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## **Cuba Organizes Total Mobilization To Fight Dengue Outbreak**

*by LADB Staff*

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Long respected as a leader in health care for its own people and exporter of medical services to deprived populations worldwide, Cuba now faces a domestic epidemiological challenge, the eradication of dengue fever on the island. In September, sources at the Public Health Ministry acknowledged that the nation's hospitals were becoming packed with dengue cases to the point where special wards were being created to care for them. The government has not released hard numbers, but the figures for Havana alone are said to number in the thousands.

The government frequently withholds actual statistics for security reasons. It is in the nature of the Cuban system to keep populations informed in matters of this kind, since the people participate in the solution of social problems (see NotiCen, 2006-08-10). Television programs have zeroed in on dengue, under the premise, as one show host put it, that "everyone must be aware of the problem."

Jose San Martin Martinez, director of the National Surveillance and Anti-Vector Unit of the Public Health Ministry, told the nation there was no epidemic in Cuba, but "we have three provinces infested by the mosquito: Havana city, Santiago, and Guantanamo. The other provinces are able to control the situation any time *Aedes aegypti* mosquitoes are detected." *Aedes aegypti* mosquitoes are the vectors of the viral disease; they spread it by first feeding on an infected person and then infect all their subsequent blood donors with the virus.

There are several types of the illness, the more benign causing high fever, rash, severe headache, pain behind the eyes, muscle and joint pain, loss of appetite, nausea and vomiting. Patients usually recover within a month of bed rest, hydration, and treatment with acetaminophen. The more severe, hemorrhagic, form of the disease can result in death.

Officials say the current outbreak is not epidemic in size, but the country has had epidemics, one of which, in 1981, was the first major epidemic of dengue hemorrhagic fever in the Western Hemisphere. In that episode, 344,203 cases of dengue were reported, of which 10,312 were hemorrhagic, of whom 158 people died. Of those who died, 101 were under the age of 15. The first epidemics in the world were reported in 1779 and 1780 simultaneously in Africa, Asia, and North America. The most recent in Cuba was between June 2001 and March 2002, when there were 14,524 cases reported, of which 81 were hemorrhagic, resulting in three deaths.

Over the years, say experts, climate change and global warming may have shortened the incubation period of the disease, now thought to be 10-15 days after the mosquito bite.

### *All sectors mobilized*

The campaign to combat the current infestation is, as is usually the case in Cuba, a thoroughly integrated one, employing every sector, from the Army to the neighbors to the kids in school. Cuban military aircraft fumigate buildings and rooftops in Havana. The plane of choice in this war is the Soviet-era Antonov 2 biplane, adding a bit of nostalgia to the campaign. Soldiers go door to door to spray for mosquitoes.

Vice President Carlos Lage has reoriented public health workers so that their top priority is now to "decrease infection." Inspectors check water tanks for incubating insects. Workers fumigate homes, sometimes several times weekly. High school students in red T-shirts, armed with flashlights and led into battle by their teachers, hunt through weekend nights for existing or potential mosquito breeding grounds. They work at night because the mosquitoes are inactive. Citizen refusal to permit any of this on their property can earn the resident a hefty fine. The effort involves even the tourists. Hotels are evacuated weekly for spraying.

Interim head of state Raul Castro issued a call in September for the work, at the same time telling a meeting of provincial and municipality council presidents that President Fidel Castro, sidelined by recent surgery, is equally concerned. Raul Castro questioned the officials about the levels of involvement by local institutions and mass organizations in communities and workplaces, and stressed the need for the people to be aware of the risks of the disease. The campaign continues to intensify in a culture where public health is patriotism.

Army Gen. Jose Carrillo Gomez told the public the campaign must be made "even stronger. We must all join the work, which is decisive for the Revolution." The methods employed are consistent with the norms of the World Health Organization (WHO), which says that the only way to fight this disease is to attack the mosquito wherever it is found. The spraying is undoubtedly repulsive; fumigation trucks emit a constant roar as they ply the streets, and the smell of petroleum is everywhere.

But the population supports the effort. "Let me tell you," one former patient told reporters, "dengue is the worst thing you can get. Everything, everything, everything hurts, even your eyes." Another person, a restaurant worker recruited by the Partido Comunista to spray homes in Havana, said, "There is a pile of dead people nobody talks about. A lot of people have gotten sick. A lot."

A nurse at Salvador Allende Hospital in Havana defined, in the absence of government figures, what "a lot" might mean. She said, "We have quite a few cases, certainly more than a dozen, but it's not like it's the whole city. There's a death here and there, and a few patients are in very serious condition. I would not call it an epidemic; it's more like an outbreak." Lage explained the strategy. "We have two goals," he said. "An immediate, urgent goal of the highest priority is to diminish the infestation of the *Aedes aegypti*, practically bring it to zero. The second is to make sure it doesn't happen again. We won't resolve the problem with fumigation alone. Fumigation treats the results, not the causes."

Cuban officials are aware of the shortcomings, both technological and esthetic, of current methods, and the country has worked to develop new approaches. The Cuban company Labiofam has developed a biologic product, Bactivec, to attack the larvae of the striped-legged offender. The

product also is effective against Culex, Anopheles, and Mansonia. The product is in use in the current infestation, with a reported 62,000 liters having been sprayed from helicopters in the provinces.

An unnamed government official told the media, "The proven results of Bactivec in the battle with this insect justified its application in the provinces, where the greatest number of pockets of this vector in the country is." The spokesperson said a great advantage of the product is that it is harmless to humans, flora, and fauna and can even be used over municipal reservoirs.

Bactivec was developed specifically as an alternative to toxic insecticides and can be used as a household product that can be added drop-by-drop to drinking-water tanks and other receptacles for standing water. Its action is both rapid and prolonged, up to 60 days. It is also effective against black flies and is biodegradable. The active principle of the compound is the bacillus thuringiensis israelensis, of the SH-14 strain. Upon being ingested by the larva, the bacillus paralyzes the organism's digestive tube and poisons it with an endotoxin. It has been under study for years in Cuba and found to be superior to traditional insecticides economically as well as in effectiveness.

Economic benefits go beyond initial costs. Because it is harmless to humans and other species, the state does not have to supply water to communities where it has been used in the water supply, as is the case with toxic chemicals. By late October, the PAHO reported that Cuba was containing the outbreak, citing a Cuban government report. The Oct. 13 report from the Public Health Ministry said the outbreak had spread in territorial terms, but the number of cases was dropping. The report stated, "All cases of dengue hemorrhagic fever have taken place in the adult population and have, in a limited number of cases, produced deaths associated with pre-existing chronic pathologies."

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