Transmission and Risk Factors for AIDS

As we discussed in Chapter 1, HIV transmission occurs when the virus from an infected individual's body fluids, primarily blood or semen, gains entry to the bloodstream of another person. Among some AIDS risk groups, the reasons for increased HIV susceptibility are readily apparent. Hemophiliacs and transfusion recipients were directly exposed to the virus if they received blood or blood products contaminated with HIV. The likelihood of developing HIV infection if one received contaminated blood is high in light of follow-up studies of transfusion recipients (Ward et al., 1987), although the likelihood that a transfusion recipient received contaminated blood even before antibody screening was instituted is quite low. Intravenous drug users who share needles inject themselves with blood traces from persons who previously used the same syringe. If a previous user of the needle carried the virus, HIV transmission can occur. In a similar manner, HIV-infected females who become pregnant can give birth to infants infected with the virus because the blood-borne virus circulates between the mother and the fetus (Oleske et al., 1983; Rubenstein et al., 1983). Virtually all pediatric AIDS cases occur either because the child was exposed prenatally to the virus via its mother's bloodstream, because the child was exposed during delivery, or because the child received transfusions of infected blood (U.S. 1983; 1984). 

J. A. Kelly et al., The AIDS Health Crisis
Department of Health and Human Services, 1986a). However, as we noted in the previous chapter, transfusion with contaminated blood accounts for only a small proportion of the total number of AIDS cases. The vast majority of AIDS patients and of persons antibody-positive to the virus were exposed as a result of sexual transmission.

2.1. AIDS RISK BEHAVIOR AMONG HOMOSEXUAL OR BISEXUAL MALES

Most early studies of AIDS risk behavior among gay and bisexual males employed retrospective methodologies, questioning persons within established clinical groups (AIDS, ARC, or HIV seropositivity) about their past sexual or health practices and then comparing their responses with those of healthy or HIV-seronegative control groups. This methodology was useful for initially identifying behavioral correlates of AIDS and HIV infection. However, retrospective studies are limited by their reliance on self-reports of past behavior, by potential ambiguities in the definition of behavior or the recall of subjects, by confounds caused if control and experimental groups are not fully matched on all relevant variables, and by the inability to definitively establish causal relationships between subjects' past behavior and their current health status. More recent prospective studies of AIDS risk have now been conducted and, when considered together with the findings of laboratory investigations, elucidate major transmission mechanisms. The risk factors most frequently identified among homosexual or bisexual males are number of sexual partners, specific sexual practices engaged in with sexual partners, history of certain sexually transmitted diseases, and substance use history.

2.1.1. Number of Sexual Partners

If HIV infection is present in some proportion of the sexually active gay male population and if the virus can be sexually transmitted, the likelihood of an individual's exposure to HIV should vary with the number of sex partners encountered. Several investigations have demonstrated such an effect. Marmor et al. (1982) found that patients with AIDS had significantly more different sexual partners during the year before their disease was diagnosed than did age- and race-matched homosexual male controls without AIDS. Similar results were obtained in a larger-scale study by Groopman, Mayer, et al. (1985). In addition to these retrospective studies, Anderson and Levy (1985) conducted a prospective