

First the bad news . . .

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tropical medicine is an ill-defined profession caught philosophically between public health and clinical medicine and geographically between the economically constrained tropics and the well-heeled temperate world. The literature describing the successes and failures in this profession ranges from social policy to microbial biology. The news from the tropics this year has been cause for both celebration and discouragement.

Public health

Bad news

The past year has seen the continued expansion of several multinational epidemics and the emergence of new ones. Dengue continues to reclaim territory throughout the Caribbean and Central America, with increased reports of dengue hemorrhagic fever in countries that have not seen this problem for years. The explosive cholera epidemic of 1991 continues to grumble in large areas of South and Central America. The malignant interaction between HIV and tuberculosis is a dominant health issue in sub-Saharan Africa and is beginning to have a significant detrimental effect on tuberculosis control programs in Southeast Asia. Tobacco products continue to be aggressively marketed around the globe, and cigarettes now kill more people in the world than malaria or diarrheal disease.

Closer to home, the Canadian Red Cross is now screening donors for a history of residence in west Africa or areas where Chagas disease is endemic, in an attempt to keep variant strains of HIV (i.e., those undetectable by routine screening) and *Trypanosoma cruzi* out of the Canadian blood supply. Salads, fresh fruit, meats and fish are now becoming international travellers themselves; sporadic cases, small outbreaks and epidemics of “devel-

oping world” infections are increasingly linked to food importation rather than foreign travel. For example, the summer of 1997 was marked by a North American epidemic of *Cyclospora cayatanensis* diarrhea caused by raspberries imported from Guatemala. Ciguatera fish poisoning was reported as a result of the ingestion of barracuda imported from the Caribbean.

In the face of clear evidence of increasing microbial internationalism, an important piece of bad news is the continued shrinkage of global and Canadian resources devoted to international development assistance in general and health development initiatives in particular. In Canada, the International Development Research Centre (IDRC) has closed its health division. Recent important contributions by this division included major initiatives in malaria control strategies in Africa (such as insecticide-treated bed nets) and the launching of a much-

needed evaluation, in Tanzania, of the World Bank's controversial strategy for health development. The Canadian International Development Agency (CIDA) continues to cut Canada's overseas development assistance, now at its lowest level in a quarter of a century (0.31% of GNP).¹ CIDA claims to support evidence-based sustainable development but has been too slow to pick up the torch dropped by IDRC and provide adequate support for the researchers who produce that evidence.²

Good news

The number of vaccines available and both corporate and government interest in vaccination appear to be increasing. Improved surveillance and mass vaccination campaigns in 1997 have had a dramatic impact on polio throughout the world and on measles in the Americas. A



decade of work demonstrating the health benefits of supplemental vitamin A has finally led to global implementation efforts. Although the mechanism(s) by which vitamin A influences health remain to be determined, an analysis of studies in the developing world suggests an overall benefit of approximately 30% in child survival. There were increased efforts in 1997 to control malaria through programs based on the demonstrated efficacy of insecticide-treated bed nets. The recent Canadian-backed international agreement to ban the production, sale and use of anti-personnel land mines is a notable accomplishment in terms of both its result and the grassroots process that propelled the campaign. Web communications systems (e.g., the ProMED email discussion group and Web pages for WHO, the US Centers for Disease Control and Prevention, the World Bank and the Laboratory Centre for Disease Control) have brought public health onto computer monitors worldwide. We now follow the evolution of epidemics, such as hand-foot-and-mouth disease in Malaysia and meningococcal meningitis in the Sahel, by means of daily bulletins. Because of this immediacy and the abundant evidence that microbes care little for international borders a great deal of attention has been focused on the so-called emerging pathogens.

Clinical sciences

Bad news

Malaria prophylaxis for travellers is again in the news. Highly visible and in some cases sensationalist adverse publicity about the neuropsychologic side effects of mefloquine are leading many travellers to reject this drug. Although published studies clearly demonstrate the benefits of mefloquine (it is indeed the best prophylactic drug for many regions of the world), the basis of the current debate is unfortunately not scientific. Travel clinics will need to renew their efforts to inform the travelling public about the risks of both malaria and malaria prophylaxis. Although new drugs for malaria prophylaxis (including double-dose primaquine and the combination of atovaquone and proguanil) are being tested, the available data do not justify a great deal of optimism. On another front, multidrug-resistant tuberculosis continues to be a major clinical threat to both patients and caregivers.

Good news

Amebiasis has become much less confusing. It had long been suspected on clinical grounds that *Entamoeba histolytica* might have a split personality. New antigen-capture tests are now available to distinguish between pathogenic

E. histolytica and its more common, morphologically identical and non-pathogenic "cousin," *Entamoeba dispar*.³ Similar antigen-capture tests have also been introduced for the diagnosis of lymphatic filariasis (caused by *Wuchereria bancrofti*) and African sleeping sickness (caused by *Trypanosoma brucei*), culminating more than a decade of basic science research. From 1995 to 1996 the reported prevalence of leprosy decreased from 2.3 to 1.7 per 100 000 in response to aggressive and well-coordinated multidrug therapy programs. The continued success and rapid expansion of "direct observation of therapy" programs for tuberculosis control make the point that we should never hesitate to relearn things we already know.

Basic sciences

As far as tropical medicine is concerned, the basic sciences have yielded mostly good news in the year just past. Despite the dwindling resources of the past decade,³ research in this area continues to yield new insights and tools that permit cautious optimism about some of the world's ills. New vaccines against 2 of the major international killers, rotavirus and respiratory syncytial virus, are in the final testing stages. However, the high development costs of these vaccines and other products continue to challenge us to find ways to ensure that the entire world benefits. Several groups have generated convincing evidence in animal models that cytokine manipulation will eventually help us to treat and prevent leishmania infections. Investigators have found a way to genetically manipulate leishmania through the stable insertion of transposable elements. Zhang and Matlawshewski⁴ have just discovered (and knocked out) a potent leishmania virulence gene, and a number of laboratories are racing ahead with leishmania vaccines based on interleukin 12. Finally, a great deal of data are being generated worldwide suggesting that "naked DNA" vaccination (i.e., injection of plasmids containing defined proteins or peptide sequences) will eventually help us address health problems as diverse as chronic viral hepatitis, HIV infection and malaria.

References

1. Tomlinson B. Canada. In: Randel J, German T, editors. *The reality of aid 1997/8. An independent review of development cooperation*. London: Earthscan Publications; 1997. p. 42-8.
2. Hamilton R. The need for centres of health research excellence in the developing world. *Policy Sci* 1997;30:25-46.
3. World Health Organization. Amoebiasis. *Wkly Epidemiol Rec* 1997;72:97-100.
4. Zhang WW, Matlawshewski G. Loss of virulence in *Leishmania donovani* deficient in an amastigote-specific protein, A2. *Proc Natl Acad Sci U S A* 1997; 94:8807-11.

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