

## The Onchocerciasis Elimination Program for the Americas (OEPA)

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Human onchocerciasis (river blindness) occurs in 13 foci distributed among six countries in Latin America (Brazil, Colombia, Ecuador, Guatemala, Mexico and Venezuela), where about 500,000 people are considered at risk. An effort to eliminate the disease from the region was launched in response to a specific resolution adopted by the Pan-American Health Organization (PAHO) in 1991: to eliminate onchocerciasis from the region, as a public-health problem, by 2007. The effort took advantage of the donation of the drug Mectizan (ivermectin) by Merck & Co., Inc. In 1992, the Onchocerciasis Elimination Program for the Americas (OEPA) was launched, with its headquarters in Guatemala, to act as a technical and co-ordinating body of a multinational, multi-agency coalition that includes the endemic countries, PAHO, The Carter Center, Lions Clubs, the United States Centers for Disease Control and Prevention, The Bill and Melinda Gates Foundation, Merck & Co., Inc., and other partners. This public-private partnership facilitated the establishment of programmes for the semi-annual mass administration of Mectizan in the six countries with onchocerciasis. The aims were to (1) provide sustained treatments, with coverage reaching at least 85% of those eligible to receive the drug (in the 1845 endemic communities that are distributed within the 13 regional foci); (2) eliminate new morbidity caused by *Onchocerca volvulus* infection by 2007; and (3) eliminate transmission of the parasite wherever feasible.

Significant progress has already been made in all six countries, each of which has active programmes with treatment coverages exceeding the target of 85%. The progress is being documented in accordance with certification guidelines for onchocerciasis elimination established by the World Health Organization. No new cases of onchocercal blindness are being reported in the region, and ocular disease attributable to *O. volvulus* has been eliminated from nine of the 13 foci. Treatment is no longer needed in Santa Rosa, Guatemala, where transmission has been eliminated, and will be halted in at least three other foci in 2008, as they confirm the interruption of transmission. Treatment efforts should now be concentrated on the five foci where significant transmission remains: Central (Guatemala), Amazonas/Roraima (Brazil), North-central (Venezuela), North-east (Venezuela) and South (Venezuela).

Based upon the experience gained, the well-established operations and the success achieved so far, it seems reasonable to estimate that onchocerciasis could be eliminated from most of the remaining foci in the Americas by 2012. The protocol, criteria and deadline for stopping all onchocerciasis treatment in the region should soon be addressed by OEPA's Program Co-ordinating Committee (PCC), in co-ordination with the PAHO.

Although onchocerciasis (river blindness) is most prevalent in Africa, the disease also occurs in 13 discrete foci distributed across six countries of the Americas: Brazil, Colombia, Ecuador, Guatemala, Mexico and Venezuela (see Figure). About 500,000 people are at risk of the infection in the western hemisphere, among diverse

populations and ecosystems. In Guatemala and Mexico, the *mestizo* and indigenous populations who live in coffee plantations are most at risk, whereas in Ecuador and Colombia the disease affects those living on the banks of river shores, primarily people of African and indigenous descent. The nomadic Yanomami, an indigenous tribe living close to the Brazilian-Venezuelan border, is one of the most severely affected groups. By travelling throughout the Amazon

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FIG. Map of the onchocerciasis-endemic areas in Latin America, showing the percentage of the regional at-risk population in each affected country. The Onchocerciasis Elimination Program for the Americas (1992-present) operates in six countries in this region, generally providing ivermectin treatment between two and four times a year (with a special intervention in the South Chiapas focus in Mexico) to those people still at risk of onchocerciasis (currently about half a million individuals). The aim is to eliminate onchocerciasis entirely from the Western Hemisphere.

rainforest, the Yanomami put themselves at continuous risk of exposure to blackflies infected with *Onchocerca volvulus*, although they represent only 3% of the total regional population at risk. Most (91%) of those at risk live in Guatemala, Mexico or northern Venezuela (Anon., 2007).

The effort to eliminate onchocerciasis from the Americas was launched in response to Resolution XIV as adopted by the 35th Pan American Health Organization (PAHO) Directing Council in 1991. This resolution, which called for the elimination of the disease as a public-health problem in the western hemisphere by 2007, took advantage of the donation of the safe and effective oral microfilaricide Mectizan® (ivermectin) by Merck & Co., Inc. This donation facilitated programmes of mass treatment to eliminate new morbidity caused by *O. volvulus* and reduce the transmission of the parasite. The elimination of new *Onchocerca*-attributable morbidity was recognised as the first goal of the Onchocerciasis Elimination Program for the Americas (OEPA) when it was launched in 1992. Headquartered in Guatemala, the OEPA acts as the technical and co-ordinating body of a multinational and multi-agency coalition. The initial task of the OEPA was to assure that each of the six countries in the

Americas affected by onchocerciasis had an active programme for the distribution of Mectizan. The OEPA was also charged with ensuring that all endemic areas in each country were epidemiologically assessed and stratified by disease prevalence, to provide the baseline information needed for future impact analysis.

The OEPA partnership (Blanks *et al.*, 1998) includes the endemic countries, the World Health Organization (through its regional branch, PAHO), The Carter Center, Lions Clubs, the United States Centers for Disease Control and Prevention (CDC), the Bill and Melinda Gates Foundation, and Merck & Co., Inc. The OEPA strategy has been to strengthen the ministries of health in the six endemic countries and enable them to provide sustained mass treatment with Mectizan every 6 months, reaching at least 85% of the eligible population in all 13 regional foci (see Table). Although not mandated in the PAHO's 1991 resolution, the OEPA also set itself a second and more important goal than the elimination of new morbidity — the interruption of the transmission of *O. volvulus* wherever possible in the Americas, without a specific deadline.

The programme has already made significant progress, as documented in annual

TABLE. Current status of the transmission of onchocerciasis in the 13 endemic foci in the Americas, 2007

Current status	Focus	Country	No. of treatment rounds with good coverage*
Interrupted	Santa Rosa	Guatemala	11
	Escuintla	Guatemala	12
	Lopez de Micay (Cauca)	Colombia	13
Supposedly suppressed	Huehuetenango (Cuilco)	Guatemala	13
	Oaxaca	Mexico	12
	North Chiapas	Mexico	11
Greatly reduced	South Chiapas	Mexico	13
	Esmeraldas/Pichincha	Ecuador	13
	Ongoing	Central	Guatemala
Amazonas/Roraima		Brazil	13
South		Venezuela	3
North-east		Venezuela	9
	North-central	Venezuela	10

\*The number of rounds achieved, between 2001 and the first round of 2007 (inclusive), in which the treatment coverages were at least 85%. The treatments in Santa Rosa were halted in 2007.

reports published in the World Health Organization's *Weekly Epidemiological Record* and as indicated by PAHO's ongoing participation since the programme's inception. All six countries in the Americas that have endemic onchocerciasis now have active programmes providing treatment in all 13 foci, and all six have exceeded the target coverage of 85% of the eligible population treated twice a year. Guidelines for the certification of the elimination of onchocerciasis have been developed by the World Health Organization (2001) and are carefully followed to document progress. It appears that no new cases of visual loss caused by onchocerciasis are occurring and that the ocular disease has already been eliminated from nine of the 13 foci. Treatment has already been halted in the Santa Rosa focus in Guatemala and will be halted within the next 12 months in a few more areas — Escuintla in Guatemala, Lopez de Micay in Colombia, and, very probably, the Rio Santiago subfocus in Ecuador — as the local interruption of transmission is confirmed [the results of the relevant studies carried out in 2007 are currently under review by OEPA's Program Co-ordinating Committee (PCC)]. According to national reports presented during the 2006 Inter-American Conference on Onchocerciasis and the PCC's recommendations from mid-2007, transmission has probably been suppressed in another three foci and seven further foci are approaching the suppression of transmission (see Table).

#### FUTURE PERSPECTIVES OF THE OEPA REGIONAL INITIATIVE: TOWARDS THE ELIMINATION OF ONCHOCERCIASIS FROM THE AMERICAS

Based upon the experience gained, improved operational knowledge, and the results seen so far, it appears that the impact of Mectizan treatment may be much stronger than initially expected, particularly when

treatment is given every 6 months to a large percentage (>85%) of those who are eligible to receive the drug. This prevents new infections and, according to Cupp and Cupp (2005), accelerates the elimination of adult *O. volvulus* from populations within 'closed systems' (such as small, isolated foci). All 13 foci in the Americas are now reporting consistently high coverages for treatment every 6 months and have done so for the last 5 years (with the single exception of the South Venezuela focus, which did not reach the target 85% coverage until 2006). As mentioned above, the results of recent studies have demonstrated the impact of such high coverages and led to the decision to halt treatment in at least three foci, which are now following the certification guidelines during the post-treatment phase (a 3-year period of epidemiological surveillance). The foci where transmission is suspected of being suppressed will soon be the subject of similar impact studies. If the ministries of health and national control programmes remain committed and treatment coverages can be kept at their current or higher levels, it now seems probable that onchocerciasis could be eliminated from the Americas, or at least from the majority of the regional foci, by 2012.

The point at which Mectizan treatments can be stopped throughout the Americas is expected to be addressed soon by the PCC, in co-ordination with the PAHO, and a new regional deadline for the complete elimination of transmission in the western hemisphere will be set. This achievement would be facilitated by the development of a serological antigen-detection test for onchocerciasis. Such a test would be very useful in the new era that marks the beginning of the end of Mectizan treatments in the Americas.

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