

Preface

Critical questions for veterinary education on global veterinary public health

One of the most critical questions currently facing veterinary medicine, and in consequence veterinary medical education, is that of how to improve global veterinary public health. Any improvements in this area must take into account the diverse components of global veterinary public health, which include:

- food animal medicine and its unique veterinary components
- food production and its safety and security
- the well-being and welfare of each animal species, especially those for food production
- wildlife and exotic animal health
- ecosystem health, ecological integrity, renewable resource management, and the relationships between ecosystem health and human and animal health
- the transmission of disease among and between animals, including companion animals, and humans
- an understanding of the agents of disease and their varied modes of transmission and dissemination
- the handling of emergency situations that might arise in any of these components.

Each of these areas has far-reaching social and environmental consequences, and each must be considered and appreciated within local, regional and global arenas.

Change is needed in all segments of veterinary education – locally, nationally and globally – if global veterinary public health is to be improved. It is the responsibility of veterinary schools throughout the world (there are over 500) to recognise and accomplish this mission. Critically, improved training must occur not only for those veterinarians who will be directly working within these areas, but for all veterinarians, since all are spokespersons to the general public, especially regarding global veterinary concerns.

Those in veterinary education cannot meet these challenges alone. Government, the financial sector, the private business sector and the other segments of the health care profession must gain an understanding of these issues, but it is the responsibility of the veterinary profession to ensure that these diverse sectors are sufficiently informed about global veterinary public health issues.

But first, we must get our own house in order. The purpose of this issue of the OIE *Scientific and Technical Review* (the *Review*) is to encourage and facilitate the worldwide improvement of veterinary education and curricula in the expanding areas of global veterinary public health. To accomplish this, the papers in this compendium are devoted to the following questions: How can the current environment help promulgate these changes? What should be the essential global veterinary public health education for all veterinary graduates? How can students' perspectives be changed to encourage their appreciation of the importance of this critical evolution? What are the current global perspectives on the integration of veterinary public health education into the fundamental veterinary curriculum? How can modern directions of health science education help meet the need for enhanced global veterinary education in these crucial arenas? How can an agenda for change (using existing resources) be activated? Six steps are needed to fully achieve change, each of which will be outlined here.

Six steps to change

Establishing the essential elements of global veterinary public health training for all veterinarians

There are two levels of competence needed by veterinarians in global veterinary public health. The first level is needed by all students, independent of their subsequent career paths, since all will become spokespersons for the veterinary profession and educators of the general public on the essential issues of global veterinary public health. This is a critical task because without the general public being aware of the issues, there will be no support for them to be addressed and solved. The public also includes the families, teachers, and advisors of those who will enter into the profession to become global veterinary public health veterinarians. The authors of the 20 papers in the category of 'Essential global veterinary education for all veterinary graduates' in this compendium were given the task of describing the areas of knowledge and competence in global veterinary public health that *all* veterinary students should have by the time of graduation – the areas that every one of the current 500+ veterinary schools in the world should include as part of their required curriculum for all students. This ground-level training also serves as the key foundation for students who will be moving into global veterinary public health as a career and who will have to be able to implement the standards and guidelines of the World Organisation for Animal Health.

Establishing the training needs for global veterinary public health specialists

The second level of essential training should provide expertise to those who plan to devote their careers to global veterinary public health issues. As critical as it is to define these areas, we have chosen not to attempt to tackle this in this issue of the *Review*. This training will occur either after the initial veterinary degree has been obtained, or by some combined programme such as a DVM/PhD, DVM/Master of Public Health, or others. The training in each of these areas will occur in veterinary schools or other educational institutions that specialise in a few, or just one, of these areas, depending on a host of factors – the primary one being the specialised expertise of that institution's teaching staff. Most veterinary schools will probably have expertise at this depth in a few of these areas, but certainly not in all, or even most. The selection of areas to be covered and the depth of coverage will vary between universities, with each having its own unique specialisation. This type of training must, however, be distinguished from the training that *all* veterinary students should receive; for the latter, there is likely to be considerable similarity between veterinary schools.

Providing veterinary students with an appreciation of the relationship of veterinary medicine to the other health professions

If we are to improve key areas of global veterinary public health, veterinarians must cooperate with other health professionals to help promote change. Fortunately, there is a growing awareness of the overlap of responsibilities of veterinarians in different areas of veterinary medicine and, more importantly, an appreciation and discernment of the need for cross-fertilisation between the different health care professions. This environment is conducive to an improvement in global veterinary public health education, so it is critical that graduating veterinary students have an erudite understanding of the relationship between veterinary medicine and other health professions and are able to take advantage of the many opportunities there are for cooperation. The section of papers on 'The environment for change' explains these concepts well, and provides a good introduction to the issues in global professional cooperation to which all veterinary students should be exposed.

Creating curriculum change

The 20 papers in this issue that are devoted to 'Essential global veterinary education for all veterinary graduates' discuss areas of curriculum emphasis and coverage that are required to provide enhanced veterinary education and meet the needs of today's graduates. Significantly, as Dr Walsh emphasises in his introduction, altering a veterinary school curriculum can be fraught with considerable difficulty, 'like moving a graveyard' (2). With far fewer teaching staff than medical schools, many species to cover and a greater range of critical areas of veterinary proficiency to be taught, veterinary schools have had far fewer opportunities than medical schools to develop a cohort of faculty members with a specialised expertise in education that can lead the needed curriculum developments. However, the many deliberations underway in other areas of health science education provide examples of ways in which curriculum change in veterinary schools can be pursued. The set of 12 papers in the section 'Modern approaches to meeting the need for enhanced global veterinary education' within this compendium, have been written by some of our most knowledgeable veterinary education colleagues. These, and Dr Walsh's introduction, provide some good insights into directions that we can follow to achieve our goal.

Encouraging students to enter into careers in global veterinary public health

To achieve this goal, there is a clear need for veterinary curricula to provide students with the fundamental underpinnings of the issues of global public health, but the critical question is: 'Will this be enough to attract the needed number of students into this critical area?' Some of the data and considerations presented in this compendium of papers suggest that the answer might be 'definitely not'. The key question to address is thus: When do students choose the area of their veterinary careers? Is it during veterinary school or is it even before they enter veterinary school? The latter may well be the correct answer. How soon before they enter veterinary school might this occur? An intriguing paper by Andrews (1) in this compendium reports that the Royal College of Veterinary Surgeons in the United Kingdom has created a programme introducing veterinary medicine career opportunities to 14-16-year-olds. Veterinary educators must watch the results of this endeavour closely.

Validation

Once curriculum change has been implemented over a satisfactory period of time, it is vital to conduct an analysis to determine whether it has produced its intended result. Did it indeed meet the objectives that it was directed to achieve? Has there been a significant improvement in global veterinary public health, and has the veterinary community stepped up to provide at least a significant contribution to this change? As time passes we will probably have some insights of variable quality and reliability, but it will be critical to study the results with appropriate statistically valid tools. Unfortunately, such analysis is extremely rarely undertaken in the arena of curriculum change. The consequences of curricular change are often presumed to be positive, but this is usually not validated. The OIE will take steps to encourage this type of assessment – and others should do likewise. This compendium provides within it a good example of an in-depth, statistically compelling evaluation of a major veterinary curricular change.

These six steps form the basis for the creation of this compendium of 49 papers. I would like to thank the contributors for the excellence of their papers and I thank Dr Donal Walsh for his invaluable contribution as Coordinator of this *Review*.

Bernard Vallat
Director General

References

1. Andrews F.M. (2009). – Veterinary school admissions in the United Kingdom: attracting students to veterinary careers to meet the expanding needs of the profession and of global society. *In* Veterinary education for global animal and public health (D.A. Walsh, ed.). *Rev. sci. tech. Off. int. Epiz.*, **28** (2), 699-707.
 2. Walsh D.A. (2009). – Accomplishing essential curricular change. *In* Veterinary education for global animal and public health (D.A. Walsh, ed.). *Rev. sci. tech. Off. int. Epiz.*, **28** (2), 451-454.
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