

Resources & Opportunities To Sustain, Scale Up, and Improve National Elimination Programs



Experiences from OEPA (Onchocerciasis Elimination Program for the Americas)

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Introduction

Dr. Sauerbrey thanked the Secretariat, Dr. Steven Ault, for inviting the Onchocerciasis Elimination Program for the Americas (OEPA) to make a brief presentation to describe the program and illustrate similarities between the lymphatic filariasis (LF) and onchocerciasis programs. He described the program mission and structure, the geographic distribution of the disease in the Americas, the level of current coverage, the main indicators of the guide for certification of elimination of the disease (which has been endorsed by the World Health Organization [WHO]), the critical components of the process, and the main issues that must be resolved to achieve program objectives. He said he hoped participants would take away something to share with their organization, pose some questions afterward, and find some common ground in which the programs could work together.

Overview

Headquartered in Guatemala, OEPA is the technical and coordinating body of a multinational, multi-agency coalition that acts under the 1991 Resolution XIV of the XXXV Directing Council of the Pan American Health Organization (PAHO) calling for the elimination of onchocerciasis morbidity from the Americas by the year 2007.

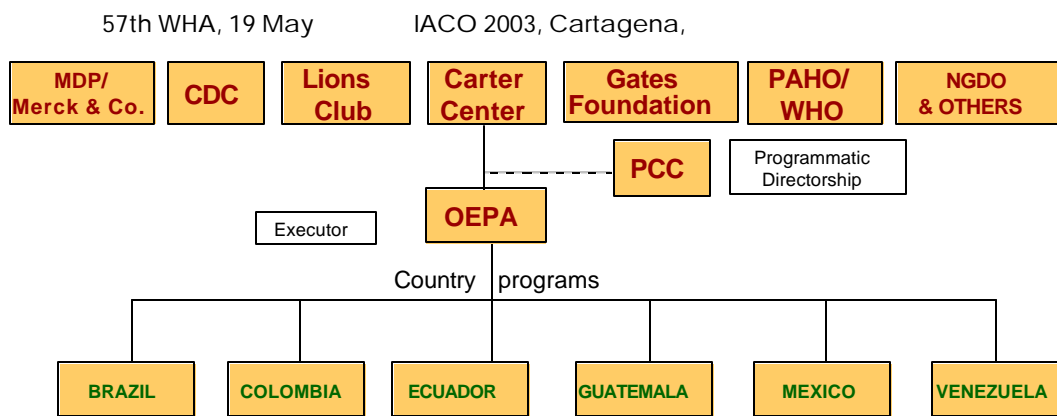
History

When OEPA was established in 1991, onchocerciasis was considered possible to eliminate (even before the 1987 donation of Mectizan® [ivermectin product name] by the pharmaceutical company Merck). The 1991 WHO resolution stimulated the international public health community to form a special group to guide the initiative—eliminating onchocerciasis in the Americas. The result was a multi-agency coalition, linking the various government agencies, plus a multinational organization comprising the country programs, with OEPA as the nexus point. In the beginning stages of the initiative, the River Blindness Foundation was in charge of OEPA. At that time, some countries did not have either a control or elimination program, and some programs focused only on control. So, initial efforts focused on encouraging all countries with the disease to form an elimination program. In 1995, the River Blindness Foundation dissolved, and responsibility for the global onchocerciasis program was passed on to the Carter Center (Atlanta, Georgia, USA) in the form of the Global Program 2000, which is still in operation.

Partners

A variety of other organizations participate in OEPA (see Figure 1), including the Mectizan® Donations Program (MDP), run by Merck, and the Merck company (which donated the funds for the MDP); the Centers for Disease Prevention and Control (CDC), which was responsible for the technical vision of the program; the Lions Club; Pan American Health Organization (PAHO)/WHO; and the Bill & Melinda Gates Foundation. Various nongovernmental organizations (NGOs) and universities also participate to contribute the academic perspective (ideas about the development of new tests, etc.). At present, OEPA's main donors are the Lions Club, Merck, PAHO, and WHO, which created the original resolution against the disease and produces and oversees guidelines for certification of its elimination, as endorsed at a meeting of experts in Geneva in the year 2000.

Figure 1. Partnership Organization Chart



PCC, Program Coordinating Committee

Structure

To oversee implementation and execution of program activities, the Global Program 2000 has a Coordinating Committee, which is responsible for programmatic cohesion, and a Steering Committee, which guides the technical aspects of the entire initiative. These committees include 10 members, who elect the Secretariat of the Coordinating Committee, plus the OEPA Director. The group consists of prominent members of all participating agencies and two members from the country programs, who are rotated every two years (at different times, to ensure there is always a link from one member to another in order to maintain continuity). OEPA members also include five experts from different realms (treatment, epidemiology, health education, information systems, and finance) who provide technical assistance, management, and financial resources to the six country programs comprised by OEPA. Each of the six countries has its own program, which is funded or housed within the national Ministry of Health (MoH). Brazil is the only country with both an onchocerciasis and a lymphatic filariasis (LF) program (albeit in totally different geographic regions). Dr. João Batista Vieira is the director of both of these programs.

Funding

An important characteristic of the program's financing is that rather than depending on the participating agencies for funding, the six member-country governments contribute a substantive portion of it themselves (36% of all OEPA program funding). Each country is responsible for absorbing the cost of the operation of its program. Additional funds are provided by the OEPA

member agencies to support financial needs presented by the countries for impact evaluation, technical assessment, the development of new tools, and meetings.

IACO

At the annual meeting, the International Conference on Onchocerciasis (IACO), which is rotated to each of the six countries, member countries present achievements made during the year, discuss themes determined by the Coordinating Committee, and introduce new techniques and tools as well as any new guidelines that should be followed to meet OEPA objectives. One important requirement is that all initiatives be standardized and coordinated so that participation by the various local communities can be sustainable.

Strategies

Across the six countries, a mosaic of strategies is required. Some national programs are vertical, whereas others (e.g., those in Brazil, Ecuador, and Colombia) are integrated with the national primary health care (PHC) programs—the preferred structure from the point of view of sustainability. There is a wide range of program development across the different national focal points, with some more advanced than others. One characteristic of the global program that helps strengthen it overall is the relatively even distribution of the focal points across the member countries (see Figure 2), which helps make elimination of the disease a real possibility in the Americas (as opposed to Africa, e.g., which lacks this type of foci distribution). In terms of treatment, the strategy includes “six-monthly mass distributions of Mectizan® in all endemic areas, covering at least 85% of the eligible population. [The] two primary goals [are]:

- **First**, to eliminate morbidity due to infection with *O. volvulus* in the six-country programme by the year 2007. This is also stated as “elimination of onchocerciasis as a public health problem by the year 2007.
- **Second**, to eliminate parasite transmission in those countries or foci where feasible. No time limit specified.”¹

Vectors

The onchocerciasis vectors in the Americas are well distributed across the focal points. At many sites, however, these vectors are not very efficient (other than the case of Ecuador, which has the presence of *Simulium exiguum* vector, comparable in terms of efficiency to *Simulium damnosum* in Africa). This is another factor that makes onchocerciasis elimination possible in the Americas. In addition, the onchocerciasis vectors in the Americas are not transported by the wind, as they are in Africa, which helps to minimize the distribution of the disease.

Distribution

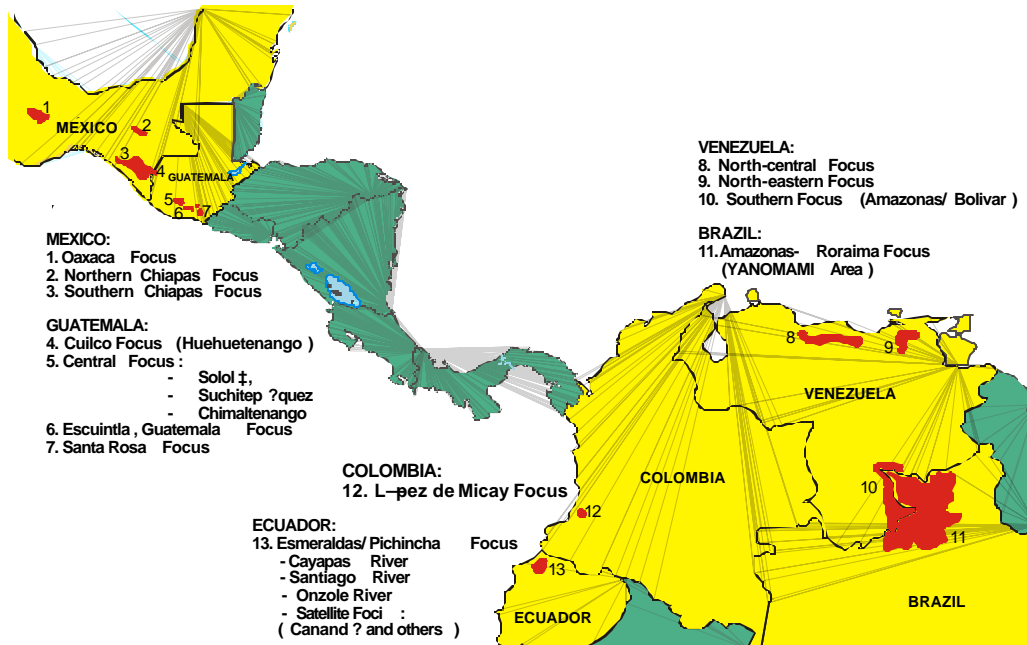
As shown in Figure 2, the distribution of onchocerciasis in the Americas covers six countries (Mexico, Guatemala, Colombia, Ecuador, Venezuela, and Brazil). Theoretically, these countries have a collective total of 13 focal points. In practice, however, there are 12 foci, as the two cross-border areas between Brazil and Venezuela (#10 and #11 in Figure 2) are treated as one focal point.² There

¹ As per WHO Certification Document

²The number of focal points is considered to be 12 vs. 13 (as shown in Figure 2) because of the situation in the area of the indigenous population of the Yanomamis, which straddles Brazil and Venezuela. Although this area does comprise two countries and is divided into two areas, separated by a border (and thus might be considered two separate focal points), it is currently not under any national control; the Yanomamis have free access across the border, and there are no health workers in either country's territory. The onchocerciasis program has proceeded to work in these areas nonetheless and

are 1,950 endemic communities, with 232 that are hyperendemic (12%). Hyperendemicity is determined by prevalence, based on biopsies of the skin at the basal point. At the beginning of the initiative, areas with minor prevalence (less than 20%) were classified as hypoendemic, those with prevalence between 20 and 40% were classified as mesoendemic, and those with prevalence higher than 60% were classified as hyperendemic. This general classification system is expected to remain in place until elimination is achieved. Area classification, however, is changing (i.e., some areas originally classified as hypoendemic are now mesoendemic, and vice versa). The current community at risk is on average about a million people (with 449,000 eligible to receive treatment). All communities are treated the same, twice per year, with a minimum of 85% of coverage of the eligible population.

Figure 2. Distribution of onchocerciasis in the Americas



Treatment

The Universal Treatment Goal x 2 (UTG²) for onchocerciasis is just under 900,000. Of the 13 focal points that exist in the Americas (see Figure 3), all have met the 85% coverage minimum. In general terms, coverage in the region is now about 97% (vs. 93% the previous year and 87% the year before that). It took three years to meet the 85% minimum. The only focal point that has not reached this goal is the Southern focus in Venezuela (in the Amazon) due to the characteristics explained above (poor health infrastructure and extremely difficult access to it, which precludes the required twice-per-year treatment). OEPA is working to surmount this obstacle, and the government of Venezuela has promised to develop a health plan for the Yanomamis. OEPA is also advocating agreements between Brazil and Venezuela to allow Brazil health jurisdiction over some cross-border areas in the Amazon.

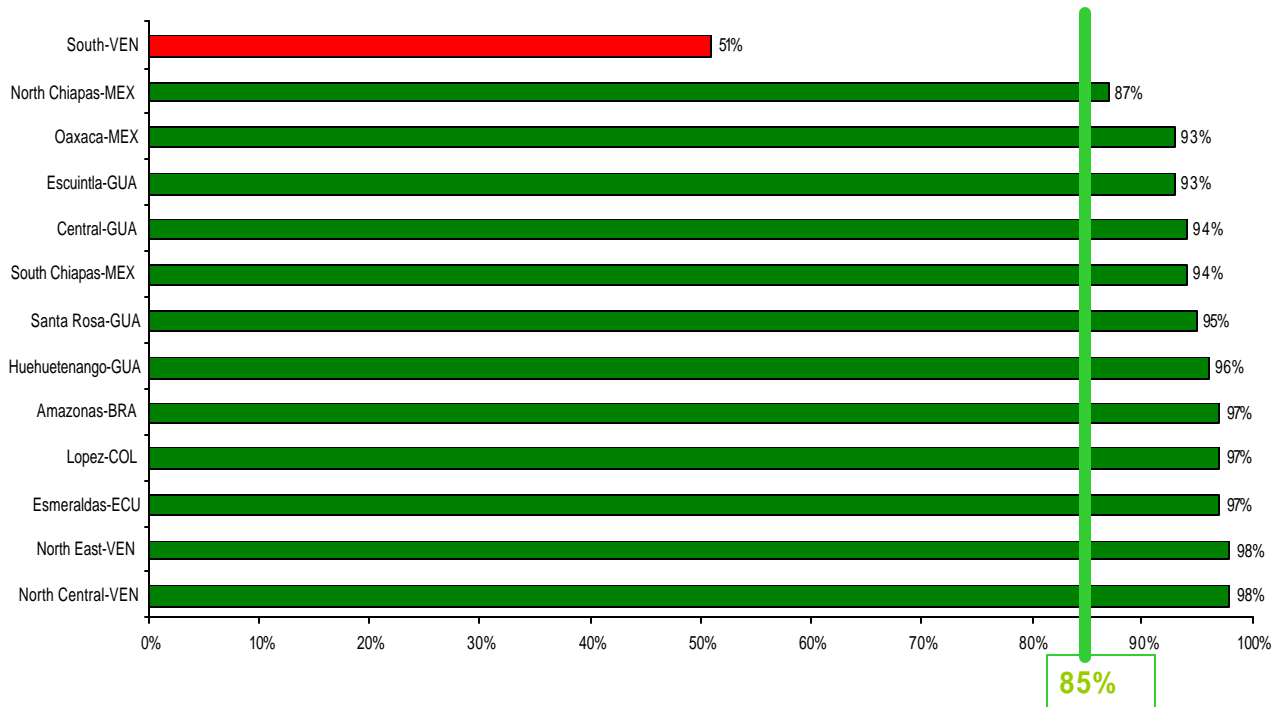
hopes for eventual agreements that will allow access for all Yanomamis to health infrastructure on the Brazilian side, where health infrastructure has been well developed, including those living on the Venezuelan side, where the health infrastructure for the poor is still underdeveloped and does not allow for the required treatments.

³ UTG multiplied by two

Issues

- How many years should mass treatment be continued in areas with and without transmission?
- When can Mectizan® be stopped with little to no risk of recurrent transmission?

Figure 3. Percentage of UTG2 by focal point (2004)



Criteria for Certification of Elimination⁴

4.1. Elimination of Morbidity

- Absence of reversible lesions in the anterior segment of the eye (punctate keratitis, microfilariae in the anterior chamber). A five-year cumulative incidence rate of less than 1 new case per 1000 is acceptable.
- It must be remembered that permanent eye lesions, as well as some severe skin or lymphatic lesions, are irreversible. Such “old morbidity” cannot be eliminated, except by death.

4.2. Elimination of Transmission and Infection

4.2.1. Entomology

The absence, or near absence, of infective-stage larvae in the vector population as determined by PCR in a minimum sample size of 10,000 flies for each endemic community tested.

4.2.2. Human Epidemiology (Children):

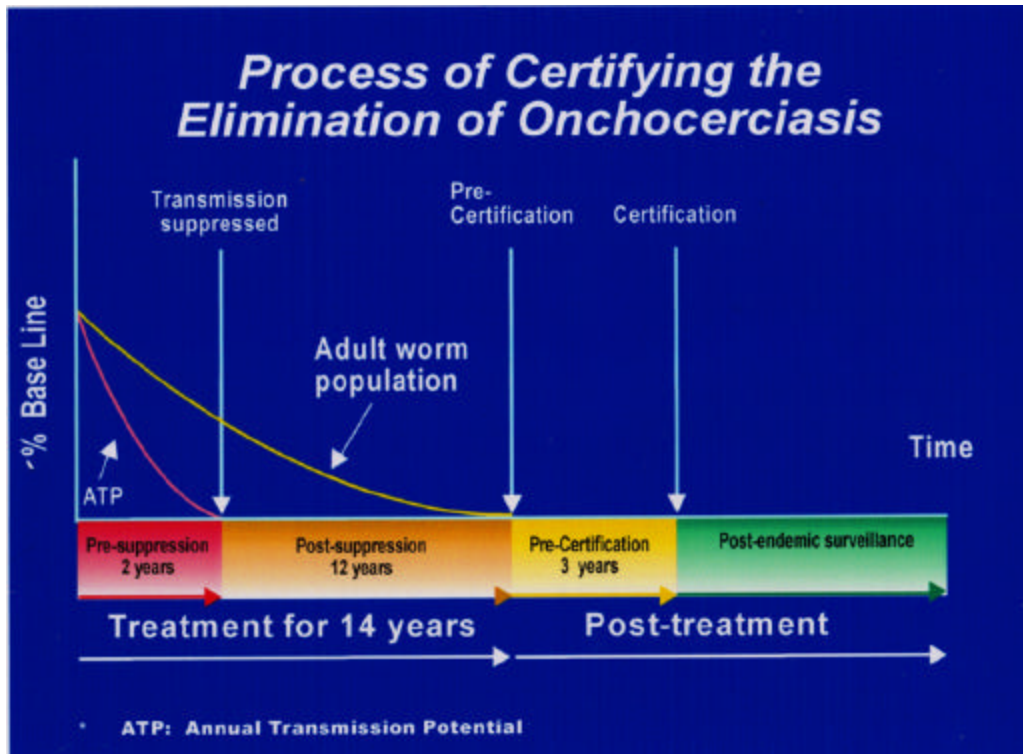
The absence of detectable infection (as evidenced by microfilariae, nodules, immunological, or other proven tests) in untreated children reaching the age of 5. A 5-year cumulative incidence rate of less than 1 new case per 1000 susceptible children is acceptable.

4.2.3. Human Epidemiology (Migrants):

The absence of detectable infection in untreated, new residents who have migrated into an endemic area where transmission has been interrupted (1 new case per 1000 susceptible individuals).

⁴ WHO Certification Document

Figure 4. Process of certification of elimination of onchocerciasis



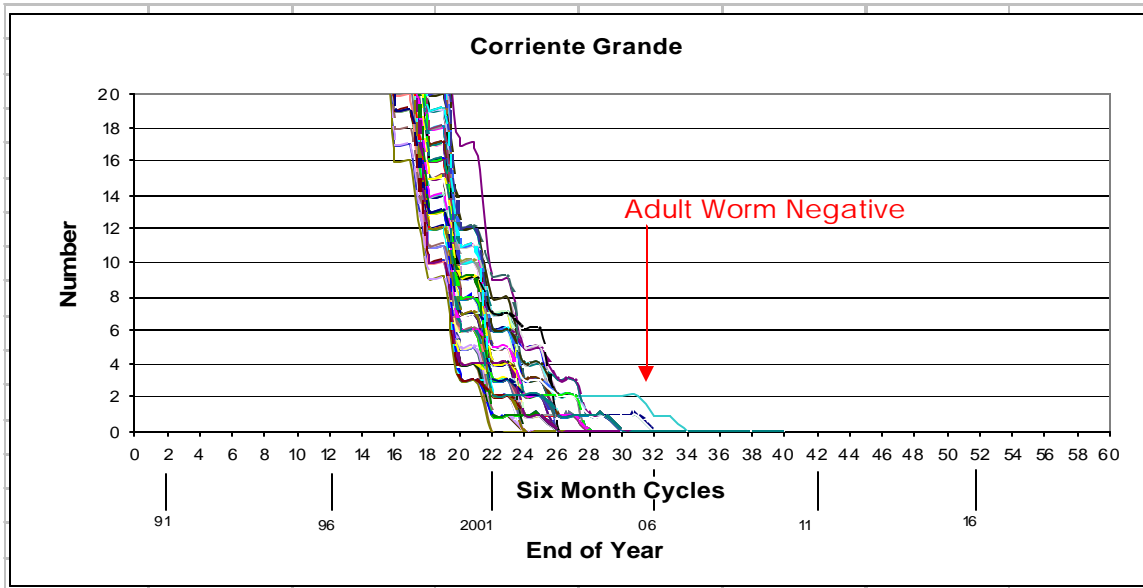
Based on these criteria, the process for certification of elimination is shown in Figure 4. Results from the SIMON (Simulated Model of Onchocerciasis) are shown in Table 1 and Figure 5.

Table 1. SIMON: A generated probability of eliminating all living female *O. volvulus* from human population of Corriente Grande [Ecuador] (expressed as the proportion of uninfected persons remaining in the population each year)

	2001	2002	2003	2004	2005	2006	2007
Probability %	2	15	53	77	95	99	100
95% CI	-0.3 – 4.3	8.6 – 21.3	41.0 – 65.0	62.5 – 91.5	78.9 – 111.1	82.6 – 115.4	83.5 – 116.5

Davies, 2005 (unpublished)

Figure 5. SIMON: A simulation of the number of infected persons in the population of Corriente Grande following continual six-monthly distribution of ivermectin



Proportion of non-receivers, 2.0%. Each line represents one of 100 model replicates.