extension activities in equine medicine. The faculty operates a beef fattening farm and a broiler and egg production farm.

Graduate Studies for the DVM Degree
The program for study for the DVM degree takes a minimum of five years and requires 181 credit hours. The Ethiopian School Leaving Certificate Examination is the entry requirement. The DVM program is divided into three parts. The first two years are devoted to pre-clinical courses, including 18 credit hours devoted to organic chemistry, anatomy, parasitology, embryology, physiology, histology, and genetics; 18 credit hours devoted to further anatomy and embryology, further histology, biochemistry, and animal nutrition; and 18 credit hours devoted to further biochemistry, two courses in parasitology, two courses in microbiology, pharmacology, clinical diagnosis, and immunology. The third and fourth years encompass 74 credit hours of clinical training in the areas of dairy management, obstetrics, surgery, large-animal medicine, poultry diseases, pathology, draft animal management, apiculture, small-animal medicine, epidemiology, and civics. The fifth year is allocated to 17 credit units of an externship program during which students may choose to undertake a farm animal practice, a field experience, a laboratory experience, and an abattoir experience; then, for nine months, students are deployed to various Veterinary establishments around the country. All students are required to submit a research thesis on animal health and production.

Post-graduate Education
The FVM has been active in the promotion of post-graduate training. In 1997, a joint two-year post-graduate master’s degree program in tropical veterinary epidemiology was started for African students at the University of Berlin (Freie Universität Berlin, or FUB), Germany, financed by the German Technical Cooperation (GTZ). The target group was young and mid-career veterinarians from East Africa. The implementing university in Africa was the University of Addis Ababa FVM. The first seven months of this post-graduate program were organized in modules at Berlin; the subjects offered were as follows: Introduction to the Use of Personal Computers; Methods and Applications of Statistics in Veterinary Epidemiology; Prevention and Control of Selected Livestock Diseases in the Tropics; Animal Production and Health Management, Project Planning, Management, and Livestock Economics; and Public Health Aspects of Zoonosis Control and Consumer Protection. The following three months were dedicated to the preparation of the thesis research project, the research for which was then undertaken in the participant’s home country over the next eight months. The final three-month period was devoted to writing, submitting, and defending the thesis, all of which took place at the FUB. Each student had one supervisor in Germany and one in Ethiopia. The degree of Master of Science in Tropical Veterinary Epidemiology was awarded jointly by the AAU and the FUB. Thirty-two master’s-degree students from Africa had been trained in this program when it finished in 2002; 13 of these were from Ethiopia.

In June 2002, the post-graduate MSc program transitioned from the joint program with the FUB, which officially closed with a workshop in Ethiopia in June 2002, to one run directly by the AAU FVM. Two new master’s degree programs were launched in 2002/2003: a Master of Science in Tropical Veterinary Epidemiology and a Master of Science in Tropical Veterinary Medicine. Modules taught in these programs include

- parasitology (3 credit hours)
- pathology (3 credit hours)
- epidemiology and economics (4 credit hours)
- microbiology (3 credit hours)
- immunology (2 credit hours)
- veterinary public health (3 credit hours)
- obstetrics and gynecology (3 credit hours)
- tropical animal nutrition and production (2 credit hours)
- seminar on current topics (1 credit hour)

A total of 24 credit hours, plus a thesis research project undertaken in the second year, is required for the master’s degree. A French project in the Ministry of Agriculture, financed by the French Ministry of Foreign Affairs and cooperating with the French Centre of Agricultural Research for Development (CIRAD), agreed to contribute by sending professionals as teaching personnel from France. The first group of 12 master’s students finished in June 2004. They received foreign support (in French institutions) in executing their thesis work, and a bilateral connection was established with a French veterinary school. The second group of 11 master’s degree students started in 2003. At the end of the first MSc course, an internal evaluation of the program was undertaken, with the assistance of some foreign professors, but as yet no external assessment based on approved methodologies and objectives has been undertaken.

CURRENT PROGRAM LIMITATIONS FOR THE ADDIS ABABA VETERINARY SCHOOL
The Addis Ababa FVM certainly would like to meet the needs expressed by the Ethiopian government to increase the number of veterinarians and post-graduate-trained veterinarians, but some difficulties exist in satisfactorily attaining this goal. The capacities of the Addis Ababa faculty, especially in terms of practical training, are not at all sufficient for the 140 students admitted. The number of teaching staff is insufficient, and lecturers have had to be hired on short-term appointments from other countries (Cuba and India). A critical evaluation of the quality of the courses offered does not exist, and standards for veterinary theoretical and practical education have not been defined.
A veterinary licensing board does not exist in Ethiopia, despite the drafting of regulations to provide for the registration and licensing of animal health professionals and for the exercise of the veterinary profession.

THE CURRENT STATUS OF THE FOUR NEWLY CREATED ETHIOPIAN VETERINARY SCHOOLS

In 2003, four new veterinary faculties were founded in the towns of Alemaya (near Harar, Oromiya Region, about 500 km/300 mi from Addis Ababa); Jimma (Oromiya Region, about 600 km/360 mi from Addis Ababa); Awassa (Southern Nation and Nationalities People’s Region, about 200 km/120 mi from Addis Ababa); and Mekelle (Tigray Region, about 700 km/420 mi from Addis Ababa). Sixty (Awassa, Alemaya) and 80 (Jimma, Mekelle) students, respectively, matriculate into these institutions. Alemaya and Jimma have five academic staff members each; Mekelle has eight and Awassa six. The education program is purely theoretical because of the total absence of facilities for practical training. Information concerning the education programs and the quality of academic staff is scarce or nonexistent. Course quality and content have not been assessed, nor have they been examined by the FVM in Addis Ababa. Former animal health assistant trainers have been recruited as academic staff. There is no access to teaching material for the students if they are not able to go to Addis Ababa, and there are no libraries at any of these facilities, nor have Internet connections been established. The locations of the new institutions, with the exception of Awassa, are difficult to reach because of deficient roads. Mekelle and Alemaya can be reached by road or by plane, Awassa and Jimma only by road.

CRITICAL NEEDS AND CONCERNS WITH THE STATUS OF ETHIOPIAN VETERINARY EDUCATION

The veterinary program in Ethiopia has followed the politics of extension and production of veterinarians instead of reflecting upon its role, on the needs and realities of the country, and the importance of establishing veterinary education programs with the essential level of quality. Government proclamation 4/1995 empowers Ethiopia’s Ministry of Education to determine criteria for admission to higher institutions and qualification requirements for personnel. Nevertheless, a quality standard of education for DVM or MVSc degrees has not been established in Ethiopia. Facilities for practical training are deficient in the Addis Ababa FVM and do not exist in the four new faculties. The number of academic staff in these new faculties is far from sufficient; their quality and the content of the courses offered are not monitored either by the faculty in Addis Ababa or by any other means. The teaching methods are old-fashioned. It is important to introduce modern didactic and participatory methods and practical training of the type discussed by Iles if the retention rate is to reach between 80% and 100%, as hoped by the government, rather than the much lower average retention of knowledge or skills achieved by classical lectures alone.

A national veterinary council needs to be established, as referred to in Articles 16 and 17 of the Ethiopian Animal Diseases Prevention and Control Proclamation. This council should establish and enforce quality standards for veterinary education and should focus on achieving an internationally recognized degree. Regulations for the four new veterinary faculties need to be enacted, although it may be that, instead of keeping up the cost-intensive process of creating new faculties in remote areas, it would be more realistic to transfer the students and academic staff of these new faculties to Addis Ababa and to integrate them into the Addis Ababa FVM.

Cooperation with universities in developed countries is useful and advisable for research programs but cannot ensure basic quality for teaching programs. For example, the French instructors invited for the master’s degree program in 2002 and 2003 stayed only one or two weeks, were not always fluent in English, and taught using a “top-down” approach. This French contribution to the project in Addis Ababa should be viewed primarily as a short-term intervention, since it creates a project-dependent mentality rather than a definitive long-term improvement in veterinary education.

The course content of Ethiopia’s veterinary education program should be adapted to the needs and realities of the country, without neglecting highly specialized fields. Verster has pointed out, for example, that parasitology teaching in African universities follows schemes that are not appropriate to African countries. As an example, the importance of ticks and tick-borne diseases for Africa is not adequately treated in parasitology teaching materials that come from Europe, since this subject is less important in European countries. Sylvester underlines the importance of adapting the teaching program to regional and cultural features and applying the results of pedagogical research in the design of teaching methods. Following these recommendations, the direction of veterinary graduate studies in Ethiopia should be much more oriented toward small-holder, mixed-farming systems and to pastoralist systems, including nutrition, care for draught animals, animal production, emergent transboundary diseases, and zoonoses, rather than to subjects such as small-animal surgery. What would appear to be particularly helpful, as pointed out by De Deken et al., would be for veterinary faculties in Sub-Saharan Africa (including Ethiopia) to institute a formal feedback system whereby program graduates contribute to periodic reviews of the curricula, which would then help to orient the veterinary education program to the true veterinary needs of the region and the continent. These authors recommend strengthening the regional collaboration and establishing a committee of deans and a regional accreditation system. Setting up better contacts with other African universities should help with this focus.

Ethiopian veterinary education is clearly currently at an embryonic stage. It is critical that it be nurtured, both internally and externally, both to meet internal Ethiopian needs (establishing a reliable and high-quality veterinary education) and for the consequent global implications: permitting Ethiopia to reliably monitor and control animal diseases and thus become a trustworthy exporter of animal products.
REFERENCES


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