ZOONOSES AND COMMUNICABLE DISEASES COMMON TO MAN AND ANIMALS

Third Edition

Volume III

Parasitoses

Scientific and Technical Publication No. 580

PAN AMERICAN HEALTH ORGANIZATION
Pan American Sanitary Bureau, Regional Office of the
WORLD HEALTH ORGANIZATION
525 Twenty-third Street, N.W.
Washington, D.C. 20037 U.S.A.

2003

Also published in Spanish (2003) with the title:
Zoonosis y enfermedades transmisibles comunes al hombre y a los animales: parasitosis
ISBN 92 75 31991 X (3 volume set)
ISBN 92 75 31992 8 (Vol. 3)

PAHO HQ Library Cataloguing-in-Publication
Pan American Health Organization
Zoonoses and communicable diseases common to man and animals: parasitoses
3rd ed. Washington, D.C.: PAHO, © 2003.
3 vol.—(Scientific and Technical Publication No. 580)

ISBN 92 75 11991 0—3 volume set
ISBN 92 75 11993 7—Vol. 3
I. Title II. (Series)
1. ZOONOSES
2. PARASITIC DISEASES
3. DISEASE RESERVOIRS
4. COMMUNICABLE DISEASE CONTROL
5. FOOD CONTAMINATION
6. PUBLIC HEALTH VETERINARY
NLM WC950.P187 2003 v.3 En

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PROLOGUE

In recent years, zoonoses and communicable diseases common to man and animals have gained increasing attention worldwide. Human diseases that have their origins in infected animals, such as AIDS or Creutzfeldt-Jakob, have highlighted the need for a better understanding of animal diseases in terms of their epidemiology, mechanism of transmission to man, diagnosis, prevention, and control. Social and demographic changes have also contributed to the importance of gaining and disseminating knowledge about zoonoses. For instance, as people encroach further and further on ecological areas with which they had little contact and whose fauna may not be well known, their exposure to animals—and the infections they transmit—has increased. New knowledge is also being developed in the area of urban ecology. The ease and speed of modern travel also facilitates the spread of diseases once confined to specific geographic areas, as recently occurred with severe acute respiratory syndrome (SARS). Animal migration and trade pose a similar threat, as was shown by the outbreaks in the United States of West Nile fever, and most recently, monkeypox—two diseases not previously known in the Western Hemisphere. Each of these examples highlights the need for improved knowledge and surveillance of and response to zoonoses.

The negative effects of zoonoses are far reaching. High incidence rates continue to cause significant morbidity and mortality in both humans and animals. Their economic impact is seen in lost labor productivity due to illness; reduced travel and tourism to affected areas; reduced livestock and food production; death and destruction of affected animals; and restrictions on and reductions in international trade. Zoonoses can be a serious drain on a country's economy, which in turn can have wide repercussions for a society's health.

To help solve these problems, the Pan American Health Organization (PAHO)—an international public health organization that has devoted itself to improving the health and living conditions of the people of the Americas for over one hundred years—established the Veterinary Public Health Unit. The Unit's overall objective is to collaborate with PAHO's Member Governments in the development, implementation, and evaluation of policies and programs that lead to food safety and protection and to the prevention, control, or eradication of zoonoses, among them foot-and-mouth disease.

To this end, PAHO's Veterinary Public Health Unit has two specialized regional centers: the Pan American Foot-and-Mouth Disease Center (PANAFTOSA), created in 1951 in Rio de Janeiro, Brazil, and the Pan American Institute for Food Protection and Zoonoses (INPPAZ), established on November 15, 1991, in Buenos Aires, Argentina. INPPAZ's precursor was the Pan American Zoonoses Center (CEPANZO), which was created through an agreement with the Government of Argentina to help the countries of the Americas combat zoonoses, and which operated from 1956 until 1990.

Since its creation in 1902, PAHO has participated in various technical cooperation activities with the countries, among them those related to the surveillance, prevention, and control of zoonoses and communicable diseases common to man and animals, which cause high morbidity, disability, and mortality in vulnerable human populations. PAHO has also collaborated in the strengthening of preventive medi-

cine and public health through the promotion of veterinary health education in learning, research, and health care centers. An example of this work is the preparation of several publications, among which the two previous Spanish and English editions of *Zoonoses and Communicable Diseases Common to Man and Animals* stand out.

Scientific knowledge has progressed since the last edition was published in 1986. Also, the countries of the Americas have modified their livestock production strategies in recent years, which has affected the transmission of zoonotic infections and their distribution. The publication of this third edition is an attempt to address these changes. The third edition is presented in three volumes: the first contains bacterioses and mycoses; the second, chlamydioses, rickettsioses, and viroses; and the third, parasitoses.

We believe that this new edition will continue to be useful for professors and students of public health, medicine, veterinary medicine, and rural development; workers in public health and animal health institutions; and veterinarians, researchers, and others interested in the subject. We also hope that this publication is a useful tool in the elaboration of national zoonosis control or eradication policies and programs, as well as in risk evaluation and in the design of epidemiological surveillance systems for the prevention and timely control of emerging and reemerging zoonoses. In summary, we are confident that this book will contribute to the application of the knowledge and resources of the veterinary sciences for the protection and improvement of public health.

MIRTA ROSES PERIAGO
DIRECTOR

PREFACE TO THE FIRST EDITION

This book considers two groups of communicable diseases: those transmitted from vertebrate animals to man, which are—strictly speaking—zoonoses; and those common to man and animals. In the first group, animals play an essential role in maintaining the infection in nature, and man is only an accidental host. In the second group, both animals and man generally contract the infection from the same sources, such as soil, water, invertebrate animals, and plants; as a rule, however, animals do not play an essential role in the life cycle of the etiologic agent, but may contribute in varying degrees to the distribution and actual transmission of infections.

No attempt has been made to include all infections and diseases comprised in these two groups. A selection has been made of some 150 that are of principal interest, for various reasons, in the field of public health. The number of listed zoonoses is increasing as new biomedical knowledge is acquired. Moreover, as human activity extends into unexplored territories containing natural foci of infection, new zoonotic diseases are continually being recognized. In addition, improved health services and better differential diagnostic methods have distinguished zoonoses previously confused with other, more common diseases. A number of diseases described in this book have only recently been recognized, examples of which include the Argentine and Bolivian hemorrhagic fevers, angiostrongyliasis, rotaviral enteritis, Lassa fever, Marburg disease, and babesiosis.

The principal objective in writing this book was to provide the medical professions a source of information on the zoonoses and communicable diseases common to man and animals. Toward that end, both medical and veterinary aspects, which have traditionally been dealt with separately in different texts, have been combined in a single, comprehensive volume. As a result, physicians, veterinarians, epidemiologists, and biologists can all gain an overview of these diseases from one source.

This book, like most scientific works, is the product of many books, texts, monographs, and journal articles. Many sources of literature in medicine, veterinary medicine, virology, bacteriology, mycology, and parasitology were consulted, as were a large number of reports from different biomedical disciplines, in order to provide up-to-date and concise information on each disease. It is expected that any errors or omissions that may have been committed can, with the collaboration of the readers,