

EDITORIAL

WHITHER ONCHOCERCIASIS CONTROL IN AFRICA?

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Infection with the vector-borne filarial parasite *Onchocerca volvulus* causes chronic skin and eye lesions, often progressing to blindness, and imposes an immense burden on affected populations.^{1,2} Most of those who have or are at risk of this infection are African. The discovery by Merck & Company (Rahway, NJ) of ivermectin as an effective oral treatment of the disease, and their unprecedented donation of hundreds of millions of doses of Mectizan® since 1987 have revolutionized the assault on this scourge. This article discusses options for securing what has been gained so far.

In west Africa, the highly successful 30 year-old Onchocerciasis Control Program (OCP), which was first based on aerial spraying in savannah areas of 11 disease-endemic countries and later added mass drug administration (MDA) in savannah and forest areas, ended in December 2002. Launched in 1974, the OCP has broken transmission in most of its target area and prevented more than 200,000 cases of blindness at a cost of approximately U.S. \$556 million.³ The African Program for Onchocerciasis Control (APOC) was launched in 1995 to help develop sustainable annual MDA with Mectizan®, and health education in the remaining 19 affected countries in Africa and Yemen, using a “community-directed treatment with ivermectin” (CDTI) approach.⁴ The APOC partnership expects to spend approximately U.S. \$135 million by the time it ends in 2010. After eight years, the APOC has helped these disease-endemic countries to successfully extend CDTI coverage to a target population of approximately 48 million people, and treated at least 80% of the eligible population,⁵ including several countries affected by security issues. However, the APOC has been much less successful in persuading African governments to provide support to sustain these activities as they promised.⁶

Both OCP and APOC countries need to continue surveillance and MDA indefinitely (OCP countries in limited foci; APOC countries in larger areas) to maintain the considerable investments and achievements of those programs. The hard reality that must now be faced is that MDA to control onchocerciasis in Africa is still largely dependent on external assistance, but that external assistance is now decreasing rapidly in APOC and OCP areas, as was intended and planned from the outset of both programs.

We believe there are four options for the future of these programs. 1) Allow the programs to fail and onchocerciasis to recrudescence for lack of funds. 2) Demonstrate that onchocerciasis is eradicable in Africa, change the program strategy from control to eradication, and seek new funding for implementation of that time-limited new strategy. 3) Maintain vertical funding mostly by external donors as is currently being done, until adequate national, local, and/or international support is secured to sustain the control measures indefinitely. 4) Integrate onchocerciasis control measures with other compatible interventions to improve efficiency as much as possible, and help countries strengthen their primary health services so

that they can provide the integrated interventions effectively for as long as necessary.

The first option is clearly unacceptable. Neither the at-risk populations, their national governments, nor any of the other partners can afford to allow onchocerciasis to recrudescence, roll back the impressive improvements in health, and reverse the spectacular developmental and agricultural returns on the nearly \$750 million investment that has been made over the past three decades. In our opinion, the affected countries and other partners should resolve to pursue the other three options simultaneously until a secure way is found to either maintain control measures indefinitely or to completely eradicate the infection.

The Conference on the Eradicability of Onchocerciasis that was held in 2002 considered the second option in detail, and concluded that onchocerciasis could not be eradicated in most disease-endemic areas of Africa in the foreseeable future, using the tools now available.⁷ The conference did, however, make recommendations for an operational research agenda that might change that conclusion in the future that included 1) investigating new ways to apply the current tools differently and more effectively (e.g., administering Mectizan® more frequently)⁸; 2) developing a macrofilaricide (with current research focused primarily on moxidectin, or antibiotics to kill or sterilize the *O. volvulus* endosymbiont *Wolbachia*)⁹; and 3) developing better diagnostic tests and disease simulation models to ascertain when adult worms are dead or sterile, and when interventions against onchocerciasis can be safely withdrawn without risk of recrudescence. Some of the experiences being acquired in the Onchocerciasis Elimination Program for the Americas (which is aiming to interrupt transmission of the parasite in the Western Hemisphere by the end of 2007), including the impact of administering Mectizan® two times and four times a year, may be useful in Africa.¹⁰

Since onchocerciasis in Africa is not now eradicable, and allowing the disease to resurge is unacceptable, a way must be found soon to address the increasingly severe discrepancy between what funding is needed to maintain control activities, and what funding is actually being made available. The OCP has ended, support from the APOC is being phased out in many countries (such as Nigeria), most African governments concerned are not releasing adequate funding to their onchocerciasis control programs, and most non-governmental organizations (NGOs)¹¹ are competing with the APOC to raise funds for their Mectizan® distribution activities from the same increasingly reluctant donors. The one notable exception to reduction in support for these programs is Merck & Company, which stands by its pledge to continue donating Mectizan® for as long as necessary, and has recently made a generous grant of \$1 million in support of the NGOs.

All of the projects being assisted by the APOC and The Carter Center in Cameroon, Ethiopia, Nigeria, Sudan, and Uganda have achieved excellent coverage of eligible popula-

tions using the CDTI strategy, but the lack of adequate financial support by national and local governments is a major obstacle to achieving sustainability.¹² We believe supplementary external support should continue to these programs, but that future supplementary support that is made available should be on the express condition that governments that are able to must actually provide significant financial support for their own programs to continue receiving external funding assistance. This would require a willingness among all external partners to halt external funding for a program if government support is not forthcoming. Although primary responsibility for sustaining onchocerciasis programs rests with national governments, budgetary pressures, other health problems, lack of transparency, and weak primary health infrastructures make it unlikely that many will be able or willing to do so in the near future, despite the popularity and manifest effectiveness of the onchocerciasis programs. The sustained funding that is required must come from somewhere; if not from the governments themselves, then from the APOC, bilateral or international donors, or international NGOs.

The newer program that is using MDA with Mectizan® and albendazole to combat lymphatic filariasis in Africa, and extending that dual MDA to many more (hypoendemic) onchocerciasis-endemic communities in addition to the hyperendemic and mesoendemic communities targeted by the APOC, should increase the pressure against transmission of onchocerciasis beyond that of the APOC alone.¹³ Based on our experience in Nigeria, we believe substantial efficiencies can be gained by integrating MDA and health education for onchocerciasis with MDA and health education for lymphatic filariasis and schistosomiasis, for example.¹⁴ These are positive steps towards strengthening primary health services to neglected rural populations. We believe such an integrated approach would be one way to help disease-endemic countries reduce the marginal costs of sustaining control of onchocerciasis.

We need to work with African governments to help develop a feasible, realistic end-game strategy for maintaining the important gains that have been achieved against onchocerciasis in Africa. It may never be possible to eradicate onchocerciasis from Africa, but we should continue to pursue all reasonable avenues to discover potential ways to break transmission of *O. volvulus* using Mectizan®. Interested parties should also continue to explore ways to reduce the costs of maintaining MDA and health education for onchocerciasis by integrating control measures with other interventions, by continuing operational research on CDTI, and by taking other concrete measures to improve basic primary health services in neglected rural areas. Those governments that can do so must begin providing short-term and long-term funding for their own programs, and donors need to consider providing more short-term support to help governments maintain control activities in the meantime. We share the view of one knowledgeable observer who remarked that failing to meet these challenges will likely result in a "train wreck."

Received December 13, 2004. Accepted for publication December 14, 2004.

Acknowledgments: The Carter Center's work on onchocerciasis is in partnership with the Lions Clubs International Foundation, the African Programme for Onchocerciasis Control, and the Centers for Disease Control and Prevention. Ivermectin (Mectizan®) was provided by Merck & Company. We thank Shandal Sullivan for typing the manuscript, and Rosalyn Ajigbeda for assistance in locating references.

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