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Evaluation of the de-selection of men who have had sex with men from blood donation in England

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Background and Objectives The Blood Services of the UK permanently de-select men who have had sex with men (MSM) from donating blood. The rationale for this has been questioned. This article attempts to evaluate whether this selection criterion does contribute to blood safety.

Materials and Methods Data about transfusion-transmissible infections, in particular about human immunodeficiency virus (HIV) infection, were used to evaluate whether de-selection of MSM meets the aims of donor selection. Models were constructed to estimate the risk of HIV-infectious donations entering the blood supply should this criterion be changed.

Results Many assumptions were required to generate estimates of the risk of HIV infection entering the blood supply. The accuracy of the estimates is therefore uncertain and the probable ranges around the estimates were wide. However, by using the most probable assumptions, our models suggested that de-selection of MSM for 12 months since the last sexual contact, or complete removal of this selection criterion, would be expected to increase the risk of HIV-infectious donations entering the blood supply in England by approximately 60% (from the current risk of 0·45 per year to 0·75 per year) and 500% (to 2·5 per year), respectively. The increase in numbers of non-infected donations would be relatively small – less than 2% of donations. The probability of a relatively high frequency of other sexually transmissible blood-borne infections also currently favours maintaining permanent de-selection of MSM, irrespective of the risk of HIV-infectious donations. Current compliance with this selection criteria was estimated to be 95%.

Conclusions Based on current knowledge, accepting blood donations from MSM would probably increase the risk of transfusion–transmission of HIV and of other blood-borne infections. Good compliance with this criterion has contributed greatly to the safety of blood transfusions in England. Better communication about donor selection, to maintain and improve compliance with this and other selection criteria, is recommended. Other risk groups are gaining in relative importance for the risk of transfusion-transmitted HIV infection, and ongoing evaluation of all donor-selection criteria is also recommended.

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Introduction

The National Blood Services of the UK have, since the early 1980s, asked men who have ever had sex with men (MSM) to not donate blood. At first, this action was motivated by the aim of preventing transmission by transfusion of the

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infectious agent associated with acquired immune-deficiency syndrome (AIDS) [subsequently identified as human immunodeficiency virus (HIV)]. This donor-selection criterion is now worded:

> You must NEVER give blood if you are a man who has had (anal or oral) sex with another man (even safer sex using a protective).

The present article is a review of the current purpose and probable performance of this criterion. Epidemiological data have been reviewed and used to estimate how much the permanent de-selection of MSM reduces the risk of donations that are infectious for HIV entering the blood supply. The estimated reduction is compared to that expected for alternative criteria with respect to MSM, and to that expected for another criterion relating to donors with an increased risk of heterosexually acquired HIV.

Materials and methods

Review of epidemiological data from donors and other sources

Data about the frequency of transfusion-transmissible infections (TTIs) in donors – as identified by donation testing – and about probable routes of infection for these donors was obtained from surveillance systems of the National Blood Service and of the Public Health Laboratory Service Communicable Disease Surveillance Centre (PHLS CDSC) (which conducts follow-up for missing information). The contribution that sex between men has made to the total prevalence and incidence of infections in collected blood donations over the years was determined.

Other data about blood-borne infections were reviewed to determine whether MSM have been shown to be associated with an increased risk of acquiring other sexually transmitted blood-borne infections.

Recent reviews of the current understanding of the risks of oral sex and of sex using a protective were consulted.

Estimation of the risk of HIV-infectious donations entering the blood supply

Estimates of the frequency of HIV-infectious donations entering the blood supply in England have previously been described in full [1]. In brief, these estimates include: calculation of the risk of collecting a donation from someone who has recently been infected and has not yet developed detectable HIV antibodies (anti-HIV), i.e. a window-period donation; and calculation of the risk of an anti-HIV-positive donation not being removed by donation testing owing to the fallibility of laboratory tests (as no test is 100% sensitive) and the probability of an error in the sampling and testing process allowing mistaken release of a positive donation. The risk of the former was calculated from the incidence of infection and the length of the window period (15, i.e. 22 days of a serology-negative window [2] minus 7 days of non-infectivity immediately after infection). The risk of the latter was calculated from the prevalence of infection, the sensitivity of tests in use (99·9%) [3] and the error rate in the testing process (0·5%, based on published estimates of error reported for the USA) [4–6]. The incidence in repeat donors was estimated from observed seroconversions. The incidence in new donors was estimated as that in repeat donors multiplied by 2·29 – an adjustment factor to correct for the increased infection rates in new donors [1]. The probability of infectious donations entering the blood supply was calculated for donations from new donors and for donations from repeat donors separately, and finally combined in the ratio of all donations collected (89% repeat, 11% new).

These calculations of the risk of HIV-infectious donations entering the blood supply from all donors were run for three scenarios:

A. With permanent de-selection of MSM (i.e. current).

B. With a change to accept MSM 12 months after last MSM sexual contact (i.e. 12-months).

C. With a change to accept all MSM (i.e. no de-selection).

Because compliance with the current criterion of permanent de-selection is not complete, and it has been suggested that compliance with a 12-month criterion might be better than it is with permanent de-selection, scenarios A and B were run once with an assumption of currently observed compliance rates and once with an assumption of complete compliance.

Since 1995, all blood centres in England have participated in a system for the surveillance of TTIs run by the PHLS CDSC and the National Blood Service. The prevalence and incidence of HIV in blood donors attending during 1996–98 were calculated from these surveillance data for use in scenario A. The expected prevalence and incidence of HIV, assuming compliance with the MSM criterion was complete, was estimated by excluding anti-HIV positives, with sex between men reported as their probable route of infection from the numbers used for these calculations. For scenarios B and C, estimates of the prevalence and incidence of HIV infection in MSMs and in the whole population of accepted blood donors if MSMs were accepted – only after 12 months, or unconditionally – were made as described below.

Estimation of prevalence of HIV in MSM

The prevalence of undiagnosed HIV infection in MSM who have had sex within the past 12 months (active-MSM) was taken to be that observed in those attending the Unlinked Anonymous testing of Genitourinary Medicine clinic (UAGUM) [7]. The total number of these active-MSM in the population was estimated by combining estimates of the

mid-1999 16–64-year-old male population [8] with the proportion of males reported by the National Survey of Sexual Attitudes and Lifestyles (NATSAL) (in the early 1990s) to have had some homosexual experience involving genital contact during the past year [9]. The number of undiagnosed HIV infections amongst active-MSM was then calculated by applying the prevalence of undiagnosed infections (from UA-GUM data) to the estimated total number of currently active-MSMs.

The number of individuals with prevalent undiagnosed HIV infections (alive at the end of 1998), probably acquired by sex between men, was obtained from published work [10] that used data about subjects with diagnosed infections receiving care, from behavioural surveys and from the unlinked anonymous (UA) programme, and this number was estimated to be 4500 [7].

The number of undiagnosed HIV infections in MSM who had not had sex with men within the past 12 months was then calculated by subtracting the active-MSMs from the total estimate of undiagnosed infections in MSM. Prevalence in this group was calculated using this number and the total number of individuals in this group, which was derived from the proportion of males reported by NATSAL as having had sex with men (but not in the past year) and the mid-1999 population estimate.

The frequency of blood donors amongst males aged 16–64 years was derived from population estimates and the number of registered male donors in this age group (A. Oliver, National Blood Service; personal communication). It was assumed that MSM would become donors (if not de-selected) at the same frequency as 16–64-year-old men who were not MSM.

The numbers of additional anti-HIV-positive donations that would be collected in scenarios B and C were calculated by applying the relevant estimate of HIV prevalence to the number of MSM who would be expected to give blood in those scenarios. These additional HIV-positive donations were added to the number observed by donation testing during 1996–98 to calculate the expected prevalence of HIV amongst all blood donations for each scenario.

Estimation of incidence of HIV in MSM

The incidence of HIV in MSM, but who had not had sex with men within the past 12 months, was assumed to be zero. During 1996–98 there were – despite the donor-selection criteria in place – new HIV infections in donors who were reported as probably infected as a result of sex between men. Scenario B was run once with an observed HIV incidence in donors (i.e. current compliance) and once assuming that the change to a 12-month de-selection would result in complete compliance with the MSM de-selection, and therefore using the incidence in donors as calculated after excluding observed new infections from MSM.

The incidence of HIV infection in MSM who had had sex within the past 12 months was estimated as follows. First, it was assumed that MSM who do not currently give blood, but would if not de-selected, have the same prevalence and incidence of HIV infection as MSM who have given blood (i.e. have not complied with de-selection). The number of MSM who donated during 1996–98 was derived from the prevalence of HIV infection in MSM (from above) and the observed number of HIV-positive donations detected during 1996–98 from MSM. This denominator of MSM current donors was then used (together with an estimate of donation frequency) to give person-years observed, and with the observed number of seroconverting donors who were MSM during 1996–98, to estimate the incidence of HIV amongst MSM who currently donate blood. This incidence was assumed to apply to the population of active-MSM who were expected to donate if not de-selected, and the number of additional seroconversions expected was calculated.

As the values of many parameters used in these prevalence and incidence estimates differed significantly for London compared to locations outside London, the calculations were performed separately for London and locations outside London, and the number of additional HIV infections finally combined to a single figure for use in the national risk calculations.

Meaningful confidence intervals were not available for many of the assumptions and estimates used to calculate the risk estimates. Owing to this, no error bands or probable ranges were constructed for the risk estimates. Previous work has found that the probable ranges around the estimates, when using observed incidence and prevalence, range from approximately 66 to 190% of the point estimate [1]. The probable ranges around the risk estimates for scenarios that incorporate additional assumptions and derived prevalence and incidence, are expected to be wider.

Sensitivity analyses

For most parameters, any variation, or error, in the values used would change the results in a similar direction in all scenarios, and the sensitivity of the estimates to these parameters was not considered. There was one parameter – compliance – for which this was not necessarily true, and there could be variation depending on the scenario. Results for scenarios A and B with current compliance and with 100% compliance were plotted and, by assuming the relationship between risk and compliance was linear within each scenario, the point at which better compliance with B could result in a risk estimate equivalent to that for A was deduced.

Current compliance was calculated by dividing the estimated number of MSM who currently donate by the estimated number of MSM who would donate if not de-selected.

Comparative value of another criterion

For comparison, the HIV-risk calculations were also run for two scenarios that related to another criterion also stated on the Safety of Blood leaflet:

> You should not give blood for a year after sex with anyone, of any race, who has been sexually active in Africa in the past year

The two scenarios are as follows:

D. Permanent de-selection of individuals who have had heterosexual sex in Africa, or with a partner who has been sexually active in Africa, and

E. Complete compliance with current de-selection for 12 months of these individuals.

For these two scenarios, the fall in the number of anti-HIV-positive donations and in the number of seroconversions amongst donors, that would be expected, was taken directly from observed data about anti-HIV-positive donors detected during 1996–98, i.e. the observed number of anti-HIV-positive donations from donors who reported sex in Africa, or with a partner from Africa, as their probable route of infection.

Results

Review of epidemiological data from donors and other sources

The prevalence of anti-HIV in blood donors is very low. Both the number and the proportion of anti-HIV-positive donors, reported as MSM, have fallen over the years (Fig. 1). However, this route of infection still constituted approximately 27% of anti-HIV-positive donations during 1998–2000. Sexual intercourse between men and women has become relatively more important as a route of infection for blood donors, with the majority of infections in recent years falling into this category. Fifteen per cent of heterosexually infected donors probably acquired their infections by sexual contact with someone who had been sexually active in Africa (36 (9%) infections were acquired in Africa and 25 (6%) were acquired in the UK).

The incidence of HIV infection has also been low amongst blood donors. Twenty-seven seroconversions for anti-HIV were observed in repeat donors during 1996–98, resulting in an estimated incidence of 0·54 per 100 000 person-years. Sex between men was reported as the probable route of infection for nine (33%) of these infections, and sex between men and women for 16 (59%) (four (15%) reported sex with a partner in/from Africa).

Other risk factors predominate amongst hepatitis B virus (HBV)- and hepatitis C virus (HCV)-infected donors, as for these infections amongst other population groups: sex between men has been reported to account for < 1% of hepatitis B surface antigen (HBsAg)- or anti-HCV-positive donors.

Review of other data shows that MSM are at higher risk of most infections that can be sexually transmitted – including known TTIs such as herpes simplex virus (HSV) [11], human herpesvirus 8 (HHV8), HBV and hepatitis A virus (HAV) – than heterosexual men and women [12]. There is also evidence that the effects of behavioural modifications (strongly promoted in the 1980s) have not been maintained and that high-risk behaviours, and infection transmission, continues amongst MSM. In a review of trends in sexually transmitted infections (STIs) in the UK between 1990 and 1999, it was found that the diagnosis of many acute STI (including

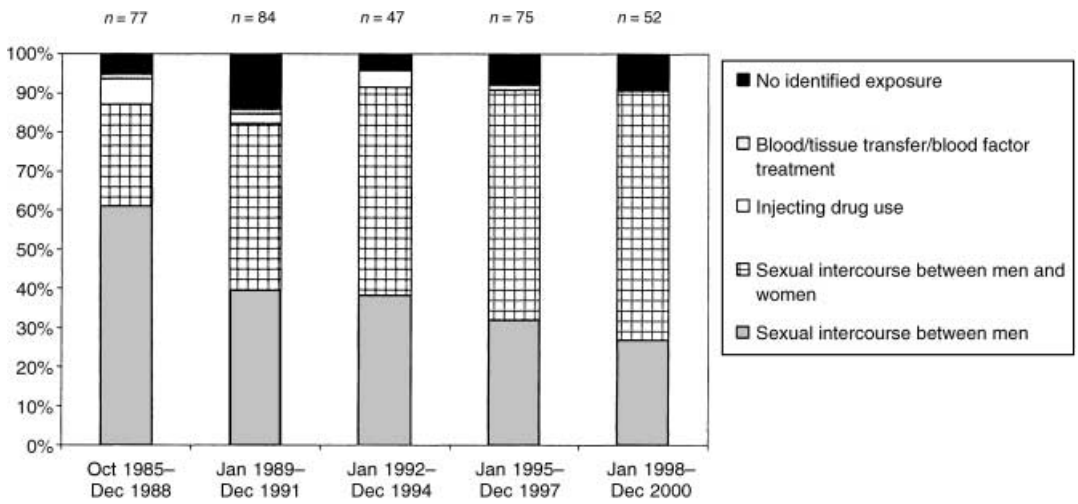

Fig. 1 Probable routes of infection for anti-human immunodeficiency virus (HIV)-positive donors detected in England and Wales. Donations collected from 01/10/85 to 31/12/2000 (in 3-year periods).

Table 1 Estimation of additional human immunodeficiency virus (HIV)-infected donations that would be collected (probably during the first year) if active-MSM and MSM-past were accepted as blood donors

	London	Outside London	England and Wales
Male population 16–64 years old	2 637 895	14 834 197	
Donor panel 16–64 years old	94 923	767 149	
Percentage of male 16–64 population who are donors	3·6%	5·2%	
Percentage and number of males who are active MSM	3·6%	0·7%	
(i.e. have had sex with men in the past 12 months)	95 341	106 065	
Percentage and number of males who are MSM but	4·9%	2·2%	
who have not had sex in the past year (MSM-past)	128 880	321 160	
Prevalence of undiagnosed HIV in active MSM	2·8%	0·5%	
Prevalence of undiagnosed HIV in MSM-past	0·84%	0·07%	
Prevalence of undiagnosed HIV in all MSM	1·67%	0·17%	
Number of undiagnosed HIV-positive active MSM donors, if accepted	96	27	123
Number of undiagnosed HIV-positive MSM past donors, if accepted	39	11	50

MSM, men who have had sex with men.

infectious syphilis, uncomplicated gonorrhoea, genital chlamydial infection and genital warts) has been rising amongst MSM in UK since 1995 [12]. Amongst some groups of MSM, high-risk behaviours appear to be increasing [13].

The Expert Advisory Group on AIDS (EAGA) recently issued the following statement [14]:

> There is a risk of HIV transmission during unprotected oral sex. This risk is less than that from unprotected anal or vaginal sex. The risk of HIV and other STIs can be reduced, but not eliminated, by using a condom for all forms of penetrative sex, including oral sex.

While sex with a protective reduces the risk of infection transmission, condom failures are well documented – both relating to pregnancy and to sexual transmission of infections [15] – and their use is not considered to remove all risk [16].

Prevalence and incidence of HIV in MSM

The parameters and values involved in estimation of the number of additional HIV-infected donations that would be collected if MSM-past and active-MSM were accepted as blood donors, are shown in Table 1.

If we assume that these infected donors would donate during the first year of acceptance as donors, the prevalence of anti-HIV amongst all blood donations would increase from 0·89/100 000 to 2·93 per 100 000 (i.e. a threefold increase) in scenario B, and to 7·94/100 000 (i.e. a ninefold increase) in scenario C.

The parameters and values involved in estimation of the number of additional HIV seroconversions that would be observed amongst donors if MSM were accepted as blood donors, are shown in Table 2.

Estimation of the risk of HIV-infectious donations entering the blood supply

The effect that these expected increases in HIV-positive donations and seroconversions in donors would have on the estimated risk of an infectious donation (from all donors) entering the blood supply is shown in Table 3.

The initial increase in risk in scenarios B and C would be expected to decrease somewhat over time as the newly included donors with prevalent HIV infection were identified and excluded from donating. The component of the increase in risk as a result of increased incidence would be expected to continue.

Sensitivity analysis

If compliance with permanent de-selection (scenario A) were to fall below 90%, the point estimate of the risk of HIV associated with a 12-month de-selection (scenario B) could – if 100% compliance were achieved with this – be equivalent, or lower. Current compliance was estimated as 95% [1 – (1616 ÷ 30 287)]: at this high level of compliance with permanent de-selection, the point estimate of the risk associated with 12-month de-selection was never lower, even at the point of 100% compliance with 12-month de-selection.

Comparative value of another criterion

During 1996–98, 12 anti-HIV-positive donations were collected from donors for whom sex in Africa, or with a partner from Africa (but not in Africa), was reported as their probable route of infection. Four of these seroconverted for anti-HIV between donations. For 50% of these anti-HIV positives, for which a year of exposure was known, the last exposure had

Table 2 Estimation of additional human immunodeficiency virus (HIV) seroconversions that would occur amongst blood donors if active-MSM were accepted as blood donors

	London	Outside London	England and Wales
Number of anti-HIV-positive donations collected per year from MSM (observed 1996–1998)	4·67	2·33	
Number of anti-HIV seroconversions observed in MSM donors per year (nine observed 1996–1998)	2	1	
Number of MSM who donate (assuming the prevalence of undiagnosed HIV given in Table 1)[a]	279	1337	
Percentage of male 16–64-year-old donors	0·29%	0·17%	
Observed incidence[b] of HIV in MSM donors (% per year)	0·83%	0·09%	
Expected additional seroconverters per year if active-MSM were accepted	25	4	29

[a]The prevalence of undiagnosed anti-HIV in MSM divided by the number of anti-HIV-positive MSM donors, i.e. 0·0167 ÷ 4·67.
[b]Approximately one donation every 0·8 years is used to estimate person-years at risk.
MSM, men who have had sex with men.

Table 3 Estimated risk of human immunodeficiency virus (HIV) infectious donations being released into the blood supply

Scenario	One infectious donation per X million issued	Infectious donations issued per year	Percentage of baseline risk	Percentage change in donors
Baseline:				
A. Current MSM criterion	5·3	0·45	100%	–
Changes to MSM de-selection:				
Current with complete compliance	7·9	0·30	67%	–0·09%
B. De-selection of active-MSM[a] with current compliance	3·2	0·75	166%	+1·17%
De-selection of active-MSM with complete compliance	4·5	0·53	118%	
C. No de-selection of MSM	0·95	2·5	558%	+1·66%
Changes to Hetero-SA[b] de-selection:				
D. Hetero-SA-permanent de-selection	6·5	0·37	82%	Not known
E. Hetero-SA-current with complete compliance	7·4	0·32	71%	Not known

[a]Active-MSM, MSM within the past 12 months.
[b]Hetero-SA, individuals who have had heterosexual contact with the high HIV endemicity of sub-Saharan Africa.
MSM, men who have had sex with men.

been within the 12 months prior to their anti-HIV-positive donation. The results of excluding these donors from the data entering the risk model are also shown in Table 3.

Discussion

Aims of donor selection

At first, the criteria used to select blood donors were specifically aimed to select donors at a low risk of HIV infection. More recently, particularly since experience with HCV [16,17], the aim has been to select blood donors who are at low risk of all TTIs, including both TTIs for which blood is tested and TTIs for which blood is not currently tested.

Testing of blood donations does not entirely remove the risk of infectious donations entering the blood supply, or even remove it sufficiently for donor-selection criteria, related to these infections, to be unimportant. As long as there are marker-negative windows during infection, and the testing process is fallible and does not address all infections that may harm recipients, both the incidence and the prevalence of blood-borne infections in blood donors remain important. It may be that infections which are not currently tested for – some currently unknown – are those that pose

the most danger to blood recipients. Individuals exposed to an increased risk of acquiring known blood-borne infections are expected – in the absence of direct information – to have relatively high prevalence and incidence of unknown blood-borne infections and therefore are asked to not give blood. De-selection for 12 months aims to avoid donation during the early stages of infections when blood-borne infectivity is more common, and to avoid donations from individuals with frequent exposures. Maintaining an adequate blood supply (of all blood groups) is also an aim, and this means that permanent de-selection of some behavioural groups (or ethnic groups) is not feasible. Finally, criteria aim to be clear and specific, and so be easy to use without requiring detailed recall or discussion. Further review of particular individuals' circumstances may follow if space and time permits.

The balance of these sometimes conflicting aims is dynamic and can change within the UK over time and between different countries.

Estimates of the probability of HIV-infectious donations from MSM entering the blood supply

Risk estimates, of the type used here, are increasingly being used to monitor blood safety and evaluate new strategies for reducing the risk of TTIs [18–20]. The assumptions used were considered the most probable given current knowledge, but there is uncertainty in a number of the assumptions used. For example, we assumed that GUM attenders are representative of 'active-MSM'. It seems probable that GUM attenders would be of higher risk than non-attenders and the prevalence in active-MSM may therefore have been overestimated. However, it has been estimated that a high proportion – 42% – of gay men (recruited at gay venues) in London had attended a GUM clinic during the past year (J. Dodds, personal communication). The same study reported a prevalence (of 3·7%) of undiagnosed HIV amongst MSM who had not attended a GUM clinic – higher than the 2·8% observed in the unlinked anonymous GUM sample from London and used in the present study as the active-MSM prevalence. If prevalence in this group was overestimated, then prevalence in the MSM-past will, by subtraction, have been underestimated (assuming that the estimate of total undiagnosed infections in MSM was correct).

Our assumption, that MSM who currently donate are at equal risk of HIV infection as MSM who do not currently donate, may mean that we have underestimated the HIV incidence amongst all MSM who would donate if accepted (and therefore underestimated the increased risk associated with that scenario). A study of UA samples from MSM attending GUM clinics (assumed to represent active MSM) estimated the incidence of HIV infection to be considerably higher: 3·8% in London and 2·1% outside London [21].

Although not calculated, it is certain that the probable ranges around the estimates were wide compared with the differences between the scenarios. The point estimates should not be over-interpreted, or considered to be precise quantifications of risk. However, inaccuracies in the parameters used would not – in most cases – affect the relative advantage of the evaluated scenarios.

Compliance

A US study that asked donors – after donation – to complete a confidential questionnaire about their risk behaviours found that 0·57% of male donors reported sex between men, which should have excluded them from donating blood [22]. Our calculated estimate that 0·19% of current male donors are MSM is broadly consistent with, but slightly lower than, the US observation, suggesting either better compliance with donor selection in the UK or a higher prevalence of sex between men in the USA.

We do not know whether compliance would improve or worsen if the criterion was changed. However, we found that no possible improvement in compliance could compensate for the expected increased frequency of HIV infection in donors if the MSM criterion was changed.

Prevention of other TTIs

The risk of as-yet unidentified infections justifies the use of generic measures to limit the risk of infection to which recipients are exposed: these include measures to avoid unnecessary transfusion; the avoidance of donation pooling (i.e. minimizing the number of donors to which a recipient is exposed); the recruitment of non-remunerated donors; and the de-selection of donors believed to be at increased risk of blood-borne infections.

MSM were found to be at increased risk of most STIs. The blood-borne viral infections that pose the greatest danger to blood recipients have long, asymptomatic, infectious (via blood) periods before they cause disease in their host. These characteristics tend to be selected for in organisms that are transmitted sexually.

Comparison with other selection criteria

The criterion relating to heterosexual sex with partners from countries with a high HIV prevalence (simplified here to countries of sub-Saharan Africa) primarily aims to avoid the collection of donations during the early marker-negative period of HIV infection. There are few data that allow direct comparison of the frequency of HIV infection in these individuals and in MSM. The prevalence of undiagnosed HIV infection amongst heterosexuals, born in sub-Saharan Africa, attending GUM clinics in England, Wales and Northern

Ireland during 1998–99, has been estimated as around 1·7% in London, compared with 2·8% in MSM. Our HIV estimates suggest that there would be reduction to the baseline risk of HIV if these donors were de-selected permanently. With respect to other infections, there are insufficient data to demonstrate that heterosexual sex in Africa, or with a partner from Africa, is a significant risk factor for STIs in the UK, in general. A study of GUM clinic patients found that the incidence of gonorrhoea in 1996 was 812 per 100 000 in homosexual males, 467 per 100 000 in black Caribbeans, 235 per 100 000 in black Africans and 22 per 100 000 in white people [23], and concluded that homo/bisexual men and the black-Caribbean population in England experience a disproportionate burden of gonococcal infections. Other studies have also identified the Caribbean population in London to be at a higher risk of STIs [24]. Although potentially important for future improvements to donor selection, these observations about geographical variations in STI risk amongst heterosexuals are neither as strong, or as consistent, as for MSM. Permanent de-selection of groups of donors by geography effectively de-selects some ethnic groups. Several blood groups (Ro, Fy(a- b-) and S- s- U-) are very rare amongst Caucasians and Asians, but common amongst Black ethnic groups, and are needed to provide transfusion for patients with these blood groups. There is currently little margin between collection of and demand for several rare blood groups, and a decrease in the numbers of Black-African donors would threaten the supply of these components. Donor selection must consider this as well as the risk of HIV or other infections.

Avoidance of accepting donations from donors with heterosexually acquired infections is harder than from MSM because individuals do not always know their partners' risk factors, and so full compliance is not possible. This goes some way to explaining the rise in the relative frequency of donations from heterosexually HIV-infected individuals over the years.

Conclusion

To the best of our knowledge there is currently more benefit to patients from reducing the numbers of HIV-positive MSM men who give blood, than from increasing the numbers of HIV-negative MSM men who may give blood.

Permanent de-selection of groups known to be at high risk of blood-borne infections – currently MSM, intravenous drug users (IDUs) and commercial sex workers – is expected to improve the safety of blood with regard to other infections. This effect has not been estimated, but remains important, irrespective of the risk of HIV infection.

Relaxing this criterion to a 12-month de-selection, or to no de-selection, is expected to increase the risk of HIV transmission by transfusion by approximately 60% and 500%, respectively, – at least in the first year. This would be the cost of an increase in donor numbers of less than 2%. Uncertainty in the assumptions used for these HIV estimates means that a wide range of outcomes cannot be definitely excluded. However, the likelihood of a benefit from a 12-month deferral appears to be very low. Better compliance on its own, without moving to 12-month de-selection, would certainly be more beneficial.

The current MSM criterion is estimated to improve the HIV-related safety of blood by preventing the release of one HIV-infectious blood donation every 3 years when compared to 12-month de-selection, or one HIV-infectious donation every 6 months when compared to no de-selection. The excellent compliance of most MSM with this selection criterion over the past two decades has undoubtedly prevented many transmissions of HIV by blood transfusion in England.

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