

The declaration on these two pages was stimulated by the current controversy in South Africa about whether HIV is the cause of AIDS (see, for example, *Nature* 404, 911 & 405, 105; 2000). This has caused massive consternation among all scientists, doctors and many others in the international community who treat AIDS patients or who work on AIDS in other ways. There is widespread anxiety that denying or doubting the cause of AIDS will cost countless lives if blood screening, use of condoms, and methods to prevent mother-to-child transmission of the virus are not implemented or, worse, even abandoned.

The declaration has been signed by over 5,000 people, including Nobel prizewinners, directors of leading research institutions, scientific academies and medical societies, notably the US National Academy of Sciences, the US Institute

of Medicine, Max Planck institutes, the European Molecular Biology Organization, the Pasteur Institute in Paris, the Royal Society of London, the AIDS Society of India and the National Institute of Virology in South Africa. In addition, thousands of individual scientists and doctors have signed, including many from the countries bearing the greatest burden of the epidemic. Signatories are of MD, PhD level or equivalent, although scientists working for commercial companies were asked not to sign.

The Durban Declaration has an organizing committee of over 250 members from over 50 countries. The list of signatories up to 29 June can be found on *Nature's* website as Supplementary Information (<http://www.nature.com>), and an up-to-date list can be found at <http://www.durbandeclaration.org>.

# The Durban Declaration

**HIV causes AIDS. Curbing the spread of this virus must remain the first step towards eliminating this devastating disease.**

Seventeen years after the discovery of the human immunodeficiency virus (HIV), thousands of individuals from around the world are gathering in Durban, South Africa, to attend the XIII International AIDS Conference, which starts next week (9 July). At the turn of the millennium, figures released last week reveal that an estimated 34.3 million people worldwide are living with HIV or AIDS, 24.5 million of them in sub-Saharan Africa<sup>1</sup>. Last year alone, 2.8 million people died of AIDS, the highest rate since the start of the epidemic. If current trends continue, southern and Southeast Asia, South America and regions of the former Soviet Union will also bear a heavy burden in the next two decades.

AIDS spreads by infection, like many other diseases, such as tuberculosis and malaria, that cause illness and death particularly in underprivileged and impoverished communities. HIV-1, which is responsible for the AIDS pandemic, is a retrovirus closely related to a simian immunodeficiency virus (SIV) that infects chimpanzees. HIV-2, which is prevalent in West Africa and has spread to Europe and India, is almost indistinguishable from an SIV that infects sooty mangabey monkeys. Although HIV-1 and HIV-2 first arose as zoonoses<sup>2</sup> — infections transmitted from animals to humans — both now spread among humans through sexual contact; from mother to infant; and via contaminated blood.

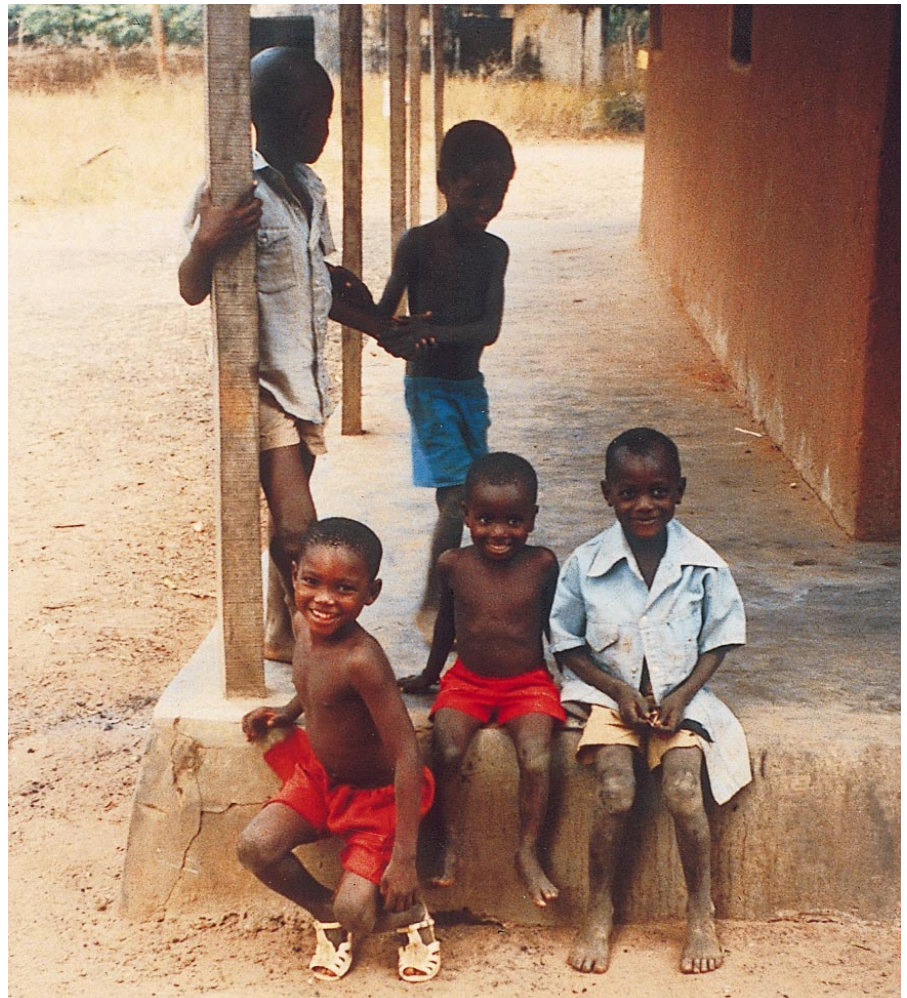
An animal source for an infection is not unique to HIV. The plague came from rodents and influenza from birds. The new Nipah virus in Southeast Asia reached humans via pigs. Variant Creutzfeldt–Jakob disease in the United Kingdom is identical to ‘mad cow’ disease. Once HIV became established in humans, it soon followed human habits and movements. Like many other

viruses, HIV recognizes no social, political or geographic boundaries.

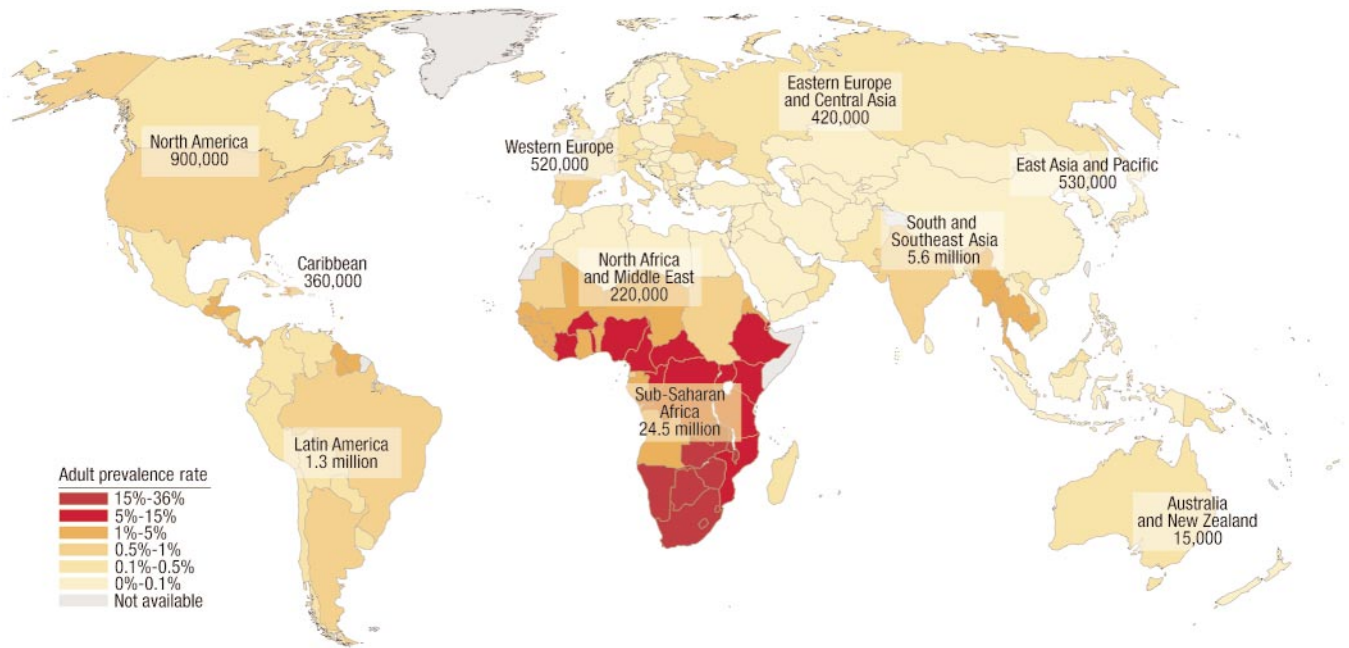
The evidence that AIDS is caused by HIV-1 or HIV-2 is clear-cut, exhaustive and unambiguous, meeting the highest standards of science<sup>3–7</sup>. The data fulfil exactly the

same criteria as for other viral diseases, such as polio, measles and smallpox:

- Patients with acquired immune deficiency syndrome, regardless of where they live, are infected with HIV<sup>3–7</sup>.



Future orphans? The death toll from AIDS in Africa will be enormous unless action is taken now.



Adults and children estimated to be living with HIV/AIDS, together with the proportion of adults infected by HIV across the world (UNAIDS, June 2000).

- If not treated, most people with HIV infection show signs of AIDS within 5–10 years<sup>6,7</sup>. HIV infection is identified in blood by detecting antibodies, gene sequences or viral isolation. These tests are as reliable as any used for detecting other virus infections.
- People who receive HIV-contaminated blood or blood products develop AIDS, whereas those who receive untainted or screened blood do not<sup>6</sup>.
- Most children who develop AIDS are born to HIV-infected mothers. The higher the viral load in the mother, the greater the risk of the child becoming infected<sup>8</sup>.
- In the laboratory, HIV infects the exact type of white blood cell (CD4 lymphocytes) that becomes depleted in people with AIDS<sup>3-5</sup>.
- Drugs that block HIV replication in the test tube also reduce virus load in people and delay progression to AIDS. Where available, treatment has reduced AIDS mortality by more than 80% (ref. 9).
- Monkeys inoculated with cloned SIV DNA become infected and develop AIDS<sup>10</sup>.

Further compelling data are available<sup>4</sup>. HIV causes AIDS<sup>5</sup>. It is unfortunate that a few vocal people continue to deny the evidence. This position will cost countless lives.

In different regions of the world, HIV/AIDS can show altered patterns of spread and symptoms. In Africa, for example, people infected with HIV are 11 times more likely to die within five years<sup>7</sup>, and

more than 100 times more likely than uninfected people to develop Kaposi's sarcoma, a cancer linked to yet another virus<sup>11</sup>.

As with any other chronic infection, various factors have a role in determining the risk of disease. People who are malnourished, who already suffer other infections or who are older, tend to be more susceptible to the rapid development of AIDS following HIV infection. However, none of these factors weakens the scientific evidence that HIV is the sole cause of the AIDS epidemic.

In this global emergency, prevention of HIV infection must be our greatest worldwide public-health priority. The knowledge and tools to prevent infection are available. The sexual spread of HIV can be stopped by mutual monogamy, abstinence or by using condoms. Blood transmission can be prevented by screening blood products and by not reusing needles. Mother-to-child transmission can be reduced by half or more by short courses of antiviral drugs<sup>12,13</sup>.

Limited resources and the crushing burden of poverty in many parts of the world constitute formidable challenges to the control of HIV infection. People already infected can be helped by treatment with life-saving drugs, but the high cost of these drugs puts these treatments out of reach for most of the world. It is crucial to develop new antiviral drugs that are easier to take, have fewer side effects and are much less expensive, so that millions more can benefit from them.

There are many ways of communicating the vital information on HIV/AIDS, and what works best in one country may not be appropriate in another. But to tackle the disease, everyone must first understand that HIV is the enemy. Research, not myths, will lead to the development of more effective

and cheaper treatments, and, it is hoped, a vaccine. But for now, emphasis must be placed on preventing sexual transmission.

There is no end in sight to the AIDS pandemic. But, by working together, we have the power to reverse its tide. Science will one day triumph over AIDS, just as it did over smallpox. Curbing the spread of HIV will be the first step. Until then, reason, solidarity, political will and courage must be our partners. ■

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