

Black and Hispanic Men Who Have Sex with Men Carry A Greater HIV Burden Than Their White Counterparts

Black and Hispanic U.S. men who have sex with men have higher rates of HIV diagnosis than whites, and they are more likely than whites to develop AIDS within three years after learning that they are infected with HIV.¹ The study that produced these findings also revealed that blacks have the lowest survival rate three years after receiving an AIDS diagnosis. HIV diagnosis rates are increasing more rapidly among young men who have sex with men than among their older counterparts, but trends within age-groups do not vary by race or ethnicity.

The analysis of trends in HIV diagnoses was based on information provided by 33 states to the Centers for Disease Control and Prevention from 2001 to 2004; the data included all men who have sex with men who were at least 13 years old, except injection-drug users. To assess the burden of HIV infection, the researchers calculated diagnosis rates per 100,000 men in the general population, using the number of men who have sex with men and who received an HIV diagnosis in a given year as the numerator; for subgroup analyses, the denominator was age- or race-specific. Patterns of progression from HIV to AIDS were examined for men whose HIV was diagnosed in 1996–2002 and who were followed up through 2004. Likewise, to study survival among men with AIDS, the analysts used data covering diagnoses in 1996–2002 and follow-up through 2004.

Men who have sex with men and who received an HIV diagnosis represented 23.1 of every 100,000 men in the 33 reporting states in 2001. The rate then increased by 1–2% annually, to 24.3 per 100,000 in 2004. Diagnosis rates for black and Hispanic men in 2004 (70.8 and 39.0 per 100,000) were higher than the rate for whites (14.6). A similar pattern was observed in each age-group studied, but the racial and ethnic differentials varied. For teenagers, the rate among blacks (23.5) was about four times that among Hispanics (6.1) and 20 times the rate of whites (1.2). In older age-groups,

blacks had 3–4 times the rate among whites, and Hispanic men's rate lay between those of the other groups.

Between 2001 and 2004, the HIV diagnosis rate declined by 2–3% a year among men in their 30s, but it rose in most other age-groups, and the increases among the youngest men were dramatic. Teenagers' rate of HIV diagnosis increased by 14% annually, and the rate among men in their early 20s climbed by 13%. By contrast, annual increases were 6% among men in their early 50s, 5% among those in their late 20s and those in their early 40s, and 3% among those aged 45–49; rates among men 55 and older did not change significantly during the study period. Changes within age-groups did not differ by race or ethnicity.

Overall, 71% of men in whom HIV was diagnosed between 1996 and 2002 did not receive an AIDS diagnosis by 2004. The proportion who did not progress to AIDS within three years was significantly higher among whites (75%) than among blacks (67%) or Hispanics (68%). It also was higher among younger than among older men; for example, 84% of teenagers and 78% of men in their 20s did not develop AIDS within three years of their HIV diagnosis, compared with 61% of men aged 50 or older. The year in which HIV had been diagnosed also was related to progression to AIDS, although the differences were not large; for example, the proportion remaining AIDS-free was 68% among men whose HIV was diagnosed in 1996 and 72% among those who learned they were infected in 2001.

Eighty-three percent of men who received an AIDS diagnosis were still alive three years later. The three-year survival rate was 85% for whites and Hispanics, but it was significantly lower for blacks (81%). Young men were more likely than older men to survive for three years: The proportion doing so was 86–88% among men in their teens, 20s or 30s, but it dropped to 81% among men in their 40s, 74% among those in their 50s and 61% among older men. The survival rate fell

as men's CD4+ T-cell count six months after AIDS diagnosis declined. Finally, whereas progression from HIV to AIDS declined only slightly over time, survival after an AIDS diagnosis improved markedly: Some 86% of men who received an AIDS diagnosis in 2001 were still alive three years later, compared with 79% of those who had learned of their illness in 1996.

The analysts caution that the 33 states on which their study was based may not be nationally representative and that the surveillance system lacks important information, such as data that could help determine the role of treatment in the progression of HIV to AIDS. Despite these and other limitations, however, they consider it clear that interventions targeting specific subgroups of men who have sex with men are needed to reduce HIV transmission, AIDS diagnoses, and racial and ethnic health disparities in this population. "In particular," they conclude, "interventions need to be tailored to the needs and behavioral context of black and Hispanic youth."—D. Hollander

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Program for Fathers Helps Them Talk to Young Sons About Sex and HIV Risk

Fathers in the Atlanta area who participated in a program designed to improve men's ability to talk to their 11-14-year-old sons about HIV prevention subsequently reported more sexuality-related discussion and greater intention to discuss relevant topics with their sons than did a control group of men who had not taken part in the program.¹ Furthermore, their sons were more likely than sons in the control group

to say that they intended to postpone intercourse until they married and, if they were sexually experienced, were less likely to report having had unprotected intercourse.

The program was tested in four randomly selected sites of a community-based organization that operates after-school and summer programs for disadvantaged youngsters; another three sites served as controls. At intervention sites, fathers (including non-biological father figures) of 11–14-year-old males were invited to attend a program that presented information on communicating with adolescents about general topics (e.g., relationships with peers), sexuality-related topics and specific topics related to HIV and AIDS. Seven weekly two-hour group sessions were scheduled, during which information was delivered through lectures, discussions, role-playing exercises, games and videotapes. In addition, participants received a manual that was designed to help them complete weekly take-home activities and set personal goals. At control sites, fathers were invited to participate in seven weekly two-hour group sessions on nutrition and exercise; the format of these sessions was similar to that of the HIV program. At both the intervention and the control sites, youth were invited to accompany their fathers to the last session.

Participating fathers and sons completed baseline questionnaires and follow-up interviews conducted three, six and 12 months later. The baseline questionnaire gathered data on their socioeconomic and demographic characteristics; the follow-up interviews explored fathers' discussions about sex and intentions to discuss sex with their sons, and adolescents' sexual behavior and condom use. Researchers used chi-square and t tests to examine differences between the program and control groups.

In all, 277 father-and-son pairs enrolled in the study; participants were roughly evenly divided between the intervention and control sites. Virtually all of the participants were black; on average, fathers were about 40 years old, and youth were 13 years of age. Seventy percent of fathers and sons lived together; 40% of the pairs included the adolescent's biological father, 15% his stepfather and the rest other friends or relatives. About half of fathers had a high school education or less, and slightly more than half had a yearly income of \$10,000–49,999. In the initial interview, 70% of fathers re-

ported ever having discussed a sexuality-related topic with their son, 76% of sons said that they had never had sex and 27% of those who were sexually experienced had ever had unprotected intercourse. At baseline, the intervention and control groups differed only in the proportion of fathers and sons who lived together (63% and 76%, respectively); analyses of outcomes took this difference into account. On average, fathers at the intervention sites attended fewer than half of the scheduled program sessions.

During each follow-up interview, fathers were asked how frequently they had talked to their sons about each of 16 sexuality-related topics and how likely they were to talk to them about each. The groups differed little at the first and second follow-up assessments. However, at 12 months, fathers in the intervention group reported both significantly more discussion than those in the control group (average scores, 23 and 20, respectively, on a scale of 0–48) and significantly greater intention to have such discussion (70 vs. 67 on a scale of 16–80).

The two groups of adolescents showed no difference in the outcomes measured three months after the intervention. At the six-month assessment, youth whose fathers had attended the HIV program reported participation in fewer intimate behaviors than those in the control group (4.0 vs. 4.6 out of a possible eight) and a higher level of sexual inexperience (75% vs. 69%). At the final

assessment, these differences were no longer significant. Sexually inexperienced youth in the intervention group were more likely than those in the control group to say at both the six-month and the 12-month assessments that they planned to delay first intercourse until marriage (52% vs. 38% and 42% vs. 34%, respectively). In the six-month interview, sexually experienced adolescents in the intervention group were less likely than comparable controls to report having had intercourse without a condom (32% vs. 57%); the difference persisted at the final assessment (23% vs. 57%).

Given the program participants' low attendance rate, the researchers consider the results "fairly impressive." Nevertheless, they suggest a number of possible strategies to improve and better measure the intervention's effectiveness—for example, decreasing the number of sessions but increasing their length, providing booster sessions and replicating the study with a community-based random sample of father-and-son pairs. Further development and evaluation of the program will determine whether "involving fathers [is] an effective means of promoting HIV prevention practices among adolescent males."—D. Hollander

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Poor Women Are at Elevated Risk for HPV Infection, But Few Variables Predict Risk Among Those in Poverty

Women living below the poverty line are at greater risk for infection with potentially cancer-causing strains of human papillomavirus (HPV) than are better-off women, but among those living in poverty, there are few socioeconomic or demographic predictors of risk.¹ Analyses of data from the 2003–2004 National Health and Nutrition Examination Survey indicate that among poor women, Mexican Americans are significantly less likely than whites to have a high-risk HPV infection, and unmarried women have higher odds of infection than married women. By contrast, for women living above the poverty line, the likelihood of infection is predicted by race, income, marital status and age.

The analyses were based on data from 14–59-year-old women in the nationally representative survey sample who agreed to have an HPV test in addition to completing the survey's interview and health examination. Participants willing to have the test were taught to collect a vaginal fluid specimen for analysis; the 1,921 women who submitted specimens that were adequate for testing were included in the study. Researchers used chi-square and logistic regression analyses to explore the prevalence and predictors of HPV infection among women with varying socioeconomic and demographic characteristics.

On average, study participants were 36 years old; half were married. Most were white (69%) and had at least a high school

education (78%); 18% had a household income that was below the poverty line for their household size. Sixteen percent of participants, representing more than 12 million U.S. women aged 14–59, tested positive for at least one high-risk type of HPV.

The prevalence of infection with any type of HPV that is linked to cervical cancer was significantly higher among women living in poverty than among those with an income at least three times the poverty threshold (23% vs. 12%). It also varied markedly by age (27–29% among women in their late teens and early 20s vs. 11–17% in other age-groups), race (21% among both black and multiracial women vs. 13–16% among other groups) and marital status (10% among married women vs. 21–23% among unmarried participants).

An initial multivariate analysis indicated that women aged 18–21, those aged 22–25 and those aged 30–39 had significantly higher odds of high-risk HPV infection than those aged 40 or older (odds ratios, 2.0, 3.1 and 1.8, respectively). The odds were higher among formerly married, never-married and cohabiting women than among their married peers (1.9–2.6), and were lower among Mexican Americans than among whites (0.6).

In univariate analyses, associations between the prevalence of high-risk HPV infection and race varied by poverty status. However, the data suggested that the differences may have been at least partly attributable to differences in marital status or income; therefore, the analysts calculated separate logistic regression models for poor and nonpoor women.

The stratified models yielded strikingly different results. For women living below the poverty line, only two characteristics were associated with the likelihood of having a high-risk HPV infection: Mexican Americans had lower odds of infection than whites (odds ratio, 0.4), and unmarried women had higher odds of infection than married women (3.3). Among women above the poverty line, however, several characteristics were significant predictors of infection. The likelihood of infection was higher for unmarried than for married women (2.0) and for women aged 18–25 than for those older than 40 (2.0–2.4); it was inversely associated with annual income (0.9). In addition, black women were more likely than whites to have a high-risk infection (1.4), but this difference largely reflected that nonpoor black women had

a lower mean income and were less likely to be married than their white counterparts.

The researchers point out that measurement error and, in some subgroups of women, small numbers may have affected their findings. Furthermore, they note that not all women with HPV infections develop cervical cancer, and that they were unable to assess factors that may influence this outcome. Despite these limitations, they conclude that because few variables predict HPV infection in poor women, prevention interventions “must ensure that *all* low-income women have enhanced access to HPV vaccines as well as education and other preventive services.” To achieve this goal, they recommend that girls be vaccinated “while they are still covered by benefits for low-income children” and that legislative and community efforts work toward ensuring the availability of low- or no-cost vaccines to low-income young adults.—*D. Hollander*

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Female and Male Condoms Offer Similar Protection Against Exposure to Semen

Breakage, slippage and other mechanical problems occur more frequently with female than with male condoms, but the two devices are about equally effective barriers to semen exposure, according to findings from a randomized crossover trial conducted among women attending an Alabama reproductive health clinic in 2000–2001.¹ Prostate-specific antigen (PSA), an indicator of exposure to semen, was detected in similar proportions of vaginal fluid samples collected after use of male and female condoms during the study—14% and 17%, respectively. PSA was present in high enough levels to potentially affect STD risk in 4–5% of samples associated with each type of device. Exposure to semen was more common if women reported mechanical problems with condoms than if they reported incorrect use.

Women were eligible to participate in the study if they were at least 19 years old, were in a mutually monogamous relationship, had not had an STD in the past six months and had had intercourse at least four times in

the past 30 days. In all, 108 women enrolled and were randomly assigned to receive either 10 male or 10 female condoms. All participants received instruction on correct use of the assigned method and were taught to collect samples of vaginal fluid. The women were then asked to collect one sample before and one after using each condom, to place the samples and the used condom in a prelabeled bag, and to return the bag to the clinic the next business day, along with a form on which they reported problems with the condom or with the device for collecting the samples. After using the first 10 condoms, women repeated the process with the second type of condom.

To determine semen exposure, the researchers first assessed the PSA level (measured in nanograms per milliliter) of the postcoital sample of vaginal fluid. If PSA was detected (i.e., if the level was more than 1 ng/ml), they assessed the precoital sample, to rule out previous exposure.

Study participants were predominantly white (78%) and married (77%); six in 10 had been in their current relationship for at least five years. Eighty-nine percent had ever used a male condom with a main partner; 19% of these had experienced condom breakage, and 43% condom slippage. Only 6% had ever used a female condom with their current partner. Most (69%) had not used condoms in the past 30 days. Background characteristics did not differ between women assigned to use male condoms first and those assigned to use female condoms first.

Participants returned 700 male and 678 female condoms to the clinic. Nine percent of male condoms were accompanied by reports of mechanical problems (primarily breakage or slippage), and 68% by reports of partial or incorrect use. Thirty-four percent of forms returned with female condoms noted mechanical problems (mainly that the condom broke or slipped, the penis entered to the side of the device or the condom's outer ring was pushed into the vagina), and 8% recorded instances of incorrect use.

PSA assessments of the vaginal fluid samples indicated that women had been exposed to semen 14% of the time they used male condoms and 17% of the time they used female condoms; the difference was not statistically significant. Moderate or high levels of PSA (22 ng/ml or more), which indicate sufficient semen exposure to pose a risk of STD transmission, were detected in 4% of samples accompanying male condoms

and 5% of those submitted with female condoms; the confidence interval around this one-point difference (-1.6 to 3.7) was not narrow enough to establish that the difference was statistically significant. PSA levels did not change with successive uses of male condoms but declined significantly with each use of female condoms.

The frequency with which moderate or high PSA levels were detected was related to the types of problems women reported with use of each method. For male condoms, such levels were more common if the device had slipped (20%), broken (11%) or been put on incorrectly (8%) than if the man had withdrawn without holding its base (1%) or if the couple had had no problems using it (3%). For female condoms, moderate or high exposure was fairly frequent if the penis had entered to the side of the device (11%), if the device's outer ring had been pushed into the vagina or had slipped (8%), or if other mechanical problems were reported (10%); the only report of breakage was accompanied by a vaginal fluid sample with a moderate or high PSA level. By contrast, no reports of incorrect use were accompanied by such levels, and exposure was moderate or high in only 3% of instances in which no problems were reported.

According to the researchers, their findings on moderate and high PSA levels do not "exclude a moderate difference in performance" between the two types of condoms, but the results indicate that "large differences are unlikely." Thus, the investigators comment that in conjunction with findings from other studies, their results suggest "that although the female condom performs less well than the male condom in the first few uses, its effectiveness over repeated use is similar." While acknowledging a number of limitations of their study (for example, participants were at low risk of STDs and had greater experience with male than with female condoms), the researchers conclude that it adds to the growing literature "shedding . . . new light on the risk of adverse outcomes determined by specific problems encountered by condom users."—*D. Hollander*

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Same-Sex Activity Among Women May Be a Marker For Adverse Sexual and Reproductive Health Outcomes

Five percent of British women aged 16–44 have ever had a female sexual partner, and those who have done so in the past five years are at greater risk of adverse sexual, reproductive and general health outcomes than are those who have had sex only with men.¹ For example, according to findings from a national probability survey, they have significantly elevated odds of having sex with someone they have known for no more than a day and of having an STD diagnosed; they have reduced odds of rating their overall health as good or very good. Women who have had sex with women are more likely than those who have had only male partners to engage in unsafe heterosexual behavior, to consider themselves at risk for HIV, to seek care at an STD clinic and to undergo HIV testing.

The 2000 National Survey of Sexual Attitudes and Lifestyles (Natsal), from which the data were drawn, collected information through face-to-face interviews and, for sensitive topics, computer-assisted self-interviews; the sample included 6,399 women. Researchers analyzed the survey data to explore the prevalence of same-sex experience among British women and compare various behaviors and outcomes between women who have had female partners and those who have had only male partners; they categorized women by their sexual experience in the five years preceding the survey.

Overall, 5% of women reported having had sex (specifically, genital contact) with a woman; 3% said they had done so in the last five years. Because the vast majority of women reporting same-sex activity also said they had had sex with men, the analysts' main focus was comparisons between this subgroup and women who reported only male partners. Women who had had both male and female partners were significantly younger than those who had had only male partners (27 vs. 32 years, on average). The proportion who were married was lower among those reporting partners of both genders than among those reporting exclusively male partners (14% vs. 48%), but the proportion who were living with a man to whom they were not married was higher (34% vs. 19%). Forty-one percent and 63%,

respectively, had had children. On average, women who had had sex with men and women had had 11 male partners within the last five years, whereas those who had had only male partners had had two. In the year preceding the survey, 49% of the former group and 13% of the latter had had multiple male partners; 59% and 22%, respectively, had had a new male partner.

Age-adjusted analyses revealed significant differences in the sexual behavior of the two groups. Women with a history of partners of both genders who had had sex with a male in the past year were significantly more likely than women reporting only male partners to have had oral sex, anal sex or other genital contact excluding vaginal intercourse during that period (odds ratios, 2.4–3.8). They also were more likely to report that they had last had sex with someone who was not a “regular” partner (1.8) and that sex with that individual had first occurred within 24 hours of the couple's first meeting (2.4); these associations were no longer significant, however, when the data were further adjusted for women's number of partners. The most dramatic difference between the groups was in their likelihood of having had unsafe sex—defined as having had two or more male partners and having used condoms inconsistently—in the past four weeks. The odds of this outcome were more than seven times as high among women who had had partners of both genders as among those who had had sex only with men; adjustment for number of partners had little effect on this finding.

The survey data suggest a poorer general health profile for women who have had sex with both women and men than for those who have had exclusively male partners. The former were less likely to rate their health as good or very good (odds ratio, 0.5), and were more likely to report having had an illness of at least three months' duration in the last five years (2.0) or having made a hospital outpatient visit in the last year (1.5). Additionally, they had elevated odds of saying that they smoked (2.6), that they drank to excess (2.0) or that they had ever used injection drugs (10.0).

Sexual and reproductive health likewise varied by women's sexual experience. The

proportion who considered themselves at substantial risk of HIV was significantly higher among women who had had partners of both genders than among those who had had only male partners (11% vs. 2%). Perhaps as a result of this difference, the former had higher odds of having visited an STD clinic and of having had an HIV test in the past five years (odds ratios, 6.3 and 3.1, respectively). They also were more likely to have had an STD (4.4). The odds of abortion were three times as high among women who had had both male and female partners as among those reporting sex only with men.

The analysts observe that although the number of women in the Natsal sample who reported same-sex activity was small, the survey's national probability sample yields data that can be generalized to all British women aged 16–44. Thus, they conclude that for this population, “a history of sex with a woman is...a marker for increased risk of adverse sexual, reproductive, and general health outcomes.” Consequently, because women who have female sex partners often are reluctant to disclose that behavior to health professionals, or avoid seeking medical care, the findings point up “a need for practitioners to develop skills and attitudes that allow nonjudgmental sexual history-taking from female patients, without making assumptions about sexuality or sexual behavior, to facilitate discussion of risks that [women who have sex with women] may face.”—*D. Hollander*

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reporting unprotected insertive anal intercourse with a partner who was not infected or whose HIV status was unknown, and optimism about the efficacy of HIV treatments was positively associated with uninfected men's saying that they had had unprotected receptive anal sex with a serodiscordant partner.

The survey was undertaken to explore links to high-risk behaviors reported in earlier studies, particularly recently identified predictors of HIV transmission, and to improve on previous work by using a probability design. Researchers used random digit dialing to recruit a sample of adult men who identified themselves as homosexual or bisexual and reported having had sex with a man at least once since age 14; some 1,976 eligible men completed telephone interviews, which were conducted between June 2002 and January 2003. At the end of each interview, the respondent was asked to provide a urine sample for gonorrhea and chlamydia testing; men who had not reported having HIV infection were also asked to consent to HIV testing.

Twenty-five percent of respondents were HIV-infected; most of these men were aware of their status before entering the study, but eight learned of their infection through the test taken after they completed the interview. Chi-square analyses revealed significant variations in the prevalence of infection by a number of socioeconomic and demographic characteristics. Black men, participants who had not completed high school and respondents with the lowest incomes had the highest levels of infection (39–41%); Asians and Pacific Islanders, those with a graduate degree and men with the highest incomes had the lowest infection rates (14–18%). Prevalence rose steadily from 14% among men who had been living in San Francisco for less than a year to 31% among those who had been there for more than 10 years.

In the 12 months preceding the interview, 85% of respondents had been sexually active. Using chi-square tests, the researchers found marked differences between HIV-positive and HIV-negative men in the prevalence of risky behavior. Significantly higher proportions of infected than of uninfected men had had a nonprimary male partner, had had sex with someone they had met on the Internet, had had unprotected anal sex with a primary male partner whose HIV

status was different from theirs or was unknown (i.e., a serodiscordant primary partner), and had engaged in a variety of risky behaviors with nonprimary male partners. HIV-positive men also reported higher rates of sildenafil, amyl nitrite (poppers) and crystal methamphetamine use than HIV-negative men.

Remaining analyses focused on two behaviors that carry a high risk of HIV transmission: unprotected insertive anal sex among infected men who had serodiscordant nonprimary partners and unprotected receptive anal sex among HIV-negative men with serodiscordant nonprimary partners. Although bivariate findings suggested that a broad range of background, behavioral and attitudinal characteristics predicted the first of these, only two characteristics were significant in multiple logistic regression analyses. The likelihood of having engaged in this behavior was elevated among users of sildenafil (odds ratio, 2.3) and was reduced among men reporting fewer than six partners in the previous year (0.04 for those reporting one partner and 0.1 for those reporting 2–5).

Uninfected men's likelihood of having had unprotected receptive anal sex with a serodiscordant nonprimary partner was associated with a greater number of factors. The odds of having engaged in this behavior were higher among respondents who had been living in San Francisco for less than a year than among those who had been residents of the city for more than 10 years (odds ratio, 5.5), and were lower among those who had had five or fewer partners than among those who had six or more (0.05–0.3). HIV-negative men had elevated odds of reporting unprotected receptive anal intercourse with a serodiscordant nonprimary partner if they used crystal methamphetamine or amyl nitrite (2.8 and 2.6, respectively), or if they agreed that “[they] are less careful about being safe with sex or drugs than [they] were several years ago because there are better treatments for HIV now” (3.4).

The researchers acknowledge the potential limitations of a cross-sectional telephone survey, as well as the possibility that some men's HIV status may have been misclassified. Nevertheless, they conclude, “In the third decade of the HIV epidemic, it is clear that [men who have sex with men] remain severely impacted. . .and that risk behaviors

Risky Behaviors Still Fuel HIV Epidemic Among Men Who Have Sex With Men

One-quarter of participants in a survey of San Francisco men who have sex with men were infected with HIV, and an analysis of the survey data suggests that prevention efforts need to target “novel cofactors” associated with HIV infection.¹ For example, use of sildenafil (Viagra) was positively associated with HIV-infected men's likelihood of

in this group are resulting in ongoing HIV transmission.” They consider their findings indicative of the need for programs aimed at amyl nitrite and crystal methamphetamine use, as well as for expanded types of coun-

seling services. Additionally, they stress the need for high-quality studies of HIV incidence and prevalence, and related attitudes and behaviors, “to keep prevention efforts relevant.”—*D. Hollander*

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