The Disease

Onchocerciasis is caused by the parasite *Onchocerca volvulus*, which infects humans via the bite of the intermediate host, the blackfly. Manifestations of the disease include disabling itching, severe skin disease and, after repeated years of exposure, blindness. One of the primary methods of halting transmission has centered on vector control, consisting of weekly aerial applications of environmentally-safe insecticides to the blackfly's breeding areas (fast-flowing rivers) during the rainy season. The second method focuses on annual drug treatments. Though no drug exists to kill the adult parasite worm, larval worms can be killed with a single, annual dose of Mectizan (ivermectin).[1] Since the larval worms actually cause the manifestations of the disease and allow for its transmission, the drug is extremely effective. It reduces the load of larval worms, thereby relieving the suffering of the infected individual and eliminating the threat of blindness while simultaneously slowing the transmission of the disease. However, to sustain these beneficial effects, ivermectin must be taken annually over an extended period.

The Onchocerciasis Control Program (OCP)

The Onchocerciasis Control Program was created in 1974 with two primary objectives. The first is the elimination of onchocerciasis as a public health problem and as an obstacle to socioeconomic development throughout an eleven-country [2] area. The second is to leave participating countries in a position to maintain this achievements by enhancing national capacity to maintain control of the disease.

The principal tool has been vector control. By eliminating the intermediate host by killing the fly larvae, vector control effectively interrupts transmissions of the disease. In the late eighties, the program initiated the distribution of Mectizan as a complementary method of control. The OCP program has been hailed as one of the most successful partnerships in the history of development assistance. The results of the program include:

- Virtually halting transmission of onchocerciasis throughout the eleven-country program area;
- Preventing 600,000 cases of blindness by the conclusion of the program in 2002;
- Sparing 16 million children born since the program’s inception from any risk of contracting onchocerciasis; and
- Freeing up estimated 25 million hectares of arable land for resettlement and cultivation.

Through donations of Mectizan by its manufacturer, Merck and Co., Inc., as well as financial support from a large pool of donors, OCP is fully funded through its conclusion in 2002. At that time, control and
monitoring activities will be maintained through the creation of a sub-regional multi-disease surveillance center at the OCP Headquarters. The center will participate in the training of national epidemiologists, assist in the creation of national surveillance systems and collaborate with countries for operational research concerning surveillance. Currently, OCP staff, which is 97 percent African, provides technical and logistical support to participating countries to ensure that they are capable of continuing residual onchocerciasis control activities within the framework of their own national health system.

The African Program for Onchocerciasis Control (APOC)

The remarkable success of OCP and the prevalence of onchocerciasis in the remainder of Sub-Saharan Africa led to the development of a second program, the African Program for Onchocerciasis Control (APOC), launched in 1995. It extended ivermectin coverage of nineteen other endemic African countries [3] with the goal of treating over 50 million people annually. The principal method of controlling the disease relies on the establishment of sustainable, community-directed ivermectin delivery systems. Community-directed treatment has the advantage of empowering grassroots communities; it allows them to take full responsibility and ownership for controlling the disease. It is the intention of the program to achieve fully sustaining community-directed treatment systems within the 1996-2007 time period.

Currently, sixteen million people are heavily infected with onchocerciasis within the APOC countries. It is a major cause of blindness in the savanna belt that crosses Nigeria, Cameroon, the Central African Republic, Chad, and Sudan. To protect the people at risk, APOC will require US$160 million, of which US$120 million will be supplied by the donor community and the remaining US$40 million will be assumed by NGDOs and the African countries. The first phase of the project, concluding in 2001, has been fully funded. The second phase, which begins in 2002, still requires mobilization of US$62 million.

Like OCP, APOC is intended to achieve several important results:

- Prevent approximately 40,000 cases of blindness annually in the nineteen-country area;
- Alleviate unbearable itching and eliminate unsightly skin disease throughout the nineteen countries;
- Protect the US$560 million investment in the Onchocerciasis Control Program by eliminating the threat of re-invasion of onchocerciasis from neighboring countries, notably Nigeria; [4] and
- Eliminate onchocerciasis as a public health problem throughout the entire continent of Africa, where 99 percent of the world's cases occur.

The Power of Partnerships and the Regional Approach

Two of the hallmarks of the success of the onchocerciasis programs have been the unusually effective collaboration through the establishment of wide-ranging, diverse partnerships and a comprehensive regional approach in addressing the disease. The involvement of many different partners leads to improved resource allocation and efficiency based on the exploitation of economies of scale and the principle of comparative advantage. Both APOC and OCP demonstrate that partnerships among multilateral agencies, participating governments, NGDOs, bilateral donors and the private sector generate important synergies, providing greater benefits at less cost. The regional approach is particularly appropriate for health programs addressing a communicable disease because the output represents a
“public good.” The greater scope of regional programs allows for higher visibility, attracting wider participation and broader burden-sharing. In the case of OCP and APOC, a comprehensive attack through the regional approach is required to address the spread of a disease which is not confined by country borders, and ultimately to eliminate that disease throughout the continent of Africa. Consequently, the partnership and regional approaches have enabled development constraints to be addressed in an efficient manner and, after many years, have proved to be enormously successful.

[1] Ivermectin is provided free of charge for as many people as needed, for as long as needed, within the African continent by its manufacturer.


[4] The relatively high economic rates of return achieved by the programs, 20% for OCP and 25% for APOC, only further attest to the soundness of the investment.

This article was written by Bruce Benton, Manager of the Africa Onchocerciasis Program. For more information, please contact Bruce Benton, e-mail: Bbenton@worldbank.org