Objective: The objective of this study was to explore risk behavior and routes of transmission in men having sex with men (MSM) with newly diagnosed sexually transmitted infections (STIs).

Methods: A questionnaire on clinical diagnosis and manifestation site for acute STIs was completed by physicians participating in a sentinel study. Patients contributed information on sexual risk behavior and the likely route of STI transmission.

Results: Three hundred fifty-six diagnosis forms and 169 matching patient questionnaires could be analyzed. The most frequent diagnosis was syphilis (n = 147; 33% primary syphilis with ulcer localization 71% genital, 22% anorectal, and 8% oral; 67% secondary syphilis), followed by gonorrhea (n = 136; 59% genital, 34% rectal, 7% pharyngeal) and Chlamydia trachomatis infection (n = 51; 48% genital, 48% rectal, 4% pharyngeal). In 12 patients, more than one infection was diagnosed, and 2 or 3 sites were affected in 11 patients. Approximately 60% of infections were acquired by genital–oral and oral–anal practices. Unprotected anal intercourse (UAI) was reported more often by HIV-positive men (mostly receptive) and men with high partner numbers.

Conclusion: High partner numbers, an important role of genital–oral sexual practices for the transmission of STIs, and relatively high frequencies of mostly receptive UAI in HIV-positive men are all contributing to increasing STI incidences among MSM.

AN INCREASING INCIDENCE OF sexually transmitted infections (STIs) in men who have sex with men (MSM) has been reported in recent years in several Western European countries as well as in North America and Australia.1–4 In Germany, the number of cases of primary and secondary syphilis among MSM has doubled from approximately 1100 in 2001 to approximately 2200 in 2003.5 Not only the absolute number, but also the reported incidence of syphilis among MSM in Germany in the years 2001 through 2003 has been larger than in any other country in Western Europe.6 Other bacterial STIs are currently not reportable in Germany and data on Neisseria gonorrhoea and Chlamydia trachomatis infections are only available from STI sentinel surveillance.7

To collect data on sexual risk behavior and routes of transmission of acute bacterial STIs in MSM in Germany, a substudy within the framework of the sentinel surveillance system for STIs was conducted from April 2002 through September 2003.

Methods

Participants

Private medical practices in Berlin and Frankfurt with a high proportion of MSM among their clients were recruited for the study. Five of the participating 13 practices were dermatovenerologic practices, whereas the others were specialized in general or internal medicine. All male patients with a newly diagnosed STI were asked to participate in the study.

Sexually Transmitted Infection Diagnosis

Diagnostic procedures were mainly symptom-driven and sampling procedures differed between sentinel sites: although all sentinel sites took diagnostic samples from sites where symptoms occurred, only some extended sampling to other potential manifestation sites if symptoms were restricted to one site. Syphilis was diagnosed by serology, gonorrhea by culture, and C. trachomatis by either antigen or nucleic acid amplification tests. Unspecified urethritis was clinically diagnosed if culture for N. gonorrhoea or testing for C. trachomatis were negative.

Questionnaires

For each male patient with a diagnosis of syphilis, gonorrhea, C. trachomatis, or unspecified urethritis, the physician completed a one-page questionnaire (diagnoses form) asking for demographic information and history of STI (including the current diagnosis with site of manifestation: genital, rectal, or oropharyngeal). The patient also received a questionnaire together with a one-page information sheet about the purpose of the study. The questions
covered the reason for consultation, the assumed route of transmission (anal receptive/insertive, genital–oral receptive/insertive, oral–anal receptive/insertive—insertive included rimming and the use of saliva as an anal lubricant), and date of acquisition for the most recent diagnosed STI (number of days, weeks, or months between presumed infection event and day of consultation), the consumption of drugs (alcohol, cannabis, amyl nitrite, ecstasy, amphetamine, cocaine, heroin) immediately before or during the presumed infection event, HIV serostatus, the last HIV viral load (if HIV-positive), whether the patient currently had a regular sexual partner, the knowledge of the (regular) partner’s HIV serostatus, the number of casual sex partners during the last 6 months (6 categories from 0 to >25), and the number and kind of sexual contacts with regular and casual partners within the last 6 months.

Patients were asked to return the questionnaire directly to the Department of Infectious Disease Epidemiology at the Robert Koch-Institut. The patient questionnaire and the diagnosis form were matched by using an anonymous unique identifier.

Analysis

The analysis was restricted to men who reported same-sex sexual partners (3 men with other risks of infection were excluded). Data were checked for consistency, entered into an MS-Access database, and analyzed by using SPSS (version 13.0). After generating general descriptive statistics, differences concerning disease diagnosis, manifestation site, reported routes of transmission, and behavior variables between HIV-positive and HIV-negative men were analyzed. Qualitative variables were compared using the chi-squared test. For continuous variables (number of episodes of unprotected receptive and insertive anal intercourse), Mann-Whitney U-test was used after checking the distribution pattern by Kolmogorov-Smirnov adaptation test. Odds ratios (ORs), 95% confidence intervals (95% CIs), and 2-sided P values were calculated. A multiple logistic regression analysis, which included all variables demonstrating significant differences in univariate analysis and age (<30, >29) was conducted.

Definitions

The adherence to safer-sex practices to prevent the spread of HIV was also considered. In this context, the following definition for unsafe sex was used: unprotected anal intercourse (receptive or insertive) with others than regular partners.

Results

From April 2002 through September 2003, a total of 356 completed diagnosis forms and 169 patient questionnaires were submitted, representing a patient participation rate of 47.5%.

Sexually Transmitted Infection Patients

The mean age of the STI patients was 35.5 years (range, 16–65 years). HIV-positive men with STIs were significantly older than HIV-negative men (see Table 2). Three hundred seven (86.2%) of the 356 patients were German, 16 (4.5%) were from a country in Western Europe, 13 (3.7%) from Central or Eastern Europe, and 20 (5.6%) came from different countries outside of Europe.

Fifty-five of 79 HIV-positive patients who completed the questionnaire provided data on the year of HIV diagnosis: 15 were diagnosed in the years 1984–1998 and 40 in the years 1999–2003, i.e., the majority of HIV infections were diagnosed relatively recently.

### TABLE 1. A. Diagnoses and Localization* of Sexually Transmitted Infections (n = 258 diagnoses)

<table>
<thead>
<tr>
<th>Diagnoses</th>
<th>Genital</th>
<th>Rectal</th>
<th>Oropharyngeal</th>
<th>Total Number of Infections/Infected Sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlamydia (n = 51)</td>
<td>27</td>
<td>27</td>
<td>2</td>
<td>56†</td>
</tr>
<tr>
<td>Gonorrhea (n = 136)</td>
<td>85</td>
<td>48</td>
<td>10</td>
<td>143†</td>
</tr>
<tr>
<td>Syphilis (n = 51)</td>
<td>36</td>
<td>11</td>
<td>4</td>
<td>51</td>
</tr>
<tr>
<td>Unspecified urethritis (n = 20)</td>
<td>20</td>
<td>—</td>
<td>—</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>168</td>
<td>86</td>
<td>16</td>
<td>270†</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total Number of Infections/Infected Sites</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Diagnoses</th>
<th>HIV</th>
<th>Syphilis</th>
<th>Gonorrhea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Syphilis (n = 159)</td>
<td>1</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Gonorrhea (n = 73)</td>
<td>1</td>
<td>4</td>
<td>—</td>
</tr>
<tr>
<td>Chlamydia (n = 147)</td>
<td>1</td>
<td>1</td>
<td>16</td>
</tr>
<tr>
<td>Unspecified urethritis (n = 26)</td>
<td>—</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

*Secondary syphilis with anamnestic information on localization of primary syphilitic ulcers was subsumed under the respective localization. In addition, there were 96 cases of secondary syphilis without information on primary ulcer site.
†Includes 11 double/triple localizations.

### Diagnosis and Site of Manifestation

The most frequent diagnosis was syphilis (n = 147), followed by gonorrhea (n = 136), *C. trachomatis* infection (n = 51), unspecified urethritis (n = 20), and HIV infection (n = 20). Twelve patients had multiple infections, and in 11 patients, more than one site was affected (Table 1). For infections with a distinct manifestation site, genital manifestations were the most frequent (n = 159), followed by rectal manifestations (n = 73) and oropharyngeal manifestations (n = 16). Among the patients were 20 (5.6%) with an incident and 141 (39.6%) with a prevalent HIV infection. The proportion of (prevalent) HIV-positive men did not change over time. However, there were differences between HIV-infected and HIV-uninfected men in terms of STI diagnosis, STI history, manifestation site, and sexual behavior (see Table 2). A significantly higher proportion of HIV-infected men were diagnosed with syphilis, and a significantly lower proportion of HIV-infected men were diagnosed with unspecified urethritis.

Comparing the patients with genital or rectal manifestations only (n = 216), rectal manifestations were reported significantly more often in HIV-infected patients.

A history of a previous diagnosis of syphilis (>1 year ago) was reported significantly more often for HIV-positive than for HIV-negative men, whereas there was no difference concerning a recent history (within the last year) of syphilis between HIV-positive and HIV-negative men.

### Reasons for Consultation, Assumed Source of Infection, and Route of Transmission

Based on information given in the patient questionnaires (n = 169), most patients reported symptoms as the reason for consul-
tation (n = 129) followed by partner referral (n = 18). Routine screening was only mentioned by 5 patients as the main reason for consultation. The assumed source for the acquired STI, as reported by the patients, was a casual partner in 128 cases, a regular partner in 10 cases, and a commercial sex worker in 3 cases. The median time lapse between acquisition and diagnosis of the STI was estimated by the patients to be 7 days for gonorrhea (mean, 11.5 days), 14 days for chlamydia (mean, 22.6 days), 30 days for primary syphilis (mean, 56.3 days), and 60 days for secondary syphilis (mean, 86 days).

A probable route of transmission was reported by patients for 142 (81%) of 175 STI episodes. For 67 (38%) of those episodes, unprotected anal intercourse was mentioned as the probable route of transmission.

### Sexual Behavior

Most respondents reported exclusively male sexual partners; only 9 reported both male and female partners within the last 6 months. Because of the low number, eventual behavioral differences between men with only male partners and with partners of both sexes were not analyzed.

The number of partners reported within the last 6 months was higher than 25 for 32% of the respondents. Regular partnerships were reported by 69 respondents, but except for 5 participants, all reported sex with more than one partner. Seventeen men reported to live in an HIV-serodiscordant (25% of all partnerships) and 36 in a seroconcordant (52%) partnership.

In HIV-positive respondents, time from HIV diagnosis was not associated with behavioral differences, but as mentioned, the ma-

### TABLE 2. Differences Between HIV-Positive and HIV-Negative Sexually Transmitted Infection Patients

<table>
<thead>
<tr>
<th></th>
<th>HIV-Positive</th>
<th>HIV-Negative</th>
<th>Odds Ratio (95% confidence interval)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age</td>
<td>37.3</td>
<td>34.2</td>
<td></td>
<td>0.001</td>
</tr>
<tr>
<td>Proportion with syphilis</td>
<td>47%</td>
<td>36%</td>
<td></td>
<td>1.6</td>
</tr>
<tr>
<td>Proportion with unspecified urethritis</td>
<td>3%</td>
<td>9%</td>
<td></td>
<td>2%</td>
</tr>
<tr>
<td>History of previous syphilis (&gt;1 y ago)</td>
<td>20%</td>
<td>6%</td>
<td></td>
<td>4.3</td>
</tr>
<tr>
<td>Genital/rectal manifestations</td>
<td>41/37</td>
<td>109/29</td>
<td></td>
<td>3.4</td>
</tr>
<tr>
<td>Report of unsafe sex with casual partners in previous 6 months</td>
<td>72%</td>
<td>55%</td>
<td></td>
<td>2.1</td>
</tr>
<tr>
<td>One or more episodes of URAI with casual partners in previous six months</td>
<td>62%</td>
<td>30%</td>
<td></td>
<td>3.9</td>
</tr>
<tr>
<td>One or more episodes of UIAI with casual partners in previous 6 months</td>
<td>42%</td>
<td>44%</td>
<td></td>
<td>0.9</td>
</tr>
<tr>
<td>Unsafe sex only within regular partnership</td>
<td>5%</td>
<td>23%</td>
<td></td>
<td>5.8</td>
</tr>
<tr>
<td>Average number of episodes of unprotected insertive anal intercourse within the previous 6 months among participants reporting unsafe sex</td>
<td>4 (IQR 2–7)</td>
<td>2 (IQR 1–5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average number of episodes of unprotected receptive anal intercourse within the previous 6 months among participants reporting unsafe sex</td>
<td>5 (IQR 2–12)</td>
<td>3 (IQR 2–8)</td>
<td></td>
<td>0.419 (NS)</td>
</tr>
<tr>
<td>Report of unprotected receptive anal intercourse during the presumed infection event from patients with rectal manifestations or systemic disease</td>
<td>26/52 (50%)</td>
<td>8/30 (27%)</td>
<td></td>
<td>2.8</td>
</tr>
<tr>
<td>Report of unprotected insertive anal intercourse during the presumed infection event from patients with genital manifestations or systemic disease</td>
<td>21/60 (35%)</td>
<td>19/67 (28%)</td>
<td></td>
<td>1.4</td>
</tr>
<tr>
<td>Report of unprotected oral–genital contact as the most likely mode of transmission during the presumed infection event from patients with genital manifestations or systemic disease</td>
<td>20/60 (33%)</td>
<td>38/67 (57%)</td>
<td></td>
<td>0.4</td>
</tr>
</tbody>
</table>

URAI indicates unprotected receptive anal intercourse; UIAI = unprotected insertive anal intercourse; NS = not significant; IQR = interquartile range.
jority of HIV-positive respondents were diagnosed with HIV in the recent 5 years.

**Sexual Behavior of Patients With Systemic Infection or Rectal Manifestations in the 6 Months Before the Infection**

Because the attribution of a specific infection event may be less reliable in the case of a systemic infection (e.g., secondary syphilis) and possibly in cases with rectal manifestation as well, we analyzed separately the sexual risk behavior data for the last 6 months of those 53 patients reporting routes of transmission other than receptive unprotected anal intercourse.

Fifteen of the 53 patients reported unprotected receptive anal intercourse with regular partners. Unprotected receptive anal intercourse with casual partners was only reported by 9 patients, and except in one, it was reported in low frequencies (1–3 episodes).

Protected receptive anal intercourse with casual partners was reported by 12 patients, but again, it was reported with low frequencies of one to 5 episodes within the last 6 months. Genital–oral contacts were reported at approximately a 25-fold higher frequency than unprotected genital–anal contacts.

**Self-Reported Adherence to Safer Sex**

Based on our definition, 50 (63%) of 79 of the HIV-infected patients reported one or more episodes of unprotected receptive anal intercourse and 34 (43%) reported one or more episodes of unprotected insertive anal intercourse. Twenty-four (31%) of 78 of the HIV-negative patients reported unprotected receptive anal intercourse and 38 (49%) reported unprotected insertive anal intercourse during the last 6 months. Thus, HIV-positive participants were more likely to report unsafe sex outside of a regular partnership than HIV-negative participants, a difference mainly driven by the higher probability for HIV-positive participants to report unprotected receptive anal intercourse (Table 2).

The number of patients reporting unsafe sex only within a relationship with a regular partner was 18 (23%) in HIV-negative men compared with 4 (5%) in HIV-positive men.

Of those men who reported unsafe receptive or insertive anal intercourse, the average number of episodes of unprotected insertive anal intercourse with casual partners reported by HIV-positive and HIV-negative men were higher for HIV-positive men, whereas no difference could be seen between the average number of unprotected receptive anal intercourse between HIV-positive and HIV-negative men (Table 2).

Sixty-four of the 79 HIV-infected patients reported a viral load below the limit of detection at the last measurement. The sexual risk behavior did not differ between those who had a low (<1000 copies/mL) or a high viral load.

**Correlates of Increased Sexual Risk-Taking**

Reporting of unprotected receptive anal intercourse at the infection event was significantly associated with the consumption of several drugs: alcohol (OR, 2.4; 95% CI, 1.1–5.1), cannabis (OR, 3.3; 95% CI, 1.3–8.4), poppers (OR, 4.5; 95% CI, 2.1–9.5), and ecstasy/amphetamines (OR, 3.8; 95% CI, 1.3–11.7); unprotected insertive anal intercourse, however, was only associated with the use of ecstasy/amphetamines (OR, 3.8; 95% CI, 1.3–11.7).

The use of cannabis, poppers, and ecstasy/amphetamines at the infection event was also statistically significant associated with unsafe sexual behavior in the previous 6 months (OR, 7.1; 95% CI, 1.6–31.7 for cannabis; OR, 3.1; 95% CI, 1.3–7.2 for poppers; OR, 9.2; 95% CI, 1.2–72.5 for ecstasy).

Age (above or less than 30 years) had no significant impact on frequency of unsafe sex. Patients with high partner numbers (>4 partners during the preceding 6 months) are significantly unsafer than patients with low partner numbers. Stratifying the data with regard to HIV status reveals that in contrast to HIV-negative men with high partner numbers, HIV-positive men were more likely to have practiced unsafe sex (OR, 17.7; 95% CI, 4.0–78.0).

In multivariate analysis, however, only a high number of partners (<5 vs. >4) in the last 6 months (OR, 6.7; 95% CI, 2.6–17.2) and HIV status (OR, 2.5; 95% CI, 1.2–5.4) remain significant predictors of unsafe sex.

**Discussion**

The main finding of our study is that only one in 3 STI patients reported unprotected anal sex as the route of STI transmission and that study participants in general report much higher frequencies of unprotected oral sex than unprotected anal sex. Even if in some cases unprotected anal sex may have been underreported, we do not believe that this would change our results greatly considering the much higher frequencies of reported unprotected genital–oral and oral–anal contacts. Consequently, the observed increase in unsafe sexual practices (unsafe defined in regard to HIV transmission), which is often cited as the main reason for increasing STI incidences, does not fully explain the increasing incidence of STIs in MSM in Western industrialized countries in the recent past.

High proportions of genital manifestations and of cases of secondary syphilis and, of course, all cases of pharyngeal manifestations, are attributed to unprotected genital–oral intercourse. However, the actual number of pharyngeal infections diagnosed in the participating sentinel sites is quite low. This seemingly contradictory finding can easily be explained by the fact that only a few of the participating practices in our study routinely screened for rectal and/or pharyngeal infections, if there were no local symptoms; and also in these cases, screening was only performed in patients with (symptomatic) infections at genital or rectal sites. Thus, the number of pharyngeal infections in sexually active MSM may be grossly underestimated by our study.

Although the contribution of oropharyngeal infections to the spread of STIs among MSM has yet to be determined, it is biologically probable that the site with the highest frequency of mucosal contact during sex would also be a more frequent manifestation site for STIs. This would explain the high percentage of infections in our study that were attributed to genital–oral contacts. On the other hand, oropharyngeal infections often do not cause noticeable symptoms, usually remain undiagnosed, and probably resolve spontaneously after some weeks.

Oropharyngeal infection with gonorrhea and chlamydia, mostly in MSM, were described in several studies in the 1970s and 1980s. In these studies, the oropharynx was the least frequent manifestation site: urethral, rectal, and oropharyngeal. However, in one of these early studies, it was demonstrated that the risk of acquiring pharyngeal gonococcal infection by fellatio and cunnilingus with a partner who had confirmed urethral infection was considerable (31% and 14%, respectively). Since the early 1990s, researchers from the United States and United Kingdom have reported high and increasing proportions of pharyngeal gonococcal infections among MSM and significant correlations of urethral gonococcal infection in MSM with oral insertive intercourse. In one U.S. study, the authors concluded that, as a result of the shift in the relative frequencies of unprotected oral and anal intercourse among MSM, the population-attributable risk for urethral gonorrhea by fellatio had risen compared with the pre-AIDS period.
More recently, Janier et al. reported from Paris that oral sex was given as the only risk factor for the infection by 58% men from a consecutive sample of MSM with urethral gonorrhea. They also found a relatively high pharyngeal carrier rate of 14% in the same sample of patients.

Onsite screening of (asymptomatic) customers in MSM saunas in Melbourne, Australia, for gonorrhea and chlamydia detected the majority of newly diagnosed infections with gonorrhea in throat swabs (13 vs. 11 rectal and one urethral). Recently, there have also been some reports about the routes of transmission of syphilis, especially among MSM. Cook et al. analyzed sexual risk behavior in 23 MSM with early syphilis during an outbreak in Manchester, U.K. Eight of the 23 men were certain to have contracted syphilis by oral sex. Considering sexual practices and their respective frequencies, 12 of 23 most likely acquired their infection by oral sex. Similarly, Couturier et al. reported that of 21 MSM with early syphilis in Paris, 13 believed they became infected by unprotected oral sex, whereas only 8 reported unprotected anal sex. Last but not least, Ciesielski et al. reported, that during 2000–2002, at least 20% of primary and secondary syphilis cases among MSM in Chicago were attributed to oral sex.

Second, important findings of our study are the differences between HIV-positive and HIV-negative sexually transmitted disease patients in terms of type of diagnosis, site of manifestation, and reported sexual risk-taking (Table 2). Of those men reporting unprotected receptive anal intercourse as the likely route of infection, 24 of 35 are HIV-positive. Among HIV-negative MSM practicing unprotected anal intercourse, a considerable higher proportion reports nonuse of condoms exclusively within a regular partnership.

It has been reported from several countries that the percentage of HIV-positive men—especially among patients with early syphilis—is disproportionately high. The reason for this may be a core group phenomenon arising from the fact that sexually active HIV-positive MSM who practice unsafe sex often do so with partners of the same serostatus, thus creating a subgroup with a disproportionately high risk of rapid propagation of STIs. Another reason might be reduced protection against reinfection as a result of a compromised immune status.

Other studies that compared sexual risk behavior between HIV-positive and HIV-negative MSM in detail also found that HIV-positive men preferentially take the receptive part in (unprotected) anal intercourse, especially if the insertive partner is serodiscordant or his HIV status is unknown. HIV-negative men, on the other hand, more often report unprotected receptive anal intercourse within seroconcordant partnerships. Although this serostatus-associated behavior for receptive anal sex has not been actively promoted for HIV-positive MSM, knowing that both partners are HIV-negative has been recommended as a preventive strategy in monogamous partnerships. The observation that HIV-positive men tend to have unprotected sex with seroconcordant partners has been reported from several authors. Although this may allow for HIV superinfection and the transmission of other STIs, it does not by itself lead to a further spread of HIV.

There are a number of reasons for HIV-positive MSM to engage in unprotected sexual intercourse, especially with seroconcordant partners; they do not have to come out about their HIV status, a situation that often results in rejection if their partners are seronegative or untested, and they get around the constant fear of accidental infection of their partner. In addition, the use of condoms evokes and reminds them of their HIV infection. The emotional closeness and greater physical stimulation that MSM are seeking in unprotected sexual contacts may be especially valued by HIV-positive MSM and thus often override concerns about the risk of other STIs or HIV superinfection—if there is any awareness about such consequences at all.

The findings in this report are subject to several limitations. First, only MSM with a diagnosis of an acute bacterial STI were invited to participate in the study. This is almost certainly a group with above-average sexual risk behavior. Second, data on sexual behaviors were self-reported and subject to recall and desirability biases. Third, only approximately half of the patients included in the study provided a patient questionnaire with behavioral data, thus introducing an unknown response bias. However, comparing all demographic and disease variables provided on the diagnoses form, there was no significant difference between responders and nonresponders.

Taken together, the sexual behavior reported by MSM with acute bacterial STIs fits into a picture of sexual behavior changes that can best be described as a switch from HIV risk avoidance to HIV risk minimization. The first reaction of MSM in Western industrialized countries to the threat of AIDS was the reduction of partners, a reduction or even temporary abstinence from anal intercourse (unprotected as well as protected), and an overall reduction of sexual activity in general, as well as a limited physical intimacy in individual sexual encounters. In terms of HIV, such behavior changes were more than adequate to prevent HIV transmission. These “excess” behavior changes started to reverse during the 1990s. The number of sex partners began to increase again and sexual practices with an assumed low risk of HIV transmission were resumed, especially genital–oral and oral–anal practices. Although the percentage of MSM who reports unprotected anal intercourse also slowly increases, this trend is in HIV-negative and untested MSM mostly as a result of an increasing proportion of men who sporadically do not use condoms. This sporadic nonuse of condoms partly reflects decisions based on knowledge of the HIV serostatus of the 2 partners, partly decisions based on assumptions about the partner’s serostatus, and is therefore certainly error-prone. Among HIV-positive MSM, on the other hand, a subculture has developed especially in metropolitan areas with larger numbers of sexually active HIV-positive men in which unprotected sexual intercourse between consenting partners is becoming a normal behavior.

The sexual risk management of MSM is thus increasingly shifting from strategies of universal risk avoidance to strategies that take HIV serostatus into account. Whether treatment status and viral load play a role for sexual risk management strategies is still controversial. We did not find a difference in sexual risk-taking between HIV-infected STI patients with low or high viral load. The sexual risk management strategies continue to focus almost exclusively on HIV risks. Further clarification is needed to determine to what extent risk reduction for other STIs is considered, as well as the level of awareness among MSM regarding the additional routes of transmission for STIs and the potential health consequences of different STIs. Answers to these questions are important to adjust prevention strategies for MSM so as to better impede the spread of STI other than HIV.

The increasing incidence of STIs in men who have sex with men appears to be a consequence of increasing partner numbers and diversifying HIV risk reduction strategies as opposed to being a consequence of “relapse” into unsafe sex. The number of partners reported within the last 6 months was higher than 25 for 32% of the respondents in our study, whereas in larger sexual behavior surveys among MSM in Germany, the proportion of men in a
comparable age range and region of living—age group 30 to 44 years living in metropolitan areas—and reporting more than 50 partners in the previous 12 months is currently 16%, with a clearly increasing trend during the last decade (Wright, personal communication).

To prevent a further rise of STIs among MSM, besides the reinforcement of HIV-prevention messages, other strategies like routine screening of sexually active MSM who are under medical care44 and onsite screening for STIs in places where MSM seek sex partners17 should be considered. Also, antibiotic prophylaxis for STI prevention in STI core groups44 could be explored; however, behavioral effects and the risk of resistance development would have to be considered carefully with this approach.44

References


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