Parasites have cohabited with man since time immemorial and have caused devastation on a worldwide scale. Moreover, despite advances in medical and biochemical science in the last several decades, parasitic diseases continue to affect developing countries; and in some instances, western countries. In part this is due to poor hygiene and unhealthful food practices, but clever strategies on the part of parasites in terms of means of evading the body’s immune defenses also mean that control and eradication are challenging.

The global burden of parasitic diseases is enormous. For example, it has been estimated that for malaria it is 45 million DALYs (disability-adjusted life years). While the true costs using the DALY approach may be underestimated, another way of looking at the economic impact of the disease is that it causes direct losses amounting to $12 billion annually. In addition, the World Health Organization estimated that the cost of the minimum set of interventions necessary to achieve both the 2010 Abuja targets and the Millennium Development Goals (MDGs) for malaria by 2015 was $31.9 billion, corresponding to about $3 billion per year. Clearly, controlling and hopefully eradicating parasitic disease is going to require major teamwork on regional and global scales.

In this issue of the Journal of Global Infectious Diseases, five of the most common parasites are reviewed in terms of epidemiology, prognosis, detection and treatment. Toxoplasmosis, a disease caused by the protozoan Toxoplasma gondii, has affected a staggering one to two billion individuals worldwide, although the true figure is not known with any accuracy. As Furtado et al. describe in their article, the seroprevalence of this disease varies enormously, with estimates of 12% in China, 14% in the United States, 46% in Tanzania, 47% in rural France and even higher numbers in South America, viz., 50%-80%. The most serious complications include ocular toxoplasmosis, which can lead to blindness; and toxoplasmic encephalitis in AIDS patients. While serology and polymerase chain reaction (PCR) methods are now successfully used to augment clinical findings, and a broad array of treatments are available, is has to be emphasized that damaged retinal cells cannot be restored, and that in immunocompromised patients, management of the infection can be even more problematic due to recurrence of infection. Most importantly, this parasite has not received the high public health profile that other parasites have received, with the result that many people are unaware of the disease, and primary prevention measures are lacking.

River blindness, or onchocerciasis, is better known and has been the subject of large public health campaigns in African countries and the Americas. It is caused by the nematode Onchocerca volvulus and affects some 37 million persons worldwide. Although transmitted by the bite of the black fly, the parasite lives only in humans, which, according to Winthrop et al., makes it a good candidate for elimination. The biochemical mechanism by which the parasite causes blindness in both anterior and posterior segments of the eye is quite intricate, involving detrimental autoimmune and inflammatory responses induced by microfilaria and the symbiotic presence of Wolbachia bacterial species. The need for methods of detection of active infection that are specific and sensitive and augmentation of ivermectin, the agent that kills the microfilaria, with antibiotics make the goal of eradication challenging to achieve. Nevertheless, two large public health campaigns have made a considerable difference in Africa and Latin America, and it may so happen that within four to five years the disease will be eliminated from Latin America.

In contrast, cysticercosis appears to be an emerging zoonosis caused by the increases in pig farming, particularly in developing countries. Caused by the larval form of the tapeworm Taenia solium, it affects persons in Latin America, Africa and Asia, with an estimated 400,000 people having symptomatic disease in Latin America alone. The disease is also the leading cause of late-onset epilepsy. According to O’Neal et al., multiple screening tools, effective treatments, and pig vaccines are available, but interventions have had limitations in terms of scope and results. The authors suggest that local economic factors play a large role, and that in order to be effective many considerations may need
to be incorporated, as well as sustained campaigns and better local awareness of the disease.

The protozoan parasite *Entamoeba histolytica* is responsible for intestinal amebiasis, an illness that is ranked as fifth of sixth in the list of major causes of disease in Mexico and which is common in many other countries. Although the parasite may be successfully cleared several weeks after exposure, in immunodeficient individuals it may become progressively more severe and can in some instances become extra-intestinally invasive, with infection of the liver. Diagnostic techniques have improved considerably in the last decade but may be difficult to apply in the field in developing countries. Moreover, while an excellent range of treatments exist, Ximénez *et al.* point out that in the context of diarrheic syndrome, amebiasis may be seen concurrently with infections due to other viral or bacterial species (i.e., mixed infections), making diagnosis and treatment much more complex.

Finally, Kitua *et al.* describe advances in conquering malaria, which was the target of an ambitious eradication program instituted by the World Health Organization in many countries during 1955-76. Unfortunately, the eradication program failed due to widespread resistance to available insecticides, drug resistance, emergence wars, massive population movements, difficulties in obtaining sustained funding from donor countries, and lack of community participation. Today, malaria constitutes 225 million cases and is still responsible for causing over 0.75 million deaths annually, mostly in Africa. Part of the Millennium Development Goals, malaria control programs envisage scaling up antimalarial interventions to achieve universal coverage. To date, substantial gains in control have been obtained, but motivating individual countries will require enormous efforts; and in some cases, a regional approach to ensure collaboration.

While global public health efforts continue to focus on many infectious diseases, such as AIDS, influenza, tuberculosis, hepatitis, dengue and hemorrhagic fever, the study of parasites has often been neglected. For some parasitic diseases, including onchocerciasis, control and eradication are within reach; but for many others, as described in this issue, we have a long way to go before we can claim inroads into control. What will it take to achieve success? Lessons learned from other disease interventions suggest that lead organizations with global reach need to act as champions and fashion interventions that are both sustainable and can be funded at the country or district level with regional coordination. Most importantly, interventions in many developing countries need to be simple; complex strategies that depend on many factors are likely to fail. Nevertheless, we must also take into account many human behaviors that are constantly changing, such as migration, the impact of war, economic displacement, and travel.

It is still true today that the “squeaky wheel gets the oil”, as the old adage runs, which means that all involved stakeholders must continue to raise awareness about parasitic diseases that are often sadly neglected in favor of “more profitable” diseases.

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