New Approaches for Education and Training in Veterinary Public Health: The SAPUVET Projects

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ABSTRACT

Continued contact between humans and animals, in combination with the ever-increasing movement of human and animal populations that is one effect of globalization, contributes to the spread of diseases, often with detrimental effects on public health. This has led professionals involved in both animal health and public health to recognize veterinary public health (VPH) as a key area for their activities to address the human–animal interface. Veterinarians, a profession with major involvement in this field, are in need of specific knowledge and skills to prevent and control public-health problems. As a result, VPH must be directly integrated into veterinary educational programs. At present, only few veterinary schools have specific VPH programs; in most institutions, VPH does not feature as a specific subject in either undergraduate or post-graduate curricula. SAPUVET and SAPUVETNET II are network projects supported by the ALFA program of the European Union (EU). Their main objectives are to reach a common understanding between European and Latin American universities in the definition of the areas in which VPH is important in their respective countries, and to design a harmonized training program for veterinarians in VPH, by making use of new technological applications and innovative teaching methodologies. The elaboration of educational material in combination with case studies presenting real-life problems provides a basis to apply the knowledge acquired on VPH. It is envisaged that the material and modules developed during the two projects will be integrated into the veterinary curricula of the participating universities, as well as in other partner organizations.

Key words: veterinary public health; veterinary professionals; new teaching methodologies; case studies; harmonized training programs

INTRODUCTION

In the last several years, important international events such as the emergence of epidemic zoonoses (Influenza A, West Nile virus, Hendra Nipah virus, SARS), natural or human-induced disasters affecting animal populations (hurricanes, earthquakes, inundations), and collateral effects related to animal production (antibiotic resistance, animal welfare) have given rise to an urgent need for veterinary medicine to contribute directly to the field of public health. Since then the discipline of veterinary public health (VPH) has received increased consideration in educational institutions such as veterinary faculties. In some cases, VPH is now introduced as an important tool for the veterinary profession.[1]

For this reason, some international organizations have organized a number of events to open up discussions on the role of veterinary professionals in society and their contribution to public health. VPH subjects need to become an integral part of veterinary curricula, and there is an urgent need to harmonize the contents of VPH-related disciplines.

Examples of such events are the expert consultation forums on Future Trends in Veterinary Public Health organized by the WHO in 1999 and on Community Based Veterinary Public Health (VPH) Systems run by the FAO in 2004, as well as the development of some new organizations and bodies involved in VPH, such as the European College of Veterinary Public Health[1], and projects and networks such as SAPUVET and SAPUVETNET II,[2, 2] Med-Vet-Net,[3] the Emerging Diseases in a Changing European Environment (EDEN) Project,[4] and the European Consortium for Continuing Education in Advanced Meat Science and Technology (ECCEAMST).[5]

The initial question is, What is VPH? According to the World Health Organisation (WHO),[3, 4] VPH can be defined as "the sum of all contributions to the physical, mental and social well-being of humans through an understanding and application of veterinary science."[5]

According to this definition, we can conclude that veterinarians have an important role in various areas related to VPH, including

- International cooperation in the management of animals in areas affected by disasters
- Humanitarian assistance to countries affected by wars were animal populations are a survival resource for humans
- Improvement of animal movement and management strategies to prevent the emergence of diseases and their spread around the world
- The promotion of animal welfare as a way to improve food-production methods and respond to consumer demands

- The development of preventive strategies related to specific production systems to reduce problems linked to their application (e.g., antibiotic resistance and environmental impact)
- Sustainable management of the environment and the prevention of negative effects on human and animal populations
- Protection of animal health and public health through new health policies at national and international levels

In summary, veterinarians involved in VPH need to become acquainted with disciplines such as epidemiology, preventive medicine, ecology, law, and socioeconomics. New generations of veterinarians must acquire the above-mentioned knowledge and skills. This means that veterinary curricula should be in line with the changing role of veterinarians, from ''traditional animal doctors'' to ''quality assurance managers'' and ''VPH policy negotiators.'' Hence, veterinary curricula should include most of the above disciplines and should be equipped with ''new knowledge'' such as the communication and negotiation skills needed to manage, formulate, and implement animal health/VPH policies.[2, 6, 7]

The need to provide ''new'' knowledge and skills to the veterinarians of the twenty-first century requires veterinary educators to rethink a model for VPH education that integrates these new topics in the curricula of a variety of institutions. The SAPUVET networks grew out of this effort, with the main objectives of harmonizing VPH education in the veterinary faculties/schools involved in the project and designing a model of VPH education based on new technologies, distance learning, the problem-solving approach, case studies, and so on. The products developed were intended not only for the SAPUVETNET partner universities but also for all interested parties (students, educators, and professionals).

THE SAPUVET PROJECT

The existing relationships between certain European and Latin American veterinary schools (see Author Information section) stimulated the creation of a VPH network. A project proposal was submitted in 2000 and was approved and co-financed by the EU's ALFA program under the title Salud Pública Veterinaria [SAPUVET]: New Approaches in Veterinary Public Health. The main objective of the SAPUVET project was to exchange information on the status and role of VPH education within the countries represented by each institutional member of the network. Agreement was reached regarding the topics to be included in a harmonized VPH program across Latin America and Europe.

During the SAPUVET project, new teaching methodologies were used for a common training program on VPH. The application of these methodologies, delivered via the Internet, made use of the problem-solving approach and was based on case studies. Some difficulties were experienced, however, as a result of poor and sometimes unreliable Internet connections. The use of these modern communication/teaching methods in combination with written/theoretical material, partly in the form of PowerPoint[6] presentations designed by the members of the network, enabled some lecturers and students at the universities involved in the SAPUVET network to test—in some cases for the first time—a problem-solving approach and a modular teaching structure as an approximation, in virtual format, of real situations. The adoption of this innovative, more flexible, less teacher-dependent mode of learning has played a key role in the activities of the network.

In order to elaborate this educational program on VPH, we concluded, it was important to include information about three major areas in VPH: *epidemic emergencies*, including zoonotic diseases transmitted directly or by means of the food chain; *non-epidemic diseases*, including the impact on animal populations of natural or human-induced disasters; and *public-health problems linked to animal management*, such as antibiotic resistance transmission and issues related to animal welfare.

Examples of case studies in the various sections are botulism, cisticercosis, and Rift Valley fever (epidemic emergencies); aggressiveness in dogs, and chemical disasters (non-epidemic diseases); and effects of animal hoarding, multi-resistant salmonella, and swine streptococci (problems linked to animal management).[7]

These areas of VPH should be well known to veterinarians. Therefore, we decided to design the educational material to include both case studies and some basic theoretical documents to guide the students in solving these cases. The teaching material was prepared as text documents and slide presentations. A teacher's guide was also prepared to assist lecturers in preparing for and solving the cases presented. A student guide permits the student to go through each case presented. Teacher and student guides were prepared for each case study and presented with the theoretical material as a package.

This material was tested during the courses conducted by the participating universities in 2003, 2004, and 2005, and the results were presented and discussed at meetings organized by the network, one in Europe and one in Latin America each year. All the material was then included in a Web site with free access in both English and Spanish. Currently the teaching material available on the old Web site is being transferred to the SAPUVETNET site.

All the information and materials created during the project, from the project objectives to the educational material, were posted on the Web sites and organized into different modules. On the home page, the educational material can be accessed by clicking on Sapuvet Modules. Here all the case studies prepared during the project can be found, each including a teacher's guide, a student guide, and the actual case study in PowerPoint.

Together with the cases, some theoretical documents are also included on the Web site under the heading Theoretical Documents. These documents are presentations prepared by network members as well as other articles related to specific VPH topics from other organizations, groups, and persons, which can be provided as background material for solving the cases.

In addition, the Web site also includes a section titled Other Websites, where links to other Web sites, information, and

documents about related topics such as epidemiology and preventive medicine can be found or accessed.

During the project, at the same time that educational material was prepared, the project members organized a number of practical activities and discussions by making use of the virtual classroom presented through WebCT.[8] Students and lecturers at participating universities participated in these activities. In addition, a discussion list enabled the distribution of information among network members and provided a means of obtaining feedback on the use of the SAPUVET course materials in the various veterinary faculties.

Short exchanges between members of the network represented another aspect of the project. Participants from Europe visited veterinary faculties in Latin America and vice versa, and visits between Latin American veterinary faculties took place as well.

The SAPUVET project was finalized in 2003. The project was perceived to be very successful, and it was concluded that the use of methodologies developed had resulted in a useful educational tool for VPH teaching, especially on topics related to epidemiology, preventive medicine, and animal production. The free access to the information was highly appreciated by both professionals and students.

The material produced by the SAPUVET network has been tested, with excellent results, in the teaching of infectious diseases, epidemiology, and preventive medicine, as well as in post-graduate and continuing education on epidemiology and preventive medicine in animal health and public health.

Based on these results, we concluded that it was necessary to continue with the design of new cases to expand the existing courses for undergraduate and post-graduate programs, as well as to include the materials developed on the Web site; new strategies for the use of these materials in electronic conferences and courses still need to be further explored.

THE SAPUVETNET II PROJECT: THE WAY FORWARD

SAPUVETNET II is the result of these conclusions. In 2004 a new project proposal was presented to the ALFA program office of the European Union; it was accepted, and the contract was signed in 2005. The main objectives were to continue and to improve the activities related to VPH education that were carried out during the SAPUVET I project.

Activities in the field of VPH education are being expanded with the development of further training modules on new topics such as risk assessment/communication, certification, trade issues, emergency preparedness and response, and (re-)emerging sylvatic zoonoses. New case studies on every topic are also being designed.

Within the objectives of the new project, dissemination of SAPUVET teaching materials outside the network was foreseen. A VPH manual was to be prepared, containing all the theoretical background documents and the fully elaborated case studies, to serve as a teaching guide for professionals. This manual is presently being prepared in collaboration with another VPH network in Latin America (SPVet Red).

Another important educational objective of SAPUVETNET II is the publication of a twice-yearly newsletter that is freely accessible via the project Web site. In addition, the organization of an e-conference would further disseminate the experiences and products of the SAPUVET projects to all interested groups, including those presently outside the network.

In addition to creating new materials, we have redesigned the Web site, aiming for a more user-friendly and dynamic structure to browse and download free materials for courses and training programs. To achieve a wider international dissemination through the Web site, we plan to produce the training material in several languages. Spanish and English are currently available, and a Portuguese version is in preparation.

The new structure of the Web site contains the following sections: Project Brief, Project Objectives, Project Partners, Project Activities, Meetings and Seminars, Bilateral Exchange Visits, and, most importantly, the training module "Teaching Material SAPUVETNET II," which includes the new case studies, organized into *epidemic processes* and *non-epidemic processes*, and some audiovisual and theoretical materials. The Web site also features the SAPUVETNET newsletter, as well as publications and articles produced by the group.

The educational activities of SAPUVETNET II also include bilateral exchanges of lecturers and researchers from Latin American to European universities (from La Habana, Cuba, to Evora, Portugal, and from Leon, Nicaragua, to Zaragoza, Spain) as well as within Latin American universities (from Cochabamba, Bolivia, to Lima, Peru, and Heredia, Costa Rica, and between Lima, Peru, and Pilar and Buenos Aires, Argentina). Moreover, two coordination meetings are held each year (one in Europe and one in Latin America), during which the project partners can meet and discuss project activities and results face to face.

The last objective, which we will begin in 2007, is the organization of small online courses on different topics and approaches linked to VPH, such as risk analysis, animal welfare, and new epidemiological tools for VPH. These courses are coordinated by one member of the network, and three to four students of each partner university will participate. Every group of students must solve specific case problems and will be evaluated accordingly.

A FUTURE FOR VPH

The challenges that veterinarians face reflect the economic, political, cultural, and demographic changes of living in rural and urban areas of both developed and developing countries. The improvement of veterinary educational programs should be related to achieving a better understanding of different population needs, which are largely influenced by the ever-increasing social inequalities worldwide. The future of the field of veterinary public health is directly associated with the future of veterinary medicine at large. Its objectives have always been to contribute to animal as well as human health and to foster human progress and welfare through improved animal production and health.

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NOTES

a European College of Veterinary Public Health (ECVPH) <http://www.ecvph.org/>.

b SAPUVETNET <http://www.sapuvetnet.org/>.

c Network for Prevention and Control of Zoonotic and Food Borne Diseases (Med-Vet-Net) <http://www.medvetnet.org/cms/>.

d Emerging Diseases in a Changing European Environment (EDEN) <http://www.eden-fp6project.net/>.

e European Consortium for Continuing Education in Advanced Meat Science and Technology (ECCEAMST) <http://www.esb.ucp.pt/agrofood-network/ecceamst.html>.

f Microsoft Corp., Redmond, WA 98052-6399 USA <http://www.microsoft.com>.

g Examples of the case studies, as well as of the other materials described in this section of the article, can be seen on the SAPUVETNET Web site <http://www.sapuvetnet.org/>.

h Blackboard, Inc., Washington, DC 20036 USA <http://www.webct.com>.

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