FOOD-BORNE PARASITIC ZOONOSES
Volumes in the *World Class Parasites* book series are written for researchers, students and scholars who enjoy reading about excellent research on problems of global significance. Each volume focuses on a parasite, or group of parasites, that has a major impact on human health, or agricultural productivity, and against which we have no satisfactory defense. The volumes are intended to supplement more formal texts that cover taxonomy, life cycles, morphology, vector distribution, symptoms and treatment. They integrate vector, pathogen and host biology and celebrate the diversity of approach that comprises modern parasitological research.

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FOOD-BORNE PARASITIC ZOONOSES
Fish and Plant-Borne Parasites

edited by

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and

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Preface

Humans suffer from numerous parasitic foodborne zoonoses, many of which are caused by helminths. The helminth zoonoses of concern in this book are normally limited to diseases of animals that have now become transmissible to humans. In the past, these diseases were limited to populations living in low- and middle-income countries, but the geographical limits and populations at risk are expanding and changing because of growing international markets, improved transportation systems, and demographic changes (such as population movements). The World Health Organization (WHO) has estimated the number of people currently infected with just foodborne trematodes exceeds 41 million, and the number of people at risk worldwide, including those in developed countries, is 750 million. The increasing recognition of the public health significance of these zoonoses, their complicated epidemiology, and their links to poverty, agricultural intensification, environmental degradation, and lack of appropriate tools for control has been welcome. However, because the development of priorities in a national public health system is often a competitive exercise, the claim for more attention and resources for foodborne parasitic zoonoses is usually handicapped by a lack of reliable health and economic impact data. The genesis of this book, then, was a desire to draw attention to the problem of these zoonoses and, hopefully, to inspire greater efforts to acquire a reliable global impact assessment which would strengthen the efforts to develop improved prevention and control actions for these zoonoses.

The list of potential helminth zoonoses that might be discussed in a book such as this is large, and could include all those transmitted by ingestion of any food such as meat, fish, invertebrates and plants. However, we have chosen to focus on those zoonoses that are the least under appreciated and recognized of the foodborne helminths, the fish, plant and invertebrate-borne helminths. While people, especially those living in developed countries, are commonly aware of meat-borne zoonoses such as trichinellosis and cysticercosis, fewer are acquainted with fish-borne parasitic diseases like opisthorchiasis, intestinal trematodiasis or capillarisis. Yet these zoonoses are responsible for large numbers of human infections. For example, at least 10 million people in China are infected with the fish-borne liver fluke *Clonorchis sinensis*, and at least 7 million in Thailand are infected with the
species *Opisthorchis viverrini*, both of which are associated with liver cancer. The intestinal flukes are even more common throughout Asia, Russia, and the Middle East.

Compared to other parasitic diseases such as malaria, filariasis, and schistosomiasis, these parasitic zoonoses are public health “orphans” in the world of research funding, due in no small measure to insufficient appreciation of a crucial fact: that most of them exist as a complex of parasites whose transmission often depends on well-entrenched cultural behaviors that are difficult to change. Because the transmission routes to human infection are similar, collectively these zoonoses may have a much greater effect in the aggregate than as single infections. The difficulties of diagnosis, the complexities of human cultural traits and agricultural practices and the lack of realistic assessments of their real or potential economic costs, have made this field simultaneously daunting, scientifically obscure and, therefore, unattractive to investigators. The challenge of developing a prevention and control strategy that accommodates strong cultural and agricultural traditions, however, will test the imaginations and skills of researchers, an intellectual challenge that could provide the stimulation needed to build a more concerted international effort toward control.

This book reviews not only the prevalence and distribution of these zoonoses, including available health and economic impact data, but will highlights gaps in knowledge that must be filled in order to gain the assessment needed to depict the overall importance of a particular zoonosis. This is critical for comparisons to other pressing public health and development needs in resource allocations. The topics on epidemiology, diagnosis, and clinical aspects emphasize the knowledge gaps that limit a full understanding of these zoonoses, and target where greater research investments on these parasitic diseases should be focused.
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