

## USE OF MULTIMEDIA TECHNOLOGIES FOR SELF-LEARNING IN VETERINARY EPIDEMIOLOGY TEACHING

Alessandrini B., Morelli D., Del Papa S., Caporale V.<sup>1</sup>

*L'expérience accumulée par l'Institut Zooprofilattico Sperimentale des Abruzzes et de la Molise (IZSAM) "G. Caporale" en formation à l'épidémiologie vétérinaire, et les besoins exprimés par différents pays membres de l'OMS ou de la FAO, ont démontré que les besoins de formation étaient trop importants pour pouvoir être satisfaits par des cours, des séminaires ou des ateliers résidentiels. L'utilisation des systèmes de communication multi-média semble une solution bien plus appropriée pour diffuser les compétences en épidémiologie vétérinaire plus rapidement et plus efficacement.*

*La technologie multi-média appliquée à l'épidémiologie vétérinaire repose sur l'exploitation intégrée de différents moyens de communication actuels (vidéo, audio, textes, images, etc.). Elle permet également à l'apprenant de choisir ses objectifs, l'itinéraire pédagogique le plus adapté, et les outils correspondants pour évaluer les acquis correspondants.*

*Le CD-ROM de "Formation à l'épidémiologie vétérinaire" est basé sur le "Manuel d'enseignement à l'épidémiologie vétérinaire de base" produit par l'IZSAM et l'OMS en collaboration avec la FAO. Cet outil multi-média fonctionne sur un mode interactif et constitue un guide complet à la surveillance épidémiologique ; son objectif principal est d'aider les participants à acquérir par eux-mêmes les bases des principes de l'enseignement de l'épidémiologie vétérinaire.*

### INTRODUCTION

Knowledge of epidemiology has become a key element to assure the professional adequacy of veterinary services personnel in relation to the epochal changes of our times. Indeed financial resource reduction both at national and world level, requires veterinarians to be able to evaluate the economic implication of any decision. The recent World Trade Organization Agreement On Sanitary And Phytosanitary Measures (SPS) requires the capability of analysing and managing risks due to international trade of animals and their products. Epidemiology, besides providing basic data on population health status, has a strategic role in the activities related to: (i) optimising planning and evaluation of veterinary activities with consequent rationalisation of resources available; (ii) carrying out economic analysis to justify the appropriation of financial resources; (iii) assessing and managing risks linked to animal and animal products trade.

Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise «G. Caporale» (IZSAM) - WHO/FAO/OIE Collaborating Centre - has always believed in the strategic importance of epidemiology as a management tool and has fostered its use in Veterinary services activities at National and International levels. In particular, it has been working on interactive didactic methods in veterinary epidemiology focused on in-service training of veterinary officers, since 1991. Under the auspices of WHO, FAO and Italian Ministry of health, the Institute carried out several training courses both for facilitators and trainees in veterinary epidemiology both in Italy and abroad.

Training was mainly oriented to develop veterinary officers skill in transferring the acquired knowledge and know how to others. In the period 1991 - 1996 IZSAM held more than 25 training courses/workshops on veterinary epidemiology. Of these 9, for a total of 72 training days, were organised for international participants, however, only 100 people were trained. The experiences acquired at both the national and international levels and the need expressed by various WHO, FAO and OIE member Countries, demonstrated that, in spite of efforts, the need for veterinary epidemiology training was so widely diffused that cannot be satisfied by resident training courses, seminars and workshops only. The multimedia communication system seemed to be very appropriate to enhance learning and to diffuse knowledge efficiently through self-instruction. Self-instruction is believed to be an almost unavoidable choice to foster the cultural and technical level of professionals in veterinary medicine and to provide modern and effective instruments for training processes, rapidly and efficiently.

Aim of this paper is to describe the multimedia developed to train trainers in veterinary epidemiology by I.Z.S.A.M.

### METHODS

In traditional training, the didactic objective is knowledge and/or capability transfer on a specific subject, e.g.: the objective of a course on epidemiological surveillance can be the acquisition of knowledge on the most important methods for epidemiological analysis. Planning a multimedia on that subject requires a limited creative effort and it is fairly easy. If the trainee, however, must acquire both a didactic method and the behaviours required to transfer knowledge and know how to others, evaluation techniques and simulations are necessary.

The value of the multimedia product developed is the use of integrated media associated with the possibility for the trainee to choose her/his learning objectives, the didactic process to fulfil them, and the tools to evaluate

<sup>1</sup> Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise « G. Caporale » - Via Campo Boario, 64100 Teramo, Italia

her/his results. Multimedia, however, does not allow the comparison within a training group. The latter, normally present in a classroom, is considered very important because adult learning is, above all, experience sharing. Multimedia training is certainly more economic than classroom training. Sometimes provides the only way to train people reluctant to compare their own performances, to discuss their capabilities and behaviours, to welcome suggestions from the group in order to improve their approach to training and communication.

The CD-ROM on «Teaching Veterinary Epidemiology» is based on the «Manual for teaching basic veterinary epidemiology», produced by IZSAM and WHO in collaboration with FAO. The multimedia was developed with two objectives: to provide a guide on interactive didactic methods applied to epidemiological surveillance and to self-train people on how to be an adequate veterinary epidemiology facilitator. The training project was divided into different subjects covering the main aspects of adult training such as learning need assessment, learning objectives, active didactic methods (lecture, cases, questionnaires, role-playing, etc.), evaluation, etc. (Figure 1). The course has a structure organised into different levels:

- **basic course**, structured in a menu with two levels: each subject is made of a sequence of pages containing short texts, illustrations, graphics;
- **deepenings**, which contain texts adapted from books, or articles, etc.;
- **tests** (true/false; multiple choice; open answers) and **exercises** (drill and practice, role-playing) aimed to verify both cognitive learning and behavioural performances.
- The course is integrated by a **glossary**.

Deepenings, texts, exercises and tests are linked to the basic course; a map shows the path for each subject (Figure 1).

**FIGURE 1**

			Readings		
			In-depth analysis		
			Exercises		
<b>Course Presentation</b>	<b>MAP</b>				
<b>Introduction to the Training Process</b>					
<b>Assessing Learning Needs</b>		<b>Initial level of preparation</b>	<b>Bloom's Taxonomy</b>	<b>Formulating Objectives</b>	
<b>Objectives</b>	<b>Categories of objectives</b>	<b>Learning - training obj.</b>	<b>Classifying Objectives</b>	<b>Formulating Objectives</b>	<b>Test</b>
<b>Teaching Methods</b>				<b>Choosing Objectives</b>	
<b>Planning a Training Course</b>					
<b>Facilitating a Training Course</b>					
<b>Evaluation</b>					
<b>Creating a Module (Example)</b>					
<b>Simulation Game</b>					

Films and audio sequences are available on subjects regarding course management (such as communication styles and didactic methods) and practical exercises. In particular, films deal with different communication styles (friendly, enthusiastic, serious, professional), didactic mistake analysis (pieces of a lecture in which the facilitator interacts in different ways with the trainees), use of different didactic methods (group activities, cases, role-playing, etc.), and use of didactic tools (overhead projector, videotapes, slides, etc.). Films reproducing real situations, are supported by images: e.g., slides are showed while the facilitator is speaking on a certain subject. Capabilities and behaviours are strengthened through a simulation game divided into phases, such as:

1. next week you will have to give a course;
2. the first meeting with the group;
3. are there any problems?
4. how was it?

Phases can be carried out in sequence or individually. In each phase the trainee has to make some choices, producing consequences. Unexpected events with casual simulation are included.

Phase 1 is illustrated, as an example,:

- the situation is described. Trainee has 5 days to plan a one week course on a certain subject; official language will be English; participants have different nationalities;

- before starting, he has to decide who he is. Different characters are proposed:
  - \* middle age, formal, experienced facilitator, competent on the subject to be treated, boring, poor English speaker;
  - \* very young, without great experience as facilitator, competent on the subject to be treated, anxious, formal, good English speaker;
  - \* young, without great experience as facilitator, little competence on the subject to be treated, exuberant, informal, very good English speaker;
  - \* young, expert, medium competence on the subject to be treated, fair English.
- Trainee can count on:
  - \* books on the course subjects;
  - \* list of participants
  - \* general information on environments, tools, programs, etc.Information is available and he can use it as he likes best. He can choose to develop different activities:
  - \* book reading
  - \* choice of objectives and methods
  - \* definition of the course plan
  - \* transparencies preparation
  - \* questionnaire preparation
  - \* English speaking exercise
  - \* etc.

Since each activity takes time, trainee cannot do everything. During the exercise, comments are not included. At the end, trainee can ask for the expert intervention in order to evaluate her/his performance, or she/he can proceed to the next simulation.

The course contents, with an example of the various deepenings, exercises, and tests referred to one subject are shown in Figure 1.

### CONCLUSIONS

The CD-ROM will be distributed through WHO and FAO. Since its objective is to allow the trainee to assume a correct behaviour in teaching veterinary epidemiology, evaluation of its efficacy is particularly difficult. Two criteria were established for evaluation:

1. If the course is distributed within an Organisation, a guideline to evaluate performances (simulations, role-playing, exercises) will be provided. Trainees will be at the same time observers and observed and will be asked to compare their own performances with other colleagues;
2. If the course is distributed to individuals, a data bank with the names and addresses of the people receiving the CD-ROM, will be generated. Evaluation, in this case, will be carried out through a questionnaire that I.Z.S.A.M. will analyse.

At present the product is undergoing testing by a group of veterinarians, both expert and non expert of veterinary epidemiology and with and without teaching experience.

### REFERENCES

1. AA.VV. 1997. Manual for teaching basic veterinary epidemiology. WHO Collaborating Centre for Research and Training in Veterinary Epidemiology and Management and World Health Organisation, in collaboration with Food and Agriculture Organisation of the United Nations. In press.