



[1997 \(January - December\)](#)

Controlling Malaria: A Conversation with Dr Christian Lengeler

Insecticide-treated nets (ITNs) have emerged in recent years as a promising tool to stem the rising tide of malaria in the world. Strong, convincing evidence is now available to document the beneficial impact of ITNs on malaria disease episodes in children.

Large studies in The Gambia, Ghana, and Kenya have documented a 17-63% reduction in overall child mortality as a result of ITN use. Several more ITN trials currently underway in Africa and elsewhere are confirming this efficacy in settings where malaria is highly endemic. Collectively, these studies reveal the potential of ITNs as an important public-health intervention in the limited arsenal of malaria-control strategies.

*Published jointly in 1996 by the International Development Research Centre (IDRC) and the World Health Organization (WHO), *Net Gain* describes this important new weapon in the fight against malaria. It reviews and discusses the development of the treated mosquito net, focussing on the technology, its implementation, and its promotion.*

*IDRC Reports recently interviewed Christian Lengeler, co-editor of *Net Gain*, about his book. Dr Lengeler is Senior Scientist in the Department of Public Health and Epidemiology of the Swiss Tropical Institute in Basel, Switzerland.*

IDRC Reports: What prompted your own interest in ITNs?

Christian Lengeler: Having worked for many years on the control of tropical diseases in Africa, I have had ample opportunity to witness the ravages caused by malaria. However, it is only when ITN appeared on the scene as a simple and very effective intervention that I felt something could be done on a large scale about this enormous problem.

IDRC Reports: Who is your intended audience and how will readers benefit from reading *Net Gain*?

Dr Lengeler: [Net Gain](#) focusses on the practical aspects of implementing ITNs. Therefore, the target audience mainly includes public health planners, government and donor agencies, field managers, and, to some extent, local groups.

IDRC Reports: What kind of feedback have you received from the publication of *Net Gain*?

Dr Lengeler: We have had lots of feedback from all kinds of people: from World Bank experts to local

groups. Most of them expressed satisfaction that Net Gain provides such a 'condensed' source of information on ITNs. [The publication of Net Gain] has also given us the opportunity to get to know many more projects, which will be useful for the next version of the book.

IDRC Reports: Is a second version already in the works? If so, what will its focus be?

Dr Lengeler: There are no concrete plans yet, but we certainly intend to [publish a follow-up]. Currently, we are finalizing the French version (for Western Africa), which is called Un mur contre la malaria.

IDRC Reports: What message or messages would you like to highlight from Net Gain?

Dr Lengeler: A public health intervention is not 'mature' when the science is completed, i.e. when it is proved that it works well and that it is cost-effective in the frame of scientific trials. That is only the first stage. The second stage then belongs to managers, implementers and communities, who have to ensure that such an intervention is introduced on a large scale. This is often less glamorous, but a much bigger challenge. Net Gain attempts to facilitate this crucial second stage.

IDRC Reports: In large scale efficacy trials, ITN use is associated with a 17-63% reduction in overall child mortality. What, if any, information do you have now on the effectiveness of ITNs under real world conditions?

Dr Lengeler: Unfortunately, little is known yet about the effectiveness of ITNs (how well they work under 'real world' situations) as compared to their efficacy (how well they work under controlled scientific trials). So far, we have only one direct comparison from The Gambia: A reduction of 23% in overall mortality was achieved in the frame of a national programme, while a previous scientific trial had demonstrated a reduction in overall mortality of 63%. This is a large difference, with most of it due to a large difference in coverage. It clearly shows that achieving and maintaining a high coverage will be the main challenge for implementers.

IDRC Reports: Net Gain discusses the principal operational research issues that need to be addressed prior to the launch of large scale ITN programs. Since its publication, what progress has been made in resolving these issues?

Dr Lengeler: Since the publication of this book, about 30 different research projects covering all identified priority areas have been launched, mostly research and Training in Tropical Diseases (TDR). So, we are well on track to substantially increase our knowledge in the area of ITN implementation.

IDRC Reports: What progress has been made on the large scale implementation of ITNs?

Dr Lengeler: So far, only 3 larger scale projects have been started in Africa. Only one country, China, had millions of nets already treated for the last 10 years. We are now in a phase in which the science is conclusive, but there is no clear path for large-scale implementation and different approaches need to be explored. In addition, the technology required for effective programmes is not entirely available, either. For example, insecticide needs to be distributed in individual doses (sachets) rather in the one or twenty litre bottles used in the past. This is all part of the operational research supported by the TDR programme.

IDRC Reports: The cover story of the August 1997 issue of The Atlantic Monthly, entitled "Resurgence of a Deadly Disease," is about malaria. In the article, the author briefly discusses insecticide treated nets. He quotes a Senegalese physician, who states: "The West bought the nets. But people here do not believe that they work, and most of us do not use them. Nets keep out the breeze, and this is a very hot country." What is your reaction?

Dr Lengeler: This is a rather surprising statement that does not fit with our experience in many African countries. In most areas, people know about mosquito nets, consider them to be desirable items, but can not afford them. However, people mainly use mosquito nets for preventing mosquito bites, and not for

malaria control. As a result, people tend only to use the nets when there are many mosquitoes around. Since this is not the case in Sahelian countries during the hot season, usage rates are then rather low and that perhaps could explain this statement.

IDRC Reports: In the same article, a Dakar physician states that "providing people withndemic may in fact increase their risk of dying from the disease, by reducing but not eliminating their exposure." He argues that if the transmission rate decreases substantially "a person may lose his or her partial resistance to the disease between bouts." Is there any foundation to these comments?

Dr Lengeler: This question is a hotly debated issue at present and it is a very legitimate question to raise. Unfortunately, there is no solid evidence one way or the other. Only two trials are currently ongoing to clarify the situation and they will only bring results in about 3 years. In the absence of data, the debate becomes largely a matter of interpreting the available circumstantial evidence. My interpretation is that [these arguments] are without grounding and that we have good circumstantial evidence to suggest that there will be a clear survival benefit resulting from the use of ITNs. I believe that this view is currently shared by a large majority of the scientific community.

Lengeler, C.; Cattani, J.; de Savigny, D., ed.

[Net gain: A new method for preventing malaria deaths.](#)

IDRC 1996, ISBN 0-88936-792-2, \$30

(Copublished with the [World Health Organization](#))

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ISSN 0315-9981. This magazine is listed in the Canadian Magazine Index.

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Octubre 2003
