

# **Epidemiology Bulletin**

- 83 Analysis of the Sex Ratios  
of AIDS Cases/HIV  
Carriers in Taiwan
- 87 Cases of Notifiable and  
Reportable Diseases,  
Taiwan-Fukien Area

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## **Analysis of the Sex Ratios of AIDS Cases/HIV Carriers in Taiwan**

Data published by the Department of Health of the Executive Yuan, ROC, show that since the first 10 HIV (human immunodeficiency virus) carriers were identified in Taiwan in 1984, all HIV carriers up to 1987 were either hemophiliac patients or homo-/bi-sexuals. It was not until 1988 when the first female carrier was identified, the sex ratio of carriers then was 60 male to one female. Thereafter, more female carriers had been identified, and by the end of December 1992, of a total of 407 carriers, 386 were male and 21, female, giving a sex ratio of 18 male to 1 female. Of the 63 cases, 59 were male and 4, female, giving a sex ratio of 15 male to 1 female<sup>(1)</sup>.

If only heterosexuality is considered as a risk factor, by the end of December 1992, of a total of 112 carriers, 97 were male and 15, female, giving a sex ratio of 6 to 1. This ratio has been constant for the last few years. As the investigation into sex life is often difficult, the figures may not necessarily reflect the fact, a significant difference in the sex ratio, however, is indicated.

Cuba is the only country in the world where every individual must be tested for AIDS infection and investigated of his/her risk factors at the same time. Of the 5 million some population above the age of 15 years throughout the country, 434 carriers have been identified, of them, 315 are male and 119, female, giving a sex ratio of 2.6 to 1. If only the heterosexuals are studied, the sex ratio then becomes 1.5 to 1<sup>(2)</sup>. Homosexuals in Australia, though, have the highest rates of either cases or carriers (76-89%) among countries in the world, the sex ratio of heterosexual carriers is 1.4 to 1<sup>(3)</sup>. In Japan, the sex ratio of male and female carriers is about 1.3 to 1<sup>(4)</sup>. Though there are many infections in Africa, the sex ratio is almost close to 1 to 1<sup>(5)</sup>. Reports from India by March 1989, though not specified as heterosexuals, the male/female sex ratio was 0.9 to 1<sup>(6)</sup>. Study in Chiangri, Thailand, gave a sex ratio of 0.4 to 1<sup>(7)</sup>. Epidemiological studies on carriers are abundant in USA, though risk factors are seldom investigated at the same time. Of their heterosexual cases, there are fewer men than women, giving a sex ratio of 0.4 to 1<sup>(8)</sup>. Singapore, with its Chinese origin, has a sex ratio closer

to that of Taiwan, 13.7 to 1<sup>(9)</sup>, though the sample size is still too small yet to be stable (see Table 1).

**Table 1. Sex Ratios of Heterosexual HIV Carriers (Male/Female), Selected Countries and Areas**

Area	Year	No (M/F)	Ratio	Area	Year	No (M/F)	Ratio
Taiwan	1992	97/15	6.5:1	India	1989	394/421	0.9:1
Singapore	1992	41/3	13.7:1	Chiangri	1991	772/1718	0.4:1
Cuba	1991	176/119	1.5:1	Thailand			
Australia	1991	113/83	1.4:1	USA	1991	2100/4948	0.4:1*
Japan	1991	116/91	1.3:1	19 studies	1987	45%/33%	1.4:1**
Africa	1991	—	1:1	16 studies	1991	26%/33%	0.8:1**

\* AIDS cases

\*\* ratios of infection rates

Many studies indicate that the infection of AIDS viruses between men and women is two-way. Padian in her reviewing 19 studies on sex partners in 1987 reported that when the men were carriers, the infection rates of their female partners ranged from 9 to 60%, and, in total, of the 471 partners, 155 had been infected, giving an infection rate of 33%. When the women were carriers, the infection rate of their male partners ranged from 6 to 100%, and in total, of the 108 partners, 50 had been infected, giving an infection rate of 46%<sup>(10)</sup>. Though infection could have resulted from modes other than sexual intercourse and the use of condom was not clear, the ratio of infection between men and women was 1.4 to 1; and 1.1 to 1 if Haiti alone was studied. Padian, et al. in their report of 1991<sup>(8)</sup>, further stated that the ability (note: ability, and not number of infection) of men transmitting disease to women was 14 times more than that of women transmitting to men. They quoted a study of 16 sex partners to show that the infection rates of men and women carriers were 26%:33%, giving a male/female sex ratio of 0.8 to 1. Though findings of these studies of sex partners are independent infection ratio of each sex, and they are not calculated from one common universe, they can still be used to estimate that the male/female sex ratio should be close to 1 to 1, and more reasonably, more women than men. The WHO report says that globally in 1991, a half of the AIDS cases were women, and that by the end of the century, there would be more female AIDS cases than male.

As compared to other countries, the sex ratio of HIV carriers in Taiwan is significantly different. Many reasons are attributable: in the early days, because of family expectation and social pressure, some homosexuals refused to acknowledge their sexual orientation<sup>(11)</sup>, and thus, were classified under heterosexual; and some male carriers were infected abroad. What is important in the process of development is, at the beginning, HIV started to spread out among homo-/bi-sexuals, and therefore, there were

more men than women. Of all AIDS cases, in Taiwan as in USA, 60% are homo-/bi-sexuals. Currently in Taiwan, however, the homo-/bi-sexual carriers occupy only 41% of the total, showing a slight decline in the incidences of homo-/bi-sexuals and an increase in the infection rate of heterosexuals. Heterosexuals will eventually become the most important risk group. As in the US, the sex ratios showed a great disparity at the beginning, and with the increase in the heterosexual carriers, the sex ratios have become more balanced. The current sex ratios should, therefore, be close to one. A likely reason is that many female carriers (and cases) have not been identified. The sources of infection of the 15 female carriers identified so far are either hemophilic spouses who are carriers, their sources of infection can be traced; or steady sex partners or husbands who have been infected through prostitution, their sources of infection are not easy to be traced. And yet, very few cases have so far been identified among prostitutes, the highest risk group<sup>(12)</sup>. The Department of Health of the Executive Yuan has asked the Taipei Municipal VD Center to screen several thousand prostitutes and some female STD patients, and yet no carriers have so far been identified (Editor's note: according to the Department of Health, by 15 June 1993, of the 451 HIV carriers, two are of special occupations). The number of prostitutes is a guess. A general estimate is that there are around 50,000 to 100,000 prostitutes in Taipei City, and 100,000 to 200,000 in the Taiwan Area as a whole<sup>(14)</sup>. The matter becomes more complicated. A majority of the prostitutes has not yet been screened, and the number not identified through screenings is considered to be four times more than the number identified through screening<sup>(15)</sup>, the estimate is that at least tens to several hundred female HIV carriers are practicing all over the place. Infection through prostitution is expected to increase and spread indefinitely through chain infection. A Belgian engineer was infected AIDS through prostitution in central Africa in 1980. Upon return, he transmitted the disease to 11 women, and one of them transmitted it further to one man<sup>(16)</sup>. In addition to various measures of active and passive screenings, men should be urged to stay away entirely from prostitutes, and if not, at least to take strict precautions. People should be educated not to have any sex with strangers of either sex.

Symptoms of female AIDS are similar to those of male AIDS. However, female AIDS could also be expressed in the forms of PID (pelvic inflammatory diseases), vaginal infections or cervical cancer<sup>(17)</sup>. Obstetricians and gynecologists, if alert, can also help in the identification of carriers and cases.

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