

The Epidemic in Thailand

Two years ago, Peter Duesberg used epidemiological data from Thailand to argue that HIV doesn't cause AIDS. In his 1992 HIV/AIDS paper in *Pharmacology and Therapeutics*, Duesberg wrote: "An AIDS crisis that was reported to 'loom' in Thailand as of 1990 and that was predicted to 'explode' now has generated only 123 AIDS patients from 1984 until June 1991." But researchers familiar with the Thai epidemic argue that new data from Thailand present strong epidemiological arguments that HIV is indeed the cause of AIDS.

Thailand began extensive HIV-antibody testing in 1985, as documented by Bruce Weniger of the Centers for Disease Control and Prevention, with Thai co-workers, in a 1991 paper in the journal *AIDS*. By the end of 1987, nearly 200,000 HIV blood tests had been done on Thais from every known risk group—and there were fewer than 100 positive samples.

But then the virus began a rapid spread. By the end of 1988, in one risk group alone—users of injectable drugs—more than 1000 people had tested positive for HIV. Tim Brown, a theoretical physicist at the East-West Center in Hawaii who has worked with the Thai National Economic and Social Development board to model the AIDS epidemic, estimates that by the end of 1993 more than 700,000 Thais had become infected with HIV. "It's hard to think of any other country that has had such large amounts of spread that is well documented," says Weniger.

The linchpin of the argument that HIV

causes AIDS in Thailand, say Weniger and others, is that the dramatic rise in HIV infections is being closely followed by a rise in AIDS cases. Brown's data show that, as of the end of 1993, there were more than 8000 cumulative AIDS cases. "The Thai data is quite compelling that HIV preceded AIDS, and the increase in HIV infection is now being seen in AIDS cases," says Weniger.

| RAPID SPREAD | | | |
|--------------|--------------------------|-----------------------------------|--------------------------------|
| Year | Estimated HIV prevalence | New AIDS cases reported this year | Cumulative reported AIDS cases |
| 1988 | 12,850 | 18* | 18 |
| 1989 | 86,000 | 34 | 52 |
| 1990 | 297,000 | 91 | 143 |
| 1991 | 499,000 | 460 | 603 |
| 1992 | 634,000 | 1485 | 2088 |
| 1993 | 708,000 | 6026 | 8114 |

*Includes pre-1988 cases

SOURCE: TIM BROWN

Duesberg counters that there is "no explosion" of HIV infection in Thailand. "Instead, we look here at an explosion of HIV testing that began in 1989, and that has discovered a long-established, low incidence of HIV in Thailand," he wrote in reply to questions from *Science*. As for the rise in Thai AIDS cases, he agrees that there has been "a small explosion," which he writes "appears to be a consequence of new Thai sex and drug practices, not of a long-established latent retrovirus."

But Brown predicts that by 2000 there will be 1.4 million cumulative HIV infections and 480,000 AIDS cases in Thailand. "Thailand proves exactly why Duesberg is wrong," says Brown.

—Jon Cohen