

The adjustment of curricula in veterinary faculties in sub-Saharan Africa

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Summary

A survey was conducted by questionnaire to assess the current undergraduate curricula in the veterinary faculties of sub-Saharan Africa. The survey also examined how such curricula are adjusted for crucial developments in the veterinary field, such as privatisation, decentralisation and globalisation, with the increasing risk of transboundary diseases. The results demonstrate that most of these faculties face serious shortages, both in their budgets and of qualified personnel. Most faculties do not have formal feedback systems to allow former graduates to contribute to periodic reviews of the curricula. Although some north-south and south-south collaboration exists among African veterinary faculties, more intensive regional collaboration at both undergraduate and postgraduate level would allow optimal use of the available funds and human resources. The creation of a regional veterinary council and a committee of deans would be an excellent step forward in ensuring internationalisation and harmonisation of veterinary education and establishing a regional accreditation system.

Keywords

Curriculum – Education – Harmonisation – Internationalisation – Sub-Saharan Africa – Transition – Veterinary education – Veterinary faculty.

Introduction

Providing scientific education of the highest quality involves offering training which meets the needs of that particular society and is attractive to the student, while he or she learns skills directly applicable to his or her future working situation. Therefore, to remain relevant to the changing national, regional and international conditions in the livestock sector, university curricula must be updated regularly.

Over the past few decades, the veterinary profession has been confronted with major changes and constraints, particularly in Africa. Civil servants and veterinary graduates have been forced to become private practitioners, due to economic restructuring programmes, the ensuing privatisation of Veterinary Services and suspension or 'freezing' of recruitment in the public service. Furthermore, in some countries, distrust between professional and para-professional animal health service providers leads to competition and dissension instead of symbiotic collaboration and a well-balanced division of tasks between these groups. Around the major African cities, intensification of livestock production systems is occurring so rapidly that the veterinary

profession is not always sufficiently prepared to meet this challenge. Climatic changes, industrialisation and an increased interest in game farming have led to changes in animal production systems, requiring appropriate adaptations in veterinary practice. Food safety and export regulations for animal products are becoming increasingly strict, due to the globalisation of international trade, emerging transboundary diseases and regulations designed to protect internal markets.

Although the traditional basic veterinary training structure should be maintained to ensure international recognition of qualifications and effective professional interactions, it is obvious that veterinary faculties will be required to adjust the emphases on their different disciplines and to introduce new sub-disciplines into the training. The need for re-orientation and periodic reviews of the veterinary curriculum has already been stressed by several authors (9, 12). However, decisions about which new topics should be introduced will depend on the circumstances in the field, which are expected to vary from region to region and from country to country.

In times when expenditure is restricted, it is quite difficult to respond efficiently to such challenges. For this reason, the

experiences of different veterinary faculties in the area of curricular review can be very instructive. These experiences can aid in identifying priority areas where meagre resources can best be deployed.

A questionnaire was developed and sent to most of the veterinary faculties in sub-Saharan Africa, to assess the current university undergraduate curricula in veterinary faculties and determine how they address crucial developments in the veterinary field, such as privatisation, decentralisation and the need to comply with ever more rigorous disease control standards, such as the Sanitary and Phytosanitary Measures of the World Trade Organization.

Assessment of the current curricula of veterinary faculties

Five out of fifteen faculties answered the questionnaire. Fortunately, the range of responding institutes provided a comprehensive picture of veterinary training institutes in East, West, Central and southern Africa. Table I presents more information about each of these faculties.

Table I
Additional information on the five veterinary faculties in sub-Saharan Africa which participated in the survey of undergraduate curricula

Veterinary school or faculty	A	B	C	D	E
Established since	1982	1979	1968	1963	1990
Length of the veterinary training programme (in years)	5	6	6	5	6
Number of students entering training in 2002	56	55	69	90	5
Number of students graduating in 2002	25	24	35	30	4
Government (G) or private (P) funding	G	G	G	G	P

A: Faculty of Veterinary Science, University of Zimbabwe, Harare, Zimbabwe
 B: Faculty of Veterinary Medicine, Addis Ababa University, Debre Zeit, Ethiopia
 C: École Inter États des Sciences et Médecine Vétérinaires, Dakar, Senegal
 D: Faculty of Veterinary Medicine, University of Nairobi, Nairobi, Kenya
 E: Faculté de Médecine Vétérinaire, Université Catholique du Graben, Butembo (Nord-Kivu), Democratic Republic of Congo

However, since the responding faculties belong to the most reputable institutions of sub-Saharan Africa, the answers which were obtained should be interpreted with caution, as they may give a more positive image than one would normally expect from such a questionnaire.

The World Veterinary Association recommends that university veterinary training should take at least four and preferably five to six years (7). All faculties which participated in the survey fulfilled this requirement, since all have programmes lasting from five to six years. One-third to one-half of the number of

students entering the faculty obtained a diploma, which indicates that a serious selection programme is implemented during training.

The four tables presented in this paper summarise the answers of the five veterinary faculties which participated in the questionnaire. Table II provides information about new subjects which have been introduced into undergraduate and postgraduate curricula. These new subjects are also available as short-term training or 'refresher' courses to help young veterinarians to survive in the private sector.

Table II
Subjects introduced into veterinary training programmes specifically to help graduates working in the private sector in sub-Saharan Africa

Subject	Number of veterinary faculties (out of 5) which have introduced the subject into their curriculum		
	Undergraduate course	Postgraduate course	Refresher course
Artificial insemination	3	1	1
Business skills/book-keeping	5		
Advising livestock farmers	3		
Ethno-veterinary medicine	3		
Food hygiene and food quality control	5	1	
Natural resource management	3		
Project management	4		
Quality control of Veterinary Services	1	1	
Wildlife production and health	3	1	

Since the privatisation of veterinary delivery systems has resulted in the establishment and proliferation of private practices, most faculties have introduced business and project management, food quality control and artificial insemination into their training to prepare their graduates for the private sector. Wildlife production and management is also accorded a special place in most curricula as this sector is gaining importance in developing countries. Mixed livestock and wildlife farming is becoming more common, and the role of wildlife in attracting and promoting tourism is well known. As veterinarians should also possess social skills to enable them to interact with colleagues and members of the public successfully, communication skills and sociology courses have also been introduced into the programmes of some faculties.

A very successful initiative has been undertaken by the veterinary school of Dakar, the École Inter États des Sciences et Médecine Vétérinaires (EISMV), which organises a two-week training course for young veterinarians who want to start a private practice. As a result of its success, this course has also

been given in many other West African countries (A.F. Abiola, personal communication).

As demonstrated in Table III, traineeships in private veterinary practice are the principal new method of education delivery recently introduced by these faculties into their undergraduate training programmes. As more veterinarians set up private practices, this type of training is more easily organised. The veterinary faculty of Harare provides a different emphasis in its teaching methodology; that pre-clinical subjects (mainly anatomy, physiology, biochemistry and pharmacology) and para-clinical subjects (such as microbiology, parasitology and pathology) should no longer be taught descriptively but from a practical point of view, focusing on the importance of these subjects in clinical practice.

Table III
New methods of education delivery introduced into veterinary training programmes in sub-Saharan Africa

Method of education delivery	Course level	Number of faculties (out of 5) which introduced the subject (year of introduction)
Traineeship in private veterinary practice	U	4 (1984/1997/1999/1999)
Refresher course for graduates	P	3 (1994/1994/2001)
MSc courses in modular form allowing graduates to attend some of the modules	P	1 (1996)
Traineeship in animal production units	U	1 (1999)

U : undergraduate
P : postgraduate
MSc: Master of Science

Former graduates attach great importance to regular refresher courses, especially if they focus on issues of interest to the local practitioner. Four of the five faculties reported the organisation of refresher courses or Master of Science (MSc) courses in modular form. Continuing education, organised by local veterinary faculties or professional veterinary associations, could be used as a criterion for future licensing, since, in the absence of such an incentive, many veterinarians may not keep pace with the changes in their profession (14). Some interesting thoughts about continuing professional development for animal health staff in developing countries can be found in the proceedings of the Tenth Conference of the Association of Institutions of Tropical Veterinary Medicine (AITVM) (6).

Table IV demonstrates that all five faculties organise up-to-date training on the surveillance of transboundary diseases and the disease control requirements for trade in animal products. However, these courses may occur at different levels (as undergraduate, postgraduate or refresher courses). As

Table IV
Up-to-date training in sub-Saharan African veterinary faculties on the disease control requirements of domestic and international markets and the control and prevention of transboundary diseases

Subject	Number of veterinary faculties organising training (out of 5)		
	Undergraduate course	Postgraduate course	Refresher course
Epidemiology and epidemiosurveillance	2	2	1
Food safety and food quality control	2	2	1
International import and export regulations	2	2	1
Laboratory diagnosis of infectious diseases	3	2	1

preventive medicine and disease monitoring of herds both aid in reducing the occurrence of emergency situations, in addition to providing information for early-warning systems, epidemiosurveillance is strongly emphasised within training. Regulations on international trade are also included within the curricula as globalisation becomes a reality throughout the world.

Curriculum review

The questionnaire included a number of questions about curriculum review methodology. The results are summarised below.

Information from graduates on the relevance and methodology of the training programme

Although former graduates can give the most pertinent information on the relevance of their training, most veterinary faculties do not have a formal reviewing process or 'feedback system' designed to regularly consult graduates. This kind of review process or 'follow-up' is essential, as the curricula in many of these veterinary faculties were originally copied from European models and are often not entirely appropriate to local field conditions. Nevertheless, all five responding faculties do review their curricula in some way and some implement structural or educational reforms as a result of recommendations from the field. An appropriate example of curriculum review, following a survey of state and private veterinarians and other stakeholders in Uganda, was reported in 1999 (9). The survey indicated that there was a great need for training in the following areas:

- business management
- wildlife management
- farm management

- economics
- epidemiology
- non-conventional animal production, such as ostrich or crocodile farming.

However, reforms are often decided at departmental rather than faculty level, and are not always endorsed by the university management, often because of financial constraints.

Curriculum review committee

All participating faculties have a committee (sometimes at departmental level) which monitors the changing profiles, training needs and expectations of current and future students and responds to new professional challenges. In all faculties, this committee has initiated changes in curriculum content and, in most faculties, it has also instigated structural reforms (such as the establishment of modular or tailor-made courses) and educational reforms (such as study load and changes in teaching methods). Usually, major reforms must first be endorsed by specific committees established by the university. One faculty states that its major reforms have limited success rates due to financial constraints and the absence of an effective regional body to co-ordinate structural reforms.

Specific constraints against changes in veterinary curricula

All five faculties stated that a shortage of financial resources is a major constraint in changing or revising programmes. Three out of five faculties reported a shortage of qualified personnel and a lack of continuing education programmes. Considering the difficult economic situation in many African countries, this is not at all surprising. In fact, for many African countries, maintaining a veterinary faculty is too expensive because the high cost of training a veterinary student exceeds the training costs of any other university programme (15). The creation of a regional veterinary faculty, such as that in Dakar (EISMV), which involves thirteen West African countries (Benin, Burkina-Faso, Cameroon, Côte d'Ivoire, the Democratic Republic of Congo, Gabon, Mauritania, Niger, the Central African Republic, Rwanda, Senegal, Chad and Togo), is an excellent example which deserves to be followed. This approach allows for the maximum use of all available financial and human resources. Unfortunately, several African countries seem to wish to establish their own veterinary faculty, although it is commonly accepted that there are already enough veterinary schools in Africa. The Government in Ethiopia apparently has plans to establish several additional veterinary schools (A. Getachew, personal communication). Similarly, increased collaboration among existing veterinary faculties in the field of postgraduate training might also permit the optimal use of existing expertise and facilities. Six veterinary faculties (those of the Democratic Republic of Congo, Mozambique, South Africa, Tanzania, Zambia and Zimbabwe) are

participating in a planned regional MSc course in tropical animal health and food safety for the Southern African Development Community. This is an encouraging example of regional collaboration, which would minimise duplication and improve the quality of training by combining resources (5). Unfortunately, due to lack of funding, this course has not yet started.

The current level of funding in most sub-Saharan faculties does not allow for adequate investment in curricular review and educational and structural reforms, because, in many of these faculties, increasing numbers of students must be accommodated with limited funds. If academic standards are to be upheld, shortages will have to be met by a combination of the following:

- increased financial allocations from the government
- donor funding
- increased student fees
- better use of existing resources to achieve goals.

Alternatively, the number of students allowed to begin veterinary studies may be restricted in some countries, as is the case at the veterinary faculty of Dakar. However, employment opportunities for graduate veterinarians in Africa differ greatly from country to country. Some countries (e.g. Guinea, Gabon, Malawi, Mauritania) experience a shortage of veterinarians, whereas, in many other African countries, the number of graduating veterinarians far outweighs the demand for them.

Applying information and communication technology to teaching and research may also help to provide easy access to sources of information, and would enable the introduction of new interactive learning methods which may overcome some of the problems associated with high enrolments.

The suggestion by one of the consulted faculties of establishing a regional council of veterinary faculty deans could lead to enhanced collaboration and the exchange of staff between regional veterinary schools, as well as to improved standardisation of curricula and continuing education possibilities for former graduates. Such initiatives are essential, as the knowledge and skills of many veterinarians vary widely, depending upon where they were trained and how recently, and, moreover, as postgraduate training or refresher courses for teaching staff are limited.

Integration of different levels of livestock service providers

As the relationship between veterinary professionals and para-professional or non-professional service providers is sometimes very difficult in many countries of sub-Saharan Africa, the veterinary faculties were asked whether they were involved in attempts to integrate the different levels of livestock service

providers. Three out of five faculties were involved in such attempts. In Kenya, for instance, the veterinary faculty – in collaboration with the Kenyan Veterinary Association and the Veterinary Board – organises continuing professional development programmes for veterinary and para-veterinary personnel. In many countries in sub-Saharan Africa, the laws and regulations controlling the delivery of services by different service providers are not enforced effectively (4), and there is an urgent need for authorities to address this problem. Furthermore, this aspect of animal health services should be incorporated into the undergraduate curriculum of veterinary faculties. In an effort to resolve the conflicting interests of veterinarians and para-veterinarians, several organisations, such as *Vétérinaires sans frontières* and the Alumni of the Institute of Tropical Medicine in Antwerp, have attempted to gather these two groups together to discuss the problems and define the specific tasks of each profession (8, 10). Similar meetings of veterinary students and para-professionals or non-professional service providers during their university training might be very useful.

Exchange or collaboration programmes in the field of veterinary education

All five faculties which participated in the survey were involved in exchange or collaboration programmes with other institutes, at both the undergraduate and postgraduate levels. In most cases, this collaboration consisted of mobility of teaching staff and the exchange of students. Competition for public funding has become increasingly crucial in the African situation and thus opportunities for collaboration and financial support are often sought outside the region. This may explain why two faculties are involved in collaboration programmes solely with European or American universities (north-south collaboration), while the other three faculties collaborated almost exclusively with African universities (south-south collaboration). Both types of arrangement are extremely useful for upgrading the quality of veterinary education in Africa. The experiences and practical problems involved in implementing a joint postgraduate training programme between a European university and an African veterinary faculty have been described in detail (11, 13).

Harmonisation of veterinary curricula, mutual recognition and accreditation

Attempts to harmonise veterinary curricula have been made but often only at the sub-regional or national level. A few of the interviewees mentioned a recent initiative of the Food and Agriculture Organization and a workshop in South Africa on this matter (F. Musisi, personal communication).

For the EISMV at Dakar, this question is not relevant since this veterinary school caters for most of the French-speaking countries in the region. Harmonisation of the veterinary curricula in the two veterinary faculties of the Democratic

Republic of Congo, on the other hand, resulted in official recognition of diploma equivalence between both institutes and enhanced collaboration between these two faculties.

With the Sorbonne (1998) and Bologna Declarations (1999) (1, 2), Europe stated its intention to harmonise the higher education system through the following methods:

- by offering comparable degrees and titles for each educational discipline throughout Europe
- by promoting increased mobility of educators and students in Member States through the establishment of a European credit transfer system
- by enhancing co-operation between educational institutes
- by reinforcing quality control of training programmes (2).

Similar initiatives exist among African educational institutes but on a much smaller scale. They have resulted in the establishment of several different institutions, e.g. the Association of African Universities, as well as *le Conseil Africain et Malgache pour l'Enseignement Supérieur* for French-speaking countries. However, in the past, attempts to harmonise curricula and degrees were often made only at the national or sub-regional levels and only by certain faculties. Therefore, the formation of a regional veterinary council and a committee of deans would be an excellent first step in ensuring the internationalisation and harmonisation of the veterinary education system. Such a council could establish a regional accreditation system to allow the free movement of veterinarians between countries, as suggested by the AITVM (3).

Conclusion

It can be concluded that there is an urgent need for a formal feedback system to periodically review the veterinary curriculum. This system should ensure contributions from former graduates and other stakeholders. Although some faculties participate in north-south and south-south collaboration, more intensive regional collaboration among veterinary faculties at both undergraduate and postgraduate levels would allow the optimal use of human resources and funding. Eventually, such collaboration would lead to a high quality veterinary education whose graduates are flexible professionals, knowledgeable in the field of animal health and production, computer literate, trained in business skills, and who will be job creators rather than job seekers.

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Université Catholique du Graben, Butembo, in the Democratic Republic of Congo.

L'adaptation des cursus dans les facultés de médecine vétérinaire de l'Afrique subsaharienne

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Résumé

Une enquête a été réalisée par voie de questionnaire pour évaluer l'état actuel des cursus au premier cycle des facultés de médecine vétérinaire d'Afrique subsaharienne. Dans le même temps, l'étude visait à déterminer dans quelle mesure ces cursus avaient été adaptés pour tenir compte des changements profonds qui sont intervenus dans le domaine vétérinaire (privatisation, décentralisation et mondialisation, par exemple) et qui augmentent le risque d'apparition de maladies transfrontalières. Les résultats de l'enquête ont révélé que la majorité de ces facultés étaient confrontées à de graves difficultés financières et à une pénurie de personnel qualifié. La plupart d'entre elles ne disposent d'aucun dispositif formel de remontée de l'information qui permettrait à leurs anciens élèves de contribuer aux révisions périodiques des cursus. Bien que des collaborations nord-sud et sud-sud existent dans les facultés africaines de médecine vétérinaire, un renforcement de la collaboration régionale, que ce soit au niveau du premier cycle ou des deuxième et troisième cycles universitaires, permettrait d'optimiser l'utilisation des ressources financières et humaines disponibles. La création d'un conseil vétérinaire régional et d'une commission de doyens constituerait un pas important vers l'internationalisation et l'harmonisation de l'enseignement vétérinaire et vers l'établissement d'un système régional d'accréditation.

Mots-clés

Afrique subsaharienne – Cursus – Enseignement – Enseignement vétérinaire – Faculté de médecine vétérinaire – Harmonisation – Internationalisation – Transition.

Adaptación de los programas de estudios de las facultades de veterinaria en el África subsahariana

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Resumen

Los autores describen una encuesta realizada mediante cuestionario para evaluar los programas de estudios que siguen actualmente las facultades de veterinaria del África subsahariana. La encuesta sirvió también para analizar el modo en que esos programas de estudio se modifican para responder a una serie de cambios fundamentales que tienen lugar en el sector veterinario, tales como la privatización, la descentralización y la mundialización, así como el mayor riesgo de enfermedades transfronterizas que de ahí se sigue. Los resultados

demuestran que la mayoría de dichas facultades sufren una grave penuria tanto económica como de personal cualificado. En su mayoría carecen de mecanismos establecidos para incorporar la experiencia de los antiguos alumnos a la revisión periódica de los programas de estudios. Aunque algunas de ellas participan en actividades de cooperación Norte-Sur o Sur-Sur, para que puedan extraer el máximo rendimiento de sus recursos económicos y humanos es necesaria una intensa colaboración de ámbito regional en todos los niveles, desde los cursos de pregrado hasta los de postgrado. La creación de un consejo veterinario regional y un comité de decanos supondría un gran paso adelante de cara a la internacionalización y armonización de la enseñanza veterinaria y a la implantación de un sistema regional de convalidaciones.

Palabras clave

África subsahariana – Armonización – Enseñanza – Enseñanza veterinaria – Facultad de veterinaria – Internacionalización – Programa de estudios – Transición.



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