MSM Donor Deferral Risk Assessment: An Analysis using Risk Management Principles

A Report for Canadian Blood Services

by

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As of January 31, 2007

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1. Executive Summary

This report discusses issues associated with the lifetime deferral from donating blood of males who have sex with males (MSM), in the context of well-established risk management principles, including ethical considerations associated with the risk-based approach to social policy matters. Specifically, the report deals with the questions about the rationale for the existing policy in Canada of lifetime deferral for MSM, a rationale applied in practice by blood-collection agencies and supported by the regulatory authority of Health Canada.

The risk management principles and procedures that are identified in Section 2 of this paper include, for example: evidence-based risk assessment; risk estimation; specification of uncertainties; risk tolerance and risk acceptability; precaution; and various types of trade-offs. The ethical principles include, for example, equity, justice, and beneficence. Two overriding principles are drawn from this review, which serve as the basis for judging the appropriateness of policy options in the area of blood safety:

1. The primary basis for donor deferral rests on the assessment and estimation of the various types of risks to health associated with donated blood;

2. Any changes to existing policies on donor deferral must result in an improved or equivalent level of safety by comparison to what now exists.

We suggest that a policy change that satisfies these two principles, taken together, may be said to "pass the risk hurdle."

The report includes, by way of background discussion, a review of established donor screening procedures; an account of the issues that have been raised in ongoing discussions, in Canada and elsewhere, about MSM deferral policy; and the latest statistics on the incidence and prevalence in Canada of the major infectious disease of concern (HIV/AIDS). It then identifies a number of alternative time-frames for MSM deferral: sexual abstinence over either a 10-year, 5-year, or 1-year period, or no deferral. Two options are selected for more complete discussion, namely, abstinence for a period of either 1 year or 5 years prior to donation.

The available evidence about estimated residual risk – that is, the risk remaining after various safeguards for blood are applied – strongly suggests that choosing a 1-year deferral period for MSM would almost certainly give rise to an incremental risk of transfusion-transmitted infection, over existing levels of risk, for blood recipients. The report argues that, under these circumstances, such a policy change would represent an unethical type of risk transfer, from one social group to another, and therefore would be unacceptable.

The evidence is less clear when it comes to a change to either a 10-year or 5-year deferral period. This is the case in part because the current level of residual risk

is so low that there are, inevitably, substantial ranges of uncertainties associated with the risk estimation. In other words, there is no firm evidence that such a change in the deferral period for MSM would result in an incremental level of risk, although the possibility of a small increase in risk cannot be entirely ruled out. Under these circumstances, other social policy issues, relevant to the idea of changing the deferral period for MSM, become worthy of additional consideration. These issues are discussed at length in Section 10 (Option II) of the report.

The final section of the report reviews and summarizes the main lines of argument in the foregoing pages. Two appendices at the end provide a further discussion of risk estimation and the scientific justification for donor deferral policy.

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Acronyms:
MSM: males who have sex with males
HIV: human immunodeficiency virus
HBV: hepatitis B virus
HCV: hepatitis C virus
HTLV: human T-lymphotrophic virus
vCJD: variant Creuzfeldt-Jakob disease
NAT: nucleic acid testing
ELISA: enzyme-linked immunosorbant assay
UDR: unreported deferrable risk

2. Introduction and Scope

2A: Deferrals, Testing, and Residual Risk.

Speaking at a U.S. Food and Drug Administration workshop on "Behavior-Based Donor Deferrals in the NAT Era," on 8 March 2006, Jay Epstein, FDA's Director of the Office of Blood Research and Review, stated: "In fact, our current risks are now so low that they cannot be measured directly and, hence, we rely on models to estimate the current residual risk, that is to say the risk after all the safeguards have been followed."

The safeguards referred to are the combination of risk-based donor deferrals and testing of donated blood before use. In this context, Epstein went on to say, "the question has arisen whether testing has become so effective that some risk-based deferrals no longer provide a significant added safety value." He concluded:

> "That said, the public discussion of the scientific basis for the use of behavior-based donor deferral criteria to prevent transfusion-transmitted infectious diseases is our primary charge [at this meeting], and to consider whether the blood safety advancements from introduction of nucleic acid based tests, NAT, or other methods would permit changes to these deferrals without compromise to blood safety."

At the same conference, the FDA's Alan Williams reiterated one of the agency's fundamental principles for the blood safety regime: "Ensure that any *changes* in existing policy result in improved or equivalent safety."[1]

Although the blood system uses a suite of behavioural criteria in its deferral program, one criterion in particular has been, for some time now, a source of protest and controversy. This is "MSM," men having sex with men, and the lifetime deferral that is imposed, for even one instance of such activity for the entire period since 1977. Although blood safety regulators in Canada, the U.S., and Europe have not announced any plan to change MSM donor deferral policy, there are ongoing discussions about this issue, involving many professionals and stakeholders, at present. In this context Canadian Blood Services has asked the McLaughlin Centre for Population Health Risk Assessment, University of Ottawa to review and report on the issues associated with MSM donor deferral.

Through a combination of donor selection, screening, and testing, the blood system seeks to reduce the risk of an infectious unit being transmitted to a recipient to the lowest achievable level (ALARA). The donor-screening process has been

[1] FDA Workshop, pp. 13, 17, 19, 29.

described as "the first line of defence" in this process. This concept is further elaborated as follows:[2]

> "Current laboratory tests used to test for HIV, HBV and HCV on collected blood are highly sensitive and can detect a unit as being potentially infectious for both prevalent infections and shortly after acquisition of infection. However, a small risk of undetected infectivity remains. Furthermore, there is a concern about unknown pathogens that may be transmitted in a similar way to that of known pathogens. It is prudent therefore to continue to select donors for donation through application of criteria that reduce the chance of infectious blood being collected."

Thus it is the "risk of undetected infectivity," as well as an associated suite of other types of health risks (such as the presence of residues of specific prescription drugs in donated blood), which the donor screening and deferral programs seek to control.

It should also be noted that for some risks the donor screening process is the only line of defence. For example, although it is now established that the infectious agent implicated in vCJD (prions) can be transmitted in blood, there is as yet no test for this agent. Thus in some cases the blood system relies completely on the accuracy and truthfulness of the donor responses in the screening process.

2B: Unreported Deferrable Risks, Testing Error Rates, and Residual Risk.

A number of challenges to the efficacy of the donor screening process have been identified. Perhaps the most important is unreported deferrable risks (UDRs):

> "In 1998, an anonymous survey was mailed to 92,581 allogeneic blood donors from 8 centres [in the U.S.]. Overall, the level of unreported deferrable risk (risk that if reported at the time of donation would have resulted in deferral) was about 3.0%."[3]

Data from the REDS study indicated that among male blood donors in the sample (25,000 in all), 1.2% acknowledged MSM activity since 1977.[4]

Another challenge includes the ongoing question of the extent to which donors do actually read and understand the screening materials, and whether new

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[2] King *et al.* (2002), p. 189.

[3] S. Glynn (2001), in Chiavetta *et al.* (2003), "Proceedings," p. 9; data is from REDS, the Retrovirus Epidemiology Donor Study. Damesyn *et al.* (2003) state that donors under 25 "were significantly more likely to report a UDR" than those over age 25.

[4] Sanchez *et al.* (2005).

forms of information presentation (in addition to standard written formats) could be beneficial, especially for young people.[5] A related study compared the performance of the standard Donor Health Assessment Questionnaire (DHAQ) with an experimental alternative, using a computerized hand-held tool (HQ), concluding that a "computerized questionnaire may improve the efficiency of the donor screening process."[6]

Rugege-Hakiza *et al.* (2003, p. 1082) concluded that, despite these challenges, "the current screening process is actually very effective." And, of course, it is backed up by the current array of testing procedures.

At the March 2006 FDA Workshop, Michael P. Busch gave an extended presentation on "Window Periods, Errors and Transfusion Risks in the NAT Era." Referring to two viruses of special concern (HIV and HCV), and the two types of tests now used (antibody or ELISA and NAT), Busch calculated the risk that positive units could evade detection:[7]

> "You would need to have two errors. You would need to have both tests fail. You would need to have a false-negative antibody error as well as a NAT error simultaneously on a prevalent infection that we are screening by both systems. When you multiply the prevalence rate of infected donations times each of these errors, you are down in the 0.06 per billion rate that you would have dual errors on prevalent units. Finally, you would have an isolated NAT error on a low-level viremic unit and, again, that is in the one in a billion range.
>
> "You could then sum all these error relationships up and you are down in the range of 3 per billion for HCV and 0.1 per billion for HIV. So, the probability that errors in routine screening will result in release of a unit in our analysis is so remote as to be inconsequential.... So, from our analysis we believe that errors are really minimally contributing to risk..."

The risk that, despite the application of various safeguards, an infectious unit will escape undetected into the blood supply is known as residual risk.

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[5] Rugege-Hakiza *et al.* (2003).

[6] Sellors *et al.* (2002), p. 7.

[7] FDA Workshop, pp. 224-6, and PP slide presentation, slides 34-42. For other estimates on testing and window-period error rates, in relation to residual risk, see O'Brien *et al.* (in press), Busch *et al.* (2005), Soldan *et al.* (2005), Chiavetta *et al.* (2003), and Dodd *et al.* (2002), discussed below on pp. 45-46 and Appendix I.

2C: Current Residual Risk (RR) in Canada.

Canadian Blood Services has estimated residual risk by using what is called the "classical incidence/window-period method."[8] The most recent published data is:

> "The current [residual] risk of transfusion-transmitted infection attributable to repeat donors is extremely low, with an estimated per-unit risk of 1 in 10 million for HIV, 1 in 3 million for HCV, 1 in 72 000 for HBV and 1 in 1.1 million for HTLV." [9]

A new study, in press at the time of writing, provides the following estimates for RR (data for the period 2001-2005): HIV, 1 in 7.8 million; HCV, 1 in 2.3 million; HBV, 1 in 153,000.[10]

* * *

This report covers the following aspects of the issues associated with MSM deferral policies:

- Risk profile of MSM donors, with specific attention to infectious diseases risks;
- Risk profile of current testing practices and quarantine and inventory practices (including possible changes to these practices);
- Employee health and safety risks;
- Risk management strategies for dealing with these issues;
- Analysis of deferral as a risk management option;
- Legal and ethical issues in risk management, including deferral;
- Public perception of blood safety risks vis-à-vis MSM donors;
- Acceptability of blood safety risks within a Canadian risk management context;
- Communication to the public, to consumers, and to donors on this issue.

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[8] O'Brien *et al.* (in press), p. 3: "This classical incidence/window-period model for estimating residual risk assumed that the incidence of new infections in repeat donations was representative of that in all donations and that the date of infection of each seroconverting donor was at the midpoint of the interval between the last seronegative donation and the seropositive donation." Residual risk may also be calculated after NAT is performed. The O'Brien paper contains a discussion and comparison of two different methods for estimating residual risk, and notes that for HIV the risk is roughly comparable using both methods.

[9] Chiavetta *et al.* (2003), "Incidence," p. 772 and online eTable. In addition to HIV, references are to Hepatitis C (HCV), Hepatitis B (HBV), and Human T-Lymphotropic Virus (HTLV).

[10] O'Brien *et al.* (in press), Table 2.

3. Risk Management Principles

A. Evidence-based Risk Assessment and Risk Estimation.

Risk management begins with the evidence of a hazard and then proceeds to estimate risk, which is an attempt to predict the degree of a health risk resulting from exposure to that hazard.[11] These two fundamental aspects of risk management (evidence and estimation) are equally important. Plausible evidence that a hazardous factor, such as virus, can cause an adverse effect on health is the original basis for every further step in the risk management process.

On the other hand, the extent to which those adverse effects will actually manifest themselves, for example in a human population, under specific types and conditions of exposure, cannot be definitively characterized until after the effects have begun to be observed. At that point, risk estimation is used to anticipate and predict the likely range of effects, using a variety of assumptions (such as dose-response rates), so that pro-active risk control measures may be put into place:

> "Done well, risk management is inherently precautionary, in the sense that it should make use of effective risk assessment to predict, anticipate, and prevent harm, rather than merely reacting when harm arises."[12]

Especially where low-level risks are concerned, evaluation of the evidence base in the process of instituting precautionary risk control measures always presents difficult challenges for risk management.

A recent U.S. government document, which proposes to issue technical guidance for the formulation of risk assessments, states:

> "Every risk assessment should provide a characterization of risk, qualitatively and, whenever possible, quantitatively. When a quantitative characterization of risk is provided, a range of plausible risk estimates should be provided. Expressing multiple estimates of risk (and the limitations associated with these estimates) is necessary in order to convey the precision associated with these estimates."[13]

B. Specification of Uncertainties.

A famous definition of risk, formulated by the economist Frank Knight in 1921, refers to risk as "measurable uncertainty."[14]

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[11] McColl (2000), p. 5-1.
[12] Hrudey and Leiss (2003), p. 1577.
[13] US – OMB (2006), p. 13.
[14] http://en.wikipedia.org/wiki/Uncertainty

In 1994 the U.S. National Research Council issued the first in a series of reports emphasizing the importance of specifying the uncertainties in risk assessments.[15] This theme was reiterated two years later, in another report which introduced the consideration of important associated dimensions of the issue of uncertainty while reiterating its main theme: "Uncertainty is a critical dimension in the characterization of risk."[16]

The first new element has to do with the need to specify the full scope of types of uncertainties that are pertinent to a particular risk management problem:[17]

> "Because risk characterization requires providing information about the full set of factors of concern to the interested parties, it must address uncertainty not only about the physical and biological impacts of the risk, but also about the social and political factors inherent to the risk. If social or equity factors matter significantly to the decision, then they deserve at least as careful attention in an uncertainty analysis as do the technical factors, chemical transport properties, dose-response parameters, and so forth."

It is clear that this directive is applicable to something like the management of blood safety.

The second is equally important, especially in contexts where members of the public, and stakeholder groups, need to be intensively involved in risk management decisions. It is derived from the fact that uncertainties are one of the things that worry people most, when they are thinking about risks to health. Therefore, it is advisable to go beyond the quantitative and qualitative representation of existing levels of uncertainty and to discuss how those levels may be reduced, if possible:[18]

> "As part of the analysis of uncertainty, explicit efforts should be made to identify the activities and resource allocations most likely to yield significant reductions in the uncertainties that matter.... Value-of-information methods address whether potential reductions in uncertainty would make a difference in the decision; they suggest priorities among reducible uncertainties on the basis of how much difference the expected reductions might make."

[15] US – NRC (1994), chapter 9.
[16] US – NRC (1996), p. 116.
[17] US – NRC (1996), p. 109.
[18] US – NRC (1996), p. 110.

C. Risk Tolerance (Acceptable Risk), especially in Involuntary Risk.

1. Risk acceptability in Canada.

Tyshenko and Krewski argue that the "concept of acceptable risk is tightly linked to perceived risk." Most people use their own reflections on, and intuitive feelings about, their daily experiences to array the risks they perceive into hierarchies of escalating concern:

> "The experiential system is intuitive, quick and largely inaccessible to conscious awareness, relying on images and associations linked by experience, emotion and affect (in cognitive science 'affect' is used to mean the conscious subjective aspect of feeling or emotion)."[19]

Risk acceptability – also sometimes referred to as risk tolerance – is also influenced by whether the risk is considered to be a result of "voluntary choice" (smoking) or is involuntarily imposed – and, within the latter category, whether it is a matter of a natural or human-caused hazard (a device). It should occasion no surprise to learn that people have a much higher tolerance for voluntary risk, and, within involuntary risks, for natural as opposed to man-made catastrophes.

There is a good deal of variation in people's response to the more analytical constructions of risk, including quantitative estimates of probabilities and consequences. In general, it appears that, at least for so-called "familiar" voluntary risks, the evidence-based risk characterizations slowly "sink in" over time – e.g., the widespread recognition of excess risk associated with drinking and driving, smoking, and alcohol risk during pregnancy.

2. Blood recipients as bearers of involuntary risk.

Those who must receive blood or blood products for reasons of medical necessity are bearers of an involuntary risk, with respect to blood safety. And even at the best of times, there is very low public tolerance for involuntary risks of any kind that result from human acts, including policy choices. In a sense, there is almost no lower limit to the "appetite" for risk, or risk tolerance, in this domain, for the public as a whole.[20] (There are always distributions of risk tolerance in populations; in general, for example, women are more risk-averse than men.) For most members of the public, the formulation beloved of experts, *de minimus* risk, simply does not apply, where involuntary risk is concerned. And, if one puts a (very low) number on the risk, it will soon become apparent that no number is low enough.

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[19] Tyshenko & Krewski 2005, pp. 38, 5.

[20] "Appetite" for risk and risk tolerance is language used by the U. K. government in "Risk" (2002).

This absence of a lower threshold for risk acceptability, in matters of involuntary risks, presents many challenges for risk managers. One of the most serious of them is simply trying to conduct a reasoned conversation about very low risks, which are also always in the form of risk estimations. The risk number (or range) itself, combined with both uncertainty ranges and levels of confidence, and all the complicated statistical manipulation that accompanies those expression, are extremely difficult to communicate.

So far as blood safety is concerned, the (very) good news is that tremendous advances in risk reduction have been made in the past 20 years. The bad news, in a sense, is that the residual risks are now so low that they can only be expressed as complex estimations. At very low levels the uncertainty ranges can be very broad, so that meaningful comparisons between small changes, one way or another, are difficult to make.

At least some aspects of the policy choices relating to MSM donor deferral are in that zone of risk estimation where it is difficult to say whether or not a change in policy would produce a meaningful, measurable change in residual risk.

3. *Risk Tolerance and the "set-point" for risk acceptability.*

In his book, *Target Risk*, Gerald Wilde developed the notion of "risk homeostasis," which is the idea that most people have a "set-point" for risk tolerance that operates very much like a thermostat does. In other words, over time, we try to adjust our exposure to risk so that it falls within certain parameters where we are "comfortable" with the degree of risk we are experiencing. The set-point is another way of expressing the "appetite" for risk which each of us has at any time. The set-point can change over the lifetime of a person – most famously, young males have on average a higher tolerance for risk than do both older males and all females.

Quite obviously, the average set-point for a particular risk, in a population or social group, may change as a result of experiences, especially those which are associated with dramatic (frightening) results. For example, the risk tolerance for civilian nuclear energy changed considerably after the high-profile incidents at Three Mile Island and Chernobyl.

The same is true for donated blood, especially for the groups made up of those who depend on regular transfusions, or blood products. The catastrophic events of the early 1980s, involving large numbers of illnesses and deaths caused by transfusions of infected blood, undoubtedly altered the set-point, or level of risk tolerance, for these groups, and also for society as a whole. Since that time, both society and special groups have become highly sensitized to the issue of blood safety. In other words, there is virtually zero tolerance for

any change to the policies regulating blood safety that would increase, in however small an increment, the risk of transfusion-transmitted infection.

D. ALARA, or "Continuous Improvement."

ALARA – **A**s **L**ow **a**s **R**easonably **A**chievable – is a risk management principle that has been applied most extensively with respect to radiation risk, although it has many wider applications as well.[21] In a practical sense, it is virtually coterminous with the management principle of continuous improvement. (It is important to recognize, of course, that almost every innovation in risk reduction has some economic cost, and so the principle of relative cost-effectiveness also applies.)

Continuous improvement is in the first instance a desirable managerial mind-set for risk managers, but especially for those who manage "public" risks of a highly sensitive kind. Drinking water safety suggests itself immediately, as does blood safety. The mind-set is one of a willingness to go beyond compliance with regulatory standards and continue to search for innovations for additional safety that can be implemented at low cost.

One other point is important here, however. Managers of public risks usually deal with situations where there are multiple sources of risk, and both drinking water and blood donations illustrate this situation well. To some extent, the multiple risks compete with each other for attention and resources. Thus the calculation of relative cost-benefit and cost-effectiveness for incremental steps in risk reduction, when it has to be arrayed across many different risk factors, is not a simple one. Especially where the threat of new and emerging pathogens is concerned, a delicate balance in the allocation of risk control resources is essential.

Thus where a multiplicity of risk factors are being managed simultaneously, it is important to note that the ALARA principle applies in the first instance to the entire set, taken as a whole, and not to its individual members.

E. Precaution.

As mentioned above, a precautionary approach is inherent in, and integral to, risk management itself. In a sense, it is a response to one of the major types of uncertainty, namely, that which results from incomplete knowledge. More precisely, precaution addresses a certain "zone" within the characterization of a risk where one is unsure about both the efficiency and the efficacy of expending a known amount of resources to achieve a hypothetical increment of risk reduction – without having a guarantee, at the time, that the expenditure is either necessary or sufficient.

[21] E.g., Health Canada (1998); APEGGA (2006), p. 23.

There has been a great deal of discussion about precaution in the preceding decades, and during that time many federal authorities, including Canada, have formally incorporated explicit references to a precautionary approach into their risk management strategies. Of course, the basic idea has been around for much longer. For example, an editorial in the *American Journal of Public Health*, May 1984, stated:

> "The incomplete state of our knowledge must not serve as an excuse for failure to take prudent action. Public health has never clung to a principle that complete knowledge about a potential health hazard is a prerequisite for action."[22]

The widespread acceptance of precaution at present, however, has given rise to yet another set of challenges. Simply accepting the view that precaution is an inherent part of good risk management practice is not enough, because the first question is: *How* precautionary should we be in a particular case?

There are all-too-many documented instances of insufficient precaution in earlier times.[23] However, it is less well understood that it is also possible to be unwisely and excessively precautionary:

> "Below a certain low level of hazard frequency, we simply cannot have a reliable idea of whether what we fear is actually there or not, unless we have resources and knowledge to pursue a series of increasingly effective sequential tests to provide meaningful evidence on extremely small risks.... [T]he wisest course of action is to avoid trying to be more precautionary than our knowledge enables us to be."[24]

Later in this paper we shall have occasion to apply this principle to the issue of blood safety.

F. Equity

Equity is of course an ethical principle, but it is also a specific concern within the domain of risk management itself. There are two aspects in this regard.

1. *Distribution of risk and excess risk.*
   Often, risks are distributed in a population "accidentally," as it were, either by random occurrences (such as many natural hazards) or by inherent differences, such as genetic variation. But they may also be either an indirect

[22] Quoted in Krever, vol. I, p. 295.

[23] There are 14 extended case studies in Harremoës *et al.* (2002) – and, of course, one could add the case of infected blood donations from the 1980s.

[24] Hrudey and Leiss (2003), p. 1581.

or direct result of policy choices. Facilities siting, such as for hazardous waste treatment, is an obvious case: those living in the vicinity bear some amount of excess risk, by comparison with the rest of the population, unless offsetting risk reduction measures were to be implemented (which is rare: where an offset is made, it is usually in the form of compensation). Occupational risk is also a policy area where excess risk is assumed to be tolerable.

In general, risk management decisions are always more difficult in those cases where risks are unevenly distributed in a population, and where the risks in question are involuntary. At present, there is increasing recognition of an obligation, in such cases, to give special consideration, in terms of stakeholder relations, to those who bear excess risk. Clearly, blood safety is one of those cases.

2. *Risk transfers.*

Where there are different or competing interests within the framework of a risk management situation, it is advisable to take note of the possibility that either intended or unintended risk transfers may occur. For example, parents who smoke in the home and car are transferring some health risks (including the higher probability of a child becoming a smoker) to their children.

Policy choices may – either directly or indirectly – also transfer a measure of risk from one group to another. For example, the choice to recruit members of the armed forces through volunteers, rather than a universal compulsory draft, will transfer risk from higher-income to lower-income social groups.

Both of these examples show that risk transfers often raise very important ethical issues. In the case of blood safety, it is evident that not all of the interests of donors, for example, are consistent with the interests of blood recipients. (The clearest illustration is the case where a person who suspects that he or she may be HIV-positive seeks to donate blood as a way to be tested for the disease.)

Especially in highly sensitive areas of risk management, such as blood safety, policy issues must always be examined carefully in terms of their potential implications for risk transfers.

G. <u>Trade-offs.</u>

1. *Risk-Benefit.*

There are many, many instances in which it is highly advantageous, for both individuals and groups, to assume an incremental risk in return for increased benefit where benefits clearly outweigh risks (net benefit). For example, the risk of being trapped, by a seatbelt which cannot be disengaged, in a burning automobile following an accident, is outweighed by a large margin by the benefits of seatbelt use. Likewise in the case of airbag deployment, where the

risk of injury from the airbag itself is outweighed (in most cases) by the benefits to safety in serious accidents.

Risk-benefit trade-offs are relatively easy to calculate where it is the same group or individual involved; when this is not the case, it may be a matter of unfair risk transfer. (This issue, where for example the hypothetical benefit were to be attributed to the MSM group previously unable to donate, is discussed below, Section 10, Option I.)

Risk-benefit trade-offs have been discussed, in the case of blood safety, most recently as a result of the Germain (2003) study, which concluded that the trade-off between benefit (increased donations) and excess risk (in accepting MSM donors abstinent one year) was not advantageous.[25] However, it is questionable whether this type of issue should be put in risk-benefit terms: Is there *any* level of benefit that would justify the increased risk of infection? Is it not preferable to assume that Canadians would respond to any emergency involving an imminent blood shortage by mobilizing to increase low-risk donations? This issue should be more properly framed as one of a risk-risk trade-off (see below).[26]

2. *Risk-Risk (Relative Risk).*

The trade-off discussed in Germain (2003) could also be arrayed instead as one in which two equally serious risks have to be balanced against each other – an estimated increase in transfusion-transmitted infectious disease risk, on the one hand, versus the potential risk of inadequate supplies of blood, on the other. When one arrays the issue in this way, one can see immediately what the initial policy response would be: namely, one would first try to "manage" this set of relative risks by comparing the likelihood of reducing the second of the two risks by considering a variety of options, all involving, in the first instance, programs to mobilize additional donations from the set of low-risk donors, both repeat and first-time.

Provided that multiple options were available for reducing the risk in question (inadequate supplies of blood), risk managers would start with the lowest-risk option and proceed, if required to do so, to the relatively riskier ones.

In the case discussed here, both risks are borne entirely by the same group of people, namely, those that require blood and blood products for reasons of medical necessity. Relative-risk considerations are, therefore, appropriate in

[25] See also Spencer *et al.* (2006), which claims the expected benefit would be very low.

[26] To be fair, Germain *et al.* did a double risk/benefit (R/B) comparison in the study, estimating the R/B trade-off associated with a change to a 12-month MSM deferral, with that of the current policy of accepting females partners of MSM after 12-month deferral, concluding that the latter was five times less risky for the same level of benefit.

this context. (If this were not the case, the situation would be one of risk transfer, already considered.)

3. *Cost-Benefit.*
   General models for cost-benefit trade-offs, comparing options for ensuring blood safety, have not been well-developed as of this time.

4. Ethical and Legal Principles in Risk Management

A. Ethical Principles.

It is becoming increasingly common for risk regulators to devote some attention to the formulation of an ethical framework for risk management.[27] For purposes of illustration, we will discuss briefly here the principles articulated by the World Health Organization in its *World Health Report 2002*, which are four in number:[28]

- Autonomy: protecting the rights of the individual and informed choice;
- Non-maleficence: do no harm or injury;
- Beneficence: produce benefits that far outweigh risks;
- Justice: achieve an equitable distribution of risks and benefits.

As is evident, two of the four principles are couched directly in risk terms; in terms of the discussion in Section 3 above, equity is a sub-category of justice.

To take one example from a Canadian context, the public discussion process established by the Nuclear Waste Management Organization (NWMO), to consider the issue of options for the long-term disposal of used nuclear fuel, set up an Ethics Roundtable. The members of this group drafted a list of ethical principles that was used to evaluate the NWMO's reports and recommendations, with respect to both substance and process:[29]

- Respect for life in all its forms, including minimization of harm to human beings and other sentient creatures;
- Respect for future generations of human beings, other species, and the biosphere as a whole;
- Respect for peoples and cultures;
- Justice (across groups, regions, and generations);
- Fairness (to everyone affected and particularly to minorities and marginalized groups);
- Sensitivity to the differences of values and interpretation that different individuals and groups bring to the dialogue.

In the conclusions to this paper we will refer to the values of non-maleficence, beneficence, justice, and fairness.

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[27] See, e. g., New Zealand (2005).

[28] WHO (2002), citing Beauchamp (2001).

[29] NWMO (2005).

B. Legal Principles.

This section summarizes the analysis of legal principles, relating to donor deferral issues, by Sylvain Lussier, "A Legal Perspective," which was presented at the 2001 Consensus Conference, *Blood-Borne HIV and Hepatitis: Optimizing the Donor Selection Process*.[30]

- Discrimination on the basis of group membership is prohibited in Canada by various statutes and codes, including categories – used in blood donor selection – such as sexual preference, addiction, and place of birth;

- In order to establish a claim of unlawful discrimination, it is necessary to show that there is a stigma attached to being a member of one of these kinds of categories;

- On the basis of court decisions, the donor exclusion of MSM clearly carries such a stigma and thus would fall within the category of a prohibited discrimination, i.e., an abridgement of protected rights and freedoms (Section 15 of the Canadian Charter);

- However, Section 1 of the Charter states that "the rights and freedoms enumerated in the charter can be restricted on the basis that the limit is reasonable and demonstrably justified in a free and democratic society";

- The Supreme Court of Canada promulgated the "Oakes test" in 1986 to set criteria for deciding whether a specific restriction of freedom is or is not reasonable and justified; the three tests are:

    - Sufficient importance of the objective (in this case, blood safety);
    - Rational connection and minimal impairment: the impairment (denial of blood donations by MSM) is rationally connected to the objective, and is the smallest degree of impairment that will safeguard the objective;
    - Proportionate effect: "the risks of infecting patients with HIV are greater than the benefits granted to those who want to give blood" (Lussier).

These and associated legal principles are now being tested in legal action in Canada (the Freeman case).

[30] Chiavetta *et al.* (2003), "Proceedings," pp. 18-20.

5. The Current Donor Deferral System

5A. Introduction.

Donor deferral refers to the practice of excluding blood donations from specified categories of individuals based on an established set of donor selection criteria. As such it is one of a series of standard procedures that are designed to ensure the safety of blood and blood products, namely:

(1) Donor education and voluntary self-deferral (either before or after donating);
(2) Health assessment at time of donation;
(3) Administration of Donor Assessment Questionnaire prior to donating;
(4) Application of donor deferral criteria;
(5) Testing of donated blood prior to use (individual and batch tests);
(6) Quarantine controls prior to distribution;
(7) Monitoring and Research for emerging blood-borne diseases;
(8) Ongoing review of Risk Management strategies through regular liaison with other domestic and international agencies.

To borrow a term from the drinking water safety area, this may be called a "multi-barrier approach": The high level of safety of the blood supply which has been achieved, in Canada and elsewhere, in recent years is the result of the combined impact of all of these procedures.

5B. Judging the suitability of donors.

Application of the management practice of donor deferral is governed by the Donor Selection Criteria Manual (DSCM). The DSCM is a listing of many diseases, medical conditions, behaviours, and drug substances that may provide a basis for deferring a blood donor. (The manual gives guidance on all items in these categories where questions have been raised, and in some cases it instructs personnel to accept the donation.) The manual is continuously updated as new information is acquired by agencies responsible for blood safety. Donors may be deferred because of increased risk to their own health associated with donation (for example, donors with coronary artery disease), or increased risk to recipients (for example, history of hepatitis).

There are two basic categories for deferral: "temporary" and "indefinite." The first, "temporary," is a time period that ranges from one day to one year, with some specific time-frames in between (e.g., 56 days in the case of exposure to West Nile Virus). Many of the deferrals for prescription and nonprescription legal drug use and medical conditions fall into this category; in other words, the deferral is maintained for as long as the condition or drug use persists. (There are some drugs with very long half lives and high teratogenic potential that result in longer deferrals.) On the other hand, many diseases and some types of behaviours give rise to an "indefinite" deferral, which is equivalent to a lifetime period.

There are, for example, something on the order of 400 specific diseases and medical conditions listed in the DSCM, which give rise to either temporary or indefinite deferrals. Randomly-chosen examples of those designated for indefinite deferral are brucellosis, Chagas disease, cirrhosis of the liver, coronary disease, CJD, Crohn's disease, immune deficiency, multiple sclerosis, and sickle-cell anemia.

In its current form the Donor Health Assessment Questionnaire (DHAQ) includes questions about some specified examples from all four of the categories already mentioned (diseases, medical conditions, behaviours, and drugs), as well as some other kinds of questions. Questions cover both donor and recipient risk. For example:

(1) Diseases: yellow jaundice, malaria, AIDS, cancer;
(2) Medical conditions: stroke, epilepsy, heart /blood pressure problems;
(3) Prescription Drugs: Accutane, Cyclomen, Methohexate;
(4) Behaviours: born or lived in certain countries, sexual behaviour;

In addition, there are other types of questions about:

(5) Recent vaccinations;
(6) General health;
(7) Symptoms (weight loss, fever and headache, etc.);
(8) Procedures where the skin is broken (tattooing, needle accidents);
(9) Dental procedures;
(10) Tissue transplants;
(11) Time spent in prison.

Answers by prospective donors to the Donor Health Assessment Questionnaire, as well as the results of the on-the-spot health examination by the Registered Nurse who administers it, provide information of three types: (a) indicating no conditions that would warrant deferral; (b) indicating a condition for which deferral is mandatory (e.g., a person with AIDS); (c) requiring further questions and assessment. An example of the latter is where a person has had acupuncture: Further questions are posed, for example, whether a sterile, single-use needle was used in the procedure.

All of the eleven types of questions listed above are designed to determine whether the donor's blood may itself be unhealthy (e.g., low haemoglobin), or could contain an infectious pathogen (e.g., West Nile virus) or harmful substance (e.g., the residue of a prescription drug dangerous to pregnant women), and thus that the potential donation should not be accepted.[31] More specifically, they are designed to

[31] One estimate, reported in 2005 (Dr. Gilles Delage, Héma-Québec), is that 20% of potential donors are excluded at the donor screening stage, and "of these, 3.2% are rejected for high risk behaviours." Health Canada – BGTD, p. 9.

estimate the chance, or likelihood, that this is the case – assuming that all of the prospective donor's answers are truthful, of course.

Taken as a whole, the set of questions probes for both direct and indirect markers of the likelihood that one or more factors, in the case of a particular donor, could compromise the safety of the donated blood or the safety of the donor. (Direct markers are evidence of specific disease states in the donor; indirect markers are, for example, "time spent in prison," which is a surrogate measure for the likelihood of exposure to high-risk activities in that environment.)

5C. The Basis for Judgment: The Risk Assessment Methodology.

As mentioned earlier, the multi-barrier approach to risk management, which characterizes the field of blood safety, is designed to construct an interlocked series of management strategies that operate simultaneously. For each of these strategies, there is some chance that a barrier failure will prevent the escape of contaminated blood into the system, for example:

(1) Donor education and voluntary self-deferral (either before or after donating):
- Potential donor is unaware of having a condition that would warrant self-deferral.

(2) Health assessment at time of donation:
- Symptom otherwise justifying deferral unreported or unobserved.

(3) Administration of Donor Assessment Questionnaire prior to donating:
- Potential donor accidentally gives incorrect information that would otherwise justify deferral.
- Potential donor answers untruthfully on a question that would otherwise justify deferral.

(4) Application of donor deferral criteria:
- Criterion incorrectly interpreted or applied or overlooked.

(5) Testing of donated blood prior to use (individual and batch tests);
- False negative test result.
- Operational error in testing procedure.

(6) Quarantine controls prior to distribution:
- Accidental release of unit from unqualified donor.

(7) Monitoring and Research for emerging blood-borne diseases:
- New blood-borne pathogen is unrecognized until after first infections occur.

(8) Ongoing review of Risk Management strategies through regular liaison with other domestic and international agencies:
- Scientific consensus on infectivity by blood of a known disease agent is not reached until after first infections occur.

It should be noted that each of these sources of potential failure is addressed, on an ongoing basis, with its own set of risk control strategies. For example, in the rare cases where a donation contaminated by a known infectious disease agent is collected, and subsequently identified and excluded in the testing routines, a procedure is undertaken to analyze the case, seeking to identify the reason why the donor screening procedures may have failed. This analysis may then lead to modifications in the procedures, new staff training sessions, etc. In general, the risk management of blood safety is an inherently dynamic environment, one where there is continuous, incremental change in procedures as a result of new information.

It is important to note that in the operation of every barrier (except the first: voluntary self-exclusion), and its set of risk control strategies, there is an indispensable element of expert or professional judgment. This is clearest in the case of the administration of the DHAQ, but it is equally important in the others, such as the compilation of the DSCM, the operation of testing procedures, and the scientific monitoring and consensus-building processes on new and emerging diseases. Errors in judgment are inevitable; they may result, for example, from lack of information (such as about the infectivity of a new pathogen), from an undetected weakness in the established screening procedures (misinterpretation of a question by a donor), or from a simple mistake by someone during a busy day.

Constructed of sequential steps, the multi-barrier approach is designed to be robust in catching inevitable errors in judgment, but it cannot promise perfection in this regard. In other words, the blood safety system, like all other domains of risk management, cannot achieve a state of zero risk, that is, complete safety. Another reason is that all procedures come with an economic cost, which is ultimate reflected in the monetary price of a unit of blood, which in Canada is a cost to the provincially-funded health care system. Each of the barriers represents an investment of a certain level of funding in the blood safety system, and there is not an unlimited supply of such funding for any specific purpose; each must ultimately be judged on its cost-effectiveness for the purpose it serves.[32]

On the other hand, the blood system today in Canada and elsewhere has achieved a level of safety that is, almost certainly, unprecedented in the period since blood transfusions have been generally available. Moreover, there is clear evidence of the application of a continuous-improvement ethos in this system – which is consistent with the risk management principle known as ALARA: to operate with a level of risk that is "as low as reasonably achievable."

[32] Unit costs for blood rise with each increment in safety and risk reduction; see, e.g., Wilson & Herbert 2003. We do not consider the issue of cost-benefit trade-offs in this paper.

5D. "Behavioural" Risk Factors in the Donor Screening Strategy.

As indicated earlier, there are four primary categories of concerns in the blood donor assessment profile: diseases, medical conditions, behaviours, and drugs. Of the four, the act of probing the category of behaviours stands out from the rest, for a number of reasons, for example:

- it seeks to elicit a type of information about the donor that is essentially different from what is sought in the others;
- it explicitly probes the types of social and personal judgments made by the donor in some very sensitive areas (sex, prostitution, illegal drug activity) which are regarded, by many, as giving rise to "moral" issues;
- it implicitly calls attention to differences in lifestyles among the population;
- it deals with activities of groups which represent minorities in the population;
- and, with respect to male sexual activity, it confronts a "zone" in society that is traditionally been the subject of highly-charged emotional confrontation, in social, family, political, and religious domains.[33]

In this context, there is no reason to think that judgments about the evaluation of behavioural risk factors in blood donations could avoid controversy.

The DHAQ covers eight major sub-categories of deferrals for behavioural risk factors, some of which are further subdivided, as follows:

1. Having been an injection drug user.
2. Living in households or in sexual contact with an infected person (viral hepatitis, yellow jaundice only).
3. Having lived or traveled outside Canada and the U.S. for certain periods:
    a. In areas where malaria is endemic;
    b. In countries where there is special risk of vCJD;
    c. [Having had a blood transfusion, or used a blood product, while in the U. K. (since 1980)]
4. Having been involved in transactions of money or drugs for sex:

[33] See further the discussion in Section 7, footnote 55.

a. Receiving sex for money or drugs;
b. Paying for sex with money or drugs.

5. Being a male who has had sex with another man (MSM).

6. Having had sex with a person:
   a. Who has AIDS or has tested positive for HIV;
   b. (Are female) and has had sex with a MSM partner;
   c. Who is an injection drug user;
   d. With anyone who has paid for sex.

7. Having had sex with person whose sexual background is unknown.

8. With respect to certain African countries (8 in all[34]):
   a. Being born or having lived in those countries;
   b. Having had sex with someone described in (a) since 1977;
   c. Having received a blood product in those countries.

All of these factors give rise to a mandatory deferral, either indefinite or temporary.

In general, and with two exceptions, the sexual partners of individuals engaged in the "activities" listed are assigned a temporary deferment for a period of one year after the last sexual contact.[35] All of the other activities listed above give rise to a permanent or indefinite deferral status.

A noteworthy feature of the general category of deferrals for behavioural risk factors is the "even one time" provision, with or without mention a specific year in which the type of activity was initiated. This feature appears in the following five instances of specifically behavioural risk:

(A) Having engaged in injection drug use;
(B) Having taken money or drugs for sex since 1977;
(C) Being a male who has had sex with a male (MSM) since 1977;
(D) Having had sex with a person with AIDS or testing positive for HIV;
(E) Having had sex, since 1977, with a person who was born in, or has lived in, one of the 8 African countries named.

The risk assessment basis for the geographical exclusion in this list (8 African countries) – namely, the prevalence of a type of HIV that is undetectable in

[34] Cameroon, Central African Republic, Chad, Congo, Equatorial Guinea, Gabon, Niger, Nigeria. The exclusion is based on the concern that there may be strains of the HIV virus circulating in those countries which are undetectable using current tests.

[35] The two exceptions are: (1) having been, since 1977, the male sexual partner of a male; (2) having been, since 1977, the sexual partner of a person born in, or having lived in, one of the eight African countries listed above.

testing – is different from all the others. For the other three groups (male homosexuals, injection drug users, and prostitutes), the risk assessment is based on evidence about the results of such behaviours: namely, that for all three groups, prevalent infection rates for HIV have been, and remain, significantly higher than for any other identifiable group in the Canadian population.

Thus, being categorized in any one of the five groups of persons, as listed immediately above, is regarded as "participating in high-risk activities."

6. MSM Donor Deferral: History and Issues

6A. Introduction.

The first transfusion-associated case of HIV in Canada was officially reported in May of 1985, by which time hundreds of Canadians had already been infected with HIV through blood donations.[36] In January 1986 the Red Cross first began distributing a pamphlet about AIDS "to define unequivocally the largest group at high risk of contracting AIDS as 'any male who has had sex with another male since 1977.'"[37] The pamphlet was part of a strategy to encourage voluntary self-exclusion, however, and it did not form the basis of an active donor screening at the time of donation.

Although questions about risk factors for AIDS were being asked of potential blood donors for a number of years prior to 1989, it was only in 1989 that the Donor Health Assessment Questionnaire became an "official" document whose content was regulated by Health Canada, however. And only starting in 1989 was the following – rather incoherent – statement added to the DHAQ: "The following activities put you at risk for AIDS: intravenous drug use, living in an area where AIDS is common, regular treatment with blood and clotting factors, men who have sex with men, and sex with any of the above." Potential donors were asked if any of these activities pertained to them, and if the answer was in the affirmative, they were deferred.

In 1997 the more specific question – "Male donors: Have you had sex with a man, even once, since 1977?" – was separated from this list, and the wording of this question has remained unchanged since that time.[38] In 2004 the requirement for mandatory deferral on this basis was incorporated into CSA Standard Z902-04, "Blood and Blood Components," clause 5.3.9.2. Table 1 compares Canada's practice in this regard with some other countries.

6B. The Challenges to MSM Donor Deferral Policy.

The beginnings of a challenge to the lifetime deferral for MSM, made from within the blood industry itself, began in the U.S. in 1997. AABB, the American Association of Blood Banks, stated in 2002: "Since 1997, the AABB has advocated that the deferral

[36] Krever, vol. I, pp. xxvi, 329. Testing of blood donations began in Canada in November 1985.

[37] Krever, vol. I, p. 292.

[38] *Ibid*., p. 4.

Table 1 – International Deferral Criteria, MSM, 2005

Criteria	Countries
Deferral based on specific activities	Italy ("risky activities")
1-year deferral since last exposure	Argentina Australia Japan Hungary
5-year deferral since last exposure	South Africa
10-year deferral since last exposure	New Zealand
Indefinite deferral, exposure since 1977 or lifetime exposure	Canada US UK France Switzerland Holland Norway Denmark Sweden Germany Finland Iceland Hong Kong

period for male to male sex be changed to 12 months."[39] This statement was amplified in March of 2006:[40]

> "AABB, ABC and ARC believe that the current lifetime deferral for men who have had sex with other men is medically and scientifically unwarranted and recommend that deferral criteria be modified and

[39] AABB, based in Maryland, is an international association made up of individual members and institutions such as hospitals: http://www.aabb.org/Content/About_AABB/Who_We_Are/ Its members include all organizations which collect blood in the U.S. ABC (America's Blood Centers), referenced in the quotation that follows, is an association of community-based blood collection centers in the U.S.; ARC is the American Red Cross.

[40] "Behaviour-Based Blood Donors Deferrals in the Era of Nucleic Acid Testing (NAT)," statement presented by Steven Kleinman, MD, Senior Medical Advisor, AABB, to the FDA's Blood Products Advisory Committee, 9 March 2006: CBS, "Selected Materials," Tab 2.

> made comparable with criteria for other groups at increased risk for sexual transmission of transfusion-transmitted infections. Presenting blood donors judged to be at risk of exposure via heterosexual routes are deferred for one year....
>
> "Current duplicate testing using NAT and serologic methods allow detection of HIV-infected donors between 10 and 21 days after exposure. Beyond this window period, there is no valid scientific reason to differentiate between individuals infected a few months or many years previously.... [T]he length of these window periods provide the scientific basis for the deferral periods imposed for at risk sexual behaviors.
>
> "It does not appear rational to broadly differentiate sexual transmission via male-to-male sexual activity from that via heterosexual activity on scientific grounds.... We think the FDA should consider that the continued requirement for a deferral standard seen as scientifically marginal and unfair or discriminatory by individuals with the identified characteristic may motivate them to actively ignore the prohibition and provide blood collection facilities with less accurate information."

The most recent extensive public discussion of these issues took place in the U.S. on March 8-9, 2006, at the FDA Workshop on Behavior-Based Donor Deferrals in the NAT Era.[41] The current clash of expert opinion in this area is nicely illustrated by the sharply divergent positions in two back-to-back presentations at the Workshop. The first was articulated by Cees van der Poel, of Sanquin, the Dutch blood-collection agency, speaking on behalf of the European Blood Alliance, who referred to the report of a Dutch government committee on the issue of whether the MSM exclusion was a violation of the anti-discrimination provisions of the Equal Treatment Act:[42]

> "The verdict of that committee ... is that ... the purpose of the donor selection was not to discriminate but to prevent transmission of HIV and other infections. Homosexual men are disproportionately affected by the selection. That is true. But there is an indirect discriminatory distinction, however, objectively justified and not disproportional, in the interest of the recipient's blood. That is the bottom line, the interests of the recipients of blood."

Immediately thereafter Dr. Ronald Bayer, a bioethicist at Columbia University, made the following remarks:[43]

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[41] A full transcript of the meeting is available: see References, FDA Workshop.

[42] FDA Workshop, p. 77.

[43] *Ibid.*, p. 94-5.

> "Given the current testing technology, there is clearly a public health rationale for jettisoning the 29-year exclusion for men who have sex with men.... Indeed, it is hard to understand, given the goal of safety and the commitment to precaution that is embedded in public health practice, why anything more than a one-year exclusion is justified.... What we cannot do as a result of this discussion is take refuge in science when, in fact, what we are responding to is political pressure."

Finally, Jane Starkey, an official with America's Blood Centers, provided the following summary for her organization of key points arising out of the March 8-9 meetings:[44]

- "The concern is that the next generation of donors will be turned off from donating because they perceive that it discriminates against MSM."

- "The majority of non-governmental experts who spoke at the workshop supported a change in MSM deferrals to 5 or even 1 year (and most thought the data showed virtually no difference in risk between the two deferral periods.)"

- There was some support for a new approach according to which "the MSM deferral criteria could be changed to one or five years, with a 'post-implementation' study designed to detect any increased risk from adding some MSM back to the donor pool."

6C. The Most Relevant Published Studies.

In discussions about the possibility of changing the current MSM donor deferral policy, the studies most often cited are Germain *et al.* (2003) and Soldan & Sinka (2003). Highlights are:

1. Germain *et al.* (2003), estimating risks of additional HIV-contaminated units with a 12-month deferral policy for MSM:

    - Risk sources are (1) proportion of newly-eligible and infected donors, (2) failure of screening tests, (3) errors in release of infected units from quarantine.
    - Additional number of infected units to escape detection (Canada): 1 every 16 years (risk increment of 1 in 11 million); "... the incremental risk of a revised deferral policy for MSM would be very low, but not zero" (p. 29).
    - Number of donations would increase by 1.3%.

[44] CBS, "Selected Materials," Tab 3.

2. Soldan & Sinka (2003):
   - Risk of an infectious unit being released into the blood supply: 1 in 5.3 million (current policy), 1 in 3.2 million (12-month deferral of MSM).

3. 2006 update on Germain study:[45]
   - Original assumptions very conservative, incremental risk could be stated as possibly 1 infected unit every 33 years.

6D. The Current Position of Blood Regulators in Europe and the U.S.

- A representative of the European Blood Alliance (EBA), speaking at a March 2006 FDA meeting, stated that no changes to the MSM policy were being contemplated by the EU, because MSM continues to represent a high-risk activity.[46]

- A recent newspaper report (*Washington Post*, 18 March 2006) contained the following statements:[47]

> "The Food and Drug Administration is considering revising its policy that bars as a blood donor any man who has had sex with another man since 1977, officials said yesterday.... FDA spokesman Stephen King said the agency would convene a meeting of its Blood Products Advisory Committee to formally reconsider revising the policy, probably later this year. Agency officials are 'definitely interested in hearing all the science, and if there's hard evidence in place that changing that policy would not endanger the blood supply they're definitely open to it,' King said."

6E. The Current Position of Health Canada.

Canada's federal regulator, Health Canada, was not officially represented at the FDA Workshop. The Health Canada website does not appear to contain any commentary on the reasons for the current regulations on MSM donors.

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[45] C. Bianco, FDA Workshop, pp. 328-42 and PP slide presentation.

[46] EBA is the governing body for blood safety for the member states of the EU: http://www.eba-web.org/introduction.htm. Cees van der Poel, "Behavioral Risk Exclusion in Europe in response to MSM discussion," presentation at the FDA Workshop, pp. 57-82.

[47] CBS, "Selected Materials," Tab 3.

However, the department's Biologics and Genetic Therapies Directorate (BGTD) presented a document on this matter for discussion at the May 5-6, 2004 meeting of its Expert Advisory Committee (EAC). Some of the main points made in this document are:

- the Germain and Soldan studies affirm that changing to a 12-month deferral "would introduce an incremental risk of HIV transmission by transfusion, although very low, to the current very low residual risk";
- "... reducing the MSM donor deferral period ... would slightly increase the risk of HIV transmission through blood and could have an unknown effect on the risk for other sexually transmitted diseases";
- the benefit, in terms of increased donations, "would be relatively small";
- "... the risks of infecting patients through contaminated blood are greater than the benefits granted to those who want to give it";
- "... there is no tolerance in the general population for avoidable risk of disease transmitted through transfusion";
- "The role of adequate donor screening is to minimize the risk that is not eliminated through testing";
- "... recent [epidemiological] data raise concerns regarding a continued risk behaviour among MSM";
- "Any proposed change to donor selection policies and criteria must be shown to have no negative impact on the safety of blood products."

The document also commented on the broader proposal having to do with "replacing questions focusing on risk groups (MSM) with questions related to risky practices (e.g. unprotected sex or multiple partners)." The response here was:

> "A questionnaire aimed at eliciting individual risky practices is impossible to design to account for all types, variants and the particular context of risky practices and to clearly distinguish them from 'acceptable' practices. For example, 'unprotected sexual intercourse' cannot be considered as risk behaviour for heterosexual couples in stable relationship [sic]. Such an approach is unmanageable and could lead in many instances to

> individual interpretations by screening staff, thus introducing the possibility of errors and the collection of infectious units."[48]

The EAC's Record of Meeting for its meeting of 12 May 2005 contains the following statement:

> "MSM: As a follow-up to the May 5-6, 2004 Meeting where this issue was discussed, referenced publications were reviewed by all Committee members and the consensus was to maintain the status quo, i.e., a lifetime exclusion of MSM, as is the case in Europe and the USA."[49]

[48] Health Canada – BGTD, "Permanent Deferral."

[49] Health Canada – BGTD, EAC, p. 6.

7. Risk Profile – MSM

7A: Epidemiology – Canada.

The latest figures on HIV prevalence and incidence in Canada, for the period up to the end of 2005, were released in the August 2006 issue of *Canada Communicable Disease Report.*[50]

7A1: HIV Prevalence (range of uncertainty given in brackets).

1. End of 2005: 58,000 [48,000 to 68,000] living with HIV/AIDS, a 16% increase over 2002.
2. Exposure category:[51]
    a. MSM: 29,600 (51%)
    b. MSM – IDU: 2,250 (4%)
    c. IDU: 9,860 (17%)
    d. Heterosexual/non-endemic: 8,620 (15%)
    e. Heterosexual/endemic: 7,050 (12%)
    f. Other: 400 (1%)

7A2: HIV Incidence (numerical range of uncertainty given).

1. Year 2005: estimated 2,300 to 4,500 new infections, slightly higher than in 2002.
2. Exposure category:
    a. MSM: 1,100 – 2,000 (45%) [42% in 2002]
    b. MSM – IDU: 70 – 150 (3%)
    c. IDU: 350 - 650 (14%)
    d. Heterosexual/non-endemic: 550 - 950 (21%)
    e. Heterosexual/endemic: 400 - 700 (16%)[52]
    f. Other: <20 (1%)

7A3: Awareness.

> "... [W]e estimate that [in 2005] about 15,800 people (11,500 to 19,500) or 27% were unaware of their HIV infection."

[50] Boulos *et al.* (2006), pp. 165-175.

[51] IDU: injection drug use; heterosexual/non-endemic: "heterosexual contact with a person who is either HIV-infected or at risk for HIV or heterosexual as the only identified risk"; heterosexual/ endemic: "origin in a country where HIV is endemic" (p. 167, Table 1, note).

[52] "... [A]ccording to the 2001 census, approximately 1.5% of the Canadian population were born in an HIV-endemic country" (p. 168).

7A4: Trends.

> "The proportion of MSM among new infections steadily declined until 1996 and has increased since then.... The proportions of new infections attributed to the heterosexual/endemic and non-endemic exposure categories have increased steadily since the beginning of the epidemic."
>
> "This recent trend among MSM and MSM-IDU is associated with increases in risky sexual behaviour.... Among the heterosexual exposure category, the observed trend is likely a result of the general evolution and spread of the epidemic as well as a recent change in the Citizenship and Immigration Canada policy on testing immigrants and refugees, which has resulted in more diagnoses."[53]

7A5: Percentage of Homosexuals in Population and Relative Prevalence of HIV/AIDS.

Statistics Canada, 2003 data:[54]

> "Among Canadians aged 18 to 59, 1% reported that they consider themselves to be homosexual and 0.7% considered themselves bisexual." [Among males the total for bisexual and homosexual combined is 1.8%.]

The total Canadian population as of mid-2005 was about 32,800,000. Using the data from Section 7A1 above, the prevalence rate for HIV/AIDS in male homosexuals/bisexuals in Canada is estimated to be 5.4%, and in the general population, 0.08%, for a ratio of 67:1.[55]

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[53] Boulos *et al.* (2006), pp. 169, 173.

[54] Reported 15 June 2004: http://www.statcan.ca/Daily/English/040615/d040615b.htm. This is the first Statistics Canada survey to collect information on sexual orientation and it is the latest data of this type that is available.

[55] The calculation first subtracts the HIV/AIDS attributable to MSM (55%) from the total number of estimated cases before figuring the percentage for the general population; the method is similar to that used by Dayton (footnote 57) for the U. S. The data is presented by Statistics Canada in terms of homosexuality, which is different from the categories used in the immediately preceding sections, which refer to "MSM." As a category of sexual behaviour, "MSM" refers to any male who has ever had sex with another male, even once, since 1977. It is likely that those individuals who are or have been exclusively male homosexuals (gay males), or male bisexuals, and have been sexually active in the period since 1977, make up the largest proportion of those who are classified as MSM in the blood donor system. There are two other groups which may also be included in the MSM category: (1) male individuals who have, at one time or another, engaged voluntarily in homosexual acts but who do not consider themselves to be homosexuals; and (2) those males who were involuntarily subjected to homosexual acts by another male (victims of sexual abuse).

7B: Epidemiology – United States.

Matthew T. McKenna, "Prevalence and Incidence of HIV by Behavioral Risk Factors in the United States," March 2006.[56] Prevalence (2003 data):

MSM: 45%
MSM – IDU: 5%
IDU: 22%
Heterosexual: 27%
Other: 1%

Andrew Dayton, "Point Estimates of Transfusion Risk from Quantitative Models of Deferral," FDA Workshop, March 2006, slide 8: HIV prevalence in the general population is 0.14%, among MSM 8%; thus the ratio of the latter to the former is 60:1.[57]

7C: Epidemiology – Europe.

Cees van der Poel, "Behavioral Risk Exclusion in Europe in response to MSM discussion," March 2006.[58] Data from France, Germany, Netherlands, and Belgium summarized as follows:

- Public health surveys show MSM is high risk for HIV;
- MSM makes up a considerable portion of HIV positive donors;
- MSM at increased risk of STDs and emerging known and unknown sexually transmitted infections.

7D: Behavioural Studies.

The conclusion, above, from the epidemiological studies, that the trend in HIV incidence is "associated with increases in risky sexual behaviour," is supported by the following studies and summaries of studies from Canada, the U.S., and Europe.

7D1 – Canada.

"The Ontario Men's Survey," 5000 gay and bisexual men, data collected in 2002.[59] Some of the findings relating to forms of high-risk activity are:

[56] FDA Workshop, pp. 96-116 and PP slide presentation.

[57] FDA Workshop, pp. 244-63 and PP slide presentation.

[58] FDA Workshop, pp. 56-82 and PP slide presentation.

[59] Myers & Allman (2004).

- In the preceding twelve months, 75% had more than one male sex partner and 45% had more than 4;
- 57% reported sex with at least one casual male partner in the preceding three months;
- 40% had at least one event of unprotected anal intercourse in the preceding year.

7D1 – United States.

A study published in 2004 summarizes the results of numerous other studies, covering periods from the late 1990s to 2003, concluding: "The recent increase in HIV risk-taking behavior and non-disclosure of HIV seropositivity status among MSM is well-documented."[60]

[60] Jackson & Pekerol (2004).

8. Risk Estimation of Time-Frame Options for MSM Deferral Policy

This report accepts, as the basis of the discussion of issues in the following sections, the two fundamental principles, relating to donor deferral, that provide the foundations of the current system of blood safety:

1. The primary basis for donor deferral rests on the assessment and estimation of the various types of risks to health associated with donated blood;

2. Any changes to existing policies on donor deferral must result in an improved or equivalent level of safety by comparison to what now exists.

A. Change to a 10-year exclusion period:

Reference is to the idea of accepting donors who report no MSM activity for the preceding ten years or more. No data or studies have been found that are relevant to this time-frame, so this option is not considered at length here. However, it may be assumed that a 10-year exclusion period would give an additional margin of safety by comparison with the 5-year period discussed below.

B. Change to a 5-year exclusion period:

Reference is to the idea of accepting donors who report no MSM activity for the preceding five years or more.

> "Unlike men with recent male-to-male sex experiences, screening test results for donors who last engaged in male-to-male sex more than 5 years ago were comparable to those of male donors not reporting male-to-male sex, although the prevalence of UDRs was significantly higher [two to six times higher]."[61]
>
> "For MSMs who have abstained for more than five years, they basically had an odds ratio of one, suggesting that there may be something identifiable about a five-year abstention that identifies a safe sub-set."[62]
>
> Latest calculations of incremental residual risk, in adopting a 5 year deferral for MSM, for window-period, testing, and quarantine release errors, are given

[61] Sanchez *et al.* (2005), pp. 408-410 [REDS data].

[62] Summary by the FDA's Andrew Dayton of the Michael P. Busch presentation [PP slide 57] at the FDA Workshop: FDA – BPAC, Minutes of Meeting, 9 March 2006, pp. 53-4.

in the presentation made by Andrew Dayton at the March 2006 FDA workshop.[63]

This option is considered further in Section 10, Option II.

C. Change to a 1-year exclusion period.

Reference is to the idea of accepting donors who report no MSM activity for the preceding one year or more. As noted above (Sections 6B and 6C), this option has been the subject of much discussion and research. It is considered further in Section 10, Option I.

D. Change to no MSM exclusion.

This option refers specifically to MSM, as defined; it does not necessarily rule out self-exclusion or exclusion on other criteria (IDU, etc.). (The percentage of MSM "likely to donate" after self-exclusion, etc. has been estimated at 2% of all MSM.) This option has been promoted by some advocacy groups, and has been justified on the grounds that testing is so nearly error-free that there is virtually no chance that an infectious unit of donated blood will enter the blood supply.

Without donor screening in place, the incremental change in risk, for donated blood prior to testing, would be proportional to the ratio between the increased prevalence of these diseases in whatever population sub-group was no longer screened out, in this case MSM, and the population as a whole. As noted above (Sections 7A5, 7B), these ratios are estimated at 67:1 for Canada and 60:1 for the U.S.

However, another ratio shows that the incremental risk would be much higher, because both current repeat donors, as well as current first-time donors, in fact have lower risk profiles than does the population as a whole. U.S. data shows that the ratio between HIV prevalence in MSM "likely to donate," in comparison with current first-time donors, is 200:1; in MSM "likely to donate," and in current repeat donors, the ratio is 2000:1.[64] This same source gives the latest calculations for testing and operational errors (window-period, false negatives, and quarantine release), none of which is zero. Therefore, it is impossible to avoid the conclusion that the elimination of all MSM screening would result in a substantial increase in the risk of transfusion-transmitted infection.

This option is not further considered.

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[63] Andrew Dayton, "Point Estimates of Transfusion Risk from Quantitative Models of Deferral," FDA Workshop, pp. 244-63 and PP slide presentation; see especially slide 28.

[64] Andrew Dayton, "Point Estimates of Transfusion Risk from Quantitative Models of Deferral," FDA Workshop, March 2006, slide 9.

9. Other Options for Strategic Changes to Donor Screening

There is ongoing discussion, and some recent research, on aspects of both the donor screening process and the questionnaire instruments used in that process, which are relevant to the assessment of risk for blood donations. For example:

A. "Continuous Improvement" in Donor Screening Procedures.

In Canada and many other countries today, the chance that donated blood, when tested, turns out to be infectious is extremely low. Nevertheless, there is an ongoing interest in improving all aspects of the donor screening process, including the questionnaire instrument, with the objective of reducing, to the lowest level possible, the likelihood that blood would be drawn from a prospective donor which turned out, after testing, to be infectious.

- Charles Weijer of Dalhousie University argued at the 2001 Consensus Conference, with respect to DHAQ, that even the meaning of "having sex" is unclear to some people, and there is also a wide range of views as to what it means. Since donor screening is likely to continue to have a strong focus on sexual behaviour, there are good reasons for commissioning further research in this area.[65]

- The themes and results of two studies cited above, Section 2B (Rugege-Hakiza *et al.* [2003] and Sellors *et al.* [2002]), are pertinent to this subject; follow-up studies could test the robustness of the conclusions, at which time it may be possible to propose appropriate enhancements in screening procedures and technologies.

All of the blood-collection agencies worldwide have a shared interest in the results of future studies that promise to improve the efficiency and effectiveness of donor screening in ensuring the safety of the blood supply. Therefore, the types of studies mentioned above might be undertaken through international collaborative efforts utilizing cost-sharing arrangements.

B. Identifying "risky sexual behaviours."

As noted above, Section 6E, using a set of specified "high-risk" behaviours, rather than social groupings, as the basis of the donor screening process, has been advocated by some parties.

There are some apparently plausible aspects to this argument, because on its face it seems to be consistent with the basic objective of donor screening, which is to identify individuals, wishing to donate blood, who are at high risk of being infectious. However, its advocates rarely make the effort to state the objections that can be

[65] In Chiavetta *et al.* (2003), "Proceedings," pp. 21-22, citing Eisenberg 2001.

made to this proposal, and to provide a reasoned response to them. Two of the primary objections are:

1. The questions asked during screening procedures would have to focus directly and in detail on certain highly sensitive and intimate areas of actual sexual behaviour. It is well-known that many individuals find it awkward to answer truthfully these types of questions. Second, nurses would be required to make a series of difficult, individual judgments in interpreting the prospective donor's answers. And finally, this procedure would raise serious issues (including privacy issues) in the administration of questionnaires in the settings of blood donor clinics.

2. The behaviours of individuals can and do change over time, sometimes more than once. Relying on a strategy for identifying risky behaviours, as the basis for donor screening, would inevitably give rise to difficult challenges, including ethical and policy dilemmas, for administrators of blood collection agencies. For example, suppose that an individual who had been accepted in the recent past as a blood donor then, at the next occasion, acknowledged participation in a high-risk activity that would lead to deferral. Would the agency not have a reasonable concern that this same type of deferrable behaviour might have occurred earlier as well?

As noted above, the existing system of donor screening has succeeded in producing a supply of donated blood which, upon being tested, is known to have an extremely low risk of being infectious. There would be, understandably, great reluctance on the part of blood collection agencies, and of blood and blood product recipients, to take part in an experiment to see whether a radically different form of donor screening could yield a comparable, or better, level of safety.

Furthermore, it is reasonable to assume that such a wholesale change to one of the "two pillars" of blood safety (donor screening) would entail – at the very least, in the initial phases – significant incremental risks to the blood supply, simply as a result of the complex operational changes which would be required in order to implement it. Therefore this proposal does not pass the "risk hurdle."

C. Relying exclusively on testing for assuring blood safety.

As testing procedures for blood safety become progressively better, in terms of sensitivity and specificity, it may seem that testing alone would provide an acceptable margin of safety, and thus that all donor screening could be eliminated. However, this proposition overlooks the fact that blood must be drawn from donors, packaged, and handled by a variety of personnel, prior to testing. There are a number of well-described risks (such as needle-stick injuries) of being accidentally exposed to contaminated blood that are inherent in these procedures. Consideration of employee safety (for blood services employees) alone is sufficient to rule out such an option.

10. Two Change Options

Option I: Change to a 1-year MSM donor deferral policy

Many of those who advocate changing the blood donor policy of lifetime deferral for MSM have pointed to a specific kind of allegedly pernicious effect resulting from it:

> "Many have expressed the view that such a policy [lifetime deferral for MSM], while it may have been justified in the early days of the HIV epidemic, is now overly cautious and has the unfortunate effect of stigmatizing gay men who would donate blood."[66]

A social stigma may be defined as a "mark," either a physical sign or a symbolic identifier, which is attached to a specific group of persons, within society as a whole; this type of "marking" almost always is associated with a pattern of unjust discrimination, and often persecution, against that group. Thus the fact of being stigmatized carries with it the risk of being subjected to a hierarchy of adverse consequences, on a scale that runs from merely being shunned in social relations all the way to the horrors of violence and murder.

We accept the notion that both male and female homosexuality (and, to a lesser extent, bisexuality) has been stigmatized to varying degrees in Canadian society, although recently, important changes also have been occurring that have reduced this stigma significantly. And we recognize that in the opinion of many within the gay community – as well as to others in Canada – the perpetuation of the lifetime deferral for MSM is a form of stigma (that is, unjust or unreasonable discrimination) for male homosexuals. Finally, we accept the idea that reducing all forms of stigma – unjust and unreasonable discrimination against particular social groups – is a *general benefit* to Canadian society as a whole.

However, we are not fully persuaded that – at the present time in Canada – there is good evidence to show that the lifetime MSM deferral for blood donation is an important contributing factor in whatever stigmatization of gay men remains in our society. Nevertheless, to the extent to which the contrary view prevails among certain individuals and groups, we recognize that they could reasonably regard a shortening of the deferral period for blood donation as representing a reduction, or even an elimination, of part of the stigma against homosexuality which still exists within Canadian society. Therefore, in the discussion that follows we accept, for the sake of argument, the proposition that a shortening of the MSM deferral period would represent a benefit to a specific social group, namely, male homosexuals and bisexuals.

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[66] Germain & Sher (2002), p. 86.

In Section 8 we reserved two options, with respect to changing the MSM deferral policy, for further discussion. Here we take up the proposed changing of the deferral period to 1 year (that is, MSM who have been sexually abstinent for at least one year prior to donating). The principal reasons for *not* making this change to the current donor deferral policy are as follows:

- Risk estimations in published studies show some very low incremental risk of additional units of infected blood entering the system, if MSM deferral periods were to be changed to one year;[67]
- Subsequent to any such policy change, all of the incremental risk would be borne by a single group, namely, those who require transfusions of blood for urgent medical reasons;
- There is no reasonable justification for acceding to *any* increased avoidable risk of life-threatening illness to blood recipients;
- There is no reasonable way to balance the increased risk of illness to blood recipients, on the one hand, against the benefit to an entirely different social group, on the other – namely, reducing the possible stigma imposed on male homosexuals by the current policy;
- There is no reasonable way to balance the increased risk of illness to blood recipients, on the one hand, against the general benefit, to Canadian society as a whole, from reducing the apparent stigma imposed on a single identifiable group by the current policy;
- Although the current policy is discriminatory, it is not unreasonably so, since the policy is necessary in order to afford an appropriate level of health protection against the risk of transfusion-transmitted infection to a vulnerable minority within the population.

Commentary.

This type of change to the existing MSM donor deferral policy would be, in effect, a "rebalancing" of the existing, net risk-benefit calculus between two minority groups within Canadian society: the set of those who are, in any one period, the recipients of donated blood for health reasons, on the one hand, and the set of all men who have had sex with other men, even one time, since 1977, on the other. The result of this rebalancing would be as follows:

- For recipients of blood, there is a small net increase in risk, with no increase in benefit (since there is no deficiency in the supply of blood);

[67] Germain *et al.* (2003), which estimated the incremental risk at 8%; see further pp. 46-47, below.

- Both for prospective MSM blood donors, and by extension for all gay men, there is a benefit in possibly reducing a social stigma, without any corresponding incremental risk;

- The hypothetical benefit to gay men, above, may also be called a reduced risk of stigma, and when formulated in this way, one can see that changing the MSM donor rule in order to achieve this purpose would be, in effect, a covert risk transfer, i.e., a transfer of risk from male homosexuals to recipients of blood. (As stated above, we agree that reducing the stigma associated with homosexuality is an incremental social good, but we also maintain that it is a good that more properly should be achieved in some other way, rather than through the specific change to blood donor policy under discussion here.)

Thus in this case the possible benefit to one group can only be obtained by imposing an increase in risk upon an entirely different group. Moreover, the benefit in question is of a qualitatively different kind from that of the risk; the two are incommensurable. It would be a violation of very important ethical principles to create such a benefit for one group by imposing a cost of this kind on an entirely different group.[68]

In saying this we do not dispute the charge that the current policy is *prima facie* discriminatory. We also do not dispute the fact that the deferral period has the appearance of being arbitrary, since what was once a deferral, relating to specific behaviours, for 10 years has now become one of 30 years. Moreover, it is conceded that the huge advances in testing regimes during this period have changed the risk profile of donated blood.

On the other hand, the existing policy was originally adopted for good and sufficient reasons, based on urgent health protection objectives. And, although the risk of transfusion-transmitted infection (TTI) has dropped considerably in the intervening 20 years, it is not yet so low as to justify the view that the incremental risk to blood recipients, resulting from this policy change, would be either nonexistent or trivial. Second, one needs to recall that receiving blood for health reasons is an involuntary risk, in that the need is imposed on individuals as a result of medical necessity.

The episode of transfusion-transmitted HIV and hepatitis C in Canada was rightly regarded by those who suffered the severe effects as a betrayal of their trust in the blood system. Groups representing regular recipients of blood products are on record as strongly opposing any change to MSM donor deferral policy that

[68] There is another, entirely different group which would be an elevated risk under this policy change, namely, blood services employees (risks of needle-stick injuries and blood splashes). Thus there would be a second type of covert risk transfer.

represents any avoidable increase in residual risk of TTI.[69] In such circumstances, were the change to be imposed on blood recipients without their consent, it would almost certainly be interpreted by them as a second betrayal of trust.

Conclusion – Option I.

Taken by itself, and in the absence of any other changes to donor deferral policy, a shortening of the current MSM donor deferral period to 1 year would constitute a covert and unacceptable risk transfer *from* the male homosexual and bisexual community *to* the community of blood recipients. Such a transfer would be both unreasonable and unfair. The blood system can acknowledge the unfairness of the apparent stigma associated with homosexuality, but this is a broader social issue and must be dealt with in other arenas; responsibility for dealing with this broader issue cannot be imposed on the blood system.

However, it should be acknowledged that the failure to specify ranges of uncertainty, which often occurs in discussions about residual risk under the current donor deferral policy, may mislead both donors and recipients about the nature of this risk at present. It is possible, for example, that donors and recipients might not draw fully correct conclusions about the relative importance of screening and testing in keeping residual risk at the lowest achievable level. We have discussed the issue of ranges of uncertainty in the following sections of this report.

Key Messages.

- The key messages for risk communication are:

    1. There is good evidence that a change to a 1-year MSM donor deferral policy would increase the residual risk of transfusion-transmitted infection for blood recipients.

    2. It is not equitable to trade off a social benefit for one group for an increase in health risk for an entirely different group.

    3. A donor deferral policy that includes a reference to MSM is discriminatory, but not unreasonably so, from the standpoint of both legal and ethical principles that are commonly accepted in Canada.

[69] Canadian Hemophilia Society, "Current donor deferral criteria are in the best interests of blood safety," 31 March 2006: www.hemophilia.ca/en/1.2.2.php.

Option II: Change to a 5-year deferral policy for MSM

Preliminary Note:

- Since no risk estimation shows a clear difference in incremental risk between 5-year and 10-year MSM deferral periods, the shorter one has been chosen as a basis for discussion.

Reasons to support a consideration of this policy change:

- Judged on the basis of the scientific studies completed to date, there is no clear evidence of an increased risk of transfusion-transmitted infection with a MSM deferral period of 5 years or more (although a small increase in risk cannot be ruled out).

- A 5-year MSM deferral period represents a reasonable time-frame, according to expert opinion, within which to detect any novel pathogens that may be especially relevant to the MSM group (recent novel pathogens, including vCJD and West Nile virus, are not of this kind).

- A 5-year MSM deferral period *may* represent a reasonable time-frame, according to expert opinion, within which to detect any novel pathogens that may be especially relevant to the MSM group.[70]

- There are also reasons in ethics and law for changing the policy in accordance with the most up-to-date risk estimations, in that not to do so might be considered to be "unreasonably" discriminatory.

- There are significant long-term benefits, resulting from this policy change, both to blood recipients and to Canadian society in general, in that:

  (1) There is a potential for a small, but non-trivial, increase in the repeat blood donor cohort in the short term;

  (2) In the longer term, removing what is perceived, by increasing numbers of people, as an unreasonable discriminatory barrier to donation, may increase the

[70] A very recent paper, dealing with transmission of Human Herpesvirus 8 by blood transfusion, raises serious issues, for further consideration in a precautionary context, about the length of time needed to detect novel pathogens: see Hladik *et al.* (2006) and Blajchman *et al.* (2006). There may be a need to elicit and evaluate a range of expert opinion on this specific point.

level of overall public confidence and willingness to participate in the blood system;

(3) This policy change, if it is adequately supported by the current risk estimations, will be perceived as being appropriate in the light of changing public values and attitudes, as well as legal frameworks, with respect to homosexuality and the remaining stigma associated with it.

Analysis: "Passing the Risk Hurdle."

The decisive question is, whether there is any clear evidence that there would be an increase in residual risk, if the deferral period for MSM donors were to be moved from the current 30-year period to a 5-year exclusion period?

The actual level of residual risk is difficult to determine precisely. However, current measures to reduce the risk of transfusion transmitted infection, including the use of sensitive chemiluminescent serological tests coupled with nucleic acid amplification testing, have resulted in enhanced safety of the Canadian blood supply. Chiavetta and colleagues[71] estimated the transmission rate for HIV to be about 1 in 10,000,000 donations in Canada in the year 2000. This is similar to estimates reported in the United Kingdom[72] and lower than estimates from the United States[73,74]. More recent findings by O'Brien and colleagues[75] based on a comparison of predicted versus actual contaminated units suggest that the actual risk might be even lower than that estimated by Chiavetti.

Germain and colleagues[76] estimated that implementation of a 1-year donor deferral policy for MSM would result in an additional HIV-contaminated unit for every 136,000 donations, representing an 8% increase in risk. Soldan & Sinka[77] estimated the increased risk of a 1-year donor deferral policy to be approximately 60% in England.

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[71] Chiavetta *et al.* (2003).

[72] Soldan *et al.* (2005).

[73] Dodd *et al.* (2002).

[74] Busch *et al.* (2005).

[75] O'Brien *et al.* (in press).

[76] Germain *et al.* (2003).

[77] Soldan & Sinka (2003).

Sanchez and colleagues[78] recently estimated that the prevalence of reactive screening tests for HIV among MSM donors who reported the practice within the last year to be 5-fold higher than among non-MSM donors in the United States. Although a similar increase in prevalence was seen among MSM donors who reported the practice within the last 1 – 5 years, there was no significant difference for donors who did not report the practice more than 5 years ago.

These results indicate that a revised policy for MSM donors with a less than 5-year deferral period may be expected to lead an increased risk of transfusion transmitted HIV infection. Although there is no clear evidence of an increased risk with a deferral period of 5 years or more, a small increase in risk cannot be ruled out. (Residual risks of transfusion-transmitted infection are already so low in Canada that they cannot be measured directly, but can only be estimated using mathematical models. See further Appendix I: What is Risk Estimation?)

Both the screening and testing regimes now in place for known pathogens, as well as the enhanced epidemiological surveillance for new and emerging pathogens, provide robust barriers against the chance that infectious agents will enter the blood supply. The residual risks now present in the blood supply are extremely low. Any *incremental* risk due to changing the MSM deferral period to 5 years could very well be so small as to have, in a statistical sense, no measurable impact on the current level of risk.

Therefore, would the policy change discussed here (changing the MSM deferral period to 5 years) pass the risk hurdle successfully? In the end, this is a matter of judgment, that is, a matter on which reasonable people may disagree. What we can say with some assurance is that, at the very least, it may provisionally pass the risk hurdle.[79] In other words, it is "within the ballpark" for discussion. As a result, it is fair to ask if there may be other types of benefits that are likely to flow from making this policy change. These potential benefits are of two types: (1) a utilitarian benefit, namely, the possible impact on the size of the future donor pool, and (2) a non-utilitarian benefit, namely, the potential social benefit attendant upon reducing the perceived stigma associated with homosexuality.

1. <u>The Future Donor Pool.</u>

As noted earlier, personnel at America's Blood Banks have identified a "concern that the next generation of donors will be turned off from donating because they perceive that it discriminates against MSM." On the basis of existing evidence, it does not

[78] Sanchez *et al.* (2005).

[79] As the foregoing discussion seeks to point out, what is at issue here is a double risk hurdle: first, residual risk for currently known infectious diseases of concern; second, the risk of encountering novel pathogens. The conclusion – namely, that the 5-year exclusion period for MSM appears to "provisionally" pass the risk hurdle – applies to both hurdles.

seem possible to estimate either how likely it is that this perception will be a factor in future behaviour, or how large the pool of potential donors who fail to volunteer could be (this could be the subject for a survey research project). What one can say is that the trajectory of events, especially the growing protests on U.S. college campuses, appears to be strengthening this concern.

Although Canadians are on the whole less likely to mount protests and legal challenges than their U.S. counterparts, there is more than enough reason to be concerned here as well. This is because, although the Canadian currents are more subdued, they may well run stronger and deeper than the U.S. trends. The best indicator is, of course, the state of the homosexual marriage issue as between the two countries. Whereas the individual-rights-based legal system in the U.S. would seem to give the advantage to that country, the social consensus in favour of this practice – especially among young people – developed more quickly, and solidified more quickly (into the "let's move on, it's no longer an issue for us" phase), in Canada. This is consistent with the more general values of tolerance, avoidance of "moralizing" about health issues (abortion is the best example), respect for multicultural diversity, and fairness, all of which have strong bases across the entire Canadian population.[80]

Also, it is just these types of values that are held most strongly by younger people. This is why the concern for what might happen in the next generation, including the willingness to donate blood, is a legitimate and appropriate one for blood collection agencies and governments. This is a matter of utilitarian benefit: Everyone who might need blood at some point in time in the future has an interest in the outcome.

The prevailing MSM donor deferral policy can only survive the test of these Canadian values so long as the "risk hurdle" appears to represent an unchallengeable trump card in the argument. Indeed, this does appear to be the case, up to now. How long it will remain so is open to question.

2. <u>Perception of Stigma</u>.[81]

There are very few rules involving non-criminal personal choices in our society that carry, as a penalty for violating them, a lifetime ban on being able to perform one of the noblest of acts, namely, donating blood freely and without recompense. There is little doubt why the 30-year rule (and counting) should seem to many to be unjust and blatantly discriminatory. For is it conceivable that someone infected with HIV in 1977, as a result of a single act involving MSM, and still infected today, would be undiagnosed, would show no symptoms of AIDS and, in fact, would be still alive without the help of antiretroviral drug therapies? It seems impossible that such

[80] See Virginia Galt (2006), "It's okay to be gay on Bay [Street]."

[81] See Flynn *et al., Risk, Media & Stigma* (2001).

could be the case (although there may be rare exceptions). And then we could go on to ask: What if the year were 1978? 1979? And so forth.

The charge (or imputation) of engaging in immoral behaviour – and the social stigma that almost always accompanies it – is a powerful and dangerous remedy for deviance in human societies. All too often in human history, murder and mayhem has been its accompaniment. The social values that counteract it – tolerance, respect for others, the individual rights philosophy, privacy – are still frail almost everywhere on earth, and even in our own country are not always secure.

Here we accept the premise that these social values are legitimate and that all individuals in society are better off where they are respected. We regard them as intrinsic goods, and therefore not as benefits in themselves, but as rules of behaviour that provide the means for individual self-fulfillment and the necessary preconditions for a good society. We think that society and its agencies, including the blood collection system, should be always on guard against adopting rules that embody any kind of unreasonable discrimination, however unintentional, against allegedly deviant behaviours. The 30-year rule appears to fall into this category, and there are good reasons for thinking it should be changed.[82]

This perspective compels us to conclude that, with respect to MSM deferral for blood donation, *we ought to accept no longer a period of deferral than what the risk hurdle can clearly support*, using an evidence-based argument with a little help from the precautionary principle. In other words, we should "avoid trying to be more precautionary than our knowledge enables us to be" (see note 24 above).

We cited the "2004 Ontario Men's Survey," above, to support the view that MSM remains a relatively high-risk activity, in general, and by comparison with what we know about heterosexual behaviour. This justifies a choice of a 5-year deferral period, as opposed to a 1-year period, due to a reasonable apprehension about the possibility of the emergence of new pathogens, undetectable at first, which may circulate in blood and may, like HIV, be introduced and become established first in the male homosexual community.

We accept the view that current health surveillance methods make it unlikely that such a new pathogen would remain undetected for very long. We accept the views of qualified experts that a 5-year deferral period may provide sufficient protection against this threat, and thus may be an appropriate precautionary barrier against the possibility of a new round of transfusion-transmitted infection – subject to the proviso noted above in footnote 70.

[82] The strongest ethical imperative for changing the current policy exists with reference to a specific social group, namely, individuals who have a remote history of sexual abuse.

Conclusion – Option II.

Thus, if it can be fairly said that there is no clear evidence of an increase in residual risk, then moving the MSM deferral period deserves further consideration by those who regulate and administer the blood collection system in Canada. It is possible that it may be determined, after such further consideration, which might include a wide public and stakeholder discussion, that changing the MSM deferral policy to a 5-year, or possibly 10-year, exclusion period, would be regarded as satisfying the criteria for risk tolerance, or risk acceptability, in Canada.

If this were to take place, such a change in MSM deferral policy could be said to give rise to at least some of the attributes of "Pareto optimality" (also known as a "win-win" solution): Considered over a period of time that stretches into the near future, the members of each of the two social groups most immediately affected by this set of issues (MSM, blood recipients) would be better off, as would Canadian society as a whole, and no individual or group would be worse off.

We acknowledge that this is, quite obviously, a matter of judgment. First, we arrive at the conclusion that, on balance, blood recipients will be at least no worse off as a result of this change, and may in fact be better off, because (1) there is no clear evidence of increased risk, and (2) there would be a lower risk that perception of unreasonable discrimination would result in a decrease in the pool of available, healthy donors over the long term.

Second, we arrive at the conclusion that male homosexuals and bisexuals would be better off because the new exclusion period (5 or 10 years sexually abstinent) is based squarely – and exclusively – on the results of a careful review of the scientific evidence, which is made up of studies of disease prevalence and of up-to-date estimations of the risks of infectious diseases in donated blood.[83]

Key Messages.

1. There is no clear evidence that changing MSM deferral policy to a 5-year exclusion period would result in an increase in the risk of transfusion-transmitted infection for blood recipients.

2. Changing MSM deferral policy to a 10-year exclusion period, rather than a 5-year period, would provide an increased margin of safety.

3. Further consideration of a change to MSM donor deferral policy is supported by a careful and thorough review of the up-to-date evidence and risk estimations concerning risks to blood safety in Canada.

[83] We have argued that other proposed changes satisfy neither the demands of the risk hurdle nor the ethical principles which ought to guide risk management policy.

11: Conclusions

The two fundamental principles, relating to donor deferral, according to which the current system of blood safety is administered are:

A. The primary basis for donor deferral rests on the assessment and estimation of the various types of risks associated with donated blood;

B. Any changes to existing policies on donor deferral must result in an improved or equivalent level of safety by comparison to what now exists.

These principles apply equally to all donors and donor behaviours, including MSM. They are well-supported both by established risk management procedures and by important ethical considerations.

The specific risk management issues considered in this paper, in the context of the two principles stated above, are:

1. What is the basis in risk estimation for the current MSM donor deferral policy, taking into account the MSM risk profile?

2. On the basis of risk estimation, what would be the net impact on residual risk, for transfusion-transmitted infection, if the lifetime MSM deferral period were to be changed to some specified, shorter period?

The foregoing discussion suggests the following summary response to these two questions.

1. The risk estimation for the current MSM deferral policy is arrived at in two steps. Step one is a calculation derived from two primary sources of evidence:

    a. Epidemiological data, for extended time periods, on HIV prevalence and incidence rates in male homosexuals, and a comparison of those rates with rates for other demographic groups;

    b. Data from behavioural studies of MSM, indicating persistence of certain types of high-risk sexual activities.

    The inference drawn from this data is that there would be a substantially higher risk of blood infected with HIV, HBV, and HCV from donations of MSM, by comparison with the current risk profile of both repeat and first-time donors.

    Step two calculates, using one or more methods, the estimated residual risk after screening and testing. The estimation of residual risk, therefore, takes into account the possibility of one or more types of errors, such as:

a) Window-period;
b) False-negative results;
c) Quarantine release of an infected unit (operational error).

Residual risk refers to various ways of estimating the risk that remains after the various types of protective barriers have been employed.

Using the window-period method, residual risks in Canada are currently estimated as follows: HIV, 1 in 7.8 million; HCV, 1 in 2.3 million; HBV, 1 in 153,000. To be sure, there are uncertainty ranges in these estimations, but there is also clear evidence – based on the true positive results in tests – that there are a very small number of infectious donations which can escape the screening process and which are subsequently detected in testing. Since no technology or operational procedure performs perfectly at all times, it may be fairly concluded that, whatever the uncertainties, these residual risks, although very small, are non-zero.

Changing the current MSM donor deferral policy in either of two ways – to no deferral at all, or to a 12-month deferral – is estimated to increase the residual risk of transfusion-transmitted infection for blood recipients. To accept a change of either type would be a clear violation of the following ethical principles:

a) Non-maleficence: there is a reasonable chance that harm could be done;

b) Beneficence: any benefits do not outweigh the incremental risks;

c) Justice: as argued above (Section 10, Option I), these changes would not be equitable;

d) Fairness: again, as argued above, these changes fail the test of fairness because a benefit to one specific group would be purchased at the cost of transferring incremental risk to another specific group.

2. On the basis of the evidence and risk estimations reviewed in this paper, it is not possible to state with assurance that changing the MSM deferral period to 5 years (sexually abstinent 5 years or more) would result in a measurable, incremental risk of transfusion-transmitted infection. The following points are relevant:

    a. The two published studies, normally cited during discussions about changing MSM deferral policy, Germain and Soldan, only calculate residual risk with respect to a hypothetical 12-month deferral;

    b. The only published study of 5-year deferral (Sanchez) suggests that there may be no incremental risk in this case.

   c. A 5-year deferral period may provide sufficient protection against the risk associated with new and emerging pathogens, although a further review of the consensus of expert opinion on this point may be needed.

3. It is therefore reasonable to assume, based on the foregoing, that using a 10-year, rather than a 5-year, MSM exclusion period would provide an additional margin of safety.

4. The change to either a 10-year or 5-year exclusion period would provide a basis for collecting actual evidence of any changes to residual risk, as opposed to relying solely on the calculation of estimated risks.

5. If it were to be agreed that, for example, change to a 10-year or 5-year deferral period would pass the "risk hurdle," as defined above, then it would be reasonable to consider the possible, longer-term social benefits that may result from making such a change, including the lower risk that perceptions of unreasonable discrimination may compromise the continued availability of a sufficient pool of healthy blood donors in Canada.

12: Appendix I

What is Risk Estimation?[84]

Risk is the combined product of the expected frequency of an event as well as the expected consequences, in terms of harm, that will occur if the event takes place. Each of the two dimensions of risk can be framed in terms of either quantitative or qualitative expressions, or both. For example, frequency can be expressed as chance, say, one-in-a-thousand or one-in-a-million; and consequences can be formulated as deaths, injuries, and property damage, which then can be converted into economic terms, such as dollar costs (in the form of insurance payouts, for example).

For the purposes of effective risk communication, qualitative expressions are often preferable. The following table gives an illustrative list of such expressions for both terms, and – in the form of a matrix – allows people to see how frequency and consequence can be combined into an overall judgment about relative risk.

Consequence / **Frequency**	**Catastrophic**	**Critical**	**Marginal**	**Negligible**
Moderate				
Low				
Very Low				
Minimal				
Negligible				

As indicated earlier in Section 3B, however, when risk estimations are expressed in quantitative terms, it is expected that they will be framed not as single numerical values, but as ranges of values. This expectation is based on the proposition that, by their very nature, risk estimations have uncertainties associated with them.

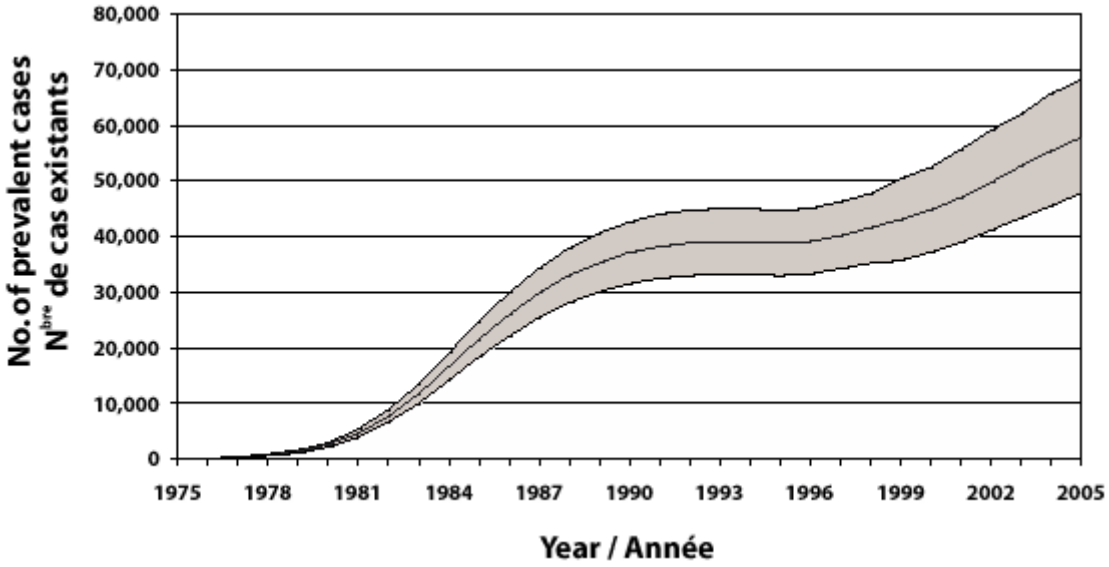
As noted above in Sections 2B & 2C (and footnote 7), the current expert estimation of transfusion-transmitted blood risks are normally framed in quantitative terms. Second, these are "residual risks," that is, risks that remain after safeguards such as donor screening and testing have been applied. For the three most serious infectious diseases, the most recent numbers are: HIV, 1 in 7.8 million; HCV, 1 in 2.3 million;

[84] Dr. Kevin Brand, McLaughlin Centre, University of Ottawa, provided valuable assistance for this appendix.

HBV, 1 in 153,000.[85] In other words, for HIV, there is one chance in 7.8 million that a unit of blood transfused to a blood recipient will be infected with this virus.

But these numbers alone do not tell the whole story. The expert estimations are always accompanied by "confidence intervals" (CI), which is one of the ways in which the ranges of uncertainty is conventionally expressed. Choosing a specific level of CI allows one to specify what the range is thought to be. To illustrate this point, including in a graphics format, we can take some numbers, referred to earlier in Section 7A, for the prevalence of HIV in the Canadian population as a whole. At the end of 2005, it is estimated that there are about 58,000 Canadians living with HIV/AIDS; and the range of uncertainty is 48,000 to 68,000. These estimates are shown at the extreme right edge of the diagram in Figure 1.[86]

Figure 1. Estimated number of prevalent HIV infections in Canada, including range of uncertainty, by year:



How are these numbers arrived at? In this case, the experts (epidemiologists) start with reports of diagnoses made by physicians across Canada. HIV/AIDS is a "notifiable" disease in Canada, that is, a "disease deemed of sufficient importance to public health to require that its occurrence be reported to public health officials."[87] So

[85] O'Brien *et al.* (in press), utilizing the incidence/window-period model.

[86] Boulos *et al.* (2006), p. 168.

[87] http://dsol-smed.phac-aspc.gc.ca/dsol-smed/ndis/glossa_e.html

the estimation starts with a compilation of actual cases, as reported by physicians. However, this will not give us the "true prevalence" of the disease, for a number of reasons – for example, those living with HIV who are not yet symptomatic or diagnosed. (Since HIV is a disease with a long incubation period, people who are infected can go for years without having any symptoms.) Therefore, although the risk estimation starts with diagnosed cases of the disease, which can be accurately counted, there is good reason to believe that the "real" number is higher. In other words, almost certainly there are more undiagnosed cases which cannot be counted.

Therefore, epidemiologists must use a variety of statistical techniques in order to estimate the true prevalence; the specific techniques that are used are referred to in the technical publications.[88] This is where the confidence interval is relevant: How certain can we be that the "true" number of cases has been indicated? In terms of our example, the range of uncertainty (48,000 to 68,000) is the 95% CI, meaning that we are 95% certain that the "true" number is neither higher that 68,000 nor lower than 48,000.[89]

Another way of stating this point is to say that we can be a great deal more confident that the true number of people living with HIV/AIDS in Canada is somewhere in the range between 48,000 to 68,000, than we can be that the number is precisely 57,780.

Now we can return to the residual risk number for donated blood in Canada, using just the HIV number: There is a 1-in-7.8 million chance that a unit of blood will be infected with HIV. The 95% confidence interval gives us the following range of uncertainty: The chance in Canada that, at the time of transfusion, a unit of blood will be infected with HIV is about 1 in 20 million at the lower end, and about 1 in 3.6 million at the upper.[90] In other words, we can be very much more confident that the true residual risk number is somewhere between 1 in 3.6 million and 1 in 20 million, than we can be that the number is precisely 1 in 7.8 million.

Where estimations of risk are given for risks that are known to be very low, and especially when two estimates are compared, there is an inherent difficulty in giving a simple answer to the question, as to whether or not one represents an incremental risk in comparison with the other. This can be shown by putting side-by-side the estimated residual risks per million donations, for HIV in donated blood, as calculated by two different methods:[91]

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[88] E.g., Boulos *et al.* (2006), p. 166.

[89] The numbers have been rounded to the nearest 1,000: Boulos *et al.* (2006), Table 1; since the CI is not specified, it is assumed to be 95%. The general rule is, the more confident we wish to be, the wider will be the range of uncertainty; for example, if we thought we wanted to be 99% certain about our result, both the lower and the upper bounds of the range would "spread out."

[90] O'Brien *et al.* (2006), Table 2.

[91] Residual risk for all donors, per million donations: O'Brien *et al.* (2006), Tables 2 & 3. We acknowledge the valuable assistance of Sheila O'Brien in this section.

Method*	Residual Risk per million	Uncertainty Range (95%CI)
A. Incidence/W-P:	0.13 (1 in 7.8 million)	0.28, 0.05 (1/3.6m – 1/20m)
B. NAT/ELISA:	0.20 (1 in 5 million)	1.04, 0.03 (1/1m – 1/33m)

*A: Incidence/window-period; B: NAT-reactive, antibody-negative

If one looks just as the single risk number itself, it appears that Method B yields a "higher" risk than does Method A. However, when the uncertainty ranges are specified, it can be noted that the range under Method A fits within the range under Method B: The two ranges overlap. Therefore, at a reasonable level of confidence, we simply cannot say that the risk, as measured, is actually higher or lower.

What is the "bottom line" here? Currently, the residual risks for transfusion-transmitted infectious diseases in Canada are extremely low. As the "risk number" gets smaller and smaller, incremental risk becomes increasingly difficult to estimate.

In a passage quoted earlier (footnote 24 above), it was suggested that, in any particular case where very low risks are concerned, we should not try to be more precise than the available evidence – drawn from the risk estimation – allows us to be.

13: Appendix II

"Scientific Justification" for MSM Donor Deferral Policy

In current discussions there are numerous references to a lack of "scientific justification" for the current MSM donor deferral policy. One can find such references being made not only by gay activists, but also by independent academics and by professionals working in blood agencies. In our opinion this is careless use of language, because it confuses the disciplines of science and risk assessment.

"Science" normally refers to the basic sciences (biology, chemistry, physics) as well as intermediate disciplines (e.g., biochemistry) and applied disciplines (medicine and epidemiology, for example). With reference to blood, these sciences would explain how a blood-borne virus can cause infection, what the health consequences are if it is left untreated, and how various therapeutic agents might control or eliminate the infection. All of this analysis is done with reference to the generic biological characteristics of the human organism, including the impact of genetic variation in any population.

However, for blood collections agencies, the decisive question is not generic, but highly specific: What is the chance that any particular unit of donated blood carries an infection of concern, such as HIV? Although the basic and applied sciences provide the necessary foundation for the understanding of how and why exposure to a virus can cause disease, they do not and cannot answer the question posed above – at least, not by themselves. The question about chance is properly a matter for risk estimation, which seeks to combine the known characteristics of a system (from epidemiological investigation) with the unknowns (data gaps) into a quantitative or qualitative expression of likelihood.

MSM and other donor deferral policies are based directly on risk estimations, not scientific knowledge *per se*. The most sophisticated knowledge in biochemistry cannot of itself answer the question about the infectivity of a particular unit of blood – unless and until it is subjected to a competent test, of course. But all deferral policies are attempting to predict, *prior to any testing*, what the likelihood of infection for a particular unit is. That is a risk question, and a risk analysis is required in order to answer it.

The scientific justification for all donor deferral policies is that exposure of a potential donor to a serious disease or drug can cause the donor's blood to be harmful to a recipient. Thus all existing donor deferral policies are fully justified in scientific terms. For example, when the deferral period for dental work was reduced from 72 to 24 hours, the evidence cited to justify this change was the results of scientific studies on how much time, on average, is required for the body to clear the transient bacterial infections that may occur during routine dental procedures.

Thus, rather than questioning the "scientific justification" for MSM donor deferral policy in broad terms, it would be more appropriate to phrase the issue more narrowly, in a series of questions as follows:

1. With reference to the identified behavioural risk factors involved in blood safety, does the weight of evidence in epidemiological studies, together with the current risk estimations, justify the 30-year deferral period?

2. Specifically, does this evidence – including the relevant uncertainty ranges – support the view that blood from a donor reporting *any* MSM activity over this *entire* period would increase the residual risk of transfusion-transmitted infection?

3. Alternatively, taking this evidence (and uncertainties) into account, is there any shorter period of MSM deferral for which one could conclude, with a reasonable degree of confidence, that there is unlikely to be any increase, over current levels, in residual risk?

4. If the evidence assembled to date is still inconclusive, with respect to the three questions posed above, is it possible to identify the types of additional studies that could provide answers to them within sufficient levels of confidence to support alternative policies?

14: Appendix III

Presentation Notes
Canadian Blood Services Board of Directors Meeting
December 14, 2006
"MSM Donor Deferral Risk Assessment"

William Leiss

Introduction.

Risk is the chance of harm. It encompasses both the likelihood and consequences of particular types of harms, either to the population as a whole or to specific individuals or subpopulations within it. Further, risk includes both the nature of a hazard, such as an infectious microbe that can cause disease (that is, the harm), as well as the indication of who may be exposed to that hazard. A risk factor specifies a mechanism of exposure, that is, the particular activities, environmental factors, or mode of transmission (vector) of the disease agent.

A health risk assessment seeks to provide information, both of a quantitative and qualitative type, on the nature and magnitude of a risk. This information is used as a basis for risk management (or risk control), which includes broad policy choices as well as available technologies (e.g., testing) and operational procedures. The objective of risk management is to reduce risks to a level that is considered "acceptable" by experts and the public. In terms of blood safety, acceptable risk is determined by the principle known as ALARA, "as low as reasonably achievable."

Approach.

The McLaughlin Centre Report considers a number of policy options for varying the lifetime MSM donor deferral period. In this report, the authors use a set of risk management principles such as ALARA and the precautionary principle, along with a number of complementary maxims drawn from medical ethics, to provide a basis for assessing the risks associated with such options. We derive from them a smaller set of guidelines for the specific case of MSM donor deferral and blood safety, namely:

1. The fundamental basis of policy options for blood safety is the assessment and management of risks;
2. It is unacceptable to choose a policy option that would represent an incremental risk of tranfusion-transmitted infection for blood recipients;
3. Situations that may give rise to a "transfer of risk" from one group to another are highly problematic in ethical terms.

In general, risk management is an evidence-based approach to risk control. A wide range of studies and data, including physiological and behavioural parameters, is used to *estimate* the prevalence (total disease burden) and incidence (new cases) of a disease in a population and various subpopulations. Estimation is required for a number of reasons; for example, there are diseases of long latency, and therefore the number of individuals diagnosed with such a disease almost certainly does not correspond with the total number who are in fact infected at any point in time.

Risk estimation necessarily has uncertainties attached to it. A specific "number" is often cited, such as the estimated number of cases of HIV in the Canadian population. However, that number actually represents one point within a larger range of possibilities, a point that is chosen according to statistical methodologies. The lower the prevalence of a disease in a population, and the longer its latency period, the more we must rely on estimation, rather than direct measurement, to assess the risk.

In blood safety today, in North America and other advanced nations, it is often said that risks of infectious diseases in blood are so low that they cannot be measured directly, but only estimated. This is, without a doubt, good news. However, it also means that – for exactly the same reason – it becomes very difficult, if not impossible, to tell with any assurance what change there might be, in the level for a particular risk, if one of the risk control parameters is varied in a specific way.

What this means is that the risk estimations themselves are unlikely to be able to provide us, all by themselves, with the guidance we require in considering changes to policy choices for blood safety. In such a case, we must look to the larger set of decision support considerations available to us for this guidance.

Application of the Approach to MSM Donor Deferral Policy.

The specific question considered in the Report is what conclusions can be drawn from the risk-based policy approach in the case of an appropriate period for MSM donor deferral. As mentioned earlier, risk assessments must start with the available evidence base. In particular, for a well-described set of risks that has been studied for some time, one looks for the "weight of evidence" in the scientific literature published in peer-reviewed journals.

If we start with the shortest deferral periods, and work forward, these are (a) no deferral or (b) one-year deferral (i.e., sexual abstinence for one year prior to donation). The weight of evidence in the literature suggests that, for both of them, there would be some incremental risk of transfusion-transmitted infection. For the longer of the two periods, it is certainly true that the incremental risk is extremely low: In an expert presentation in March of 2006, this was estimated (for HIV) as 1 additional case in 33 million donations. Very low, indeed – but it is not zero.

And here we must add another risk consideration entirely, namely, the risk represented by "novel pathogens." This risk has two components in the present context: (1) that there may be an as yet undetected bloodborne pathogen with a long latency,

thus infectivity without presentation of disease symptoms; (2) that MSM activity is more significant as a disease vector than are heterosexual relations for one or more such pathogens. Some experts believe that it is unlikely, on the basis of the current levels of disease surveillance, that such a pathogen would remain undetected for more than five years after first infecting the human population. The principle of precaution would be invoked, therefore, with respect to the risk of novel pathogens.

We argue, on the basis of evidence and expert judgment, that neither of these two proposed, alternative deferral periods can pass what we call the "risk hurdle," in the sense that some incremental risk has been estimated to be present.

The next period is a five-year abstinence. Here the evidence base is almost entirely lacking, with the exception of a single study, which suggests that there is no discernable incremental risk. This opens the way for further discussion. The first consideration is that the "precautionary window" for novel pathogens *may be* greater than five years, as is suggested in the context of a very recent publication demonstrating (for the first time) the transmissibility in blood of Human Herpes Virus-8. Some further elicitation of expert judgment is needed in order to more fully examine this issue.

Conclusion.

The conclusion of the foregoing argument is that a ten-year abstinence period may be regarded as passing the risk hurdle. The limitations of precision in risk estimation for very low risks, discussed above, means that a small incremental risk cannot be definitively ruled out. However, it is very unlikely that there would be an incremental level of risk and therefore, an unacceptable risk transfer. (It is possible that the five-year period would pass as well, depending on the results of the further elicitation of expert judgment, as above.)

Under such circumstances other considerations, outside the scope of formal risk estimation, become relevant to the choice of policy options for MSM donor deferral. Some of these considerations are:

1. If a deferral period of ten years passes the risk hurdle, then continuation of lifetime deferral may represent an unreasonable form of social discrimination;
2. Unreasonable social discrimination, in the case of gay men, may represent a form of stigmatization that is unacceptable in Canadian society;
3. Perceptions of unreasonable discrimination, if widely held in society as a whole, may jeopardize the security of supply of donated blood in the future.

Taken together, such considerations impose an obligation on fair-minded persons and institutions to take further steps toward ascertaining whether achieving a broad consensus in Canadian society, in favour of a policy change, might be possible.

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