

# Arizona's initiative played part in latest Nobel Prize in medicine

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## opinion

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This year's Nobel Prize in medicine was awarded to William C. Campbell of the Merck Institute and Satoshi Omura of Kitasato University for their discovery in the 1970s of ivermectin, a novel drug against roundworm parasites; in particular, the filarial nematode that causes river blindness in Latin America and Africa.

About 123 million people live in areas that are at risk for the disease. Dr. Campbell credited the many people and institutions who have made the drug available to these infected communities. One such program in the College of



Agriculture at the University of Arizona carried out the crucial, community-based field trials in Guatemala.

River blindness is caused by microscopic worms that inhabit the skin and eyes. Continued exposure to the parasite causes blindness and intense itching over the body. The infection is transmitted by blood-sucking black flies that breed in rivers; thus the name "river blindness." When a fly bites an infected human, it ingests the tiny worms that are later transmitted to another human when the fly again bites.

Dr. E.W. Cupp from the Department of Entomology discovered that flies did not become infected when biting ivermectin-treated patients, suggesting that these people no longer contributed to the spread of the disease.

In the mid-1980s, Dr. Cupp and colleagues, received \$450,000 from the World Health Organization to determine if ivermectin would do the same in five heavily infected communities in Guatemala. But WHO could not pay the university the 40 percent to 50 percent overhead expense it incurred. Even so, the College of Agriculture, under Dr. L.W. Dewhirst, vice dean and director of the Experiment Station, generously absorbed the costs.

After 30 months, results were so promising that we ended the study and recommended routine drug distribution be organized using these parameters—85 percent of all adults should be treated every six months in all endemic communities until the infection disappeared.

Today, 25 years later, the disease has been eliminated in four of the six endemic countries: Colombia, Mexico, Ecuador and Guatemala. Venezuela and Brazil still share a tiny focus of infection in the Orinoco River basin. The Latin America experience has been carried over to Africa where thousands are now being treated.

Important lessons can be gleaned from this history. First, research institutions should take the initiative when extraordinary opportunities for public service presents, even if it costs money. In this case, the University of Arizona should be applauded.

Second, the infected population had to voluntarily accept the study protocol that included physical examinations along with taking the drug. The Centers for Disease Control laboratory in Guatemala had long worked in these coffee-growing Mayan communities, and gained their trust.

Third, from its inception, the program has enjoyed a critical mass of institutions and knowledgeable people in fields as diverse as entomology, medicine, and cultural anthropology.

After we published the peer-reviewed results of the community-based treatments in 1992, funding has flowed from governments and private philanthropies including The Carter Center, Gates Foundation, and others. Merck Institute has donated the drug free of charge for as long as needed to complete the elimination of this devastating disease that affects the poorest of the poor.

Nothing attracts attention and money like success.

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A research biologist for the CDC in the 1970-80s in Guatemala, Richard Collins participated in the community-based trials, and helped organized treatment programs in the six countries. A 1970 alumnus of the UA, he lives in Sonoita. Contact him at [stormytip@top@gmail.com](mailto:stormytip@top@gmail.com)

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