

MOSQUITO VECTOR CONTROL AND BIOLOGY IN LATIN AMERICA—A SYMPOSIUM¹

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ABSTRACT. The first Spanish language symposium ever presented by the American Mosquito Control Association was held as part of the 57th Annual Meeting in New Orleans, LA, in March 1991. A major objective was to increase and stimulate participation in the Annual Meeting by vector control specialists and public health workers from Latin America. This publication summarizes the 25 individual presentations that encompassed the following areas: mosquito biology and ecology, evaluation of chemical and biological control measures for mosquitoes, epidemiology of dengue, and current and developing dengue prevention programs.

INTRODUCTION

The American Mosquito Control Association (AMCA) is recognized as the premier organization of its type in the world. To better serve the international vector control and public health community, a symposium with presentations in Spanish was planned, organized and held at the 57th Annual Meeting of the AMCA in New Orleans, LA. The objectives were to encourage colleagues from Latin America to attend the AMCA meeting, discuss their experiences in vector control, present results of recent studies, promote greater interaction with AMCA members and stimulate future collaboration in the resolution of vector control and vector-borne disease problems.

In planning for this symposium, all AMCA members and about 60 other governmental or university vector control personnel in Latin America were invited to submit abstracts. As a result of the enthusiastic response, 25 presentations covering a wide variety of topics were included in this session. The quality of the presentations, enthusiasm of the speakers and attendance at the session contributed to its success. The symposium's objectives were clearly met and provided a forum that has led to greater interaction between AMCA members and their neighbors in Latin America where vector-borne diseases, like malaria and dengue, are problems that must be dealt with on a daily basis.

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Medical Service Corporation International of Arlington, VA; the New Orleans Mosquito Control Board (Edgar S. Bordès, Jr.), American Cyanamid (William Jany), Vectec (Isaac S. Dyals) and Sumitomo Chemical America (S. Ohutsuki) for providing financial support for many of the international visitors. The VBC Project also provided copies of the abstracts (in English) for non-Spanish speakers attending the session and provided funds for publication of symposium abstracts in the *Journal of the AMCA*. As a result of the response from participants and the AMCA leadership, it is expected that this unique forum will be included in future meetings of the organization.

SYMPOSIUM ABSTRACTS

Resting sites for *Aedes aegypti* in Panamá (Sitios de reposo de *Aedes aegypti* en Panamá)

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The ground application of ultra-low volume (ULV) insecticidal fog by truck is the most common emergency measure to control *Aedes aegypti* during a dengue epidemic. Studies indicate that these mosquito populations recover within 3-7 days and that it is not a very effective control measure. These questions, and the possibility of imported cases of dengue entering Panama from nearby countries and because larval infestations (house indices) have reached 10% and above in certain metropolitan and outlying districts during 1988-89, stimulated us to investigate the resting behavior of *A. aegypti* in respect to the effectiveness of ULV spraying.

This project received support from the Panama Health Ministry and SNEM mosquito control, who assigned 4 technicians to work on the

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² Reprints may be requested from Gary G. Clark.

only 13 states. After the eradication of *Aedes aegypti* in 1963, efforts to keep the country free of the vector were fruitless. The first dissemination of the infection and the recent transmission of dengue in high altitude areas demonstrated how difficult the control has been.

During the 1980s, the control program was dependent on the use of chemical tools for insecticide spraying and larval control. As in many other Latin American countries, the program faced problems and limitations in budget, trained human resources and equipment. These were not new but became more severe as transmission in different regions and the risk of dengue hemorrhagic fever increased. Since the solution to vector-borne diseases was traditionally with the government, the community perceived that the solution for dengue or malaria was outside its domain. The present situation hallmarks a point where the feasibility of investing in a technically based solution where specialized personnel, spraying machines and insecticide or larvicide use is out-of-hand. This is also because the vector is a domestic mosquito that breeds in man-made containers in the domestic setting, generated by specific human behavior and patterns of consumption. There is a need to create social awareness and recognize our participation and responsibility as a community, in generating a solution to the problem.

The program in Mexico is beginning to develop educational tools where the community is actively involved in their development and content. Different approaches to control are also being tested where breeding sites are controlled by routine activities like trash recycling schemes and biological control strategies, which will be developed and implemented.

Prevention strategies for dengue epidemics in Panama (Estrategias en la prevención de epidemias de dengue en Panamá)

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Many of the dengue epidemics in several Latin American countries since the 1970s could have been controlled by integrated health activities. The specific activities to be employed in such strategies include: 1) education of health personnel, 2) community education, 3) monitoring of febrile illnesses, 4) use of sentinel centers for active surveillance, and 5) preparation for an eventual outbreak. The case of Panama will be examined to illustrate how these activities are coordinated to produce reduced larval indices, monitor dengue virus activity and prepare for an outbreak.

The absence of dengue virus in Panama is surprising, given the fact that Panama was reinfested with *Aedes aegypti* in August 1985 (the overall house index has exceeded 5% every rainy season since 1986) and Panama's population is highly susceptible to dengue, since the last outbreak ended in 1942. [In an effort to combat the possibility of a dengue virus epidemic, Gorgas Memorial Laboratory, the Ministry of Health, social security system, PAHO and community leaders have joined efforts in 1990 to implement a program to prevent epidemic dengue.] This program included all 5 strategies.

Larval indices have shown a downward trend without the use of chemical control. Laboratory tests on 1,780 suspected cases of dengue studied since September 1988, employing virus isolation, IFAT, IgM-ELISA, HI and NT, indicated no dengue virus activity in Panama, except for 2 imported cases detected through the established surveillance system.

This is the first example in which a dengue-free country with *Ae. aegypti* reinfestation has made a concerted effort to reduce larval indices, while simultaneously monitoring dengue virus activity and preparing for an eventual outbreak of dengue.