

AIDS — dramatic surge in ex-Soviet Union, no respite worldwide, new data show

The Russian Federation and other parts of Eastern Europe are facing a major AIDS crisis according to the latest HIV/AIDS figures released last December by the Joint UN Programme on HIV/AIDS (UNAIDS). Although sub-Saharan Africa has still the highest number of cases, some of the largest recent increases have been in the Russian Federation, the UNAIDS report says.

Latest research suggests the number of people infected with HIV in Eastern Europe and the former Soviet Union has jumped to 700 000, a rise of nearly 70% in the space of a year. Most of the increase is due to injecting drug users. The worst affected countries, in descending order of numbers of people living with HIV/AIDS, are Ukraine, the Russian Federation, Belarus, Republic of Moldova, and Kazakhstan.

Vadim Pokrovsky, director of the Russian Centre for the Prevention of AIDS, predicts that one million Russians will be infected with HIV within two years: "Given the existing growth trend in the number of HIV cases, Russia will have millions of HIV cases in two to three years time," he said.

For Neff Walker, epidemiologist with UNAIDS, "the big surprise is what has

happened in Eastern Europe. To see the epidemic suddenly take off as it has in Russia was a shock."

Sub-Saharan Africa, however, has still by far the biggest AIDS problem. Nearly 9% of adults there are living with the infection or the disease, vs a worldwide adult prevalence rate of 1.1%. Former South African President Nelson Mandela warned in a World AIDS Day message: "We are facing a silent and invisible enemy that is threatening the very fabric of our society". But not all the news from Africa is bad. "For the first time, there are signs that HIV incidence may have stabilized in sub-Saharan Africa," the report says. New infections there in 2000 totalled about 3.8 million vs 4 million in 1999.

Asia is a cause of growing concern. With 0.6% of the population living with HIV/AIDS in South and South-East Asia, it is the most affected region after Africa. Dr Chris Beyrer, director of the Johns Hopkins Fogarty AIDS International Training and Research Program, says: "Now at risk are some of the largest human populations. The window of opportunity to respond to HIV in Asia is narrow and closing. The time for action is now."

The UNAIDS report says that industrialized countries are facing a different type of AIDS problem — complacency due to the mistaken belief that the disease can now be easily treated with drugs. The result is that "in high-income countries prevention is faltering," the report says. "Risk behaviour is undeniably on the rise in some communities."

"In the developed countries, people in some communities may engage in more risk behaviour because they have a mistaken belief that the new drugs will solve the problem," commented Dr Walker in an interview. "But we don't know how long these drugs will work and for some people they don't work. The virus can also mutate and become resistant, so we don't know what the long-term prospects for these treatments will be." ■

Roger Dobson, *Abergavenny*

Tannery pollution threatens health of half-million Bangladesh residents

About half a million residents of the Bangladesh capital, Dhaka, are at risk of serious illness due to chemical pollution

from tanneries near their homes, according to a report released last year by the Bangladesh Society for Environment and Human Development (SEHD). The report says large numbers of the 8000–12 000 workers at the tanneries suffer from gastrointestinal, dermatological and other diseases that could be related to the pollution and that 90% of them die before the age of 50 vs less than 60% for the country as a whole. About a quarter of these workers are under 11 years of age.

The affected area is Hazaribagh, a community in the south-east corner of Dhaka, where 240 tanneries are located on 25 hectares of land, the report notes. Most of the tanneries are 30–35 years old and use mineral tanning processes that discharge about 6000 cubic metres of liquid effluent and 10 tons of solid waste every day, according to figures from the Bangladesh government and the Food and Agriculture Organization.

Chromium, the SEHD report says, is one of the most harmful chemicals found in the tannery waste because of its carcinogenic potential. Acidic effluents, it adds, can cause severe respiratory problems. Gaseous emissions from the tanneries contain sulfur dioxide that is converted into sulfuric acid on contact with moisture and can damage lungs. "You only have to see the corrosion of iron that has occurred in buildings and sheds in the area, to realize what these people are exposed to," says Han Heijnen, WHO's environmental health adviser in Bangladesh.

The SEHD report says that 58% of the tannery workers suffer from gastrointestinal disease (vs 24% for the country as a whole), 31% from dermatological diseases (vs 9%), 12% from hypertension (vs 0.9%) and 19% from jaundice (vs 0.07%).

A recent article in a Bangladesh newspaper, *The Independent*, says that "residents in the Hazaribagh area have been complaining for a long time that the tanneries emit bad odour and pollute the air beyond tolerable limits".

A local environmentalist group urged the government a few years ago to move the tanneries to a less populated site, Mr Heijnen told the *Bulletin*. "The proposal was opposed by industrial interests." Two years ago, the United Nations Industrial Development Organization recommended installing a plant to treat the tannery waste but, says Mr Heijnen, "beyond debating

Global summary of the HIV/AIDS epidemic, December 2000

People newly infected with HIV in 2000

Adults	4.7 million
Women	2.2 million
Children < 15 years	600 000
Total	5.3 million

Number of people living with HIV/AIDS

Adults	34.7 million
Women	16.4 million
Children < 15 years	1.4 million
Total	36.1 million

AIDS deaths in 2000

Adults	2.5 million
Women	1.3 million
Children < 15 years	500 000
Total	3 million

Total number of AIDS deaths since the beginning of the epidemic

Adults	17.5 million
Women	9 million
Children < 15 years	4.3 million
Total	21.8 million

the matter, authorities have done nothing concrete so far". He adds: "Observers from abroad sometimes fail to realize that these environmental problems, which are serious and widespread, compete with a multitude of other health and environmental problems that have to take priority in a country with very limited resources."

Another environmental problem on Bangladesh's to-do list is arsenic contamination of ground water used for drinking, which a recent article in the *Bulletin* (Vol. 78, No. 9, 1093–1104) called "the largest mass poisoning of a population in history". ■

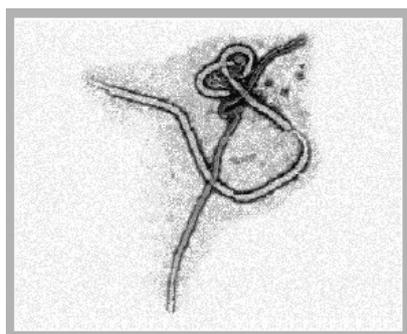
John Maurice, *Bulletin*

Experimental vaccine protects monkeys against Ebola virus

Scientists have created a two-part vaccine that has protected monkeys from the deadly Ebola virus, they reported in the 30 November 2000 issue of *Nature*.

One part of the vaccine consists of DNA, "naked DNA", coding for several Ebola virus proteins from the three strains of the virus — *Zaire*, *Sudan*, and *Ivory Coast* — known to cause disease in humans. This part is given in three monthly injections to "prime" the immune system of the vaccine recipient. The second part consists of an adenovirus, divested of its disease-causing potential, that carries a *Zaire* Ebola gene — one of the same genes contained in the prime part of the vaccine — into the cells of the vaccinated host. This second part of the vaccine, given 12 weeks after the initial priming series of injections, is designed to boost the immune response.

In the study, which was conducted by a group headed by Gary J. Nabel, director of the Vaccine Research Center at the National Institutes of Health (NIH) in Bethesda, Maryland, the "prime-boost" DNA vaccine protected all four vaccinated monkeys against lethal doses of the *Zaire* strain of Ebola virus. The monkeys were without symptoms or detectable virus 6 months after infection. The researchers



plan to test the vaccine against the other two strains.

This is believed to be the first report of successful immunization of primates against Ebola. In earlier experiments performed at the University of Michigan and also by the NIH group, a similar DNA vaccine protected mice and guinea pigs.

"There is still some way to go before a human vaccine is available, but this is a step in the right direction," noted Dennis Burton and Paul Parren, of the California-based Scripps Research Institute in La Jolla, California, in a commentary in the same issue of *Nature*.

Dr Nabel told reporters that the prime-boost vaccination approach is "a highly effective way to boost immunity to otherwise deadly viruses". It is being tested in an experimental AIDS vaccine and could, he believes, be applied to infections such as malaria or tuberculosis. ■

Scott Gottlieb, *New York*

Treaty bans pollutants but allows DDT for malaria

After two-and-a-half years of discussions, in December negotiators for 122 governments meeting in Johannesburg, South Africa, finally agreed on the text of a legally binding convention that will ban or restrict the production and use of a dozen so-called persistent organic pollutants known to be damaging to human health and the environment. The week-long meeting was sponsored by the United Nations Environment Programme, with technical input from WHO.

The convention, when it is signed in May at a high-level ceremony in Stockholm, will allow DDT, one of the "dirty dozen" as these highly toxic chemicals have been dubbed, to continue to be used for control of malaria until suitable alternatives are found. The other 11 pollutants are polychlorinated biphenyls, dioxins, furans, aldrin, dieldrin, endrin, chlordane, hexachlorobenzene, mirex, toxaphene and heptachlor. Most of these pollutants are known to be damaging to health to various degrees and in various ways — promoting cancer, damaging the central and peripheral nervous systems, causing reproductive disorders, disrupting the immune system and interfering with normal infant and child development.

"The special status accorded to DDT is excellent news for the Roll Back Malaria partnership and for WHO," John-Paul Clark, the partnership's policy adviser and chair of WHO's working group on DDT, commented to the *Bulletin*. The Roll Back Malaria

partnership, involving several international organizations and humanitarian agencies, was set up two years ago to halve the world's malaria burden over the next decade.

Indoor spraying of DDT was the cornerstone of WHO's partially successful malaria eradication programme in the 1940s to 1970s. Since the 1970s, most countries have outlawed DDT for agricultural use. In 1997, the World Health Assembly, responding to growing public concerns over the possible ecological and health effects of DDT, called on WHO Member States to reduce their reliance on insecticides for control of vector-borne diseases, like malaria. Several countries have begun phasing out DDT use and only two, China and India, still produce it. Today, as one of the least expensive yet effective means of combating the mosquito vector of malaria, it is still the insecticide of choice for malaria programmes in about two dozen countries, all among the world's poorest.

The new convention must be ratified by at least 50 countries. It stipulates that every three years countries using DDT must inform the treaty secretariat and WHO about how much they use and specify the extent to which such use is essential for their efforts to combat malaria. The convention also calls on all treaty signatories to provide support for research on alternative insecticides or other antimalarial tools and strategies and to provide technical and financial assistance to countries trying to wean their malaria programmes off DDT.

"By allowing the use of DDT specifically for the control of malaria vectors and at the same time promoting the development and use of alternative antimalaria strategies that don't require insecticides, the convention achieves a win-win situation both for the environment and for public health," said Dr Clark.

Already, through a regional initiative orchestrated by the Pan American Health Organization, eight Central American countries — Belize, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua and Panama — have raised US\$ 750 000 towards reducing their dependence on DDT. Similar projects are due to start in Africa and Asia. ■

John Maurice, *Bulletin*

Mental illness and smoking show strong links

Mentally ill Americans are nearly twice as likely to smoke as those without mental illness, according to a study reported in late November in the *Journal of the American*

Medical Association (JAMA). The study, conducted by a research group led by Karen Lasser of the Cambridge Hospital and Harvard Medical School, Cambridge, Massachusetts, suggests that people with mental illness account for nearly one half of the United States tobacco market.

The study used population-based data from a national survey mandated by US Congress to determine the prevalence of psychiatric disorders. The researchers questioned a sample of 4411 non-institutionalized people, who had participated in the survey, regarding their use of tobacco and also submitted them to a standard psychiatric diagnostic interview to determine prevalence of mental illnesses, as defined by international diagnostic criteria.

Of those who had ever had mental illness in their lifetimes 34.8% were current smokers, vs 22.5% of those who had never been mentally ill, and 55.3% had smoked at some time in their lives, vs 39.1% of people without mental illness, the study found. Extrapolating their results to the US population, the researchers estimated that persons with a recent diagnosable mental disorder consumed nearly half the cigarettes smoked in the United States.

In discussing their results, the Harvard researchers point out that tobacco manufacturers clearly target their market strategies to psychologically vulnerable persons, according to internal tobacco industry documents. Market researchers at the RJ Reynolds Company, for example, speak of smokers who smoke for "mood enhancement" and "anxiety relief".

A study published by another US research group in an earlier November issue of *JAMA*, found a significantly higher proportion of anxiety disorders among adolescents who were heavy smokers — at least 20 cigarettes a day — than among adolescents who smoked less or did not smoke at all. Among the nearly 700 youths followed up for the prospective study, those who smoked heavily had a nearly sixfold risk of generalized anxiety disorder, sevenfold risk of agoraphobia and sixteenfold risk of panic disorder. Heavy smoking in adolescence was associated with an almost elevenfold risk of anxiety disorders in early

adulthood. The study was conducted by Jeffrey Johnson and his colleagues at Columbia University and the New York State Psychiatric Institute, the Mount Sinai Medical Center in New York, and the National Institute of Mental Health in Bethesda, Maryland. ■

Fred Charatan, *Boynton Beach, Florida, USA*

In Brief

A tomato a day keeps death away (for some people)

Children eating tomatoes had a significantly lower mortality rate than children who did not, in a prospective study of nearly 29 000 Sudanese children under 5 years of age. The Harvard School of Public Health team conducting the study visited the homes of the children on 4 occasions at 6-monthly intervals. Children reported by their mothers on 3 of these occasions to have eaten tomatoes had an 83% reduction in mortality compared with children not reported to have eaten tomatoes. Tomatoes also showed a dose-related reduction in diarrhoea-related deaths. Adjusting for confounding factors, including vitamin A intake, only slightly weakened the link with tomato consumption. "What is important," said Dr Fawzi, who headed the study team, "is not so much the magnitude of the mortality reduction — the 38–91% confidence interval was quite large — but that a dietary approach, in this case tomato consumption, can have an extremely important impact on mortality and morbidity in children". He believes the effect of the tomatoes could be due, among other things, to their high content in immunostimulatory antioxidants. The study was published in the October 2000 issue of the *Journal of Nutrition*. ■

A fly that vaccinates the host it feeds on

A US research team headed by David Sacks of the National Institute of Allergy and Infectious Diseases in Bethesda, Maryland, reported last November in *Science* what could become a revolutionary approach to

vaccination against vector-borne infections. They found that exposing mice to the bites of uninfected sandflies protected them against leishmaniasis, a disease that can be as disfiguring and disabling as leprosy, and that can only be transmitted to humans by sandflies. Something still unidentified in sandfly saliva seems to produce a delayed-type hypersensitivity response that prevents *Leishmania* parasites from causing disease, the researchers postulate. When that something is identified, it may, they believe, become the basis for a vaccine against leishmaniasis, and a similar approach might be used to vaccinate against other diseases carried by insect vectors, including malaria. ■

Laugh to your heart's content!

People who don't laugh a lot may be at greater risk of heart disease than those who do, according to a US study by cardiologists at the University of Maryland Medical Center in Baltimore, Maryland. The study, presented at the American Heart Association meeting in New Orleans last November, found that among an otherwise matched sample of 300 people responding to a questionnaire about their "laughing habits", the 150 participants with a history of heart disease were 40% less likely to laugh at a variety of situations described in the questionnaire than the 150 with no history of heart disease. Who gets the last laugh on the issue is anyone's guess. ■

Polio virus pops up in unexpected places

On three occasions since June last year the polio virus has made impromptu appearances that have given the international health community food for thought.

First, in June it was found in tap water in the eastern French town of Strasbourg. On the strength of preliminary analysis, WHO believes that this virus came from an old vaccine strain that possibly escaped from a laboratory. "This event underlines the need for all laboratories to begin implementing WHO's plan for worldwide containment of laboratory poliovirus," commented Bruce Aylward, who heads WHO's polio eradication team.

Then in July, the virus appeared in the Dominican Republic and Haiti, where it had by 22 December caused 8 confirmed cases of polio, with two deaths. The responsible virus was identified as originating from an oral polio vaccine virus that had "reverted" to a virulent form and spread in an incompletely vaccinated community. This is the first outbreak of polio in the Americas since the disease was certified in 1994 as eradicated from the region. "The outbreak is being properly investigated and controlled and should not affect the certification," Dr Aylward said.

Finally, in August, an outbreak of polio occurred in the West African island of Cape Verde, and had caused 44 cases by 22 December. On the strength of molecular analysis, WHO officials believe this outbreak was caused by a wild poliovirus, probably imported from Angola, where transmission of the infection is still occurring.

These two outbreaks, Dr Aylward said, "tell us first that we will eventually *have* to stop immunization with the oral polio vaccine once polio has been globally certified as eradicated and that we will have to do so in a globally coordinated manner so that no country remains vulnerable. Until that time, high oral polio vaccine coverage must be maintained." Dr Aylward added: "They also tell us that the vaccine virus and not just wild poliovirus will have to be rigorously contained after eradication and that thorough polio surveillance will have to continue for quite a number of years not only after eradication but also after the cessation of immunization." ■

John Maurice, *Bulletin*

Internet initiative to boost health research in Africa, Central Asia, and Eastern Europe

In December WHO launched an initiative aimed at bridging the information technology gap. This "digital divide", as UN Secretary-General Kofi Annan has called it, currently handicaps health researchers in low-income countries. The aim is twofold: to provide access for researchers in developing countries to cutting-edge scientific information via the Internet — often out of their reach for technical and cost reasons — and to enable health researchers from developing countries and emerging economies to network with scientific colleagues from around the world.

Overall, the initiative should give a much-needed boost to research into diseases that disproportionately affect the poor — a neglected area which attracts less than 10% of global funds for health research.

Barbara Aronson of WHO's Library and Information Networks for Knowledge, who helped broker the public-private research initiative, says it will help put researchers from developing countries and emerging economies on the map at last. "This will ensure that their voices are heard and that research in these countries will get the attention and recognition it deserves both locally and internationally."

A 6–12-months pilot project of the initiative will begin in early 2001 at nine health research institutes specializing in tropical diseases, reproductive health, and communicable and noncommunicable diseases in Africa (Ghana, Mali, Mozambique, the United Republic of Tanzania, Uganda), Central Asia (Mongolia), and Eastern Europe (Armenia, Uzbekistan).

The pilot project marks the operational launch of a wider United Nations programme, Health InterNetwork, established early last year to improve global public health by increasing the flow of health information worldwide via the Internet. The Health InterNetwork, spearheaded by WHO, aims to create a public health portal on the Internet and establish new information sites in developing countries and emerging economies by the end of 2003. The Health InterNetwork partners — the Open Society Institute of the Soros Foundation network, leading information service providers including Elsevier Science, ISI®, and SilverPlatter, other UN agencies, and a range of public and private sector partners — will

provide computer technology, training, and logistic support tailored to meet the differing needs of researchers, policy-makers, and health care providers in the different countries. By 2002, about 30–40 countries are expected to be participating.

Other pilot projects in the pipeline include a programme for nurse training in Africa and a project to improve the flow of information and communication at all levels within India's health system.

The health research initiative will establish high-speed Internet connectivity, provide top-quality scientific information online, and train researchers in information management so they can exploit these services to the full. The three information service providers involved have each agreed to make a one-year donation of their subscription-only online services to the participating research institutes. If the pilot projects are successful, WHO will then negotiate a price for continued services on a country-by-country basis. WHO anticipates that donor support of US\$ 40–50 million will be needed over the first five years for the 30–40 countries involved.

In a separate development, Brazil and China have each made bilateral agreements outside the Health InterNetwork with Elsevier Science, ISI®, and SilverPlatter to provide health research information online.

Dr Gro Harlem Brundtland, WHO Director-General, said: "If the researchers and scientists can read the same journals, search the same databases, join in the discussion groups, compete for the same grants as their colleagues from wealthier countries, it will strengthen their own research, bring them into the international community of researchers and eventually improve dissemination of their own results." ■

Sheila Davey, *Geneva*

Taking avoidable danger out of pregnancy

Last October, in an attempt to make a dent in the huge, persistent toll of maternal deaths and disease, WHO launched a campaign to urge country health authorities to tackle the heavy toll of unsafe pregnancies. Of the 210 million women who become pregnant each year, about 20 million become ill and more than half a million die from causes

related to pregnancy, childbirth or the immediate post-partum period.

The campaign has three targets. One is to reduce the number of unwanted pregnancies: preventing unsafe abortion by providing couples with greater access to safe contraception could reduce maternal deaths by up to 13%, WHO estimates. The second target is to increase the proportion of childbirths assisted by qualified health personnel from the current 50–55% to 80% worldwide by 2005: this should help combat, for example, infection during and after delivery, which accounts for about 15% of maternal deaths, and also obstructed labour, which accounts for 8%. The third target is to ensure that more women have access to proper hospital care for complications of pregnancy, such as post-partum haemorrhage, which is linked to 25% of deaths, and convulsions due to high blood pressure, which causes about 12% of maternal deaths.

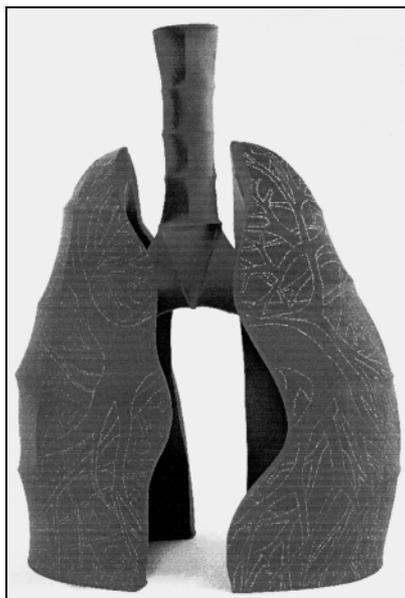
“We know that maternal mortality and morbidity are related to several factors,” Paul Van Look, director of WHO’s Department of Reproductive Health and Research, explained to the *Bulletin*. “Poverty is certainly an important one. We know, for example, that a woman in a family living on less than \$ 1 a day is 300 times more likely to die or fall ill during or after pregnancy than a woman who is better off.” Lack of education is another factor. “Health problems, of course, are also critical, and that is where we hope to make a significant difference.”

The WHO campaign will focus mainly on Africa and Asia, where the vast majority of maternal deaths occur. Ten countries will participate in an initial pilot phase — Ethiopia, Mauritania, Mozambique, Nigeria and Uganda, in WHO’s African region; Indonesia, in South-East Asia; the Lao People’s Democratic Republic, in the Western Pacific; Sudan, in the Eastern Mediterranean; and Bolivia, in the Americas.

What is new about the campaign, Dr Van Look said, is the fact that its targets are specific and its scope comprehensive. “Up to now, many countries have dealt with one or another of the three targets, putting, say, efforts into training skilled attendants but paying little attention to providing facilities where these attendants could send women who encounter life-threatening complications. Our aim is to make sure that all countries incorporate all three targets in their national health plans.” ■

John Maurice, *Bulletin*

Art inspired by tobacco



The sculpture of human lungs shown above is one of 20 exhibits by European artists, all inspired by the theme: Quitting smoking. This “SmokeArt” show, organized by WHO, was launched last November in London and will travel over the next 12 months to several European capitals. Posters of the exhibits will be distributed for display in doctors’ surgeries and pharmacies throughout Europe. ■

John Maurice, *Bulletin*

Obesity in children in developing countries — an expanding problem?

A WHO analysis of nutrition data from 94 developing countries has identified 21 countries where more than 5% of preschool children are overweight, as defined by WHO standards. Regional averages for overweight prevalence rates are highest for Latin America (4.4%), although Asia has the largest population of overweight children — 10.6 million or 60% of the total overweight children in developing countries. A country league table for overweight preschoolers would put Uzbekistan (14.4% overweight preschoolers) at the top, followed by Kiribati (11.1%), Algeria (9.2%) and Egypt (8.6%). Sixteen developing countries show a rising trend. The study was conducted by Mercedes de Onis and Monika Blössner of WHO’s Department of Nutrition for Health and Development, and published in the October 2000 issue of the *American Journal of Clinical Nutrition*. ■

In Brief

World’s water supply and sanitation services called “shameful”

One quarter of the 4.8 billion people living in developing countries lack acceptable sources of water and a half lack adequate sanitation, according to a WHO and UNICEF report released last November. The report, titled *The global water supply and sanitation assessment 2000*, says 30% of water supplies are not functioning in Africa and 17% in Asia. This situation, says Richard Jolly, chair of the Geneva-based Water Supply and Sanitation Collaborative Council, in Switzerland, “is shameful, a scandal.” The report also notes that only about 35% of wastewater is treated in Asia, only 14% in Latin America and “a negligible percentage” in Africa. In large cities of developing countries, the report says, about 40% of rural water is unaccounted for. “Most of this water is simply lost before reaching the potential user.” ■