

AIDS MONITOR

'Safe sex' stops the spread of the virus



THE GOOD news from San Francisco at the end of 1987 is that "safe sex" works and that the spread of the human immunodeficiency virus has almost halted among gay men there. But the latest research in

the city into the effects of the virus is producing increasingly grim findings.

Most of those exposed to the virus, researchers expect, will sooner or later develop AIDS or other severe disease related to HIV. Doctors can also now predict, with increasing accuracy, just who among the HIV-exposed population will progress to AIDS—and when.

George Rutherford of the San Francisco Department of Public Health last year told a US Congressional Committee investigating AIDS that the spread of the virus dramatically slowed in 1983, when public health education programmes directed at gay men began. The year before, 21 per cent of the unexposed gay population had developed antibodies to HIV, indicating that they had been exposed to the virus over the previous few months. But in 1983, that figure plummeted to 2 per cent. In 1986 it was 0.8 per cent, and researchers expect that it will continue to fall.

Analysis of the spread of rectal gonorrhoea confirms these findings. The annual



Gay men in San Francisco have changed their habits

level of cases of rectal gonorrhoea fell by 93 per cent between 1980 and 1986. Most of the fall occurred in 1982-83.

San Franciscans have celebrated such figures as light in the gloom of the AIDS epidemic. The City Council even wound up its health education project, "Stop AIDS", its task regarded as complete. (Among gay men, that is: critics of the decision point out that the message about the risk of AIDS has still not fully got across to heterosexuals, drug users and people in ethnic minorities.)

Initiatives such as the "Stop AIDS" project (augmented by the climate of fear) have achieved probably the fastest and most effective changes in behaviour ever seen in any population at risk from disease.

The campaigns to promote "safe sex" among gay men, and educate them about AIDS have been almost totally successful in less than four years. Such rapid changes in behaviour contrast sharply with the poor response over the past 25 years from smokers to warnings about the risks to their health from cigarettes.

The number of new cases of AIDS diagnosed each month in San Francisco, currently running at about 100, reflects the sudden reduction in spread of HIV during 1983. The rate of new cases of AIDS had previously risen relentlessly since 1981, when doctors first identified the disease. But the latest figures released by the Centers for Disease Control in Atlanta, Georgia, show that the diagnosis rate in San Francisco peaked late in 1986, at about 126 cases a month, and has now reached a plateau. Some researchers are now predicting that the rate at which new cases of AIDS appear among gay men in the city—though not the total number—will soon start slowly to decline. This fall will reflect the fact that spread virtually halted after 1983.

Yet, depressingly, the latest studies of the mortality associated with HIV infection suggest that infected people who have no symptoms or only mild ones are more, not

AIDS Monitor is edited by **Sharon Kingman**, with contributions this week from **Duncan Campbell** in San Francisco and **Eric Stover** in Nairobi.

less likely to progress to AIDS as time passes. These estimates are based on research on three cohorts of men in San Francisco. (In medical terms, a cohort is a group of people who take part in a long-term study.)

One study, at the San Francisco City Clinic, began recruiting men from 1978 onwards. Paul O'Malley, the director of the clinic, reported last autumn that only 25 per cent of this cohort were still without symptoms. O'Malley's data show that after a median of 86 months (7 years and 2 months) of HIV infection, some 35 per cent of the group were diagnosed with AIDS, and about 40 per cent showed serious symptoms.

Studies of a second cohort, based at San Francisco General Hospital, also predict that the level of AIDS and severe symptoms of infection will reach at least 75 per cent, in this case within nine years. This study, which began in 1984, involved monitoring about 300 gay men, none of whom had AIDS or related symptoms at the start of the study. After 3 years, 22 per cent had AIDS and 19 per cent had developed abnormalities of the immune system which showed that they, too, within the next three years, would develop AIDS or severe symptoms of HIV infection.

From their findings, the researchers predict that half of those infected with HIV will get AIDS and another 25 per cent will develop severe symptoms of infection, within about nine years of infection. The researchers also predict that all patients who develop severe symptoms as a result of HIV infection are likely to progress to full-blown AIDS.

Medical researchers at the San Francisco General Hospital have identified five

factors which can help to predict when AIDS will appear in an infected person. If any two of these factors are in the "warning range", the person has a strong likelihood of progressing to AIDS within three years. The five variables are: an increased level of a substance called beta-2 microglobulin in the blood; anaemia (low numbers of red blood cells); the presence of the viral core protein known as p24 (*New Scientist*, 26 November 1987, p 29); the ratio of T-helper to T-killer cells; and the absolute level of T-helper cells.

Each of these factors is independently significant, but the most significant factor predicting progression to AIDS appears to be the level of beta-2 microglobulin, which is a small protein produced by the immune system. Levels of this substance greater than 5 micrograms per millilitre of blood seem to be highly predictive of the onset of AIDS. However, if none of the variables is in the warning range, it is unlikely that the patient will progress to AIDS within the next three years.

The third study, the San Francisco Men's Health Study, is run by the University of California at Berkeley, and includes heterosexual and/or seronegative men for comparison. Data from this and the other two studies show that a major feature of HIV disease is the continuous decline of the population of T-helper cells.

Uninfected men typically have between 900 and 1000 cells per millilitre of blood. After infection, the number begins to decline at a typical rate of 80 to 100 cells per millilitre per year. Thus, after seven years of infection, half the infected population may have around 200 cells per millilitre—levels typical either of AIDS itself or of early progression to AIDS. □