INFORMATION

EPIZTEXT: THE FIRST ELECTRONIC TEXTBOOK FOR EDUCATION AND TRAINING IN GENERAL EPIZOOTIOLOGY

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Abstract

Kouba V.: *EPIZTEXT: The First Electronic Textbook for Education and Training in General Epizootiology*. Acta Vet. Brno, 2001, 70: 211-215.

First electronic textbook for undergraduate and postgraduate courses in general epizootiology was developed under the name EPIZTEXT. Its version 2.2 is operated under Microsoft WORD text processing software for WINDOWS. The English written textbook contains 34 chapters. The initial one defines the epizootiology as the science that studies animal population health and diseases, their determinants and defines methods for promotion, protection and restoration of health. The first section covers animal population characteristics of health importance, disease resistance, population health and disease measurement indicators, population structures according to epizootiological characteristics, etiological agents, their sources and ways of transmission, environmental factors, infection process, epizootic process, disease nidality, zoonoses, economic factors and consequences of population health and disease. The second section includes principles and methods for animal population health and disease investigations, information systems, analyses, monitoring and surveillance. The third section deals with principles and methods for practical actions such as decision-making about anti-epizootic strategy and measures, active creation of population health, preventive and recovery measures including disease reduction, elimination and eradication, measures against diseases common to man and animals, protection of country territory, sanitation, planning, organization and management of animal population health programmes, their results and efficiency evaluation. Learners can study perusing the text, finding easily selected terms and chapters and print parts or the whole textbook. Epizootiological methods are indispensable also for avoiding diseases spreading through international trade in animal commodities which represents serious risk of disease globalization.

Population medicine, software, disease analysis, health protection, control methods, disease management

Among modern tools for teaching and learning belong electronic textbooks facilitating teachers' work and learners' study. One of the first electronic textbooks in veterinary medicine was developed for general epizootiology education and training under the name EPIZTEXT. Epizootiology is the science which studies origin, frequency, distribution, development and extinction of animal health and disease at population level, their determinants and defines the methods for promotion, protection and restoration of health by reducing, eliminating and eradicating common diseases. Epizootiology was introduced in many veterinary faculties as undergraduate curriculum subject and in many national and international postgraduate courses. Zoonoses and their control represent a particular part of this discipline. General epizootiology includes principles and methods applicable on any specific health and disease at population level in any place and time. This discipline educates veterinarians to be able to investigate epizootiological situation and apply practical measures at field and managerial levels.

An impulse to develop the first electronic textbook in epizootiology was given by "Chapters" elaborated by a group of US specialists and compiled by M. Salman and I. Gardner, College of Veterinary Medicine and Biomedical Sciences, Colorado State University, Fort Collins in 1992 using WORDPERFECT 5.1 software.

EPIZTEXT technical contents was based upon author's publications (3, 4, 6) and

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experience as teacher of undergraduate and postgraduate courses and responsible officer for disease control at local, national and international levels. Several literature sources are mentioned in References (1, 2, 7, 8, 9, 10, 11, 12,14). A syllabus of general epizootiology can be found e.g., in the Report on Consultation on Undergraduate and Postgraduate Teaching in Veterinary Public Health, World Health Organization, 1983 (13).

Materials and Methods

The objectives were to develop an electronic textbook as a teaching tool supporting the study of general epizootiology. The material should achieve that the learners:

will know animal population characteristics of health importance, etiological agents, their sources and paths of transmission, infection and epizootic processes, influencing factors and consequences of animal population health and diseases;

will be able to investigate, analyze, monitor and survey animal population health and disease situation;

will be able to elaborate a strategy, identify and apply effective measures for animal population health protection and recovery (diseases reduction, elimination and eradication), investigate outbreaks, elaborate, organize, implement and evaluate animal population health programmes.

Main criteria when preparing this textbook were as follows:

- the electronic textbook to be user-friendly;
- to apply procedures of a widely used word processing software package;
- the size of unzipped textbook to fit into one 1,44 KB diskette;
- to provide a wide range of information and methods for undergraduate education and postgraduate training, self-study and problem solutions;

to give priority to those methods which had already proven to be useful and feasible in successful programmes of disease prevention, control, reduction and eradication and

- to provide methods applicable for general as well as for any specific health and diseases, including those transmissible to man.

The first experimental version of general epizootiology electronic textbook was prepared in 1994 for Veterinary Faculty for Foreign Students, University of Veterinary Sciences, Košice where all subjects are taught in English. This version used WORDPERFECT 5.1. software package for IBM Personal Computers applying files merging procedures. It could be run directly from the diskette or after installation on hard disk. The text could be read from the computer screen or be printed on paper. "Table of contents" served as the menu. To get into desired chapter keys "ctrl"-"home" followed by page number were used.

To facilitate conversion into newer word processing software packages all original WORDPERFECT files composing the textbook were individually included in the same diskette together with original EPIZTEXT produced in one block. Individual files could be converted separately into new word processing software and then be read or printed partly or as a whole chapter using standard operation procedures of the given text processing software.

Finally, EPIZTEXT was converted into WORD 7 for WINDOWS 95 as a whole (in one file) and thus simplifying significantly the operations and opening it for future transfer into newer software versions.

Results

An English written electronic textbook for education and training in general epizootiology was developed under the name EPIZTEXT. Its version 2.2 was prepared for being operated under Microsoft WORD 7 text processing software for WINDOWS 95. It is open for newer text processing software generations.

The first experimental version had originally 230 single-spaced pages of text using Base Roman fonts of WORDPERFECT 5.1. The final version 2.2. in WORD 7 was reduced to 163 single-space pages thanks smaller characters using Courier New size 12 fonts. The size of this version requires 793 KB without zipping, i.e. it gets into one 1,44 KB diskette.

The textbook starts with "Preface" explaining the purpose and with "Table of Contents" serving as a menu. The textbook consists of 34 chapters (Table 1) complemented by Bibliography and Annex with selected quantitative indicators for measuring animal population health/disease phenomena.

The first section covers: epizootiology definitions, objectives, methods, division and relation to other sciences; animal population characteristics of health importance such as species, categories, location, movement, development, etc.; disease susceptibility and

Table 1
Epiztext chapters

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1. Epizootiology: definition, objectives, objects and methods
2. Animal population and its characteristics of epizootiological importance
3. Animal population disease resistance
4. Animal population health and disease
5. Animal population collective health
6. Animal population morbidity and mortality
7. Animal population epizootiological structure
8. Etiological agents of animal population diseases
9. Sources of biological etiological agents
10. Transmission of biological etiological agents
11. Natural environmental factors
12. Interaction animal-etiological agent-environment
13. Epizootic process
14. Animal population disease nidality
15. Diseases common to man and animals
16. Economic and social factors influencing epizootic process
17. Consequences of animal population health and diseases
18. Investigation of epizootiological situation
19. Epizootiological information system
20. Analysis of epizootiological situation
21. Epizootiological monitoring and surveillance
22. Epizootiological theory, experiments and studies
23. Epizootiological strategy and measures
24. Active creation of animal population health
25. General preventive measures in animal population
26. Protection of animal population specific health
27. Epizootiological protection of country territory
28. Animal population general health recovery
29. Animal population specific health recovery
30. Measures against diseases common to man and animals
31. Epizootiological sanitation
32. Planning of epizootiological measures
33. Organization of epizootiological activities
34. Results and efficiency of epizootiological programmes

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resistance, inherent and acquired immunity; definitions of animal population health and disease; collective health characteristics and measurement indicators; morbidity and mortality definitions and measurement indicators; structures of herds and populations according to their parts of different health/disease characteristics; etiological agents and their characteristics of epizootiological importance, sources and ways of transmission (including through trade in animals and their products); natural environmental factors; infection process as interaction of animal - etiological agents - environment; epizootic process as interaction of animal population - etiological agents - environment; disease nidality characteristics and measurement; natural nidality; zoonoses characteristics including interrelations between animals and man; biological, economic, public health and social factors influencing epizootic processes; positive and negative consequences of population health and diseases.

The second section covers: principles, types and methods for investigation of population health/disease situation; evaluation of diagnostic tests quality; field surveys and screening tests; sampling; information systems principles, objectives, data sources, reporting, data collection and processing; analysis of animal population health and disease situation - principles, types, evaluation methods, measurement, indicators (incidence, prevalence, extinction, etc.), space and time aspects; methods for evaluation of epizootic process dynamics; monitoring and surveillance principles and methods; theory, experiments and studies in epizootiology.

The third section covers methods for practical actions at field and managerial levels based upon complex analyses: antiepizootic strategy and measures concepts, priorities, objectives, types as well as biological, ecological, economic and social influencing factors; active creation of animal population health, i.e. formation of new generations composed of healthy animals using regulated reproduction process and establishing specific disease-free herds/flocks and zones; general and specific preventive measures including vaccination and application of zoohygienic procedures; specific and general recovery measures such as disease reduction, elimination and eradication under different conditions; measures for post-eradication period; protection of country territory against introduction of animal diseases from abroad; preventive and recovery measures against zoonoses (human health protection); sanitation procedures under different conditions; decision-making on planning, organization and management of antiepizootic activities; biological, public health, economic and social results of animal population health programmes and their evaluation. The textbook is open to further amendments and development.

Discussion

Modern pedagogical methods require to use also electronic textbooks complementing traditional teaching tools. The aim is to facilitate work of teachers and study of students and trainees and to provide reference source in the given field of science. Electronic textbooks will gradually replace a good proportion of classical textbooks that are usually expensive and not always available. Their advantage is also that they can be easily copied and printed.

EPIZTEXT represents the first electronic university textbook in epizootiology and belongs among the first in veterinary medicine. This electronic textbook can be studied either perusing the text on the screen or reading printed hard copies of selected parts or of the whole document.

EPIZTEXT version 2.2* contains information and methods that have proved to be useful in practice when solving animal population health and disease problems. Its structure corresponds with the syllabi used by the author and with his university textbooks. EPIZTEXT provides information about epizootic processes and health and disease control methods that are applicable on any specific health and disease of any animal population species at any place, time and level. It represents one component of a set of epizootiology teaching and study materials for undergraduate and postgraduate courses. Antiepizootic activities start and end in the field. Their main criterion is the final result not in administrative offices but at the grass-roots level of animal populations. Therefore, theoretical lectures and studies have to be combined with practical field (under real or simulated conditions) and indoor exercises (using also particular software for epizootiological analyses such as author's EPIZOO **/). EPIZTEXT represents a modest contribution to the effort to fill the gap in modern education and training in this so important branch of animal population medicine. Epizootiology as the science dealing with anima health nd disease at population level is becoming much more important than in the past. Only epizootiological methods cn cope with rapidly increasing international trade in animal commodities representing serious risk of globalization of diseases.

*/ EPIZTEXT is available at the Department of Infectology, University of Veterinary Medicine, Košice, Slovakia.

**/ EPIZOO (5) is a software package for analyzing, planning and problem solution in animal population health and disease. (Internet address: http:\\www.who.int/emc/diseases/zoo/epizoo.html). It may be obtained free of charge from CDS/APH unit, World Health Organization, Geneva, Switzerland (request must be accompanied by a formatted 3.5'' high-density diskette).

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