

The Structure of Sexual Risk Behaviour

"There is a four-letter word that has gained enormous popularity in the AIDS era. Not only does it punctuate almost every conference paper and journal publication on the subject of HIV and AIDS, it litters the talk of interventionists, policy-makers and researchers... Yet within the domain of HIV prevention and research, the notion of risk is little understood. It has barely even been questioned.

Rhodes (1995, p125)

Risk -- "the chance of a defined hazard occurring" (Warner 1992, p 4) -- is the context used most generally for analysis and discussion about gay men's response to Aids, but paradoxically it is both too all-embracing and too restricted a concept to capture that response adequately.

Risk as a scientific concept includes two factors:

- (i) the probability of an adverse event happening, and
- (ii) an estimate of the consequences of that event.

The second factor differs according to the approach to risk: the "hard" approach is concerned with the magnitude of the consequence of that event (consider the effects of a nuclear power melt-down) , and the "soft" approach concentrates on the

utility -- in effect, the affective value of the consequences for the person concerned. In the case of HIV, the first approach would identify the adverse event as the HIV infection or sero-conversion itself and the consequence as premature death. This is risk in the terminology of health and governmental planners. In the second approach, the "utility of the consequences" is much more focused on the individual - it is how he evaluates the outcome.

Yet neither of these two factors factor enters centrally into research on gay men, except for epidemiological modelling of the spread of the infection (Jager and Ruitenberg 1992) and health service provision. The "objective" probability, say, of a single act of unprotected anal intercourse between men leading to sero-conversion is notoriously difficult to measure, depending as it does on so many other factors (including the sero-status of the partners and the role taken). Also the "subjective" probabilities of infection used by gay men themselves are ill-researched and related only approximately to "real" risk.¹

But the concept of risk itself (strictly defined) can also be too restrictive, since gay men's response is more deeply concerned with the consequences and manipulation of risk -- risk-reduction, risk-management, even risk-seeking (Kalichman et al 1994) -- than with risk-assessment itself, as well as with issues outside risk, such as contexts of justification (Gold 1993).

Nonetheless, risk is a useful covering concept for considering gay men's response to Aids , subject to the following provisos:

¹ in general, subjective probabilities (perceived risks) of rare events are much higher than actuarial risk and there is systematic under-estimation of the probability of more common or frequent events happening (Lichtenstein et al 1978). This seems also to hold for gay men's perceptions of the risks of HIV infection. A systematic investigation of susceptibility probabilities in a SIGMA sub-project (BIRA --Body-Image, Risk and Alcohol) yielded wildly varying probabilities of events such as individual susceptibility to HIV infection, in comparison to 12 other causes of death.

- *Risk is a conditional concept:* the probabilities involved in risk assessment change directly and systematically as a result of such things as circumstance, membership of social groups and lifestyle .To take the Royal Society's example:

All risks are conditional, although often the conditions are implied by context rather than explicitly stated. The risk of death while hang-gliding during a seven-day period is small for a randomly-selected inhabitant of the UK, but its value will alter substantially according to age, season, weather and membership of a hang-gliding club.(ibid., p3)

Whilst hang-gliding is not to be equated with either homosexuality or engaging in anal intercourse, the point is well made. The real issue in the case of sexual transmission of HIV infection is precisely that it is not membership of some group or social category that maximises risk but rather the probability of engaging in a risk-behaviour such as same-sex anal intercourse, and we know that this is far from being an adequate characterisation of homosexual behaviour.

- *Sexual risk -taking occurs in a session which involves interaction*

The "SIGMA" model of sexual behaviour and risk was outlined in an earlier publication (Davies et al 1993, pp 51-60) and several of its features are relevant to the present discussion. Its linchpin is the simple but often-forgotten fact that sex usually (and unsafe sex always) involves two individuals and that the focus of risk analysis must therefore be on the unsafe session rather than purely individual characteristics (and see Hart and Boulton 1995,p65). Even the levels of "unsafe sexual behaviour" which we use and which almost every other researcher in this area uses, is an artificially abstracted and potentially misleading notion. This is because all instances of a behaviour (and especially of the paradigm case of unsafe sex, unprotected anal intercourse) are not necessarily equally risky or dangerous and will depend for their risk on factors such as the role taken (modality), the sero-status of the partners, and the period of infection if the partners are discordant.

■ *Sexual risk for gay men crucially involves anal intercourse*

Anal intercourse has become the focus of risk analysis in the study of gay men's response to Aids. It is all the more important therefore to remind ourselves that fucking is not strictly speaking a risk but is rather a *risk-behaviour*, an activity that has the potential of high risk. Consequently data such as frequencies of engaging in anal intercourse tell us little directly about risk itself but about behaviour that carries risk, and we need to know much more about the context before assigning the same behaviour to the same risk.

Moreover as we have seen repeatedly, the utility of fucking differs widely, too and this needs to be taken account of. For some it is the height of their sexual enjoyment, even the *sine qua non* of their sexual life²:

♂ Of the sexual acts I get involved with, being fucked is the one I enjoy most. I can enjoy it purely physically with a casual partner, but with a regular partner it's physical enjoyment and an emotional experience. If I have sex with a regular partner and don't fuck it's a sexual session OK, but if we make love (i.e. fuck) it's more special

for others fucking has always been an undesirable activity, which "safer sex" fortunately emphasizes and thereby justifies their abstention:

♂ my own inclination is to be fucked, but this was curtailed because of its association with greater risk; I've never felt the need to fuck men, and AIDS gave me a convenient excuse not to

Few gay men have followed the original call of "Safe Sex" guidelines in Britain to eradicate anal intercourse entirely from their sexual repertoire and fewer still have remained abstainers :

♂ Gave it up for a while, but it is such an enjoyable sex act. You have so many nerve endings in one place, it seems silly not to use them.

² this quotation and most others in this chapter are drawn from the corpus of open-ended replies to questions on fucking in Wave 4 of the SIGMA interviews.

and many who have tried to be (or remained) abstinent still harbour regrets:

♂ *I regret all that lost fucking, and it's now probably the most dangerous of the acts I do. Still, I do what I do and I'm wary of breakages in condoms. It is important part of sex for me. If I didn't fuck, sex would be missing something. HIV/AIDS isn't something which will stop me doing fucking ...*

But even if fucking (at least latently) remains central to the sexual lifestyle of two-thirds of gay men (as indicated above in [§4.2.1.3.1; 4;p31]), virtually no-one carries on as before the advent of Aids and ignores the risk. It seems more accurate to characterise gay men's response as defining levels of risk that they find acceptable. Thus:

many men make strategic decisions about the risks they are prepared to take in their sexual lives and ... (1) they come to different decisions on the level of acceptable risk, and (2) they do so with imperfect knowledge.

Davies, *ibid*, p59

8.1 Sexual Risk Behaviour

We turn now to examining sexual risk behaviour of gay men, beginning with the basic act that makes a "risk-session" risky. As a starting point, some preliminary definitions are needed:

a [potential] risk-session must contain an act of anal intercourse (whether or not ejaculation occurs and whether or not a condom is worn)

a [potential] high risk session must contain an act of anal intercourse where ejaculation into a partner's anus occurs, whether or not a condom is worn

a [potential] high risk session (protected) must contain an act of anal intercourse resulting in ejaculation where a condom is worn (and does not break or come off).

a [potential] high risk session (unprotected) must contain an act of anal intercourse resulting in ejaculation where a condom is not worn (or breaks or comes off).

Further clarifications are In order:

- anal intercourse in all its forms is taken to be a necessary (though not a sufficient) condition for risk of sexual transmission for gay men, (vaginal intercourse is ignored as being of marginal importance for gay men³ and oral sex is not considered as risky for this analysis⁴).
- Within anal intercourse, the insertive (active) and receptive (passive) modalities are distinguished in terms of risk, with passive fucking being considered more risky than active fucking.
- A further necessary condition for high risk is that ejaculation occurs (though transmission via pre-orgasmic secretions -- "pre-cum" -- cannot be ignored), and
- the use of a condom is considered to protect against transmission, so long as it remains in place, does not break or slip off in use and is removed without spillage.

³ SIGMA interview data indicate that 52% of the sample have ever had vaginal intercourse, and 5% have engaged in the last month. The incidence and amount of vaginal intercourse is too small for separate analysis.

⁴ the risk of oral sex for transmission of HIV-1 is contested (see Keet et al 1992 who provide a good review and relevant references) and is in any event not sufficiently large to alter the following analysis.

8.1.1 Components of Risk Behaviour: Fucking, Condoms and Ejaculation

To set the stage for assessing the extent and amount of gay men's sexual risk we need first to look again at the constituent components which make up a risk session (fucking, ejaculation and condom use) and review what has been established in earlier sections (especially §5.3) and in other parts of the SIGMA studies. Before this is done a reminder is necessary: it is important to be clear which of two types of analysis are being referred to at any time. Individual analysis describes the proportion of men involved (*e.g. How many gay men engage in fucking?*) the volume analysis relates to the amount of the activity (*How many acts of fucking occur? -- ignoring the number of men involved*). The two types of analysis will be related to each other at a later stage when the concentration of activity and risk is considered (§8.2)

8.1.1.1 Fucking, Condoms and Ejaculation (Interview/individual data):

First we consider how many gay men engage in anal intercourse, based on the interview data⁵. (At this point the question of modality and of whether ejaculation occurs is left open).

Numbers engaged in fucking

We know that in terms of the number of gay men involved :

⁵ The main SIGMA interview data results are reported in Davies et al (1993), the full five waves of interview data (1986 - 1993) are analysed in Coxon et al (1996)

- 92% of gay men have engaged in anal intercourse **at some stage** ("ever") in their life,
- 65% have done so **at least once in any one year** (between 61% and 69% between 1986 and 1993, which accords well with other English studies⁶) and
- 41% have done so **at least once in the last month**.

Changes in Fucking behaviour, 1987-93

The most up-to-date and reliable information we have (from the SIGMA interview data) on how fucking features in British gay men's sexual repertoire, and how it has changed in the era of Aids is reported in (Coxon et al 1995). The information is unique, because no other study in Britain has followed through a panel of gay men for this period, and only longitudinal data, which follows through the same individuals, can detect actual changes. The data refer to the 209 men in the SIGMA sample who remained throughout the 5 waves, 1987 to 1993 (they do not differ significantly from the larger sample).

[Table 8.1 about here]

Table 8.1 presents a way of visualising the patterns of change. Each year the SIGMA respondents were asked whether in the previous year they had fucked (represented by ■) or not (represented by □)⁷. For the 5 waves this means

⁶ Fitzpatrick et al (1989) report figures of 60±2% engaging in anal intercourse over the last year for their 1987/88 English sample. Many otherwise comparable studies report an incidence period other than a year (six months, one month) or do not report an overall prevalence rate for anal intercourse of either modality, but are largely in agreement with this estimate of yearly prevalence.

⁷ strictly, they were asked how many "penetrative sexual partners" (PSPs, i.e. men they fucked with) they had had in the previous year. To simplify, these answers were then turned in whether they had fucked (had 1 or more PSP) or not (0 PSPs).

there are 32 possible "fucking patterns" of yes/no answers. These fucking patterns together with their frequencies and proportions of occurrence form the Table.

Taking each wave at a time, a high and fairly consistent proportion (between 61% and 69%) have fucked during the previous year, and the figures accord well with other U.K. studies' estimates. The two stable and most common patterns are those who have never fucked in this period (14.8%, RP0 in the Table) and those who have not had a year without fucking (40.2%, RP31 in the Table). Together these two patterns account for just over half the cases and describe the two basic patterns: the "total abstainer" from, and the "regular practitioner" of fucking.

What of the other fucking patterns? Are men who change from year to year to be accounted a separate class, different in kind from the continuous abstainers and the continuous practitioners? Or are they just variations on the two basic patterns, really abstainers or practitioners with occasional fluctuations? A method designed to decide between these alternatives, called "Latent Class Analysis" (Lazarsfeld and Henry 1968, Clogg 1995), gives unequivocal evidence that the first is true: the data can be better explained by there being only the two basic patterns and the "changers" be thought of as variations upon these⁸. The analysis also indicates that one-third of the sample belong to Latent Class I ("Abstainers") and two-thirds to Latent Class II ("Practitioners")⁹.

The outcome of this analysis, then, is that these "Aids years" have been characterised far more by stability than by change in patterns of fucking and that there has been relatively little systematic change by gay men either to, or away

⁸ Cochran, de Leeuw and Mays 1995 use Latent Class Analysis in a similar context to infer that a single non-linear dimension underlies male homosexual risk-taking behaviours.

⁹ details of this analysis and its relationship to the "relapse" argument are contained in Coxon, Weatherburn et al 1996 and Coxon 1994.

from, fucking. It is still more than likely that some change (away from fucking) may have occurred before 1987 but it is easily demonstrable that changes in condom use have occurred during this period¹⁰, and this topic is taken up below.

Condom-Use

Condoms can be used in various ways and for various purposes in the context of gay sex. Originally -- pre-Aids -- they were rarely worn for fucking (and virtually never for any other sexual behaviour), but some men used them as a protection against contracting venereal diseases or to avoid contact with faeces, and a very few used them as a latex toy. The sketchy evidence we have from the Cardiff pre-tests in 1983 is that no-one used them as a protection against HIV (HTLV-3 as it was then known¹¹) and not more than 1% of acts were protected by condom against other sexually transmitted disease.

In the era of Aids, condom-use has become the first line of defence against HIV infection and the focus of most Health Education. By the start of SIGMA funding and systematic investigation of the matter in 1986 most of the "behaviour-change" of gay men in adopting condoms to use when fucking had already taken place, long before the much-vaunted but deeply pointless National "Tombstone and lilies" Campaign

¹⁰ this is certainly likely from retrospective accounts given by SIGMA respondents and the experience of those of us active in the gay scene and in counselling at that time, but it is not demonstrable from these data -- or indeed from any other British study, because the need for research was not acknowledged by funding authorities until well into the mid-1980s. Pilot work of Project SIGMA in Cardiff from 1982 suggests strongly that little change of behaviour (in terms of giving up fucking) occurred in this period, but that adoption of condoms was already well under way by 1984/5, whereas their use had been well-nigh unknown (except as a "toy" or as a hygienic device) previously.

¹¹ the first use we recorded in Cardiff of condoms used as protection against HIV was in 1984 and condoms were not in general use until 1987.

in 1986 (see Garfield 1994). First evidence about the extent of condom-use came from the SIGMA panel respondents' interviews. They reported how often they used condoms in terms of a 7-point scale, from "Never" (-3) to "Always" (+3)¹². The average reported condom use for each year is presented in Figure 8. 1

[Figure 8. 1 about here]

Each "ribbon" represents one combination of Relationship-type and type of sexual partner. The reported condom use in the five waves of the SIGMA interview data was broken down by the which relationship type a man was currently in (Regular, Open, No Regular) and the type of sexual contact he had (Regular partners and Casual partners)¹³. Whether we concentrate on Casual or Regular partners, the shape of the trend lines is very similar¹⁴: A rise between Waves 1 and 2, a fall between Waves 3 and 4 and a further rise between Waves 4 and 5. (the change between Waves 2 and 3 is slightly different in the two types). In other words, respondents report a sharp increase in frequency of use of condoms at the earliest period (1986-7), followed by a slow decline in the following two waves and a further sharp increase to a maximum in recent years (1993-4). But the differences between Relationship status groups is instructive:

- Those in Closed relationships have by far the lowest frequency of condom use with regular partners (and in this differ dramatically from the Open and No Regular groups), but the highest frequency of condom use with casual partners. This gives some evidence of their strategy of protecting a primary relationship by ensuring all outside sexual contact is with a condom, but

¹² the seven categories for reported condom-use are: NEVER (-3), VERY SELDOM (-2), LESS THAN HALF THE TIME (-1), HALF THE TIME (0), MORE THAN HALF THE TIME (+1), ALMOST ALWAYS (+2), ALWAYS (+3). This is a more detailed scale than normally reported (see Sheeran and Abraham 1994, Table 1, p-4).

¹³ it may be found curious that men in a Closed relationship report casual sexual partners, but recall that Relationship-type is defined by the respondent, and this may not be in accord with his partner's definition.

¹⁴ these data are monotonically re-scaled to simplify analysis.

equally it exposes the Achilles' heel of the strategy (the impossibility of certainty about one's own or one's partner's HIV negative sero-status). It also makes it credible that it is within this group that the recent increase in HIV sero-conversions have occurred.

□ For the Open and No Regular groups, the use of condoms is very similar (and for Regular partners, virtually identical) and is the inverse of the Closed Group. The pattern consists of more frequent use of condoms with regular partners (perhaps recognising the risk to the partner when there are multiple PSPs) and relatively less frequent use with casual partners. The latter part is particularly disturbing in its implications for HIV transmission.

Thus after an initial sharp increase in the use of condoms in the mid 1980s, there has been a persistent decline and it is only in the most recent past that there is evidence of a further sharp rise in the reported use of condoms with penetrative sexual partners. The rise is to a higher level than before, but condom-use is only reported as near universal for those in a Closed relationship with their casual partners and for the non-monogamous with their regular partners.

These data, it should be stressed, are based on interviewee's reports of their condom use, and we shall have reason to question these accounts as unduly optimistic when we examine evidence about condom-use from diary data in the next section.

8.1.1.2 Fucking, Condoms and Ejaculation (Diary data)

In Chapter 5.3 we have discussed at some length the data derived from the sexual diaries concerning fucking, condoms and ejaculation. The results may be summarised as follows:

Ejaculation:

- The percentage of (all types of) sexual acts resulting in ejaculation is consistently under a half
- The percentage of sexual acts resulting in ejaculation differs dramatically according to which behaviour it is; about two-thirds in the case of wanking and fucking, and about a quarter in the case of sucking.

Fucking:

- Twice as many acts of fucking are unprotected (i.e. ejaculation "in" the partner) as are protected by a condom, which implies that if you come when fucking you're most likely to come in your partner and without a condom.
- Over one-third of all the acts of fucking, and over one-half of acts of fucking to ejaculation, are in the highest risk category of all: directly into the partner's arse without a condom.
- Protected ejaculation (into a condom) occurs only half as frequently as unprotected ejaculation.

Time-trends:

- The percentage of acts of anal intercourse where a condom is used was at its peak in 1986, drops by a third in the second wave (1988) and only climbs back up again over the next two waves , but there appears to have been another significant decline in condom use since 1992
 - The fraction of unprotected acts of anal intercourse increases slightly over this period, but may have declined somewhat in recent times.
 - The ratio of protected to unprotected acts of fucking was highest in the initial wave (1987), fell dramatically in the second wave and has increased systematically in subsequent years.
-

The general tenor of these trends is highly disturbing -- both in the prevalence of unprotected fucking and of the relative decrease in condom-use. Moreover, highest-risk sexual behaviour appears in the analysis of sexual diary data to be much more

prevalent than usually reported in studies of gay men, which normally report the number of individuals engaging in high-risk sex. (This is not an artefact of the diary method; validity studies indicate that there are clear social desirability effects in interview estimates -- "perpetrators" under-estimate and "victims" over-estimate the amount of high-risk sex¹⁵).

8.1.1.3 Levels of risk

Ejaculation thus becomes the main focus of sexual risk-analysis, and a brief explanation of the procedure is necessary.

First, the following analysis is based almost exclusively on the diary data¹⁶ because relevant information can be reliably extracted from this daily account of their behaviour. When they record their diary information respondents are asked to be quite explicit about ejaculation and condom-use :

¹⁵ Validity studies compared the data of subjects who had completed a diary and made interview estimates of their sexual behaviour *referring to the same month period*. In general, interview estimates are higher than corresponding counts made from diary reports. However, there is a clear trend for the amount of unprotected active fucking evident in the sexual diary to be consistently under-reported in the interview estimates , whereas the amount of unprotected passive fucking is correctly reported or over-reported in the interview estimates (see Coxon 1994, 1995).

¹⁶ It is not feasible to investigate detailed information such as "How often did you ejaculate into the following destinations?" in interview data, as it is virtually impossible to recover accurately the particulars of sexual data after a lapse of even a few days (Coxon 1988b)

- If either you or your partner come (ejaculate), please take care to specify where the spunk (ejaculate) went. (e.g. "In him", "In me", "On him", "On me", "Into a Condom", "Over his chest", somewhere else...).
- It is also very important that you record the use of condoms with every act in which you used them, whether or not you came.

The destinations of the semen can be arrayed to form an order of risk, as follows:

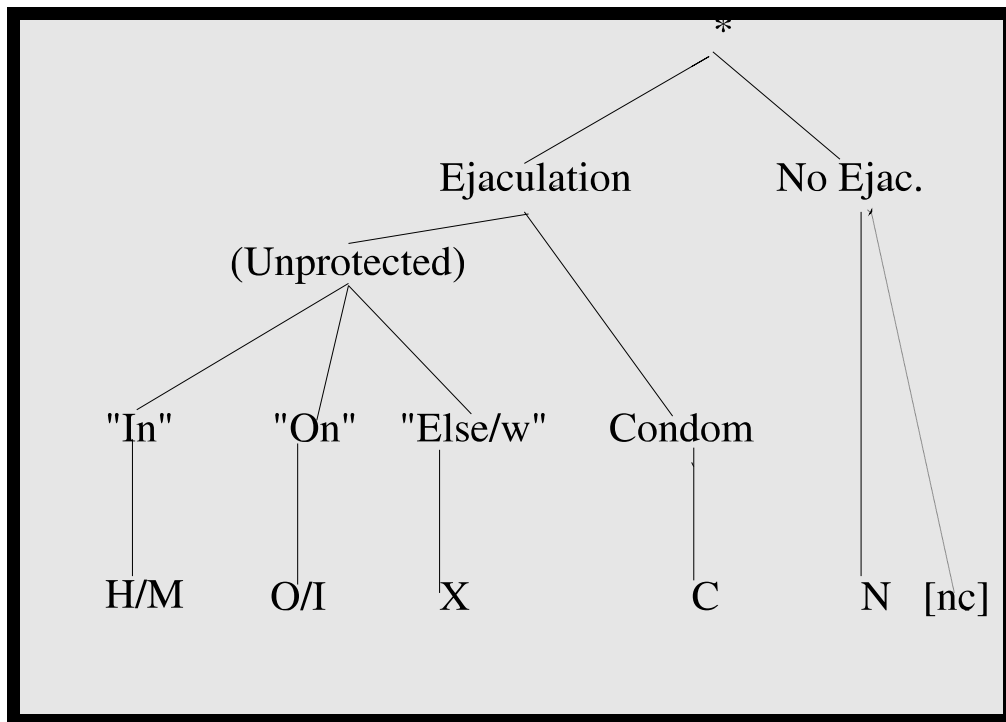
"Ejaculation unprotected into the anus",
"Ejaculation into a condom in the anus",
"Ejaculation on to partner"
"Ejaculation elsewhere " (e.g. the floor)
"No ejaculation".

Since diaries are written from diarist's perspective, these risk-levels can be made Ego-specific (i.e. risk to me"), and in that case ejaculation onto or into me is more risky than ejaculation onto or into him. The six destinations of semen in anal intercourse are listed, with their Project codes and description, followed by the Risk level description as Comment and the overall level of safety according to Safer Sex guidelines.

This then generates the following 4-level general (or 7-level person-specific) Risk Table introduced in Chapter 5.*

	Code	Destination	Comment	Safety Level
0	N	No ejaculation	No Risk	III
1	X	Elsewhere		
2	O	On him (alter)	Slight risk; Coming "on"	II
3	I	On me (ego)		
4	C	Into a condom	More risk	I
5	H	In him (alter)	Most risky Coming "in"	O
6	M	In me (ego)		

This same structure can be represented in different ways, which bring out slightly different aspects. The first is as a Tree diagram of risk ("Risk-tree") , where (reading from the top) the sex acts are divided up first into those involving ejaculation and those not, and then the ejaculation branch is divided up into protected and unprotected acts, and finally the unprotected acts are divided up in terms of their destination.



RISKTREE

The same structure can also be represented as an "indented hierarchy", where each tab (indent) further specifies the information in the line above (see §4.2.3.1 above).

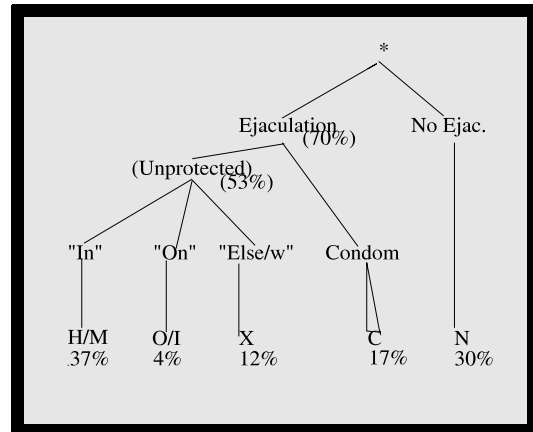
8.1.2 Analysis of high risk sex

The starting point for analysing high-risk sex is to look at the acts of fucking reported in all the sexual diaries in order to get a feel for the magnitude of the issue, and then inspect how protected and unprotected anal intercourse varies -- by year, by SIGMA (AgexRelationship) Type, by HIV status, by modality and so forth in order to discover the factors which influence sexual risk-taking. It is not sufficient to do this using the act (or session) as the unit; we shall also need to know the extent to which, and the ways in which, sexual risk is concentrated in particular individuals and types of individuals.

The baseline, then, is:

Out of the 2107 (=100%) acts of anal intercourse
 30% did not result in ejaculation of semen [N], and
 70% involve ejaculation of semen.
 Of these ejaculations,
 17% of ejaculations are into a condom [C]
 but 53% are unprotected.
 Of these unprotected ejaculations,
 12% go "elsewhere" [E]
 4% go on the partner's body [O/I]
 37% go into the partner's anus [H/M]

RISK HIERARCHY



RISKTREE

At the risk of repetition,

if fucking occurs, it is most likely [70%] to result in ejaculation

if ejaculation occurs, it is more likely than not [53%] to be without a condom

if ejaculation occurs, it is most likely to be directly into the partner's arse [37%]

if ejaculation is into the partner's arse, it is more than twice as likely to be without a condom [37%] than with a condom [17%].

However viewed, these figures show a far greater prevalence of unsafe sex than conventionally viewed -- indeed, that **unsafe sex and highest-risk sex is the rule rather than the exception in gay men's sexual behaviour.**

Nor are things basically different in other years. One way of showing this concisely is to use an index of relative risk -- or, more properly an index of relative protection (IRP) -- for each year. The two centrally important and contrasting risk outcomes are (i) ejaculation into a condom [C], and (ii) unprotected ejaculation into a partner [H or M]. The ratio of these two outcomes (i.e. [C] / [H,M]) provides an appropriate measure of relative protection -- the extent to which condom-protected high-risk sex predominates over unprotected high-risk sex and is the measure IRP. If there is more protected than unprotected fucking then the value of IRP will be greater than

1; if unprotected fucking is more prevalent than protected fucking then IRP will be less than 1.

The following Table presents information on the percentage of condom-protected acts and unprotected acts of fucking over the four waves:

Fucking outcome:	WAVE	WAVE	WAVE	WAVE
	1	2	3	4
CONDOM [C]	20%	13	18	21
UNPROTECTED [H,M]	33%	33	36	37
IRP ([C]/[H,M])	0.61	0.39	0.50	0.56

**PERCENTAGE OF ACTS WHERE ACTS OF FUCKING (with ejaculation)
INVOLVES A CONDOM (C) OR IS UNPROTECTED (H and M), BY WAVE**

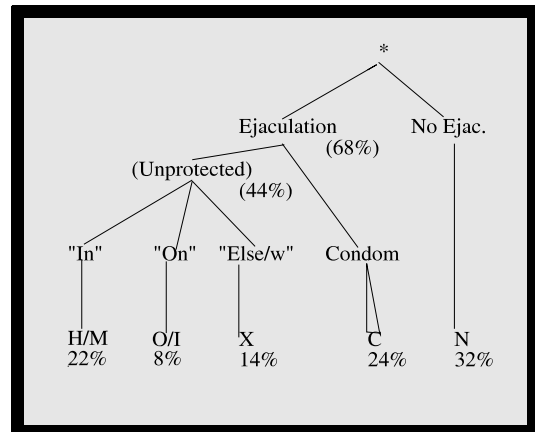
The percentage of protected acts of anal intercourse (i.e. where a condom is used) actually drops by a third in the second wave and only climbs back up again over the next two waves , and there then appears to have been another significant decline in condom use. The fraction of unprotected acts of anal intercourse actually increases slightly over this period, but seems to decline markedly in recent times. The IRP values reveal a clear trend. The relative preponderance of protected over unprotected acts was highest in the initial wave (1987), fell dramatically in the second wave and has increasing systematically in subsequent years. In other words, there has not been a orderly increase of condom-use and decrease in risk as

the Aids pandemic continues. Rather there was a considerable slump after the initial high level of protection , and only a slow recovery which seems not to have yet re-attained even the initial values of 1986.

However, there is later evidence that things may be improving somewhat. For the latest data-set (GP93) the hierarchy is as follows:

Out of the 411 (=100%) acts of anal intercourse (GP93)
 32 did not result in ejaculation of semen [N], and
 69% involve ejaculation of semen.
 Of these ejaculations,
 24% of ejaculations are into a condom [C]
 but 39% are unprotected.
 Of these unprotected ejaculations,
 14% go "elsewhere" [E]
 8% go on the partner's body [O/I]
 22% go into the partner's anus [H/M]

RISK HIERARCHY



RISKTREE

The picture is encouraging. In terms of risk, the indications are of a decrease in the volume. In 1993 compared to previous years there is:

(i) more use of condoms:

- less unprotected fucking (44% vs 53%)
- more ejaculation into a condom (24% vs 17%)

(ii) less high-risk ejaculation:

- slightly less ejaculation in fucking (68% vs 70%)
- more use of "elsewhere" and "on" a partner as a destination for semen (22% vs 16%)
- and, most significantly, there is a distinct decrease in highest-risk unprotected fucking (22% vs 37%)

Before reading too much into these figures it is important to stress that they refer to cross-sectional (rather than longitudinal) data of a relatively small and primarily

London-based sample, and there are continuing concerns of increasing risk in other areas. and the analysis of the full five-wave longitudinal data-set from Project SIGMA interview data gives little grounds for comfort. (See Coxon et al 1996).

Given these levels of risk, it is important to know whether there is significant variation among the types of gay men (and, in a subsequent section, whether it is concentrated in particular individuals).

8.1.3 The effect of Age and Relationship

Two factors are most potent in explaining variation in gay men's sexual behaviour -- age and relationship-type (Coxon 1988a). Because these factors are themselves associated, it will be best to take their combined effect on the unprotected anal intercourse.

The nine-fold SIGMA typology of 3 Age-groups by 3 Relationship types is now used to look at the percentage of acts of unprotected anal intercourse within the 9 cells. This is presented graphically in Figure 8.2 with the accompanying Table.

FIGURE 8.2 about here

In tabular form:

Relation ↓ Age →	Less than 21	21 - 39	Over 39
Closed Relation	30.1	34.7	55.1
Open	27.8	24.5	38.2
No Regular	0.5	22.0	40.00

TABLE Percentage of acts of anal intercourse which are unprotected, by Age and Relationship type.

There is a substantial amount of variation in these rates of unprotected anal intercourse. High risk activity is positively related to age (the older groups have increasingly higher rates). Relationship also has a systematic effect: highest-risk fucking is highest in closed relationships, slightly lower in open relationships, but considerably lower among those who have no regular relationship. This conforms well to findings from the panel-based data of the Project (Weatherburn et al 1991, Hunt et al 1993)., where issues of intimacy and trust rather than recidivism or relapse (cf Davies 1993) are advanced to explain such differences. Nonetheless, it is important to have some idea of whether Age or Relationship is the greater influence, and where the most important combinations occur. As usual, Means analysis will be used¹⁷ (see App 4.2):

¹⁷ The analysis is a simple additive model: the table entries are the sum of the overall average (grand mean or "typical value" TYP, here 27.8%) plus the row (relationship) effect, plus the column (age-group) effect plus the combination/interaction/residual effect.

Relation↓ Age →	Under 21	21 - 39	Over 39	Row Effects
Closed Relation	0.	0.	2.4 (+)	6.9
Open	7.9 (++)	0.	-4.3(-)	-3.3
No Regular	-16.9(- -)	0.	0.	-5.8
Column effects:	-4.6	0	18	TYP= 27.8%

TABLE : Median Polish of Percentage of Unprotected acts of Anal Intercourse, by Age and Relationship

In terms of main effects, Age-Group has a greater effect than Relationship type, but this is primarily due to the Older group (having an effect almost two-thirds the size of the overall effect). Being in a Closed relationship has the highest and positive effect. The most striking thing about the combination-effects is that the youngest age-group who are not in a regular relationship have a remarkably lower rate -- again, almost two-thirds the size of the overall effect. In brief:

- There are major variations in the rates of unprotected fucking among these types of gay men
- Being a older men (40 and over) and (to a lesser extent) in a Closed relationship increases the rate of high-risk sex, and having no regular relationship and being young (under 21) serves to decrease the rate.

- Over and above this, young men with no regular relationship have a considerably lower rate than would be expected.

On this analysis of the sexual diary data, then, the youngest age-group who are in no regular relationship have a very markedly lower rate of unprotected high-risk sex than any other. This is an encouraging (if not entirely unproblematic¹⁸) finding and accords with other trends documented by SIGMA : young gay men's risk behaviour appears to conform far more to safer sex guidelines than any other group.

Having pinpointed significant sub-groups, let us examine whether the pattern of risk also differs significantly. The profile of risk-outcomes for each of the nine SIGMA types , together with the values of the Index of Relative Protection, is given in Figure 8.3

Figure 8.3 here

The overall shape of the profiles is very similar: high values for No ejaculation, decreasing through "Elsewhere" to Ejaculation "On", and then an increase through "Condom" to Ejaculation "In". The variation in the profiles is also considerable, with differences as great as 40% between the groups. But two groups' profiles depart markedly from this pattern:

- IV [Younger, Open Relationship] where the only form of risk-protection seems to be not to ejaculate, and
- IX [Older, No Regular], where if fucking occurs, there is always ejaculation, typically unprotected or into a condom.

The numbers in IV are too small to allow for stable estimates, so this should probably be ignored, leaving IX as the main group showing a discrepant pattern.

If we now look at the significant components of risk and protection,

¹⁸ this group is relatively small in size (51/569); spread across 4 waves it is difficult to see a stable trend. Selection bias could account for some of the unexpected very low value, but not the relative amount.

- The most extreme values of highest risk fucking is decidedly to be found in the older (over 39) age-group (and in terms of absolute number of acts, the most unprotected fucking occurs in this same group). The lowest rates of unprotected fucking occur in the groups which have no regular partner, and especially in those under 40. In general: in each age-group, those in a Closed relationship have more high-risk sex and for each relationship-type, high-risk sex increases with age.
- The highest rates of condom-use are to be found in the older group.

The IRP values disclose a more subtle pattern. Once again it is clear that the amount of condom-protected fucking is considerably less than unprotected fucking, but among those with no regular relationship the rates of protection are higher.

8.2 Concentration of Sexual Risk behaviour: How many do how much?

In an earlier section (§4.4) the concentration of the amount of sexual behaviour among gay men was described, using the device of the Lorenz curve and the Gini coefficient (App 4.4). There it was found that gay men's sexual behaviour is by and large fairly concentrated, with the top 10% of men accounting for between 40% and 60% of the acts. It was also found, somewhat surprisingly, that as behaviours become less common (in the sense of being practised by few men), the concentration goes down, so that wanking is more concentrated than sucking, and sucking than fucking.

Now we begin again, looking at the extent to which fucking is concentrated, and then examining different forms of fucking for clues about the concentration of risk and risky behaviour. For example -- is highest-risk sex concentrated in a few individuals or is it evenly spread? Are there characteristics which distinguish, say,

the occasional practitioner from those for whom fucking is the central part of their repertoire? Such information is of central relevance to health education since it allows health messages and advice to be correctly targeted and adapted.

In this section the three topics of interest are therefore:

- The concentration of sexual risk activity
- The characteristics of the "risk-rich"
- the contexts and justifications of risk.

8.2.1 The concentration of sexual risk activity: Is fucking equally distributed?

Attention is now restricted to those men who engage in fucking during the month of their sexual diary¹⁹ (one-third of the total).

Over the full set of diary data, 39% of individuals (more accurately, individual month-diaries) engage in only one act of fucking. This accounts for 10% of all acts of fucking and this proportion of men systematically decreases:

Percentage of

Individuals (Month/diary)	(Engage in) No of acts of fucking	Percentage of all fuck-acts
------------------------------	--------------------------------------	--------------------------------

39%	1	10%
22%	2	11%
10%	3	8%

and so it continues in a decreasing manner till

¹⁹ In the 5-wave diary data set, there are 2182 individual diary/months. Two-thirds of these (68%) contain no act of fucking during the month concerned. The subset of interest is thus 702 (diary/months) which include one or more acts of fucking.

0.7% 17 3%

and with very many gaps till the maximum is reached:

0.1% 104 3%.

Let us now put his information in a systematic form. There are two distributions which contribute to the concentration of high-risk sex. For a given number n of fucks per month we need to know:

- the number [and the percentage] of men who do exactly n acts of fucking in the month
- the number [and the percentage] of all the acts of fucking which this represents.

No of Fucks/month	N of men	Percent of men	Cumulative % of men	N of acts	Percent of acts	Cumulative % acts
1	2769	39.3%	39.3%	276	10.1%	10.1%
2	152	21.7	61.0	304	11.1	21.2
3	72	10.3	71.2	216	7.9	29.1
4	54	7.7	78.9	216	7.9	37.0
5	38	5.4	84.3	190	6.9	43.9
6	22	3.1	87.5	132	4.8	48.7
7	13	1.9	89.3	91	3.3	52.1
8	13	1.9	91.2	104	3.8	55.8
9	7	1.0	92.2	63	2.3	58.1
10-19	39	5.5	97.7	513	18.7	76.8
20-49	13	1.9	99.6	382	14.0	90.8
50-104	3	0.4	100.0	252	9.2	100.0

(Mean = 3.9, Md = 2 fucks/month. IQR = 3)

This information about the distribution of fucking among individuals (number of fuck-acts per individual per month) is produced as a chart in Figure 8.4. Because the tail is long and often contains very low frequencies, two graphs are presented: The percent of individual who do exactly n fucks a month (Fig. 8.4A), and a chart of the low end of the distribution, giving the number of men who do exactly n fuck-acts/month, starting at $n=4$ to the maximum (99).

Figure 8.4A,B about here

It is worth pausing to think what this information tells us about the distribution and concentration of potentially high-risk sexual behaviour.

- By far the most common number of fucks per individual is one per month, and nearly two-thirds of men who fuck do so only twice a month. So the distribution of individuals is highly dominated by those who fuck quite rarely and it falls off very rapidly. Indeed, 90% of the individuals who fuck in the month do so seven or less times in that a month
- From 7 fucks/month the distribution becomes a series of two, one or no individuals and a very few far extreme individuals who are averaging over three fucks a day.

But ...

- The amount of fucking is distributed very differently (see Figure 8.5). Now we can see that the very low number of individuals doing a large number of fucks a month are accounting for as much of the fucking as the much larger numbers in the lower end. So, much of the fucking is concentrated in the really rather few cases near the extreme end.

Fig 8.5 about here

If we now put the cumulative form of these two distributions together we produce the Lorenz chart of fucking:

Fig 8.6 about here

Looking at the Lorenz curve and at the data in the above table, we notice that as the number of fucks/month goes up, the cumulative percentage of men increases

rapidly, whereas the increase in the cumulative percentage of fucks which this represents rises much more slowly. So, when 10 fucks/month is reached a full 93% of men, but only 60% of the fucks have been accounted for. From 10 up, the percentage of men unaccounted for dwindles fast, and beyond 20 fucks/month only 16 (2.3%) are left -- but between them this 2.3% of men are responsible for 23% of the fucks. This illustrates nicely the idea of concentration: the few in the higher reaches of the tail of the distribution are contributing very disproportionately to the amount of fucking. So -- there is considerable concentration of fucking, especially in the top tenth, who account for just under half of the fucking.

All this may give the impression that there are three groups of gay men: those who do not engage in fucking; those who do engage in a "normal" amount of fucking -- and a small coherent group for whom it is a full-time occupation; who, in common parlance, are "fucking like bunnies". How true is this?

- We know already that there is definitely a sizeable group (one-third) who do not fuck, and
- There is also a sizeable group who do fuck, usually between one and three times a month -- less than once a week. For the first two groups, then, the description is basically accurate.

But --an important but -- there is little or no evidence for a coherent third group. For that there would have to be a gap separating them from the low-frequency fuckers, and a clump of cases close to each other. There are certainly a few individuals who fuck very frequently indeed and who account for a significant fraction of the potential risk acts. But the continuity in the distribution is more impressive than any discontinuity between them and the less-frequently fucking group. Clearly they do not bunch together and there are major differences within the "high-performance" group. So any division is bound to be arbitrary; if we take the top tenth, they may account for half of the acts of fucking, but they range from the 2% who fuck eight times a month to the 0.15% who fuck forty times a month and the 0.3% who fuck 104 times. This is readily seen by examining the tail of the distribution in Figure 8.4B

above. There is no gap or obvious discontinuity until 18 acts/month, and beyond that it get increasingly "gappy" with odd ones and twos dotted about -- hardly a coherent group.

But those at the extreme end of the distribution cannot be dismissed as an ill-assorted remnant. The sexual activity of even a few such individuals could have major epidemiological consequences for the transmission of HIV if they are HIV antibody positive, or their fucking is unprotected, or they are primarily insertive partners. Are they (or indeed the lower-frequency practitioners of fucking) "risk-rich"?

8.2.1.1 The characteristics of highest-risk sexual activity

In order to home in on the determinants of risk-behaviour we need now to tease out what (if anything) differentiates unprotected from protected fucking, and allow for the possibility that this may differ by the modality of the act. This involves contrasting four types of fucking (it is assumed that they all result in ejaculation), contrasting protected vs unprotected and active vs passive variants²⁰:

- (1) Active Fuck; I ejaculate into partner (Alter); No condom used.
(Highest-risk Unprotected Active Fucking)**
- (2) Passive Fuck; Partner ejaculates into me; No condom used.
(Highest-risk Unprotected Passive Fucking)**
- (3) Active Fuck; I ejaculate into a condom in partner's arse.
(High-risk Protected Active Fucking)**
- (4) Passive Fuck; Partner ejaculates into condom in my arse.**

²⁰ In the diary-code these are: [AF,H*], [PF,*M], [AF,C*] and [PF,*C]

(High-risk Unprotected Passive Fucking)

In order to examine significant differences, it is useful to look at the numbers involved (both fuck-acts and individuals) and at the shape of the distributions -- the level (average), spread (dispersion) and straggle (concentration at high end and low end). The summary information is given in the following Table.

	TYPE OF FUCK (WITH EJACULATION)			
	UNPROTECTED		WITH CONDOM	
Summary	ACTIVE	PASSIVE	ACTIVE	PASSIVE
Characteristics:				
NUMBERS INVOLVED:				
No. of fuck-acts/month	434 <i>*(29%,AF-acts)</i>	442 <i>(28% , PF-acts)</i>	362 <i>(24%, AF-acts)</i>	380 <i>(24%, PF-acts)</i>
No. of individuals	188 <i>**<i>(37%, AF-ers)</i></i>	154 <i>(32%,PF-ers)</i>	163 <i>(32%, AF-ers)</i>	172 <i>(36%,PF-ers)</i>
SUMMARY INFO:				
Average no. acts/month	2.31, Md=1	2.87, Md=1	2.22, Md=1	2.21, Md=1
Dispersion (IQR)	1	2	1	1
LOW-END CONCENTRATION:				
% of individuals who do exactly 1act/month	<u>54%</u>	51%	<u>55%</u>	60%
% who do 1 or 2 acts/month	<u>75%</u>	73%	<u>75%</u>	75%
HIGH-END CONCENTRATION:				
Top 1/10th indivs account for: (%acts)	34%	46%	32%	34%
OVERALL CONCENTRATION: (Gini)	0.42	0.51	0.42	0.43

(*) expressed as a percentage of the number (volume) of relevant fuck-acts

(**)expressed as a percentage of the number of individuals who engage in the relevant fuck-acts

The most astonishing thing about this Table is how similar the four types of highest actual and potential risk behaviour are to each other, and how much the characteristics differ from those that hold for all the acts of fucking taken together. In particular:

- the average number of these highest-risk acts fuck-acts is around 2.3 a month with a dispersion of 1 -- considerably smaller (almost one-half the number) than the overall average for all fuck-acts (3.9, dispersion of 3)
- the overall spread of the highest-risk distributions is smaller, showing a more compact form and concentration
- the "low-end concentration" (the extent to which the highest-risk fucking behaviour is concentrated in the 1-a-month, or at most the 2-a-month, category) is very marked and is a good deal more concentrated at this low level than general fucking is (about 55% vs 39% for 1-a-month, and 75% vs 64% for 1 or 2 a month rates of fucking)
- the "high-end concentration" (the share of the acts of fucking of the top 10% of individuals) is very considerably lower for the highest-risk acts (about 35% vs 54% for all fucking). So although there are some individuals who have a disproportionate share in high-risk fucks, this share is a lot less than for the overall rate of fucking.

Perhaps as unexpected is the fact that using a condom makes only a little difference to the distributions. There are considerably more acts that are without benefit of condoms than are protected, as we already know, and on average the rate of unprotected fucking is slightly higher, too. But the differences do not even remotely approach substantive levels.

The differences in high-risk behaviour due to modality is even less marked, except that passive variants of fucking seem slightly more common, but this is affected by one extreme outlier who was fucked on average twice a day in the month (thereby accounting by his own activity for 14% of the highest-risk sex!).

Most importantly, there are no signs of a distinct group of men who run the high risk of fucking or being fucked at a high-frequency. *The major characteristic of highest-risk fucks, whether protected by condom or not, that most of them (well over half) is*

concentrated in 1-act fucks. With that information it becomes clear that is the relative infrequency of these highest-risk acts of fucking which merits comment²¹.

But if the notion a distinct third group of over-active devotees of risky, unprotected fucking turns out to be a myth it is best not to be too complacent. There clearly are a few such individuals, and their activity can have far-reaching consequences. The concentration of highest-risk fucking in the relatively infrequent acts of a relatively large number of gay men (rather than in very frequent acts of a few) is very likely to lead to more rapid diffusion of infection and ultimately to higher levels of infected individuals.

8.3 Risk variables: what most affects risk behaviour?

In the last section we focused down onto actual and potential risk-behaviours. This allowed us to describe the distribution of the risk behaviours, but it told us little about the different contexts of risk.

Now the focus is widened to look at different sorts of relationship and different HIV sero-status. The first is chosen because we know that this variable more than any other affects variation in sexual behaviour; we may expect therefore that the sort of relationship a gay man has is likely to affect whether or not risk behaviour occurs and how likely it is.

²¹ the fact that these high-risk fucks usually occur only once a month suggests that either the individual involved does not normally carry a condom (if that is his only fuck in the month), or that failure to use a condom is a rare occurrence in those whose repertoire includes a considerable amount of fucking. In brief, it may be that the frequent fuckers have the expectation of a fuck and are therefore prepared, whilst the rare fucker does not, and is unlikely to be prepared by having them at hand.

8.3.1 Relationship-type and risk-prone sessions, individuals and acts

The types of relationship usually used to characterise different patterns of sexual commitment are "regular" and "casual"; in the SIGMA context we prefer to define the types by reference to commitment and the range of sexual relationships a man has. The difference is subtle but important. The basic distinction is between having and not having an ongoing²² relationship; those having an ongoing relationship are further distinguished in terms of whether it is intended to exclude other sexual relationships (and is therefore "Closed") or not ("Open"). In fact there are two distinguishable aspects: the rules for continuing a relationship and the rules for dealing with other relationships. Continuity is usually signalled by co-habitation, ceremonies of commitment or simply the convention to arrange at each parting when the next meeting shall be. Continuity differentiates three type of partners: regular (always knowing then the next meeting will be), occasional (expectation of future meetings without definite arrangement) and casual (one-off with no expectation of meeting). Exclusion rules by contrast differentiate three styles of coping with alternative sexual contacts: closed (none), open (at least the possibility of other partner/s) and no commitment. The SIGMA typology leans heavily on the second aspect , but it contains a crucial additional element: it is the person who is being interviewed, or doing the diary, or whatever, whose definition is taken as given. Whilst perhaps unsatisfactory in some ways, it has the virtue of allowing both for genuine difference within a relationship and for the person who is describing his own behaviour to define his situation as he sees it. So it will not surprise us to encounter those in an ostensibly "Closed" relationship whose sexual behaviour is actually not exclusive and who have other partners on the side, nor indeed those in

²² the temptation is to use the word "regular" here. It is true that many committed relationships have rules governing other sexual contact, and that meetings and sex take place on a systematic basis, but as we shall see, this is not how those involved necessarily see it.

an "Open" relationship who actually lead a sexual lifestyle indistinguishable from monogamy, or indeed sometimes celibacy.

We shall now look especially at how high-risk sexual activity differs between the three SIGMA relationship types, and how it is distributed between primary partners and any other/s. The expectation is that those in Closed relationship will not have external sexual relations (or at least not unprotected ones), especially if the couple have given up the use of condoms as a mark of sexual commitment and intimacy; that those with no regular relationship will engage in protected risk behaviour with all partners, and that those in Open relationships will have an intermediate position.

In order to answer the question of levels of risk with different types of sexual partner it is useful to distinguish five types or levels, defined in terms of (i) whether there are sexual sessions²³ involving unprotected fucking to ejaculation (risk-fuck) and (ii) which partner/s is involved:

	<u>Partner 1</u>	<u>Other Partner/s</u>	<u>Level/code</u>	
<u>Type:</u>	no fuck	no fuck	0	No (potential) risk
	no risk-fuck	no risk-fuck	1	No (actual) risk
	risk-fuck	no risk-fuck	2	Risk: Partner 1
	no risk-fuck	risk-fuck	3	Risk: Only other partner/s
	risk-fuck	risk-fuck	4	Risk: Both P1 and others

TYPE OF RISK LEVEL ("RISK-MIX")

In Type 0 there is no record of fucking with any partner during this month.

In Type 1 there is no record of highest-risk behaviour (HRB) --either an active or passive fuck to ejaculation which is unprotected by condom -- though there can be condom-protected fucks.

²³ note that the unit of counting is now the session. The amount of activity, or the number of times a risk behaviour occurs is ignored.

In Type 2 there occurs at least 1 session with Partner 1 (P1) which involves HRB, but no unprotected fucking with any other partner

In Type 3 there occurs at least 1 session with partner/s other than P1 which involves HRB, but no unprotected fucking with P1

In Type 4 HRB occurs with both P1 and other partner/s.

(Once again it must be stressed that the risk-level refers to the level of potential risk. Only if the couple are actually HIV discordant is the risk real).

Figure 8. 7 gives a graph for each of the three Relationship-types of how many individuals are involved in a sexual session for each of the Risk-Mix levels.

Figure 8. 7 about here

(i) Closed Relationships

For comparative purposes we shall describe the degree of exclusivity , the type or mix of risk-relations and the risk-outcomes of those in each relationship-type.

Exclusivity

Let us establish, first, how many Closed relationships are risk-exclusive relationships. There are 387 individual/month diaries; 54 of these record high-risk sexual activity -- at least fucking of some sort -- with more than one partner (this is a conservative estimate, being restricted to a single month). So, 86% of the individuals who are in a Closed relationship restrict their risky sexual activity to a single partner but 14% have at least one high-risk sexual incident with another partner.

Risk-Mix (individuals)

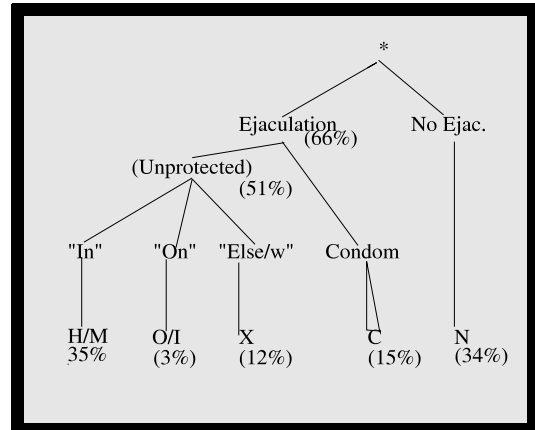
More relevantly, what sort of risk behaviour characterises individuals in an ostensibly Closed relationship? By far the most common session-type is one without fucking at all, but 22% of individuals have at least one session that has some degree of risk. Level 3 (9%) is an unusual type of risk for a Closed relationship (the

most intimate and risky behaviour outside the primary relationship), and although Level 4 is small (2%) it is potentially the most hazardous, since with neither partner is there protection against infection.

Risk -Type (amount)

How are the sexual acts of men in Closed relationships distributed with respect to the risk-outcomes outlined in the previous section? The Risk-hierarchy and Tree are as follows:

Out of the 488 (=100%) acts of anal intercourse
 34% did not result in ejaculation of semen [N], and
 66% involve ejaculation of semen.
 Of these ejaculations,
 15% of ejaculations are into a condom [C]
 but 51% are unprotected.
 Of these unprotected ejaculations,
 12% go "elsewhere" [X]
 3% go on the partner's body [O/I]
 35% go into the partner's anus [H/M]



RISK HIERARCHY

RISKTREE

There is a high amount of unprotected fucking into the partner (indeed, the highest of all the three relationship types) and a low amount of condom-use compared both to the baseline, and compared to the other relationship-types. On any account, the profile of risk for those in Closed relationships is striking: there are considerable amounts of potential risk sexual contact outside the primary relationship, and unprotected fucking within.

(ii) Open Relationships

Exclusivity

The differences between Closed and Open relationships are not large. First, almost the same proportion of men in Open relationships are risk-exclusive as those in Closed relationships (74% Open vs 86% Closed), though correlatively twice as

many men in Open relationships have high-risk sex with other partners (26% Open vs 14% Closed).

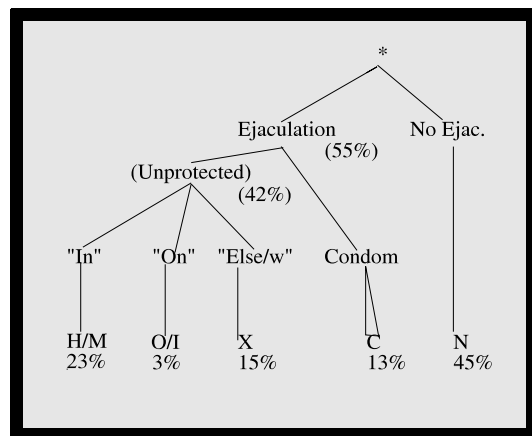
Risk-mix

When it comes to individual risk-levels the overall distributions are remarkably similar²⁴ but there are differences; they are important in relative terms and occur in the more risky categories. In comparison to the Closed relationships there is considerably less high-risk behaviour with the primary partner, but more high-risk behaviour with other partners.

Risk-type (amount)

The amount of unprotected fucking is much lower than for Closed relationships, but condom-protected fucking is slightly lower. Most noticeably, there are considerably higher rates of fucking that do not result in ejaculation.

Out of the 431 (=100%) acts of anal intercourse
 45% did not result in ejaculation of semen [N], and
 55% involve ejaculation of semen.
 Of these ejaculations,
 13% of ejaculations are into a condom [C]
 but 42% are unprotected.
 Of these unprotected ejaculations,
 15% go "elsewhere" [X]
 3 go on the partner's body [O/I]
 23% go into the partner's anus [H/M]



RISK HIERARCHY

RISK TREE

(iii) No Regular Relationships

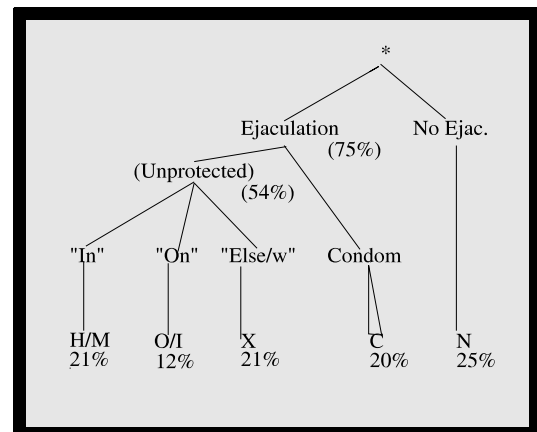
Exclusivity is not relevant to those who have no regular partner. In terms of individual risk, this type generally has extremely low levels of unprotected risky sex

²⁴ the Index of Dissimilarity (Coxon 1982, pp28-30) is 0.09, i.e. only 9 percent of individuals need to be re-distributed to yield an identical distribution.

and its members engage in a good deal less fucking. This carries over into the volume-based risk hierarchy, too, which shows very low rates of unprotected fucking and high amounts of "alternative destinations" of semen ("on" and "elsewhere"). The strategy of safer sex in this group seems to be to avoid fucking, and to be more likely to use condoms and "on but not in" destinations if ejaculation occurs. This is in accord with the findings of the interview-based data in SIGMA (Hickson et al 1992), where strategies such as "sexual exclusivity being contingent, not necessary" and rules concerning such matters as information and honesty, emotional distance, discretion and politeness, three-somes -- and especially safer sex -- all serve to limit the harm which emotional and sexual threats of other partners could produce and actually foster longer-lasting relationships.

Out of the 92 (=100%) acts of anal intercourse
 25% did not result in ejaculation of semen [N], and
 75% involve ejaculation of semen.
 Of these ejaculations,
 20% of ejaculations are into a condom [C]
 but 55% are unprotected.
 Of these unprotected ejaculations,
 21% go "elsewhere" [x]
 12% go on the partner's body [O/I]
 21% go into the partner's anus [H/M]

RISK HIERARCHY



RISKTREE

So, the evidence is consistent and compelling: different relationship types produce quite different patterns of risk with distinct differences in probabilities of HIV transmission.

8.3.2 HIV sero-status

If the advice of Safer Sex campaigns were heeded and acted upon there would be no differentiation between those of different HIV status in terms of their risk behaviour, since all would act on the assumption that their sexual partner was (or could potentially be) HIV infected²⁵. In practice this is not so, and except for a small minority, never has been. In fact gay men, like any others, act upon belief, expectation, suspicion as well as knowledge in protecting themselves and others. The SIGMA interviews and diaries are replete with phrases which express these mental calculations:

*♂ He looked OK, so ...
As far as I could tell he was clean ...
He puts it around a good bit, so I'm careful ...
I know he's faithful to his lover so I don't need to worry about a condom ...
He was drop-dead gorgeous and well built -- not at all thin or ill ...*

and for all their transparent naïvety in the cold light of day, they can be appealing and satisfactory reasons in the heat of the moment (Gold 1993). Given the reality rather than pious hope, it is not surprising that the logic gets contorted so that the assumption is that a partner is "OK" (HIV negative) unless he indicates otherwise (and the production of a condom can ironically be taken to be such an indication). So the locus of responsibility shifts unfairly and inappropriately to those who are HIV positive ("it's their responsibility to say") and before long it is they who are blamed rather than a state of affairs where all who are sexually active are protecting themselves and others.

Not surprisingly, given this scenario, those who are HIV positive do display distinct patterns of protection in high-risk sex, and there are incidents of actual risk -- and

²⁵ from this point, the useful abbreviation "Positive" will be used to mean a person who has tested and been found to have HIV-1 antibodies, and who knows his test result.

we are talking about actual risk now, however varying the degree of infectivity may be.²⁶

Defining a suitable subset of those who are Positive is no simple matter. All SIGMA panel members were asked to provide a blood and/or saliva sample at each interview (Hunt et al 1990, 1992), and were give the result if they wished it (see §2.8). Additionally, they were questioned independently about what they thought (or believed or suspected) their HIV status was. Consequently, a range of groups are distinguishable. First, the "Positives":

- 1) those who tested positive and knew their status (by choosing to be told)
- 2) those who tested positive and chose not to be told their status²⁷
- 3) those who chose not to be tested but believed or suspected themselves to be positive

Second, the "Negatives"

- 4) those who tested negative and knew their status
- 5) those who tested negative and chose not to be told their status
- 6) those who chose not to be tested but believed themselves to be negative, and

Thirdly, the "not tested"

- 7) who suspected or believed themselves to be positive
- 8) who believed themselves to be negative.

²⁶ there is evidence that viral load and hence infectivity is at its height before the production of antibodies (i.e. before a conventional test will detect it) and when symptoms begin to be evident. The first early period is particularly disturbing because (short of an antigen test) those infected cannot know that they are infected and infectious.

²⁷ although few in number, they posed difficult ethical problems since the Principal Investigator concerned knew their status but was bound not to communicate this (however subtly) even when unsafe sex was known to be happening, or when early intervention might well stave off the appearance of early symptoms. This dilemma was especially poignant when after years of choosing not to be told the subject then asked to be, and had to be told that he had been infected for some years (see Coxon 1993b).

For the purpose of analysis here:

- the "Positive" group is group (1) above, supplemented by the Positive members of the Gay Press sample of 1992/3 (GP93). It consists of 36 individual/months. They are predominantly (two-thirds) between 21 and 39 and three-quarters are not in a Closed relationship²⁸
- the "Negative" group is groups (4) and (6) and consists of 795 individuals/months, and
- the "Not Tested" group is groups (7) and (8), and those not tested who have no particular belief about their sero-status.

(Somewhat surprisingly, the numbers of the Positive group in each age/relationship combination differs little from that of the Not Tested or from the Negative group; in no case are cell entries 5% different). However, since the numbers are small, too much should not be read into this -- or indeed into much of the analysis which follows; we are dealing with a sub-group whose representativeness is not known.

²⁸ Numbers of men in the Positive group are as follows (the first entry is the Positive (Waves 1-5) and the second entry also includes the GP93 numbers):

	Under 21	21-39	40 and over
Closed	-- / 1	5 / 5	1 / 3
Open	-- / --	7 / 8	5 / 6
No Regular	3 / 3	8 / 9	1 / 1

Positive gay men

The subgroup of Positive men is basically no more homogeneous than the subgroup of Negative men. In a larger or more focused study, the stage of the development of the infection (and the related information we usually have -- years since sero-conversion) would be a critical differentiating variable between them. But although we know this date (or the date of the first positive test result) it cannot be used reliably to analyse the results because of the smallness of the numbers involved.

That said, there are a number of characteristics which differentiate those who are known (and know themselves to be) positive from those known to be negative. First of all,

general
sexual
activity,
(based
on the
session
as the
unit):

- Positive men have more sex (sexual sessions) than Negative men [22 vs 17 a month]; more fucking sessions [3.8 vs 2.4] and more wanking sessions [14.1 vs 11.3]
- Positive men have more protected sex than Negatives --
0.58 active fucks with condom a month vs 0.38;
0.89 passive fucks with condom vs 0.31;
1.47 sex sessions (with fucking and/or sucking) with condom vs 0.73.
- Positive men have less risky sex than Negatives --
Positive men average *0.05/month ejaculations in a partner without a condom, Negatives average 0.39/month;
0.19 sessions/month include a partner coming in a Positive man without a condom compared to 0.34 among Negatives.
In general, Positives average 0.61 risk-fucks a month compared to Negatives' 0.73.

(*)²⁹

The amount of fucking which Positive men engage in is thus quite high: 13% of all sexual acts they do are fucking (and 19% of acts other than wanking); this compares with rates between 4% and 10% for SIGMA subgroups described in §4.2.1.3 above). Perhaps the most interesting difference between Positive and other gay men's behaviour is the imbalance between active and passive fucking. Generally, Positive men have low levels of active fucking and high levels of passive fucking: 4% of acts of fucking are active compared to 8% which are passive (and 6%:12% ignoring wank-acts).

There are a number of possible explanations for this imbalance between active and passive fucking among Positive gay men -- some medical, some social -- and many refer to the known difficulties in penile erection which Positive men experience:

- i) (pharmacological) many of drug regimes followed by Positive men include ones which have erectile dysfunction as side-effects
- ii) (virological/neurological) the HI virus itself has effects on the nervous system which can interfere with erection responses
- iii) (epidemiological/behavioural) men who are "anally receptive" (get fucked) are more at risk of infection than those who are "anally insertive", and thus those predominantly passive in fucking are more likely to become Positive , and continue this modality into their sexual repertoire as Positive gay men³⁰

²⁹ this excludes one outlier individual in the GP93 dataset who is responsible for 88 percent of AF,H acts reported here. All his activity is with his Positive partner. Including him raises the proportion to 0.42.

³⁰ This last hypothesis has some confirmation in the SIGMA diary data, though the number of men whose sero-conversion occurs during their careers as diary-keepers is small.

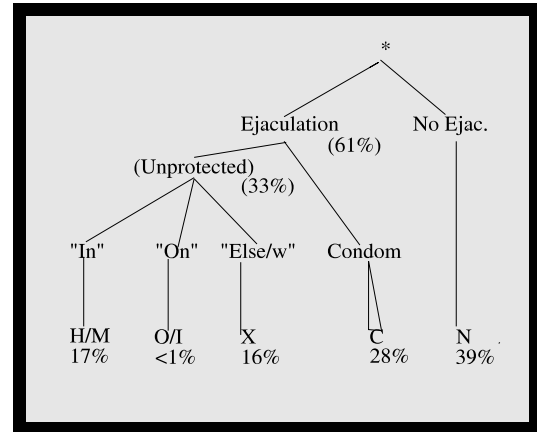
The pattern of difference between Positive and Negative (and Not Tested) men is also equally clear and consistent when looking at individual sex acts (as opposed to sessions) and this is illustrated in the following Risk trees for each group:

Out of the 107 (=100%) acts of anal intercourse
 39% did not result in ejaculation of semen [N], and
 61% did involve ejaculation of semen.

Of these ejaculations,
 28% of ejaculations are into a condom [C]
 but 33% are unprotected.

Of these unprotected ejaculations,
 16% go "elsewhere" [X]
 <1% go on the partner's body [O/I]
 17% go into the partner's anus [H/M]

RISK HIERARCHY



RISKTREE

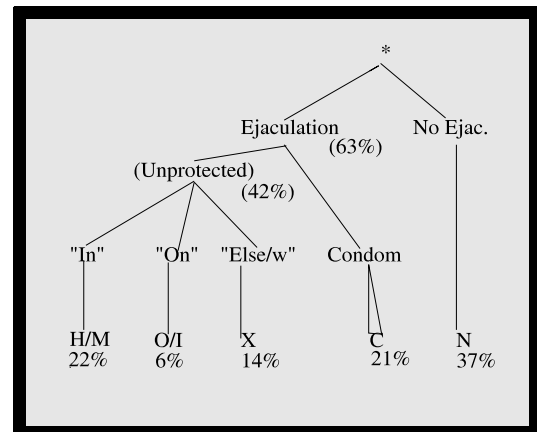
(A) POSITIVE GROUP

Out of the 506 (=100%) acts of anal intercourse
 37% did not result in ejaculation of semen [N], and
 63% involve ejaculation of semen.

Of these ejaculations,
 21% of ejaculations are into a condom [C]
 but 42% are unprotected.

Of these unprotected ejaculations,
 14% go "elsewhere" [X]
 6% go on the partner's body [O/I]
 22% go into the partner's anus [H/M]

RISK HIERARCHY



RISKTREE

(B) NEGATIVE GROUP.

The Positives differ from the Negatives most of all in having more recourse to condoms and lower rates of unprotected fucking; (relative to Negatives, Positives are one-third higher in their use of condoms and 22% lower in their rates of

unprotected fucking). The Index of Relative Protection reflects this: for Negatives protected and unprotected fucks are about half and half (IRP=0.97) whilst for Positives it approaches two protected fucks to one unprotected (IRP=1.70). The higher recourse to condoms is also seen when ejaculation does not occur: twice as many Positives as Negatives wore a condom even though they did not come³¹.

The "Not Tested" group provide little by the way of interesting comparisons compared to the two main groups. The main difference is that those Not Tested have considerably more ejaculations going "elsewhere" than either other group and considerably less recourse to condoms (with an IRP of 0.67):

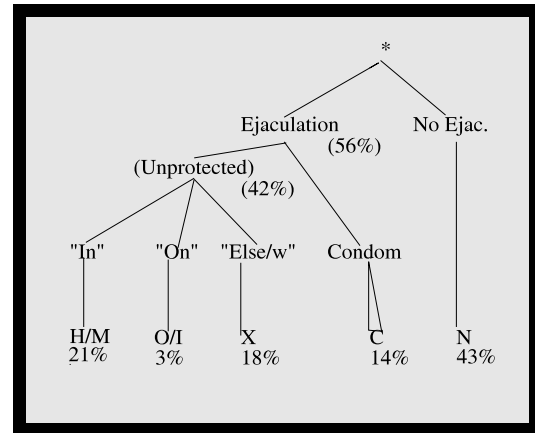
³¹ The percentage of fuck-acts which did not result in ejaculation and were protected by a condom is 14% for Positives compared to 7% for Negatives.

Out of the 254 (=100%) acts of anal intercourse
 43% did not result in ejaculation of semen [N], and
 57% involve ejaculation of semen.

Of these ejaculations,
 14% of ejaculations are into a condom [C]
 but 43% are unprotected.

Of these unprotected ejaculations,
 18% go "elsewhere" [X]
 3% go on the partner's body [O/I]
 21% go into the partner's anus [H/M]

RISK HIERARCHY



RISKTREE

C) NOT TESTED GROUP

Fears that Positive men are acting "irresponsibly" are far from being supported by these data. On the contrary, they are clearly protecting themselves and their partners to a degree well in excess of Negatives and of those Not Tested, and even if selection biases lead this group of Positive men being possibly unrepresentative, that alone could not account for the consistency of the results.

The meaning of these results is however more complex to explain, and we shall have to look at the contexts and types of high-risk sex undertaken by both Positive and Negative men before the meaning will become clear.

8.4 Contexts and types of highest-risk sex among partners

Little has been said yet about the difference that modality makes in highest-risk unprotected fucking, yet this is bound to be an important factor, given the major differences in the probabilities of transmission. It has long been known that "insertor to insertee" transmission is much more probable than "insertee to insertor" and this holds for both vaginal and anal intercourse. Thus an HIV-positive active partner is much more likely to transmit infection to the passive partner than vice versa, and the active partner is much less likely to be infected by a passive partner than vice versa.

In view of that, the only way correctly to construe risk situations is to know both the HIV status of the sexual partners involved in the acts of fucking and the modality of their role. For simplicity we shall restrict attention to the two highest risk behaviours:

- **Unprotected Active Fucking (*I fuck you and come in you, I am not wearing a condom*) [AF,H*] and**
- **Unprotected Passive Fucking (*You fuck me and come in me, you are not wearing a condom*) [PF,*M]**

To analyse the detail of risk situations properly we need, first, to concentrate on the sexual couple as the unit of analysis -- this simply means the two men engaged in having sex, and implies nothing about their commitment. Then we need to take into account the HIV sero-status of each partner and, where relevant, the role they are adopting in the fucking.

There are three distinctions in HIV status: Positive , Negative and Not Tested, and for two partners this yields the nine (3 x 3) possible risk-combinations listed below. Four of these nine combinations are clear, involving unambiguous outcomes in terms of risk of infection; the remaining five involve one partner who is not tested and the nature of infection risk is therefore unclear. In the case of concordant

couples (where the HIV status of both partners is the same) it is not material to the analysis who is the active and who the passive partner. In the case of discordant couples it is.

In the following diagram these outcomes are specified.

- The HIV status of the couple. Since the data comes from accounts written by the diarist, the first factor is the HIV status of Ego (the man keeping the diary) and the second is the status of Alter, to his sexual partner (Positive HIV status is denoted by " \oplus ", Negative by " \ominus " and Not Tested by " \emptyset ").

- The direction (modality) of the unprotected fucking is denoted by an arrow: A \Rightarrow B means A fucks B

$A \Leftarrow B$ means B fucks A (or A is fucked by B)

$A \rightleftarrows B$ means either A fucks B or B fucks A.

The percentage numbers refer to the GP93 data set, where the data are most recent and the information is most reliable. They are based on the 176 sessions (or 188 acts) where unprotected fucking (with ejaculation into the partner) took place.

8.4.1 Clear Pattern of Risk (Positive and Negative)

	(A) (Ego)	fucks	(B) (Alter)	Name	(Percent)
1.	⊖	↔	⊖	Negative Concordant	30%
2.	⊖	⇒	⊕	Negative to Positive Discordant	1%
	⊕	←	⊖		
3.	⊕	⇒	⊖	Positive to Negative Discordant	1%
	⊖	←	⊕		
4.	⊕	↔	⊕	Positive Concordant	26%

(ii) Unclear Pattern of Risk (Non-tested partners)

5.	⊖	⇒	∅	(Negative to NT)	7%
6.	⊕	⇒	∅	(Positive to NT)	0%
7.	∅	⇒	⊖	(NT to Negative)	29%
8.	∅	⇒	⊕	(NT to Positive)	0%
9.	∅	⇒	∅	(NT to NT)	6%

Note that in the "Clear" patterns it is the concordant patterns which occur most often, and that the discordant ones, where the risk of transmission is greatest are in fact quite rare. Taking these "Clear" patterns first, let us illustrate by incidents drawn from the diaries the context of the session in which they appeared. The diarist ("Ego") may be fucking as either active or passive partner, but the incidents are obviously reported by him. Particular attention is paid to any comments made by him. The incidents reported are just that: they are extracted from their fuller

accounts and the individuals may well also be involved in other types of unprotected fucking. (The patterns of individual involvement in these types of unprotected fucking are examined in the next section).

1. **Negative Concordant** (⊖ ⇔ ⊖)

These are common risk events: both partners are Negative and are fucking without a condom. Though such events are relatively safe compared to others, a negative HIV antibody result does not necessarily imply that the person is uninfected, so there is a real risk of infection -- hence the Safer Sex injunction always to wear a condom. The diarists involved in this risk-type come from all relationship-types and ages; they are by no means all in Closed relationships. But in most cases the unprotected sex is with a primary partner or an only partner. Three examples follow which illustrate the three different varieties -- (i) where the unprotected fucking occurs in the context of an exclusive relationship, (ii) where fucking is unprotected within the primary relation but is protected outside and (iii) where fucking inside and outside the relationship is unprotected .

(i) Unprotected fucking between negative partners

(Exclusive relationship, no fucking outside relationship)

Diarist is 21 in a closed relationship, though very occasionally he goes cottaging but if he does, he does little. He tested negative a year ago. His (only) partner is 24, is also negative and they have been together for 3 years. His favourite sexual activities include fucking in all forms and sucking/being sucked until ejaculation.

account:

♂ 10am, fucked P1 with huge vibrator and sucked him, came into my mouth. Then I fucked him - no condom. I came inside him. Used poppers

comment: an exclusive relationship (at least over the two months of the diary); fucking is almost always unprotected, though condoms are sometimes used.

(ii) Unprotected fucking between negative partners (fucking outside the relation but it is protected)

Diarist is 30 in an open relationship, with another occasional partner. He tested negative a year ago. His primary partner is also 30, is also negative and they have been together for 4 years. His favourite sexual activities include wanking, being sucked and being fucked (with a condom).

account:

♂ P1 came to [the] party; drank 8 pints of lager each. Back to my place at 1pm. We stripped and lay on my bed, I sucked him, he sucked me, neither came. He fucked me without a condom and came inside me. I came on his chest, we used Boots jelly.

comment: Usually their fucking is protected (7 acts out of 9 in the month) but there are lapses such as this one; he is aware that such lapses (his term) often involve drinking and a similar incident occurred after a visit to the club when he was "totally drunk")

(iii) Unprotected fucking between negative partners (fucking outside the relation and is also unprotected)

Diarist is 28 and in an open relationship. He tested HIV negative recently . His primary partner (P1) is 22 and also tested HIV negative 6 months ago. They have known each other six months. In addition to P1, he had an occasional partner (negative) and two 1-off partners in this month; their HIV status is unknown. His favourite sexual activities (in addition, as he says, to "talking about sex [which] really makes me horny" is being sucked and coming in a partner's mouth, rimming and being rimmed and

"fucking a guy; you come in him", but not "fucking a guy; you wear a condom"³².

Sexual sessions:

(1) With P1:

account:

♂ *11 pm Deep kissing, sucking each other. I rimmed him I fucked & came inside him no condom. Fell asleep approx. 3.30 a.m.*

(2) With P4:

account:

♂ *P4 met in Club went to his place Kissing sucked him off he shot in my mouth & swallowed it rimmed him then fucked him shot inside.*

comment: a clear instance of potential high-risk, especially since fucking outside the primary relationship is unprotected and without knowing the partner's HIV status. He is only active in fucking, and on his own account is especially turned on by the activity.

2. Negative to Positive Discordant

(⊖ ⇒ ⊕) or ⊕ ⇐ ⊖

There are only a few instances. In the first example the diarist is Negative and fucks a Positive man; in the second the diarist is Positive and is fucked by a Negative man.

(i) Diarist is 29 with no regular partner. He re-took the HIV test in this month and is negative. He has seven partners in this month. This partner is a long-time occasional and he knows him to be positive. His favourite

³² the question from which this information is drawn comes in the preface to the Sexual Diary, where diarists are asked to rate various activities "whether or not you do it, and assuming there's no risk of infection". This question therefore probes the "what-if [no risk]" preferences rather than the actual preferences.

sexual activities are fucking of all sorts (preferred without a condom, if there were no risk) rimming and sucking.

account:

♂ Met at [X] pub, returned to my flat for a break between drinking; hadn't seen each other in ages. Started hugging and kissing. Got on to bed, sucked his cock then we wanked each other. Then I rimmed him. Went to get condom and KY to fuck him. He didn't want to use a condom. We discussed issues. *I agreed to not use a condom and fucked him till I came in him*, then wanked him till he came.

comment: Although only a one-off occasion in a diary of otherwise safe sex, this one clearly was not, and it provides an excellent example of negotiation to have unprotected sex. On an earlier occasion sex with this partner was protected, and a rule he normally follows is "no condom, no fuck".

(ii) Diarist is 32 with no regular sexual relationship (though he has a committed partner). He has known that he is positive for some years. His sexual activity involves a good deal of cottaging. His partner in this incident is about 20 and belongs to a minority ethnic group; he is negative. The diarist's favourite sexual activities are topped by being fucked and sucking a man off.

account:

♂ *Meet P16 in the street, ask him back. I suck him. He fucks between my legs and tries to fuck. I say we should use condom. He says yes but gets turned off and stops. Again he fucks between my legs and begins to penetrate. I restrict him a bit but he is quite insistent. He comes in me (more or less!).*

comment: an instructive example and by no means an uncommon one. The positive guy not only tries to dissuade his negative partner from unprotected fucking but actually does something about it in terms of education: ♂ *Afterwards we talk about unsafe sex. He says he doesn't like using condoms to fuck, only being fucked. I give him*

a pep talk; we shower together after. Such "outreach" work is also instructive in the sense that it brings to light issues which would otherwise not surface. Consider the following example involving the same man, which began as a cottage encounter:

♂ ... [at the urinals] played with each other's cocks. Asked if I had somewhere to go and if I was into leather. Drove me home in his car -- told him I was positive on the way. A bit hesitant but happy so long as it's safe. Has a [male] partner who doesn't know he has sex [outside the relationship] (16 years together) ...After sex he ask me lots of questions about HIV -- worried about sucking and can he get anything else from me ?! It was the naivety of the man thinking that me sucking him could lead to infection that amazed me.

3. Positive to Negative Discordant

(⊕ ⇒ ⊖ or ⊖ ← ⊕)

This type also occurs relatively infrequently in the diary accounts, but when it does it is concentrated in certain individuals. In the example the diarist is positive and fucks a negative man; no instances exist in this data-set of a negative diarist fucked (without a condom) by a positive partner. This example is especially interesting.

(i) Diarist is 36 in an open relationship with a range of occasional and casual relationships, most HIV positive, some HIV negative. He himself has been HIV positive several years. His two regular partners are HIV negative; in this month he also has three occasional partners: two HIV positive (one with Aids) and one negative. His favourite sexual activities include include fucking of all sorts, rimming and sucking. P3 is Negative, and has been having sex regularly with the diarist for 2 years. The sexual activity they have covers wanking, sucking, rimming -- and fucking, in both modalities. For some months the diarist has fucked P3 on a weekly basis -- always without a condom, and the session usually has the form

of P3 sucking him off, and then the diarist fucks him and comes in him. In the second month the following sessions occur:

account:

♂ P3 at his house 4p.m. P3 wanked me till I came all over his face. I then fucked P3 with KY and came in him at his insistence

comment: note the comment he makes at the end. In view of this, the next session with the same partner a week later is especially illuminating:

(2)

account:

♂ P3 at his house 4p.m. I fucked him using KY and came in him -- at his insistence (n.b. I am beginning to believe that P3 wants HIV+ I have said that I should use condom but he won't let me!!)

comment: nothing further is known about the interaction, but by the next session no condom was used and the unprotected fucking with P3 continued... In these examples and the one in the previous section the positive man comments on the negative man's "insistence" that the fucking be unprotected. Whether or not the motivation suggested here is correct or not, it is significant that such insistence is only reported in the diaries in this direction; there are no instances of a positive man insisting on being fucked (unprotected) by a negative man.

4. Positive Concordant

(⊕ ⇔ ⊕)

Among HIV Positive men, concordant unprotected fucking is the most common type. Safer sex advice has been ambivalent about the wisdom of unprotected fucking among partners who are HIV positive. Although apparently "safe" -- since there is no question of infection or re-infection -- mutations of the HI virus are so frequent that additional infection cannot be ruled out. But in practice, positive gay men virtually never use condoms with positive partners. Examples follow of : (i) where the unprotected fucking occurs in the context of an exclusive relationship, (ii) where

there is fucking outside the relation but it is protected and (iii) where other unprotected fucking occurs outside the relationship.

(i) Unprotected fucking between positive partners (Exclusive relationship, no fucking outside relationship)

Diarist is 18 and in a closed relationship and has no other sexual contact outside it. His (only) partner is 28, is also positive and they have been together for 5 months. His favourite sexual activities include fucking, being sucked off and being rimmed.

account:

♂ *10.30am Heavy kissing and we carressed each other's bodies. I sucked his cock and then turned him over. I rimmed him and then fucked him using KY and no condom. I come in him. He then rimmed me then fucked me using KY no condom. He come in me.*

comment: an exclusive relationship; fucking is always unprotected and with each other. Lest it be thought that that was their only activity, the next entry in the diary was: ♂ *2.30pm Had a wank whilst looking at P1 putting up curtains!*

(ii) Unprotected fucking between positive partners (fucking outside the relation but it is protected)

Diarist is 38 in an open relationship, with other regular, occasional and casual partners. He tested positive two years ago. He has been with this partner for 9 years; he is positive and now has Aids.

account:

♂ *After meal and bottle of wine each, fucked each other till we came in each other. Both on poppers and used KY*

comment: Out of the 21 acts of fucking in this month, in only one was a condom used (with this same partner; it is not

quite clear why it was used). He usually avoids fucking with his negative partners.

(iii) Unprotected fucking between positive partners (fucking outside the relation and is also unprotected)

Diarist is 30 with no regular sexual partner. He has had 22 occasional and casual partners in this month. In this instance P10 is described as "possibly regular", aged 30. He is known to be HIV positive.

account:

♂ *Go to Coleherne wearing leather chaps. Meet P10 wearing leather. (red hanky right pocket [seeking being fisted]); tell him my [finger] nails would need cutting and I like to be fucked or suck. He says fine. At my place we have a joint and I suck him. He fucks me without condom. Stop and go upstairs, have another joint. He fucks me hard, I come on my chest; use poppers throughout. Stop for a bit. He fucks me again and comes in me. He stays up me whilst we smoke another joint.*

comment: He is very selective about whom he fucks with in unprotected mode -- and only with those he knows to be positive and know him to be. Witness the following incident (which preceds the above one by two days). In this instance of a casual three-some the diarist has a session with P5 and P6 (they are partners of each other); P5 is "possibly HIV+" and P6 's status is unknown.

account:

♂ *... go to his place after two beers.. Have whisky and two joints. Put on leathers and I suck both , they suck me (no coming yet). P6 rims me, I rim him. P5 fucks me (with condom) whilst I suck P6; stops before coming so P6 can take a turn fucking (with condom). P6 comes in condom up my arse. P5 fucks P6 whilst he is fucking me (with condom); doesn't come. P5 fucks me again and comes after withdrawing on bed. I come on bed too. After a rest P6 fucks me again coming inside in condom. P5 wanks off, coming in hand. poppers used throughout; new condoms at each fuck.*

comment: a typical 3-some, with added complexities. Crucially, no unsafe sex occurs.



8.4.2 Unclear Pattern of Risk (Non-tested partners)

If the clear patterns of risk have predictable outcomes, the "unclear" ones are more akin to a game Russian roulette -- especially when neither partner knows their HIV status. For this reason Safer Sex guidelines recommend that one should act as if one's partner (and oneself) is HIV-positive and only engage in protected fucking. But it is not like that on the ground, and very often the assumption actually made is that, unless told to the contrary, one's partner is negative. Looking at condom-use and the IRP for the various HIV status groups, it is clear³³ that:

- being tested -- whatever the outcome -- is associated with higher condom use for fucking and higher relative protection than not being tested (All tested: Condom use 22% , IRP= 1.05 vs Not tested 14%, IRP=0.58)
- those individuals not tested engage less in fucking (and they do less fucking) than those tested, but if they do fuck they behave very much like those who have tested negative (Not tested Condom use 14%, IRP=0.58 vs Negative Condom use 20%, IRP 0.57).

So, what about the highest-risk behaviour among those who have not tested? The five patterns of risk involving those who have not tested can be collapsed into a simpler form by ignoring the direction of fucking:

5a.	$\ominus \rightleftharpoons \emptyset$	Negative to NT (either way)	36%
6a.	$\oplus \rightleftharpoons \emptyset$	Positive to NT (either way)	0%
7a.	$\emptyset \rightleftharpoons \emptyset$	(Not Tested to Not Tested)	6%

³³ see 8.2.3 above. The data for all those tested (Positive or Negative) are: Condom-Use 22%; Unprotected Ejaculation "In" [H,M] 21%; IRP = 1.05.

First it should be said that most men who have not tested restrict their high-risk sex to one partner -- though by no means all. Secondly, there is little sexual activity reported with Positive partners, at least by the diarists themselves -- but there is no shortage of not tested men who report unsafe activity with those whose HIV status they are unsure of, or do not know , or indeed in some cases, who they suspect of being positive.

(5a) Unprotected fucking between Negative and Not Tested partners

(i) Negative fucks Not tested

Diarist is 28 and in an Open relationship. He tested negative a year ago. His favourite activities include being sucked, fucking and coming in a guy (no condom) and rimming. All his fucks are active. His regular partner is 22 is also negative and they have been together for 6 months. This partner (P4) is a one-off contact who he met in a club and is also aged 22; his HIV status is unknown.

Account:

♂P4 met in club, went to his place. Kissing, sucked him off, he shot in my mouth and I swallowed it. Rimmed him then fucked him, shot inside no condom.

Comment:

This is not a single instance; he fucks seven times this month (twice without coming) and he never uses a condom with either his regular or casual partners. He is one of the most consistent practitioners of unsafe sex.

(ii) Not tested fucks Negative

Diarist is 21 and in an Open relationship. He is especially turned on by active, but less by passive, fucking and by rimming and sucking. He tested negative two years ago. His fucking activity is extensive -- 20 fuck-acts in the month-- both actively and passively . P1 (who is 22

and with whom he is quite adventurous sexually³⁴) had not tested in the first diary, but had tested negative by the second. With him he is usually passive and condoms are usually used. But he also fucks outside the primary relationship, often without protection. Several incidents illustrate this complex mixture:

- (i) account The first two incidents involve P1, one protected, one possibly not:
♂ *My house, P1. Deep kissed, sucked each other. He fucked me with a condom and came.*
♂ *My flat after Club, both drunk and 'speeding'. Role play with P1 ... he fucked me and came -- not sure if he wore a condom. Don't like asking as I'd kill him if he didn't!*
The next two incidents involve partners whose HIV status is not known:
♂ *P3, his flat: fucked each other wearing condoms*
♂ *P6 (at party) Pissed on me while I wanked in bath, Fucked me and I fucked him. Both came. no condom*
... and next day:
♂ *[P6] fucked each other three times . Both came without condoms. Wanked and sucked each other*

comment The main trend in this man's fucking behaviour is for him to fuck with a condom with P1 and with other partners who he knows to be HIV negative. Casual or occasional partners who he does not know so well and whose HIV status he does not know tend to be the ones with whom he fucks (actively or passively) without a condom. This, again, is not an uncommon pattern. and is potentially particularly risky.

(6a) Unprotected fucking between Positive and Not Tested partners

(This type does not exist in the GP93 data set)

(7a) Unprotected fucking between two Not Tested partners

³⁴ as in: ♂ *sucked his cock, fucked his arse cheeks while I wanked him. Neither of us came. Put our cocks in one condom and wanked until we both came...*

Two examples are given, one with a diarist as active partner, one with a diarist as passive:

(i) Diarist is 21 in an Open relationship, with nine partners this month in addition to P1 (P1 has tested negative and so have his two other regular partners. The HIV status of all his other casual partners is not known or not tested). His favourite sexual activities include being sucked and fucking and being fucked without a condom.

account:

♂ meet P5 [1-off, 46, met at cottage] at his house. I fucked him condom not used, come in him. He sucked me off condom not used come in his mouth. He swallowed. Cannabis used.

comment: A sexually very active young man who relies extensively on other partners, often met in cottages. This is an instance where highest-risk sex takes place in a cottage (here a "popular cottage" as in 7.1.1.1 in a town centre environment. One-fifth of his high-risk fuck-acts (29 in this month) are unprotected and since he has unprotected sex with his partner, this puts him in the highest risk-mixture category.

(ii) Diarist is 42 and is in an Open relationship. He has three partners this month in addition to P1. None of his partners have tested. His favourite sexual activities include sucking and being fucked, with or without a condom.

account:

♂ went to straight pub (East End of London) met 2 bisexual guys (40, 36) then back to my flat where went to bed with both guys. They rubbed me all over in oil and fucked me in turn, one with condom one not. This went on all night . I sucked them both off no condoms.

(next day)

P1 phoned my flat at 5pm and asked me down for drinks , when I arrived he almost raped me said "let's go to bed" he then sucked my cock and rimmed me till I came. He then fucked me three times during the night . In the morning I sucked him off. No condoms. Left early Monday morning.

comment: An interesting account on several counts. First, he is an older man (and most of such highest-risk sex so far illustrated has been done by younger guys). Secondly, it provides a good example of how non-gay environments can provide the context for pick-up (better than gay contexts according to this diarist, and safer -- he was beaten up leaving a gay pub during the diary-period). Thirdly because it involves high-risk sex with non-gay identified bisexuals (note that one fucked him with a condom, the other without). Half of his high-risk fuck-acts (6 in this month) are unprotected and since he has unprotected sex with his partner, this puts him in the highest risk-mixture category.

8.5 Highest risk and individuals

In examining gay men's risk behaviour we have now reached the finest detail short of the individual case and, interesting and illuminating though that might be, it would directly contravene our undertakings to guard anonymity. It remains to draw together some final points of detail by inter-relating structural (relational) and individual characteristics (HIV status, lifestyle). In order to emphasize the detail we have already reached it is appropriate to reveal one obscured point. In the GP93 data used as a resource in §8.4 onwards, there are 178 highest-risk acts done by what I have referred to as 76 "individual/months". This is accurate but leaves unanswered how many actual individuals we are talking about. The answer is that although there are 76 such individual/months, they refer to only 26 individuals. So we are talking about small numbers (in this data-set, of course³⁵, but not in general).

³⁵ the GP93 set was chosen because it contains data from consecutive months (so that inter-month consistency could be checked), because the last wave of this data-cohort goes up to most recent times (1995) and also because the detail in this data-set is more accurate and full than in previous waves. Data in the earlier part of the chapter refer to the full diary data-set.

Let us begin by putting together some of this information about highest-risk sex by examining its concentration. The Lorenz Curve and defining data are presented in Figure 8.8

Figure 8. 8 about here

Most evident is the fact that:

- *Highest-risk unprotected fucking is actually less frequent , and less concentrated -- either compared to other sexual behaviours or even compared to other types of fucking (summarised in §8.2.1.1) .*

The low-end concentration is considerably smaller for these unprotected highest-risk than for other types of fucking. The high-end concentration is also smaller (the top 10% account for 30% of highest-risk acts, compared to between 32% and 46% for other fuck-acts). What concentration there is actually occurs in the middle of the distribution, emphasizing again that highest-risk sex is likely to be a regular practice.

- *Those who engage most in highest-risk sex are very predominantly monogamous (sexually exclusive with a single partner) or restrict their risk-sex to one partner*

This shows itself very clearly among the the top 10%, but also generally among the higher reaches of the distribution, indicating (but not demonstrating) that this is a conscious decision.

- *Those who engage in highest-risk sex are typically HIV concordant (positive and negative) rather than either discordant or not tested*

As in the last case, this suggests that the practice of engaging in highest-risk sex is a conscious one within the confines of agreed exclusivity and/or concordance.

... But

- *There are definitely individuals whose risk-behaviour is hard to account for either on the basis of a rational calculus, or indeed on the basis of relapse*

Perhaps a half of the individuals who engage in highest-risk sex engage in one (or more) of the following consistent practices:

- invert "safer-sex" or "negotiated safety" messages (e.g. by having protected sex with a primary partner and unprotected sex with others), or
- engage in unprotected sex with all partners on a persistent basis. Very few indeed "relapse" in the sense of having occasional slip-ups in an otherwise safe regime, and fewer still switch between safer and unsafe regimes (see Coxon 1994).
- actively refuse to wear condoms, even in contexts where potential risk is highest.

The research work represented in this chapter , looking at the actual contexts in which actual and potential risk occur in gay men's sex and trying to detect the precipitating events, interaction and justifications is often sobering and uneasy work. It is worth repeating (see § 5.4.1) the following comment by a 24 year-old diarist in pensive mood which nicely articulates this unease and provides a fitting comment to end this section:

♂ I'd like to illuminate just a few things about the sex-life I've had this month. First of all: the safe sex campaigns are forgotten after a few pints, and I think I'm not the only boy affected. Secondly, the boys I was with were all "new" in the gay scene and, importantly, they all believed that Aids is a disease of old queens, and they weren't really aware of the risk. (P2 actually wanted me to fuck him without a condom). I don't want to be pessimistic, but if nobody finds something against this bloody disease, how many of my gay friends ... are going to be here in 2003?

8.6 Summary

Behavioural interventions among gay men are predicated upon data findings that fucking among gay men is a minority behaviour, that it and associated condom-use differs between regular and casual partners and that condom- use is normally

consistent with principles of risk-reduction and is extensive. Most of these findings are broadly supported both by SIGMA interview and diary studies. In particular,

- In terms of fucking behaviour over the period 1986 - 1994, gay men fall into two basic classes (Practitioners and Abstainers from anal intercourse) in a $\frac{2}{3}$: $\frac{1}{3}$ fraction. There is no evidence for any other systematic pattern of change
- Condoms are consistently more often used with casual than with regular partners.

However, the sexual diary as method reveals other disturbing and consistent patterns of unsafe sex. Analysis of the number of fucking acts and the destination of the semen shows that :

- unsafe sex and highest-risk sex is the rule rather than the exception in gay men's sexual behaviour. In general:
 - if fucking occurs, it is most likely to result in ejaculation;
 - if ejaculation occurs: it is more likely than not to be without a condom and it is most likely to be directly into the partner's arse
 - if ejaculation is into the partner's arse, it is more than twice as likely to be without a condom than with a condom.

In particular:

- over one-third of acts of fucking are unprotected; over a half of acts of fucking with ejaculation are unprotected (into the partner)
- twice as many acts are not protected by condom than are thus protected.

There is slight amelioration is evident over time.

Because the volume of risk acts and the number of individuals engaging in fucking are distinct and different distributions and lead to different conclusions about the prevalence of risk, the two are related by means of a Lorenz curve analysis, answering the question: how much of risky sex is concentrated in what proportion of gay men?

- In terms of the number of individuals involved, most of those who fuck do so only once or twice a month, but there is a long tail of those who do it a lot.
- In terms of the amount of fucking a very low number of individuals doing a large number of fucks a month are accounting for as much of the fucking as the much larger numbers in the lower end.
- There is considerable concentration of fucking, especially in the top tenth, who account for just under half of the fucking, but
- There is no evidence for a distinct or coherent group of high-frequency fuckers, but rather a straggle of cases.

Attention then shifts to what characterises higher-risk fuck-acts:

- compared to fuck-acts in general, these are fewer, with less spread and lower concentration; most are concentrated in 1-act fucks/month

and then to how this differs by Relationship-type and HIV status:

- Those in Closed relationships have a high amount of unprotected fucking, and a significant fraction (14%) fuck at least once in a month with another partner. In Open relationships there is less unprotected sex with a primary partner and more high-risk sex with other partners. Those with no regular relationship avoid fucking, make more use of condoms and come more "on" a partner.
- HIV Positive men have more sex and more fucking sessions than Negative men; they have more protected sex and less risky sex than Negatives. They also engage in a high degree of passive fucking. Those Not Tested make less use of condoms than either other group.

Finally, the Context and Types of highest-risk sex are illustrated by reference to the most recent (GP93) data set, using HIV status of the partners as a differentiator.

Concordant high-risk fucking (whether positive or negative) is far more prevalent than discordant fucking. Those not tested tend to have highest-risk sex primarily with those known to be negative.

8.7 Epilogue on Risk

This has been a complex and difficult chapter both to write -- and probably to read. As the focus got finer and the detail became greater, the certainties of received wisdom about gay men's risk behaviour have become increasingly unsure. If so, this cannot but be good because neither we nor any other research team have the information necessary to resolve the puzzles and problems definitively.

Some will be surprised that the debate still raging about the "relapse" versus the "negotiated safety" interpretation of changes in gay men's response to Aids has not featured more centrally in this final chapter, since this has been the main arena for assessing the significance of these changes. But this has been a deliberate choice on my part. Much of the "Relapse" debate has related to an undisputed fact. Among gay men in the First World (the West and Australasia) there have been clear indications that risk behaviour has increased in the past five years, or more -- signalled by a range of indicators -- higher incidence of HIV-1 sero-conversions, increasing rates of rectal gonorrhoea, and evidence from men's own accounts in the monitoring surveys of cohorts of gay men. The divergence comes when trying to account for this fact. Broadly, the "relapse" theorists (Adib et al 1991, Stall et al 1990, Ekstrand and Coates 1990, Ekstrand et al 1993), have argued that gay men converted successfully in the earlier years of the Aids pandemic to abandoning (or to protecting) fucking, but that significant minorities have since defected and reverted to unprotected fucking. (Whether this lapsation is occasional, intermittent³⁶ or permanent is still at issue). The "negotiated safety" theorists (Kippax et al 1993, Davies 1992, 1993) by contrast postulate that any such change of risk behaviour is a result of "negotiated safety" ("negotiated danger" to its critics, Ekstrand et al

³⁶ a current focus is upon the elapse time from safer to an incident of unsafe sex (De Wit, JBF and van Griensven, GJP 1994). Median time is 30 months in this study, with shorter lapse-time associated with younger, Positive and popper-using respondents.

1993) i.e. informed decision and setting acceptable limits of risk, often carried out within a relationship. But the SIGMA data (both interview and diary-based) show a far greater prevalence of anal intercourse, and persistence in its practice, than any relapse account would allow, together with a whole set of patterns of lapsation, conversion, re-lapse and re-conversion involving up to four shifts of pattern that are not easily assimilable to the notions of simple relapse or defection, or indeed of prior conversion [Coxon 1994]. Although incidents of occasional or unintentional "relapse" certainly do occur throughout this period, more evident is the consistent and persistent trend for condom use to depend markedly upon the type of partner (casual, regular), and the type of relationship a man is in, which suggests systematic choice and strategy rather than of involuntary lapsation.

The "negotiated safety" account is also subject to questioning about the degree of rational involvement and "cold", explicit negotiation it presupposes by the partners concerned. Whilst this may, and does, occur especially for those in a regular relationship (e.g. when deciding to fuck without condoms) it does not hold for the vast majority of high-risk events that the sexual diaries record. In these contexts it is very often the "3D theory³⁷" that comes closer to describing reality.

The sexual diary data are not extensive enough to enable one to enter this fray, but that is not the main reason why the fray is not joined. The data considered in this book have cast considerable doubt on several pre-suppositions of both accounts:

- the supposed "upward trend" improvement in condom-use (it has been far more intermittent and following a peak in about 1987 it has not yet recovered those levels of protection),
- the extent of the unexceptional use of condoms (even when they claim to use condoms "always", most diary accounts indicate otherwise and they show

³⁷ "It was dark, I was drunk and I didn't have a condom"

conclusively that in these accounts protected condom use is the exception rather than the rule)

Perhaps more important,

- the role of cognitive processes decision, negotiation, consideration, reasoning is over-stressed in both accounts. The non-use of condoms (or, more relevantly, the preferred avoidance of condoms) is often as much a matter of waiting for the partner to object as it is a pre-negotiated condition. Paradoxically, the one group which overwhelmingly exhibits close conformity to the ideal of choice, responsibility and negotiation, and does so in contexts of both justification and of behaviour are those already HIV Positive; the Non-tested group is probably the furthest from the ideal, and the Negative group straddles both.

Current explanations undoubtedly have a partial validity and relevance. Some gay men have committed themselves solemnly only to fuck with condoms, and seek help when a lapse or pattern of lapses occurs; some partners do sit down and work with their partners on a rational calculation of risk or its avoidance -- and some unprotected acts of fucking are hot "just do it" phenomena clear of any reasoning processes. The objection arises when one partial account is claimed to be paramount or when it is supposed that uncorroborated interview (or any other) accounts provide definitive data for establishing one explanation.

Unfortunately, intervention and education efforts directed at gay men's sexual health and protection (and this includes the gay community's own institutions) often seem to prefer convenient fiction to embarrassing fact and treat as unpalatable the protean complexity and challenge of what is actually happening in gay men's sex. But the fun, the exuberance, the passion and the joy of gay sex (and indeed its betrayals, deceptions and exploitations) is as central as the loyalty of partners, the

responsibility of sexual participants and the support of one's fellows in the common commitment to protect ourselves and survive the Aids pandemic.

[19,274 words]

WAVE NUMBER:						f	p
RP*	I	II	III	IV	V		
0	□	□	□	□	□	31	.1483
1	□	□	□	□	■	5	.0239
2	□	□	□	■	□	2	.0096
3	□	□	□	■	■	6	.0287
4	□	□	■	□	□	5	.0239
5	□	□	■	□	■	2	.0096
6	□	□	■	■	□	1	.0048
7	□	□	■	■	■	2	.0096
8	□	■	□	□	□	1	.0048
9	□	■	□	□	■	0	
10	□	■	□	■	□	1	.0048
11	□	■	□	■	■	1	.0048
12	□	■	■	□	□	2	.0096
13	□	■	■	□	■	4	.0191
14	□	■	■	■	□	3	.0144
15	□	■	■	■	■	14	.0670
16	■	□	□	□	□	5	.0239
17	■	□	□	□	■	3	.0144
18	■	□	□	■	□	0	
19	■	□	□	■	■	1	.0048
20	■	□	■	□	□	2	.0096
21	■	□	■	□	■	2	.0096
22	■	□	■	■	□	2	.0096
23	■	□	■	■	■	2	.0096
24	■	■	□	□	□	1	.0048
25	■	■	□	□	■	6	.0287
26	■	■	□	■	□	1	.0048
27	■	■	□	■	■	2	.0096
28	■	■	■	□	□	2	.0096
29	■	■	■	□	■	10	.0478
30	■	■	■	■	□	6	.0287
31	■	■	■	■	■	84	.4019
						n= 209	1.0000
p**	.617	.660	.684	.612	.689		

* Binary response pattern for the five-wave period. □ means that a respondent had not engaged in anal intercourse (had a penetrative sexual partner) in that wave/year; ■ means that that he had.
 ** probability (proportion) having a penetrative sexual partner in the Wave year.

Table 8.1A:
Patterns of change in practice of anal intercourse over 5 Waves (1987-93)

LATENT CLASS		Wave 1		Wave 2		Wave 3		Wave 4		Wave 5	
Class No.	% in Class	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
I	33.9	.791	.209	.918	.082	.795	.205	.821	.179	.722	.278
II	66.1	.173	.827	.043	.957	.070	.930	.166	.834	.100	.900

Table 1B: Two Latent Class Model for 5-wave pattern of engaging in anal intercourse

