Geographic information systems: introduction

The recent exponential growth of the science and technology of geographic information systems (GIS) has made a tremendous contribution to epidemiological analysis and has led to the development of new powerful tools for the surveillance of animal diseases. GIS, spatial analysis and remote sensing provide valuable methods to collect and manage information for epidemiological surveys. Spatial patterns and trends of disease can be correlated with climatic and environmental information, thus contributing to a better understanding of the links between disease processes and explanatory spatial variables.

Until recently, these tools were underexploited in the field of veterinary public health, due to the prohibitive cost of hardware and the complexity of GIS software that required a high level of expertise. The revolutionary developments in computer performance of the last decade have not only reduced the costs of equipment but have made available easy-to-use Web-based software which in turn have meant that GIS are more widely accessible by veterinary services at all levels.

At the same time, the increased awareness of the possibilities offered by these tools has created new opportunities for decision-makers to enhance their planning, analysis and monitoring capabilities. These technologies offer a new way of sharing and accessing spatial and non-spatial data across groups and institutions. The series of papers included in this compilation aim to:

▪ define the state of the art in the use of GIS in veterinary activities
▪ identify priority needs in the development of new GIS tools at the international level for the surveillance of animal diseases and zoonoses
▪ define practical proposals for their implementation.

The topics addressed are presented in the following order in this book:

▪ importance of GIS for the monitoring of animal diseases and zoonoses
▪ GIS application in surveillance activities
▪ spatial analysis in veterinary epidemiology
▪ data collection and remote sensing applications
▪ Web – GIS as tool for data and knowledge sharing.

All 43 manuscripts selected for this book have been peer-reviewed.

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Editors

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