Perceived transmissibility of STIs: lack of differentiation between HIV and chlamydia

Sexually transmitted infections (STIs), such as HIV and chlamydia, differ widely in their transmissibility. The estimated probability of HIV transmission from an infected heterosexual man to a woman in one act of unprotected vaginal intercourse is 0.1%, whereas the same probability for chlamydia is 35%. This research examines college students’ knowledge about the per act transmission probabilities for HIV and chlamydia.

Previous studies reported median perceived transmission probabilities of 50% and 33.4% for HIV for one act of unprotected receptive vaginal intercourse with an infected man. These findings were interpreted as demonstrating “badly overestimated per act transmission probabilities” (Pinkerton et al, p 19). However, the distributions of the estimates were not provided. If estimates are widely dispersed across the entire probability range from 0% to 100%, interpretations of averages are meaningless and interpreting the data as indicating a systematic overestimation of the transmission probability would be unfounded. We studied this possibility in a sample of college students.

In all, 234 undergraduate university students (145 women, 89 men, mean age 21.14 years, SD 2.82, four did not report their age and sex) enrolled in a variety of academic programmes were randomly selected and individually approached after classes. Aside from their age and sex, participants were asked in two separate questions: “What do you think is the probability, in percentages, of a woman becoming infected with HIV (chlamydia) from one unprotected act of vaginal intercourse with an infected man?” The order in which people were asked the two questions was counterbalanced.

Figure 1 presents the distribution of the estimates, showing that they are widely and quite equally dispersed across the entire range from 0% to 100%, and that distributions do not differ between the two infections (Kolmogorov-Smirnov Z = −0.73, p = 0.46).

No age or sex differences were found. Only 3.9% and 5.6% of the estimates for HIV and chlamydia, respectively, come close to the correct probabilities if “correct” is defined as smaller than 0.5% for HIV and between 30% and 40% for chlamydia. In all, 34.8% of the participants falsely estimate that chlamydia has a lower transmission probability than HIV, 39.5% correctly estimate that chlamydia has a higher transmission probability than HIV, and 25.8% provide exactly the same percentage estimate for both STIs.

The data show that a large majority of college students clearly lacks knowledge of the transmission probabilities of HIV and chlamydia and does not know that chlamydia is more infectious than HIV. Previous reports of statistical averages of the perceived transmissibility and their interpretation as indicating a systematic overestimation bias may be unfounded. The results highlight the importance of inspecting response distributions and restraining from reporting statistical averages when distributions are widely dispersed. Furthermore, they highlight that information about transmission probabilities should be incorporated into sexual health programmes in order to make people more aware of STIs that are considerably easier to contract than HIV.

Acknowledgements

The reported research was funded by a grant from the Social Science and Humanities Research Council of Canada (SSHRC, 410-2002-09) and a New Opportunities Fund from the Canadian Foundation for Innovation (CFI, 4015) to Bärbel Knäuper. We thank Sirkhraj Cheema for her help with the data collection, as well as Irv Einik and Sandi Byers for helpful comments on an earlier version of the manuscript.

Contributors

The study was jointly conceptualised and designed by BK and RK; data were collected by RK, with the assistance of Sirkhraj Cheema; BK analysed the data and led the writing; both authors jointly interpreted the findings, reviewed drafts of the manuscript, and approved the final version.

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References


A new method for extended trichomonad storage

With the introduction of the InPouch test for Trichomonas vaginalis, T gallinae, and T foetus, it was desirable to have a procedure available for maintaining extended culture viability. The three trichomonads are viable after 8 days by subculture in the InPouch at 33°C. Extended viable storage of these three trichomonads is the subject of this letter.

We have evaluated various procedures involving freezing 24 hour InPouch cultures at −70°C. We now report a procedure that has demonstrated storage of viable trichomonad cultures for more than 2 years.

The freshly subcultured trichomonads are incubated at 35°C for 24 hours, which should produce a viable count of approximately $1.0 \times 10^7$/ml. It is important to note that subsequent subculture will require an adequate nutrient available for growth in the pouch. Then 0.1 ml of pure sterile glycerol is added to the medium in the pouch and thoroughly mixed employing the “shoe-shine” technique. It is important to immediately place the pouch in a −70°C freezer.

After freezing most of the trichomonads in the pouch are non-viable, but successful subculture is routinely achieved upon thawing. When the pouch is removed from the freezer, it should be immediately placed in an incubator at 35–37°C. After 3 days a few viable trichomonads will be observed, and after 4 days it may be subcultured.

This procedure has been effective for T vaginalis, T gallinae, and T foetus.

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The patient was asymptomatic about a year ago, when he developed multiple nodules on the penis that ulcerated to discharge purulent material. These nodules became persistent sinuses and discharged pus. Within a few weeks, he started passing urine through these sinuses in the glans penis. He also experienced difficulty in micturition but it was not associated with pain or strangury. The patient had no systemic complaints. He was married with two children and had no history of extramarital contact or genital ulcers.

On physical examination, the penis shape was like a saxophone. The prepuce and glans penis were oedematous and indurated. The part of the shaft of the penis showed induration over the glans penis. Such deformity is well known with tuberculosis with urethrocutaneous fistula. Fistulas can occur in the perineum due to tuberculosis or tuberculosis of the penis. Such deformity is well known with lymphogranuloma venereum, but is unknown in tuberculosis.

**References**


2. Saxophone penis with multiple sinus openings over the glans penis. In our case, the proximal part was devoid of any lesion. Further, the strictures, fistulas, and lymphoedema had led to “saxophone” deformity of the penis. Such deformity is well known with lymphogranuloma venereum, but is unknown in tuberculosis.

South Asians with HIV in London: is it time to rethink sexual health service delivery to meet the needs of heterosexual ethnic minorities?

Recent conservative estimates suggest that at the end of 2002, 4.8 million people were living with HIV/AIDS in south Asia including 4.58 million in India. In the United Kingdom there are estimated to be 1.5 million people of south Asian ethnicity. While the National Strategy for Sexual Health aims to improve health care in those who have HIV through earlier diagnosis, studies have shown that other ethnic minority groups present with advanced disease and not through routine genitourinary medicine (GUM) screening. We studied the case notes of all adults self defining as Indian, Pakistani, Bangladeshi, or Sri Lankan ethnicity diagnosed HIV positive from...
January 1985 to December 2002 attending four HIV treatment centres in London. Information was collected on demography, mode of first presentation, and clinical stage of HIV infection.

In all, 117 patients were identified, 30 women and 87 men. The number of new diagnoses among south Asians increased by more than threefold over the period 1996 to 2002 compared to earlier years (25 diagnoses before 1996, 90 diagnosed from 1996–2002). The median age at diagnosis was 38 years (range 19–64 years) for men and 28 years (range 20–35 years) for women. Forty-five patients (38%) had originated from Africa, 28 (24%) from India, and 18 (15%) from the United Kingdom. The majority were of Indian ethnicity (95/117; 81%) with the next largest ethnic group being Sri Lankan (12; 17%; 10%).

The primary mode of transmission was heterosexual sex (72/117; 62%) with transmission through sex between men accounting for a further 31% (36/117) of cases. Four infections were acquired through blood transfusion, two through injecting drug use, one from a needle stick injury, and in two cases infections were acquired through blood donations (table 1).

Table 1: Characteristics of presentation of study population at time of HIV diagnosis (n = 117)

<table>
<thead>
<tr>
<th></th>
<th>Heterosexual men (n = 45)</th>
<th>Homosexual men (n = 36)</th>
<th>Heterosexual women (n = 27)</th>
<th>Other risk groups (n = 9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIDS illness at presentation</td>
<td>16 (36%)</td>
<td>6 (16%)</td>
<td>2 (7%)</td>
<td>1 (11%)</td>
</tr>
<tr>
<td>Median CD4 cell count ×10^3/μl (range)</td>
<td>178 (3–1,023)</td>
<td>381 (4–810)</td>
<td>377 (10–1,104)</td>
<td>151 (50–795)</td>
</tr>
<tr>
<td>Median HIV viral load copies/ml (range)</td>
<td>24 500 (50–1 000 000)</td>
<td>24 636 (425–3 000 000)</td>
<td>7822 (173–489 184)</td>
<td>12 870 (6676–57 530)</td>
</tr>
<tr>
<td>Reasons for HIV test</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AIDS/symptomatic</td>
<td>27 (60%)</td>
<td>11 (31%)</td>
<td>7 (26%)</td>
<td>2 (22%)</td>
</tr>
<tr>
<td>Known HIV+ sexual partner</td>
<td>3 (7%)</td>
<td>4 (11%)</td>
<td>12 (44%)</td>
<td>0</td>
</tr>
<tr>
<td>Routine screen for sexually transmitted infections</td>
<td>1 (2%)</td>
<td>16 (44%)</td>
<td>1 (4%)</td>
<td>0</td>
</tr>
<tr>
<td>Patient request</td>
<td>7 (15%)</td>
<td>3 (8%)</td>
<td>2 (8%)</td>
<td>2 (22%)</td>
</tr>
<tr>
<td>Child positive</td>
<td>3 (7%)</td>
<td>0</td>
<td>3 (11%)</td>
<td>0</td>
</tr>
<tr>
<td>Insurance/visa purposes</td>
<td>3 (7%)</td>
<td>1 (3%)</td>
<td>0</td>
<td>2 (22%)</td>
</tr>
<tr>
<td>Antenatal screening</td>
<td>0</td>
<td>0</td>
<td>2 (7%)</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>1 (2%)</td>
<td>1 (3%)</td>
<td>0</td>
<td>3 (34%)</td>
</tr>
</tbody>
</table>

The median CD4 count at presentation overall was 500 (range 3–1104) cells ×10^3/μl. However, male heterosexuals presented with significantly lower CD4 counts (median 178, range 3–1023 cells ×10^3/μl ) than either homosexual men (median 381, range 4–810 cells ×10^3/μl; p = 0.01) or heterosexual women (median 377, range 10–1104; p = 0.02).

While there are methodological limitations with retrospective case note reviews and differing reporting categories used for Asian ethnicity, our data confirm national surveillance reports of increasing HIV infection among Britain’s south Asian communities. Indeed, south Asian women presented higher CD4 counts than seen nationally, primarily attributable to effective partner notification. While south Asians still represent less than 5% of all reported HIV positive diagnoses in UK ethnic minority groups’ (Asians 334; black Africans 8848; black Caribbeans 844) numbers are likely to continue to increase in the future and methods for encouraging early presentation need to be developed in response to this.

References


Failure to maintain patient access to GUM clinics

We read with interest the article published by Cassell et al.12 about the maintenance of patient access to genitourinary medicine (GUM) clinics following a switch to an appointment based system. Their data show no significant change in the age, ethnic mix, symptom status, and disease mix following the change to appointments. In addition, such a system of 35% prebooked appointments produced an increase in the number of patients seen over that time.

A new appointment based system was introduced at the John Hunter genitourinary medicine clinic at the Chelsea and Westminster Hospital in October 2001. This comprised 80% of appointments which were prebooked with a further 20% allocated on the day following triage by a nurse. All patients with symptoms were seen on the day of presentation.

We have analysed the results from two 9 month periods, taken immediately before the change and 3 months after the introduction of an appointment based system. The total number of patients and sex ratio seen

Table 1: Total number of STI diagnoses

<table>
<thead>
<tr>
<th></th>
<th>Jan–Sept 2001</th>
<th>Jan–Sept 2002</th>
<th>Relative drop (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total no of patients attending</td>
<td>11774</td>
<td>11345</td>
<td>3.2 (2.8 to 3.5)</td>
</tr>
<tr>
<td>Patients new to clinic</td>
<td>5191 (44.3)</td>
<td>4669 (41.2)</td>
<td></td>
</tr>
</tbody>
</table>

Downloaded from http://sti.bmj.com/ on June 15, 2017 - Published by group.bmj.com
over this period did not change. We have shown however a dramatic change in the number of STI diagnoses made over these two periods.

Tables 1 and 2 highlight a significant fall in the total number of STI diagnoses for gonorrhoea (B1), uncomplicated chlamydia (C4a, C4c), non-gonococcal urethritis (C4h), and first attack of genital herpes (C10a) in our male patients. The only significant fall for women was seen in the diagnosis of a first attack of genital herpes. There was no significant change for both sexes in the diagnosis of anogenital warts (C11a) between the two systems. The rise in primary diagnosis of syphilis (A1) reflects the beginning of the current epidemic in London, boosted further by a proactive approach to diagnosis in our HIV positive population. 3

This fall in acute STI diagnoses in men was approximately twice as marked for men who have sex with men (data not shown).

Our aim in planning the change to a primarily appointment based system was to improve patient experience, by reducing waiting times, and enhance access for symptomatic patients into reserved appointment slots. These data show evidence for an opposite effect which we believe has resulted from asymptomatic individuals requiring sexual health screening booking the majority of their appointments well ahead of their appointment, thereby reducing access at convenient times for symptomatic individuals who telephone.

To respond to this we have adjusted the rates of booked versus emergency appointment slots and significantly amended our approach to triage of symptomatic patients, in an attempt to reverse these trends. Particular attention is now being given to our telephone booking protocol to facilitate symptomatic patients to achieve prompt, immediate appointments. We are publishing these findings to inform others who are conducting similar activities.

**Table 2** Details of STIs diagnosed in men and women

<table>
<thead>
<tr>
<th>Table 2</th>
<th>Details of STIs diagnosed in men and women</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Male</strong></td>
<td><strong>Female</strong></td>
</tr>
<tr>
<td>No (prevalence per 100 patient)</td>
<td>262 (3.8)</td>
</tr>
<tr>
<td>C4a/C4c</td>
<td>244 (3.5)</td>
</tr>
<tr>
<td>C4h</td>
<td>683 (9.9)</td>
</tr>
<tr>
<td>C10a</td>
<td>89 (1.3)</td>
</tr>
<tr>
<td>C11a</td>
<td>264 (3.8)</td>
</tr>
<tr>
<td>Total diagnosed with an STI at this episode</td>
<td>1579 (22.8)</td>
</tr>
</tbody>
</table>

*To Value using χ² test with Yates’s correction.

 **References**


**Prevalence of HSV-1/HSV-2 antibodies in HIV seropositive patients in Coventry, United Kingdom**

The seroprevalence of herpes simplex virus (HSV) antibody among HIV patients within the United Kingdom is unknown. We therefore conducted a HSV seroprevalence study in HIV patients attending our genitourinary medicine clinic from January 2000 to December 2001. Our previous study revealed an overall prevalence of HSV-1 (60%), HSV-2 (20%), and both HSV-1 and HSV-2 (12%) among male and female genitourinary medicine clinic attendees who were either HIV negative or whose HIV status was unknown. Serum samples from 96 consecutive ethically diverse HIV patients were collected during routine investigations, and tested for HSV type specific antibodies by monoclonal antibody blocking enzyme linked immunosay. 4 Out of 96 patients, two HSV-1 and three HSV-2 antibody test results were equivocal in four individuals. These were excluded from the analysis and results are presented here for 92 patients.

There were 56 men and 36 women in the study: 46 (50%) were white, 43 (47%) black African, and three were from other ethnic groups. All the black Africans were heterosexuals and 71% of men were homosexuals. The median age was 35 years (range 21–80).

HSV-1 seroprevalence was 86% among men and 97% among women (p = 0.14). HSV-2 seroprevalence was 30% among men whereas it was 94% among women (p = 0.0001). There was no statistically significant difference between the seroprevalence of HSV-1 between white and black people. However, seroprevalence of HSV-2 and both serotypes was significantly higher among black than among white people.

This study shows very high seroprevalence of HSV-1 (90%), HSV-2 (67%), and both HSV-1 and HSV-2 (64%) among our HIV positive cohort in Coventry. The high prevalence of HSV-2 in women is possibly because most of them were black African and acquired HIV through sex. These findings may have important public health implications as the high rate of HSV-2 is therefore likely to act as a cofactor in HIV transmission.

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**References**


**Effective Sexual Health Interventions: Issues In Experimental Evaluation**


HIV spreads more every day and there are epidemics of other STIs in both the developed and developing world at least in part because the fear of HIV appears to be receding in the population. Our current strategies to contain these problems are meeting with limited success and treatment of people who are already infected, important though that is in controlling bacterial infections, is much less effective with continuing viral infections. There is an urgent need to develop and to test better...
methods of helping people to reduce their risky sexual behaviour.

This book is excellent, brief, fairly comprehensive, and very readable. Its focus is designing studies on the effectiveness of sexual health interventions. If we are to get anywhere in improving behavioural interventions it is essential that what is done is carefully evaluated.

The first three chapters of the book are concerned with methodology, particularly whether randomised controlled (RCTs) trials are an appropriate method for evaluating interventions in this area. While this section of the book is well argued on all sides it doesn't really break any new ground. The strengths and weaknesses of RCTs in behaviour change are pretty much what they are in any other area of medicine. Methodologies don’t exist as stand alone phenomena, whether an RCT or some other methodology is appropriate depends simply on what question one is seeking to answer.

The second section of the book covers models of behaviour change and the choice of design and outcome measures. It is clear that one of the main problems in intervening in sexual health is the poor quality of the available psychological models and our real lack of understanding about why people behave as they do. Without understanding why people behave as they do it is difficult to help them to change. It is interesting that models of health behaviour never seem to get discarded, even the ones that are known to be weak. There are particularly strong chapters on cluster randomisation, an approach which probably gives rise to more inappropriate results than any other and on complex behavioural measures. The latter should be required reading for anyone measuring any behavioural measures. The latter should be carefully evaluated.

The book ends by looking at generalisability in its broadest sense. Generalisability is an area that tends to get overlooked. Even a highly successful behaviour change programme would be of no use in developing countries if it was labour intensive and dependent on highly skilled staff for its delivery.

I would recommend this book to anyone planning a trial or simply seeking to understand the existing literature. I would however caution that to make sense of it you will have to look at some of the available reviews of the behaviour change literature since the book assumes some knowledge, or willingness to acquire knowledge, of these.

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CORRECTIONS


The authors of a letter in the December issue of STI (Dave SS, Johnson AM, Fenton KA, Mercer CH, Erens B, Wellings K. Male circumcision in Britain: findings from a national probability sample survey. Sex Transm Infect 2003;79:499–500) were listed in the wrong order. The correct author list should be as follows: Dave SS, Fenton KA, Mercer CH, Erens B, Wellings K, Johnson AM.

In the corresponding author’s address of a letter published in the December issue (Bhatia R, Prabhakar S, Shedde D, et al. Coexistent cranial tuberculomas and tuberculosis of the cervix in a postmenopausal woman. Sex Transm Infect 2003;79:496–7) All India Institute of Medical Sciences was incorrectly printed as AU India Institute of Medical Sciences.
Failure to maintain patient access to GUM clinics

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