PAHO Advisory: *Aedes albopictus* in the Caribbean

Situation

In late May 1993, *Aedes albopictus* mosquitoes were discovered in Santo Domingo, Dominican Republic. Their detection constitutes the first reported focus of this species in the Caribbean Basin. Entomologic surveys are being conducted to determine the extent of its distribution. The origin and route of entry into the country remain uncertain.

Background

A. albopictus is indigenous to Asia. However, infestations were identified in Brazil and the United States of America in the mid-1980s. Extensive surveillance and monitoring has revealed that this species currently occurs in 5 states in Brazil and 23 states in the USA. From studies in the USA it was concluded that the mosquito probably entered the country in used tire consignments shipped by container from Asia. The likely events leading to infestation will have been as follows: in Asia, females *A. albopictus* deposited their eggs, which can remain viable for 12 months or more, on the inside surfaces of water-filled tires that were left outdoors. The tires were shipped to the USA for recapping as part of a major global trade in used tires. They were then stored or rejected by recappers and again left outdoors. Upon inundation by rain water, the eggs hatched and within a matter of days adult mosquitoes emerged and dispersed from the primary larval site or sites.

Given the extent of the international tire trade, the greatest risk for future introductions from infested to uninfested countries of the Americas appears to be through repetition of these or similar events. However, this mode of entry is by no means exclusive of other routes. Once established, the subsequent in-country dispersal of *A. albopictus* can also be facilitated by unregulated transportation of tires.

Public Health Implications

Aedes aegypti is recognized as the epidemic vector of dengue, dengue hemorrhagic fever (DHF) and urban yellow fever and is widely distributed throughout most urban areas of Latin America and the Caribbean. In Asia, *A. albopictus* is also a significantn vector of dengue, but its potential role in the transmission of arboviruses under natural conditions in the Americas remains unclear and to date no involvement in areas of Brazil where there is active dengue transmission has been demonstrated. However, laboratory studies of imported North and South American strains of *A. albopictus* have shown them both to be competent experimental vectors of dengue, yellow fever and several other arboviruses present in the Region. In 1991, eastern equine encephalitis (EEE) was isolated from *A. albopictus* collected in southeastern USA.

In constrast to *A. aegypti*, which has a strong preference for humans, the wide vertebrate host range of *A. albopictus* diminished its efficiency as a vector of dengue viruses. However, this behaviour, in combination with its sylvatic and peri-urban characteristics, may increase the risk for introduction of yellow fever virus from the sylvatic to the urban environment in areas of South America and Trinidad where the virus circulates in monkeys and forest mosquitoes.

A. albopictus is an aggressive, opportunistic daytime biter and can be a significant pest problem, especially in the vicinity of tire piles, cemeteries with flower vases and other sites where there are abundant larval habitats. In some areas of the USA it has become the most important nuisance species, prompting frequent public complaints to mosquito abatement districts.

Recommendations

Entomologic surveys: Surveys should be initiated to identify used tire importers and undertake systematic entomologic surveys of:

a) the sites where the containers are opened for inspection by customs authorities, and

b) where the tires are unloaded from the containers. If the containers normally remain unopened until they reach their ultimate destination, emphasis should be given to the latter rather than to ports of entry. Man-baited adult captures should be considered in addition to surveys of tire piles and other potential larval hatitats.

Investigation of public complaints: Public complaints of daytime biting nuisance in areas not previously associated with mosquito pest problems may also indicate the establishment of this species in a neighborhood and should be appropriately investigated.

Species confirmation: In the event that infestations are found or suspected, national authorities

are requested to inform PAHO and to submit preserved specimens for independent taxonomic confirmation.

Follow-up: After the discovery of an infestation, decisions for follow-up action, such as feasibility of elimination or control, will be determined by a number of factors including extent and location of the infestation, larval habitat characteristics and the availability of resources.

Actions to reduce the risk of importation: The international used tire trade represents a significant risk for introducing *A. albopictus* into other areas of the Americas: in recognition of this fact, several countries have adopted or are considering the adoption of legislation banning the importation of used tires. Sample copies of this legislation will be distributed to other Ministries of Health in the Region of the Americas for their consideration and possible implementation to reduce the risk of importation of this exotic vector species.

(Source: Communicable Diseases Program, HCT, PAHO.)

Central American Epidemiology Project

In Tegucigalpa on 2 September 1993, the Ministers of Health of Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama approved a subregional project for the development of epidemiology, upholding Resolution 42 of the Managua Presidential Summit, whereby Central American presidents urged the countries to coordinate epidemiological surveillance activities with the goal of improving results in the fight against cholera.

Through their technical groups, the countries of Central America undertook a truly joint endeavor to define the problem, specify objectives, and establish the proper channels to attain those goals. That task was accomplished through subregional workshops and national and local meetings. The work enabled each of the seven countries to initiate a process to intensify the strengthening of epidemiology and to prepare a project that would complement national initiatives and bolster the initial phase.

In its initial stage, the process has made it possible to evaluate the epidemiological surveillance systems of the countries in the subregion.

The project is planned to last three years, during which time it is expected to contribute to enhancing the ability of health services to describe and explain the health situation in each geographical/population context (locality, county, district, department, region, country) with the purpose of prioritize population groups, problems, and programs, and to supply decision-makers with crucial information for orienting equitable, comprehensive, effective, and efficient responses by means of policies, plans, and programs.

Specifically, this initiative is intended to support existing efforts to strengthen and broaden the surveillance of diarrhea and cholera, to foster timely actions to control the problem and to encourage multisectoral actions aimed at affecting the determinant factors.

The strategy is to promote the enhancement of epidemiological surveillance systems, with interventions that simultaneously strengthen measures against cholera and diarrhea and improve the conditions for monitoring other diseases.

PAHO's *Epidemiological Bulletin* is published quarterly in English and Spanish.
Catalogued and indexed by the United States National Library of Medicine.
Printed on acid-free paper.

PAN AMERICAN HEALTH ORGANIZATION
Pan American Sanitary Office, Regional Office of the
WORLD HEALTH ORGANIZATION
525 Twenty-Third Street, N.W.
Washington, DC 20037