News

Once nearly eliminated, dengue now plagues all of Latin America

WHO/TDR

Typical breeding area for *Aedes aegypti* mosquitoes in Port-au-Prince, Haiti. Cars caught in a traffic jam, beside a channel which catches rain, floodwater and garbage.

Throughout Latin America, governments and international agencies are looking for new methods to deal with the ever-increasing incidence of dengue (see accompanying story on the latest outbreak in Brazil).

The number of cases reported in the Americas increased from 66 000 in 1980 to more than 609 000 last year, according to the Pan American Health Organization (PAHO) in Washington. In addition to the serious epidemic in Brazil this year, there have been outbreaks in Cuba, Mexico and Central America. María Rocío Sáenz, Costa Rica's Health Minister, warned on 12 May that a new epidemic was possible in parts of the country where there have been outbreaks before, as the rainy season gets under way.

The dengue virus, which at one point was close to being eliminated in the Western Hemisphere, has spread in recent years because of air travel and the rapid growth of cities with poor water supply, sewage disposal and sanitation. Historically, governments have tried to control outbreaks of dengue by fumigating to eliminate the mosquitoes, and trying to get rid of stagnant water. But these government-directed programmes have limited effectiveness, according to Jorge R. Arias, PAHO's regional adviser for communicable diseases, because of the lack of affordable pesticides and difficulties in changing people's behaviour. "It's like quitting smoking," he said.

A project first conducted in the Dominican Republic and now under way in El Salvador seeks to involve the people who are most at risk for dengue fever in finding solutions they can live with.

According to Julia Rosenbaum, a medical anthropologist with Project Change of the Academy for Educational Development in Washington, residents of five urban neighbourhoods in the Dominican Republic were interviewed about their housekeeping practices, especially the storage of water. The interviewers found that most families used chlorine bleach for cleaning and for disinfecting the stored water.

Laboratory tests at the Dominican Health Ministry determined that use of this simple household product in larger quantities would kill eggs of the *Aedes aegypti* mosquito that transmits the virus. Project workers then encouraged families to use a bleach solution when they cleaned their water containers and to put undiluted bleach in the bottom of the containers before refilling them with water.

Rosenbaum and her colleague, Elli Leontsini of the Johns Hopkins School of Public Health in Baltimore, are now conducting a similar study in three low-income municipalities around San Salvador, the capital of El Salvador. Workers have enlisted the help of Salvadoran housewives to find methods that fit their lifestyle to eliminate the mosquito. ■

Terri Shaw, *Washington*

Dengue epidemic strikes Rio de Janeiro — as expected

"I think I was bitten in Jacarezinho", said Cristiane Silva de Almeida, 28 years old. She has had dengue, a viral disease transmitted by the *Aedes aegypti* mosquito, twice. Jacarezinho is a slum district of Rio de Janeiro, Brazil, where she lives. "I was very, very ill, with many pains in my body, in my joints and pressure in my eyes. I didn't want to do or eat anything."

The latest dengue epidemic in Rio was severe, and no respecter of status. Wealthy and famous residents including several internationally known singers and artists from the richer South of Rio de Janeiro, also caught the disease this past summer — ensuring that the outbreak received more attention than usual from the media and the government.

In 1982, the first cases of dengue appeared in northern Brazil. Thereafter, the virus and the mosquito spread, and by 1986, outbreaks of the disease became routine. The state of Rio de Janeiro became the main focus of the disease this year with nearly 200 000 cases (from January to mid-April).

A single infection with dengue — which comes in four different serotypes — is painful but not often fatal. But second infection within two years with a different serotype of the virus produces dengue haemorrhagic fever (DHF), which can kill. According to the office of the State Secretary of Health, 1645 cases of DHF had occurred this year in the state by mid-April, with 56 deaths.

The epidemiologist Paulo Sabroza, of the Oswaldo Cruz Foundation, warns that other serotypes of the dengue virus circulate in neighbouring countries, and that they could be introduced into Brazil at any moment. He also says

that although there is now some population immunity after infection, 11 million people are still susceptible to the virus in Rio state. Most dengue epidemics end only when the whole susceptible population has been infected, says Jorge Arias, PAHO regional assistant for the control of dengue.

Fearing larger outbreaks of DHF in future years, Arias told the *Bulletin* that PAHO is attempting to analyse the distribution of the four serotypes of dengue in Latin America. They are finding out what serotypes are in what countries, "how close they are to each other and how they can get in." According to PAHO, there have been 73 deaths from DHF in Latin America this year, most of them in Brazil.

Paulo Sabroza says that the Rio epidemic was predictable and, indeed, predicted — but little was done to prevent it. But Mauro Marzochi, Sub-Secretary of Health for the Municipality of Rio, defends the government: he says it was bidding for funds to prepare for the epidemic when it broke out in December, three months earlier than in previous years. For next year, Marzochi says he plans to organize insecticide spraying and to expand education on how to eliminate mosquito breeding-grounds. The people are "an ally" in combating the vector, he says.

The Brazilian Health Minister, Barjas Negri, announced the end of this year's epidemic on 25 April, and said the ministry would spend more than US$ 202 million this year to prevent and control dengue in 657 municipal districts throughout the country, including a day of "national mobilization" to eliminate mosquito breeding-sites — pools, sinks and waterbutts, abandoned tyres and water-sodden garbage dumps.

Sabroza adds that the fight against the mosquito must be continuous and not confined to epidemics. He also presses for better garbage removal services. "It is a mistake to imagine that garbage collection is for individuals to do. The garbage service in Rio de Janeiro is very poor." Sabroza sees three basic needs: proper disposal of garbage; an increase in social responsibility for the environment; and focused anti-vector efforts, with a proper strategy for training and action. These measures have been successfully implemented in other countries, he says. ■

Claudia Jurberg, *Rio de Janeiro*

Women see little hope of antiretroviral treatment yet

UNAIDS/G.Pirozzi

Kibera Community Self Help programme. Portrait of a mother and her children. She and the two youngest chidren are HIV-positive.

Priscilla Atieno (real name withheld), a 30-year-old mother of six, tested HIV-positive in October last year. She seeks treatment at Nyalenda Health Centre in Kisumu, 380 kilometres West of Nairobi, Kenya. The health centre is 80 miles away from Karachuonyo, her home village.

"I first suspected I was HIV-positive when I started developing wounds and rashes on my body. I had persistent abdominal pains, vaginal itching and pain, and a swollen groin."

Priscilla has been told of antiretrovirals (ARVs) and occasionally gets them, but can't pay for them often enough to get a proper, continuous course of treatment. "I go to the health centre when I have money; otherwise I use herbal medicine whenever I am unwell." The result of this partial treatment — a story becoming common throughout Africa — could be the development of HIV that is resistant to the drugs.

Roseline Achieng, 29, is also HIV-positive. "I have heard of those drugs but personally I have not used them. I cannot use them because I cannot afford them. I hear that they can be harmful to me if I start and then stop using them because of lack of money." Her husband and her eldest and youngest child are also infected. Roseline says she seeks medication for opportunistic infections. "I get headaches often but go to the doctor immediately. For some infections like mouth thrush, I just chew garlic, and they go away."

For Dorine Odida, ARVs are impossible. She is a member of Women Fighting Aids in Kenya (WOFAK), a solidarity group for HIV-positive women. Her husband left her three years ago when she tested HIV-positive. He took with him their only son who is now five years old and uninfected. "I have heard of ARVs but since someone has to be on them for life, they are too costly," Dorine says. "My work at WOFAK earns me a small allowance, just for simple medication." Her policy is never to use ARVs because of their negative side-effects.

"Sometimes I am too sick and feel like using them. At other times I use herbal medicine as an immune booster. At WOFAK we deal with low-income people so we don't talk much about ARVs. Patients may start taking them and then stop, like after three months, which is not good."

Dorine says getting put onto ARVs and keeping to the regimen costs more than the drugs themselves. The CD4 test, an immunity test, costs about US$ 25, while the viral load test is about US$ 100. "These have to be done before one is put on ARVs. Then there is the issue of compliance and the need for a very good diet. Who can afford all this?"

Sixty-year-old Mary Wairimu's story is the same. She is also a member of WOFAK. Her husband left her 12 years ago. She used to raise poultry but when he learnt of her HIV status he went berserk and destroyed everything in their home, including the chickens. She lives at home with their five children. She has heard of ARVs but, she says, "I have no money; if I got help I would use them."

Kenyatta National Hospital is the largest referral hospital in East Africa, but even there the drugs often cannot be found. Even though patients are glad that the prices of ARVs are lower than before, they still remain the domain of the rich, many of whom do not belong to the support groups helping people living with HIV/AIDS. For most patients, the usual practice is to avoid ARVs but as Dorine puts it, "People would want to use them if only there were a sponsor to guarantee the cost." ■

Catherine Wanyama, *Nairobi, Kenya*

Kenya says yes to generic ARVs but fails to win Global Fund cash

Generic AIDS drugs are now allowed into Kenya under compulsory licensing provisions in the Industrial Property Act of July 2001, which came into force in May this year. These antiretrovirals (ARVs) could halve the price of current ARV therapies.

Badara Samb, who deals with drugs access issues at WHO, says the Kenyan route to cheapening ARVs is not the only one. "Countries should look at all legal avenues to widen access". They can engage in friendly negotiations with manufacturers to reduce prices, for instance. "And they can cancel taxes. Some countries like Burundi for example impose import taxes of 40%."

Compulsory licensing is the key step to introducing generics, although most countries contain the provision in their existing patents legislation. The declaration of a "health emergency" is not necessary, but it speeds up the use of the licences, as negotiations with patent holders can then be waived.

According to Kenyan government figures, only 2500 out of the 200 000 AIDS patients in Kenya are currently receiving antiretrovirals. The drugs are only available in high-cost private hospitals such as the Aga Khan, the Nairobi, the Pandya Memorial Hospital, the private wing of the public Kenyatta National Hospital, and a few church-run hospitals.

Nicholas Otieno, who has been living with HIV/AIDS since 1992, speaks of the irregular supplies of ARVs, which can lead to HIV- resistance to the treatments. "Since I started taking antiretroviral drugs last July, I have twice been unable to get my regular supply of Zerit," he said. "Once I could get Epivir as a substitute, but that costs 4000 Kenya shillings (US$ 50) per month instead of the usual KES 440 (US$ 5) I pay for Zerit. The other time I went without a substitute for two weeks."

Otieno is just one of the many AIDS patients in Kenya nominally on ARVs but still advancing towards full-blown AIDS, because of the shortage, inaccessibility and unaffordability of ARVs in Kenya's health institutions.

But with generics, the government plans for all patients to receive the drugs — if it can get the funding. Nairobi hopes that the generics will undercut the prices of branded ARVs, which despite manufacturers' reductions still cost US$ 850 a year for the cheapest triple therapy. That is less than a tenth of the price in the developed world, but still too much for the 10 million people in Kenya who live on less than US$ 1 a day.

Generic triple therapies including AZT, 3TC and nevirapine are now down to prices of around US$ 295 a year, Samb told the *Bulletin* — but that is still dear in the African context. Ellen 't Hoen, coordinator of the globalization section of the Médecins Sans Frontières (MSF) campaign for access to essential medicines, knows of other courses costing only US$ 209. It's still not low enough "but the prices could go down further," she says.

However, patients will still not get the drugs "unless there is loads and loads of funding available," said 't Hoen. The experience now being built up in Africa of how to administer ARVs in resource-poor settings must be collected, "and absolutely crucial is single tablet combinations, which will most likely come from the generic manufacturers," 't Hoen said.

Despite the legal steps towards generics in Kenya, the drugs will not be in patients' hands there any time soon. The country has failed in its first application for funding from the Global Fund to fight HIV/AIDS, Tuberculosis and Malaria (the Global Fund). And Kenya's Pharmacy and Poisons Board — which must vet all imported drugs for efficacy and toxicity — was out of action from September last year when its tenure expired until this May when a new Board was appointed. As a result, the five Indian generics companies which already have applications pending, according to the MSF Office in Nairobi, are still waiting for approval.

According to Sophie-Marie Scouflaire, Regional Pharmacist for MSF, the Pharmacy and Poisons Board is run by "senior officers at the Ministry of Health who are always busy with office work — that's made it ineffective and compromised its independence". Scouflaire thinks the Board should be restructured along the lines of the Uganda National Drugs Authority, which, she says, is a technical body and quasi-independent of the government.

Kenya's Public Health Minister, Professor Sam Ongeri, however, says haste would be dangerous — the drugs have to be introduced with care. "ARVs are not chewing-gums to be given to Kenyans at a whim. They have to be thoroughly tested for toxicity and efficacy before they are allowed into the market."

Cash will also be a problem. Kenya had applied for US$ 293 million from the Global Fund against an estimated commitment of US$ 1.2 billion by the government, civil society, private sector and other donors. Some 70% of the Global Fund sums were earmarked for drugs and treatment of sexually transmitted infections (STIs), prevention of mother-to-child HIV transmission and prophylaxis. But the proposal was rejected.

The government aimed to be able to provide 300 000 people in Kenya with ARVs, in addition to enhancing uninterrupted availability of quality drugs for treatment of other STIs. Ongeri thought Kenya's proposal had not been properly evaluated. "We sent them 17 kg of documents but I am convinced they did not go through them. Kenya has the best country coordinating mechanism for AIDS, malaria and tuberculosis. I can't understand why we were not given the money," Ongeri said.

One theory is that the application did not adhere to the Global Fund Guidelines, which require countries coordinating proposals to link budgets to specified partners. The Ministry has already announced its intention to make a reapplication to the Global Fund when its board sits again in September. ■

James Njoroge, *Nairobi, Kenya*

Much longer life and much more cancer predicted

Top life expectancy — currently a hardy 85 years for Japanese women — has yet to approach its limit and could reach 100 well before the end of the century, according to demographers Jim Oeppen of Cambridge University and James Vaupel of the Max Planck Institute for Demographic Research in Rostock, Germany, in a recent paper (*Science* 2002; 296:1029-1031).

But all is not rosy, as scientists evaluating cancer trends in the United States forecast that despite advances in prevention and early detection, the absolute number of cancers occurring in people aged 65 years or older will double within the next 30 years. The two forecasts together have profound social, economic and political implications. Life expectancy estimates play a key role in determining future pension and health care needs as well as other

social programmes. Increases in average longevity of just a few years can produce large changes in the numbers of old and very old people needing such services. Oeppen and Vaupel argue that current government forecasts underestimate how long the average citizen will live. They say that official forecasters cling to the idea that the limit of the human life span has almost reached its limit, but that history suggests otherwise.

To reach their conclusion, Oeppen and Vaupel analysed life expectancies in countries around the world from 1840 to 2000. When the demographers plotted the top life expectancy of each year, they found that record life expectancy increased at the "extraordinarily linear" rate of 2.5 years per decade. And the steady rise shows no sign of levelling off in the coming decades. "There is no evidence that countries like Japan and France, which have the highest life expectancies, are slowing down," says Vaupel. "In fact, France and Japan have some of the most rapid improvements in survival of the very elderly."

If the trend continues, about six decades from now babies born in the country with the highest life expectancy may live to be 100. That surpasses all currently published projections of maximum average longevity including the highest, a United Nations estimate of 92.5 years.

At the same time, however, age is an important risk factor for a host of maladies including heart disease, diabetes, and cancer. In the annual US cancer report (*Cancer* 2002; 94(10): 2766-2792), the authors note that the future ageing of the population in the US will "dramatically" increase the number of cancers and the age of most cancer patients, creating "a growing demand" for more medical and supportive services. Similar scenarios are expected in other countries and with other age-related diseases, says Alexandre Kalache, director of WHO's Ageing and Life Course programme.

The non-industrialized world will be particularly hard hit. "In spite of all the poverty, prevailing problems, lack of access to services, malnutrition and infectious disease, the chances of reaching old age are increasing by the year, by the day even, in developing countries," Kalache says. "In 2050, 80% of the world's two billion old people will live in developing countries."

Governments are becoming more aware of the looming problems that greying populations pose. And some, such as Canada, Finland, Costa Rica and Botswana, are working towards solutions. According to Kalache, providing basic information and support mechanisms so that people can better look after themselves, family members and friends "makes a huge difference", since most health care occurs outside health facilities. Also key will be the continued improvement of the health and education of children and adults throughout life, so they will be more fit when entering old age. Says Kalache, "We must remember that the two billion elderly of 2050 are today's children and young adults." ■

Charlene Crabb, *Paris*

Global Fund could spend US$ 616 million over two years

In an extremely swift, three-month proposal and review process in part designed to impress donors and so ensure top-up funding, at the end of April the Board of the Global Fund to fight AIDS, Tuberculosis and Malaria (the Global Fund) selected proposals from 31 countries for 40 action programmes in the three diseases of poverty.

The programmes will receive US$ 378 million over two years, with another 18 weaker proposals from 12 countries being "fast-tracked" for improvement and potential approval later.

Some countries such as Myanmar and Kenya (see adjacent story) have been surprised at their rejection, but difficulties in the initial allocations have been put down to countries needing more time to understand and follow the Fund's exacting requirements.

Anders Nordström, Interim Executive Director of the Global Fund, said "we prioritized high-quality proposals that were based on effective programmes and lessons learnt, and were developed by partnerships of governments, community organizations, people living with the diseases, and other groups."

Philippa Lawson of the Academy for Educational Development, member of the Global Fund Board representing people living with or affected by one of the three diseases, was impressed but gave a warning about the scale of the funding: "The Global Fund has raised more than US$ 2 billion in less than a year. This is a successful start, but the Fund needs far more resources to fight AIDS, TB, and malaria — millions of lives are at stake." UN Secretary-General Kofi Annan in calling for the establishment of the Fund had been thinking of disbursing US$ 7–10 billion each year, some 20 times the Fund's committed spending.

Realistically, however, the next test for the Fund will be whether the 40 funded (and 18 to-be-funded) programmes really work. Here the recipient countries (see below) have an enormous responsibility, for if the money is misused or badly spent, the Fund will either close or sink into being just another small donor mechanism.

Richard Feachem, past Editor-in-Chief of the *Bulletin* and currently Founding Director of the Institute for Global Health, will take over as Executive Director of the Fund in August. Feachem is also a Professor of International Health at the University of California, San Francisco and Berkeley, past Director for Health, Nutrition and Population at the World Bank, and past Dean of the London School of Hygiene and Tropical Medicine in London.

"It is a great honour for me to have the opportunity to work for the Global Fund," he said. "The poverty and suffering caused by AIDS, tuberculosis and malaria are immense. The Fund is positioned to make large investments in controlling these terrible diseases and improving the lives of millions of families throughout the world. I look forward to contributing to the Fund's success, to leading the Secretariat, and to working with the Fund's many partners and supporters. Together we can make a difference."

Countries with immediately successful proposals in this first round were: Argentina, Benin, Burundi, Cambodia, Chile, China, Ethiopia, Ghana, Haiti, India, Indonesia, Korea DPR, Laos, Madagascar, Mali, Moldova, Mongolia, Morocco, Nigeria, Panama, Rwanda, Senegal, South Africa, Sri Lanka, Thailand, Ukraine, United Republic of Tanzania, Viet Nam, Zambia and Zimbabwe. ■

Robert Walgate, *Bulletin*