Among 446 sera from prostitutes in Nairobi, the prevalence of antibody to human immunodeficiency virus (HIV) rose from 4% in 1981 to 61% in 1985. None of 118 men with chancroid seen in 1980 had antibody to HIV compared with 15% of 107 such men in 1985. Among pregnant women, 2.0% were seropositive in 1985 versus none of 111 in 1981. Seropositive prostitutes and women with sexually transmitted diseases (STDs) tended to have more sex partners and had a higher prevalence of gonorrhoea, and in women with STDs, significantly more seropositive women practiced prostitution. Pregnant women and men with STDs who were born in the most-western region of Kenya were more likely to have antibody to HIV than were such groups from other geographic areas. Our results indicate that the AIDS virus was recently introduced into Kenya, that HIV can rapidly disseminate in a high-risk group of heterosexuals, and that prostitutes may have significantly contributed to the spread of the virus.