

The report, *A Race against Time: The Challenge of Cardiovascular Disease in Developing Economies*, concluded that cardiovascular diseases could become a public health time bomb in developing countries if too little is done to reverse the trend.

Dr Shanthi Mendis, Coordinator of WHO's Cardiovascular Diseases unit described the report as "a compelling and cogent argument to convince policy-makers and politicians of the need for commitment, development and implementation of policies for prevention and control of the cardiovascular diseases epidemic."

The researchers, led by Australian epidemiologist Stephen Leeder, analysed mortality and disease data from four middle-income countries: Brazil, China, South Africa and the Russian Republic of Tatarstan, and one low-income country, India.

They found that even if nothing changes in the next 30 years, population growth alone will lead to major increases in cardiovascular disease in developing countries which could severely curb workforce productivity and economic progress. According to the report, the problem is often neglected by developed countries, whose chief health-care priority is infectious diseases such as AIDS, malaria and tuberculosis.

Cardiovascular mortality rates among people of working age in India, South Africa and Brazil were one-and-a-half to two times higher than those in the US, said the report. In South Africa, despite the predominance of AIDS, 12% of men aged between 35 and 44 died from cardiovascular disease while the figure for women was 17.2%. In India, 28% of the five million people who die of cardiovascular diseases every year are under 65. The authors said this was even higher than the equivalent figure for the US 50 years ago, before treatment for cardiovascular diseases became a public health priority.

Recommendations included a reduction in tobacco production and consumption, campaigns aimed at improving nutrition, including school programmes on healthy diet and physical exercise. These recommendations are also part of a global plan to prevent chronic disease through healthy diet and physical exercise to be adopted by WHO's 192 Member States during the Fifty-seventh World Health Assembly in Geneva, 17–22 May.

Professor Shah Ebrahim, a cardiovascular diseases expert at Bristol University in England, said the projections were reasonable and should be enough to make policy makers take notice. He also said that cardiovascular diseases were also often neglected because of a lack of data and training.

The report is available at: http://www.earth.columbia.edu/news/2004/images/raceagainsttime_FINAL_051104.pdf ■

Fiona Fleck, *Geneva*

Brazilian genomics breakthrough offers hope for leptospirosis control

A team of Brazilian researchers has sequenced the genome of a bacterium which causes leptospirosis, a disease which infects over 100 000 people and causes 1000 deaths worldwide every year. The breakthrough has been hailed as a first step towards creating a vaccine against one of the world's most widespread zoonoses (diseases affecting both humans and animals).

"The research is important since ... it will open new opportunities for developing quicker and more precise diagnostic tests and vaccines for preventing leptospirosis," said Dr Carlos Morel from the Oswaldo Cruz Foundation, a biomedical research centre linked to Brazil's Ministry of Health.

The researchers, whose findings were published in the *Brazilian Journal of Medical and Biological Research* (2004;37:459-77), analysed the 4.6-million-base-pair genome of the strain of bacteria mainly responsible for the disease in Brazil, *Leptospira interrogans* serovar *Copenhageni*. The results of their research have pointed to the identification of candidate proteins for this purpose. Although leptospirosis can be treated with antibiotics, when left untreated it can lead to kidney damage, liver failure and, in extreme cases, death.

"We have already isolated 23 proteins ... that we consider potentially important for the development of a vaccine against leptospirosis," said Ana Lucia Tabet Oller do Nascimento, a researcher from Butantan Institute in São Paulo and lead author of the study. The 23 proteins were selected because of their ability to induce the production of antibodies in humans, explained Nascimento. "However, we

need now to test if such antibodies are in fact protective against the disease," she added. The researchers are now analysing another 200 proteins.

Despite the success of their research, Nascimento estimated it would take around ten years to develop a vaccine or any other product offering protection against the disease.

"Nothing is done in the short term when we are talking about developing a vaccine, which includes several steps between the sequencing and the final product. To believe that genomics can shorten such a period of time is to believe in magic or miracles," said Morel who views genomics research as a potentially powerful tool for controlling developing country diseases.

Leptospirosis occurs worldwide in urban and rural areas and in both tropical and temperate regions, mostly in developing countries. It is contracted by humans through direct contact with the urine of infected animals or by contact with a urine-contaminated environment. The disease has been found in both wild and domestic animals including rodents, insectivores, dogs, cattle, pigs and horses. It is therefore an occupational hazard for those who work outdoors or with animals and a recreational hazard for those who swim or wade in contaminated waters.

The number of human cases worldwide is not well-documented. According to WHO, it probably ranges from 0.1 to 1 per 100 000 per year in temperate climates to 10 or more per 100 000 per year in the humid tropics. During outbreaks and in high-risk groups, 100 or more per 100 000 may be infected. In Brazil 4128 cases were recorded in 2000, according to the National Foundation of Health.

The science of genomics — the branch of genetics that studies organisms in terms of their full DNA sequences (or genomes) — has been accelerating in recent years with very positive implications for combating diseases afflicting developing countries, says the report *Genomics and world health*, published by WHO in 2002. However, according to the report, 80% of DNA patents in genomics between 1980 and 1993 are held in the US. Of the 1233 new drugs marketed between 1975 and 1999, only 13 were approved specifically for tropical diseases.

"In this regard, steps need to be taken to avoid the creation of a 'genomics divide,' to ensure that the benefits of the

genomics revolution also accrue to developing countries and that ethical, legal and social implications are taken into account," said Dr Tikki Pang, Director of WHO's Research Policy and Cooperation department.

A resolution on genomics and world health adopted during the Fifty-seventh World Health Assembly, 17–22 May 2004, called upon WHO Member States to facilitate greater collaboration among the private sector, the scientific community, civil society, and other relevant stakeholders, particularly within the United Nations, in order to mobilize "more resources for genomics research targeted at the health needs of developing countries." ■

Luisa Massarani, *Rio de Janeiro*

Rwandan genocide survivors in need of HIV treatment

Thousands of women who were sexually assaulted and infected with HIV during the 1994 genocide in Rwanda do not have access to treatment, said the Survivors' Fund (SURF), a UK-based non-profit organization which launched a campaign on 20 April calling for the provision of affordable antiretroviral treatment for women infected with HIV during the conflict which claimed at least 800 000 lives.

"These women were left impoverished after their husbands, fathers and brothers were murdered," said Mary Kayetisi Bluitt, Director of SURF, a non-profit group based in London, aiming to address the needs of women and children who survived the Rwandan massacre. "They are still suffering from trauma and have few resources, and only a handful can afford the anti-retroviral drugs that could improve and prolong their lives," said Bluitt, who lost 50 members of her family during the massacres.

"It [the genocide] is still claiming victims who contracted HIV as a result of sexual violence," said Colette Delhot, Regional Adviser for Gender and Women's Health at WHO's Regional Office for Africa in Brazzaville, Congo. No one knows precisely how many women became infected during the assault, which was marked by a rash of gang rapes.

Only one organization, the Rwandan Association of Genocide Widows (AVEGA-AGAHOZO), based in the

Remera area of Kigala, has published survey results. The non-profit group, which consists of 25 000 widows, estimates two-thirds of its members are now HIV-positive as a result of being raped during the 1994 conflict. "There is little doubt the numbers are actually higher, however, because many women hesitate to come forward. They ask themselves, 'Why should I get tested and find out I carry the disease? I can't get treatment anyway,'" said Bluitt. The group also estimates that of five million women living in Rwanda, half are widows who lost their families during the 1994 conflict.

According to non-profit groups like the Rwandan Association of Genocide Widows (AVEGA-AGAHOZO) and SURE, international groups and charities working in Rwanda have failed to devote sufficient attention to the genocide widows.

Delhot agrees that the Rwandan women deserve special treatment. "These women lost everything because of the genocide and are struggling to survive. We have to fight to get them access to basic health care. It is a human rights and war reparations issue, not just a health issue," she said.

The UK's Department for International Development announced in mid-April a donation of GBP 200 000 towards the cost of providing antiretroviral treatment for witnesses of the genocide suffering from AIDS.

The International Criminal Tribunal for Rwanda, currently under way in Arusha, United Republic of Tanzania, is prosecuting some five dozen cases against the alleged ringleaders of the slaughter, which targeted the country's minority Tutsis and politically moderate Hutus. The 100 day-long assault, executed by Hutu extremists in April 2004, followed the death of Rwanda's Hutu President Juvenal Habyarimana after his aeroplane was hit by a missile. ■

Judith Mandelbaum-Schmid, *Zurich*

New international convention allows use of DDT for malaria control

Malaria-endemic countries can continue using dichlorodiphenyltrichloroethane (DDT) to help control malaria due to an exemption clause in a convention banning the controversial substance. The Stockholm Convention on Persis-

tent Organic Pollutants which came into force on 17 May, following its ratification by 50 states, outlawed the use of 12 industrial chemicals — dubbed the "Dirty Dozen," — including DDT.

The exemption clause allows malaria-endemic nations to use DDT strictly for indoor residual wall spraying (IRS): a measure which contributed to slashing the number of malaria cases in South Africa from 64 622 in 2000 to 8016 last year.

"Malaria is now at its lowest level in ten years," said Rajendra Maharaj, a specialist scientist working with South Africa's national malaria control programme. "We attribute that to DDT."

Under pressure from environmentalists, South Africa suspended DDT for IRS in 1996 after five decades of use and switched to another class of insecticide known as pyrethroids. But the 1999–2000 malaria epidemic in KwaZulu-Natal and neighbouring provinces prompted the government to revert to DDT for prevention and to introduce artemisinin-based combination therapy for treatment.

Other African nations, such as Eritrea, Ethiopia and Swaziland have continually used DDT for IRS in certain areas. China and India — the main supplier of the insecticide — are two other countries currently using DDT focally. Some other countries in eastern and southern Africa are considering the introduction of DDT as part of their malaria control operations in epidemic-prone areas. The United Nations Environment Programme estimates that about 25 countries will use DDT under exemptions from the DDT pesticide ban.

Recognizing the role of DDT in disease vector control, WHO helped lobby for the exemption provisions during negotiations on the content of the Stockholm convention in 2000. Allan Schapira of WHO's Roll Back Malaria department said that IRS is often more rapidly effective in controlling epidemics than insecticide-treated bed nets. However, "insecticide-treated bednets remain the recommended method in settings of intense, ongoing transmission where it is at least as effective and usually much more acceptable by the populations," said Schapira.

Junaid M. Seedat, Managing Director of the international non-profit organization, Massive Effort Campaign, which campaigns to raise awareness of developing country diseases, said WHO