ALTERNATIVE BLOOD RISK CATEGORIZATION MODELS FOR SOUTH AFRICA

by

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BLOEMFONTEIN

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DECLARATION OF INDEPENDENT WORK

I, Edmund Johann Leipoldt, hereby declare that this project submitted for the degree MASTER TECHNOLOGIAE: BIOMEDICAL TECHNOLOGY in the SCHOOL OF HEALTH TECHNOLOGY at the CENTRAL UNIVERSITY OF TECHNOLOGY, FREE STATE, is my own independent work that has not been submitted before to any institution, by me or anyone else as part of any qualification.

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Edmund Johann Leipoldt DATE

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SUMMARY

Blood transfusions carry a number of risks, one of which is transmitting HIV/AIDS from an infected donor. Since HIV is sexually and parenterally transmitted, the initial HIV risk management of donated blood in the early 1980's consisted of screening by visual assessment and completion of a lifestyle questionnaire, followed by deferral of practicing homosexual and bisexual male donors and intravenous drug addicts. The visual assessment was replaced by tests for antibodies directed against HIV, from the middle 1980's. In the early 1990's HIV was increasingly found in the black population of South Africa, particularly among black women. By 1998 0.26% of the received donations returned a positive test for HIV-1. In 1999 the South African Blood Transfusion Service (SABTS) Blood Safety Policy was introduced, including a donation HIV-risk categorization model which used the donor ethnic group, gender and donation history as indicators of the risk of exposure to HIV.

The unacceptable use of the donor ethnic group as an indicator was the motivation to seek a suitable alternative donation risk categorization model which excludes the donor's ethnic group. The use of a more acceptable model with a high level of accuracy in predicting the risk of exposure to HIV has the potential of contributing to the reduced risk of HIV transmission through blood transfusion in South Africa.

The aim of this study was to compare the suitability of four alternative models based on the information obtained from donors. Donations from new and lapsed donors were categorized in the highest applicable risk category in each model. The study was divided into two phases to achieve the aim. The first phase needed to determine suitable parameters for a model which uses the donor's age as an indicator. For this phase the ages of the regular donors returning an HIV-positive test result, were analysed. The second phase was to evaluate the effectiveness of the four suggested alternative blood donation risk categorization models against the model introduced by the SABTS in 1999. During this phase the donor demographic data and donation histories of donors who made donations at the Bloemfontein branch of the South African National Blood Service (SANBS) between October 2004 and September 2005, were analysed statistically. This phase honed in on two aspects to evaluate the effectiveness of the alternative models. Firstly the percentages of HIV-positive donations found in each risk category of each model, were determined as indicators of the residual risk of HIV-positive donations within the window period. Secondly the percentages of the collected blood donations allocated to each risk category within each model, were analysed to give an indication of the availability of "safe" blood associated with each of the models.

The first phase of the study highlighted the difference in the age-group prevalence between male and female regular donors who returned an HIV-positive test result. Potentially suitable parameters for an Age-based Model were formulated by comparing this data with the ages of the donors who

donated in Bloemfontein during the twelve months covered by this study. The second phase compared a Donation Interval Model, a Combination Model (using donation interval, gender and ethnic group as indicators), the SANBS 2005 Model (using age and gender as indicators) and an Age-based Model (using age and gender as indicators) with the SABTS 1999 Model (using gender and ethnic group as indicators).

This study has shown that each of the models analysed has its advantages and disadvantages. The SANBS 2005 Model proved the best model without an ethnic indicator, for SANBS. Several recommendations regarding further investigation emanating from the results of this study were made.

OPSOMMING

Bloedoortappings is onderhewig aan ‘n aantal risikos waaronder die oordrag van MIV/VIGS vanaf ‘n geïnfekteerde skenker. Aangesien MIV seksueel en parenteraal oordraagbaar is, het die aanvanklike MIV risiko-bestuur van geskenkte bloed in die vroeë 1980’s bestaan uit ’n visuele beoordeling en die voltooiing van ’n lewensstyl vraelys met gepaardgaande wegwysing van praktiserende homoseksuele en biseksuele manlike skenkers en intraveneuse dwelmverslaafdes. Die visuele beoordeling is gedurende die middel 1980’s vervang met toetse om teenliggame teen MIV op te spoor. Gedurende die vroeë 1990’s is MIV toenemend onder die swart bevolking van Suid-Afrika gevind, veral onder swart vrouens. Teen 1998 is 0.26% van die skenkings ontvang positief getoets vir MIV-1. In 1999 is die Suid-Afrikaanse Bloedoortappingsdiens (SABOD) Bloed Veiligheidsbeleid geïmplementeer, insluitende ’n skenking MIV-risiko kategoriseringsmodel wat die skenker se etniese groep, geslag en vorige geskiedenis van bloedskenkings gebruik het as aanwyser van die risiko van blootstelling aan MIV.

Die onaanvaarbare gebruik van die skenker se etniese groep as aanwyser was die beweegrede vir ’n alternatiewe skenking risiko kategoriseringsmodel wat die skenker se etniese groep uitsluit. Die gebruik van ’n meer aanvaarbare model, met ’n hoë akkuraatheid ten opsigte van die voorspelling van die risiko van blootstelling aan MIV, het die potensiaal

om by te dra tot die verminderde risiko van MIV oordrag deur middel van bloedoortapping in Suid-Afrika.

Die doel van die studie was om die geskiktheid van vier alternatiewe modelle, gebaseer op die inligting ontvang van gereelde bloedskenkers, te vergelyk. Skenkings van nuwe en voormalige skenkers is gekategoriseer in die hoogste toepaslike risiko kategorie in elke model. Die studie is in twee fases verdeel om dié doel te bereik. Die eerste fase moes geskikte parameters identifiseer vir ’n model gebaseer op die skenker se ouderdom. Tydens hierdie fase is die ouderdomme van die gereelde skenkers met ’n positiewe MIV toetsresultaat, geanaliseer. Die tweede fase moes die effektiwiteit van die vier voorgestelde alternatiewe bloedskenking risiko kategoriseringsmodelle opweeg teen die model wat by die SABOD in 1999 geimplementeer is. Tydens hierdie fase is die demografiese inligting en skenkingsgeskiedenis van skenkers wat by die Bloemfonteintak van die Suid-Afrikaanse Nasionale Bloeddiens (SANBD) tussen Oktober 2004 en September 2005 geskenk het, statisties geanaliseer. Die effektiwiteit van die alternatiewe modelle is volgens twee maatstawe beoordeel. Eerstens is die persentasies van die MIV-positiewe skenkings gevind in elke risiko kategorie vir elke model, bepaal ter aanduiding van die residuele risiko van MIV-positiewe skenkings in die venster-periode. Tweedens is die persentasies van die bloedskenkings soos toegeken aan die onderskeie risiko kategorieë in elke model, geanaliseer. Daarvolgens kan die beskikbaarheid van “veilige“ bloed ten opsigte van elk van die modelle bepaal word.

In die eerste fase is die verskil in ouderdomsgroep prevalensie tussen MIV-positiewe manlike en vroulike gereelde skenkers uitgelig. Potensieël geskikte parameters vir ’n Ouderdom-gebaseerde Model is geformuleer deur hierdie inligting te vergelyk met die ouderdomme van die skenkers wat in Bloemfontein geskenk het gedurende die twaalf maande bestek van hierdie studie. Die tweede fase het ’n Skenking Interval Model, ’n Kombinasie Model (met skenking interval, geslag en etniese groep as aanwysers), die SANBD 2005 Model (met ouderdom en geslag as aanwysers) en ’n Ouderdom-gebaseerde Model (met ouderdom en geslag as aanwysers) vergelyk met die SABOD 1999 Model (met geslag en etniese groep as aanwysers).

Hierdie studie het getoon dat daar voor- en nadele verbonde is aan elk van die vier modelle wat geanaliseer is. Die SANBD 2005 Model het geblyk die beste model, sonder etniese aanwyser, te wees vir die SANBD. Etlike aanbevelings voortspruitend uit die resultate van hierdie studie is gemaak aangaande verdere navorsing.

CHAPTER 1: INTRODUCTION

Throughout the world, blood transfusion services collect and distribute blood donations on the premise of these donations being made available to patients to save their lives in the face of life-threatening blood loss or haematological disease. The South African National Blood Service (SANBS) is no different in this respect. SANBS is obligated by the South African Department of Health (DoH) through its "Policy with regard to blood transfusion in South Africa" (South Africa: Department of Health, 1998), to ensure that an adequate supply of safe (low risk) blood is provided to all people resident in South Africa. The National Blood Transfusion Council of South Africa through its "Policy to protect the safety of the blood supply against the HIV/AIDS pandemic" (National Blood Transfusion Council of South Africa, 2000) provides more specific guidance in this respect to the blood transfusion services and the DoH. Being an organization situated in Africa and dependant on blood donations from the population of South Africa with an HIV prevalence of 16.2% in 2005 (UNAIDS, 2007) and a reported official infection rate or incidence of 11.4% (Williamson, 2006), the HIV pandemic poses a serious threat to the stated aim of providing blood which will save patients' lives. This is even more relevant in the light of the efficiency of the transmission of HIV from infected blood donors to patients through blood transfusions. Swanevelder (1994) reported that the World Health Organization (WHO) at that time already estimated the risk of HIV infection following an HIV-infected transfusion to be more than 90%. The study by Shisana, Rehle *et al* (2005) under the auspices of the South

African Human Sciences Research Council, also indicates that 29% of individuals, who believed that they were at risk of being infected with HIV, believed that the source of the infection would be through a blood transfusion.

The issue of finding, collecting and ultimately providing blood in sufficient quantities, which is safe enough to actually save each patient's life and not ring the patient's death-knell, remains a major challenge in Africa. Many methods of managing the risk of HIV transmission, ranging from pre-donation donor education campaigns, to initiatives supporting the appropriate clinical use of blood, and covering all the various phases in the collection, testing, processing, issuing and transfusion stages, have been applied to this challenge. Some success has been achieved by the application of these diverse methods as shown by the lower prevalence of HIV in blood donors when compared to the HIV prevalence in the general South African population, indicated in Table 1.2. However, some risk still remains. It is therefore clear that a multifaceted approach will probably always be needed. This study will investigate the application potential of five alternative models with regard to one of the tools which can be applied to the management of the risk of transfusion transmitted HIV. The tool in this case being the categorization of blood donations in a hierarchy of risk, to allow the use of blood products with the lowest risk available, at all times.

1.1. The blood transfusion services in South Africa

The DoH considers itself as being "… ultimately accountable to the citizens of South Africa for all aspects of blood transfusion" as cited in its Policy with regard to blood transfusion in South Africa (South Africa: Department of Health, 1998). The practice of blood transfusion in South Africa is therefore regulated by the Health Act of 2003. In terms of this Act any organization undertaking the collection, processing, testing and issuing of blood for transfusion to patients is required to be licensed by the DoH and to fulfil the obligations stipulated in the Health Act of 2003, the Regulations Pertaining to Blood Transfusion and the Standards for the Practice of Blood Transfusion in South Africa. SANBS was, and still is (as of April 2008), one of two blood services licensed by the DoH in the period covered by this study (October 2004 to September 2005) for the collection, processing and issuing of voluntarily donated blood, the other service being the Western Province Blood Transfusion Service (WPBTS).

SANBS owes its existence to the DoH's aim as stated in its Policy with regard to Blood Transfusion in South Africa (South Africa: Department of Health, 1998) to de-fragment the provision of blood transfusion services in South Africa as advocated by the WHO WHA728.7 resolution, through the voluntary amalgamation of the various blood transfusion services which existed in South Africa prior to 2000. The services which amalgamated in the course of 1998 to 2000 and ultimately formed SANBS, were the South African Blood Transfusion

Service (SABTS), the Northern Blood Transfusion Service (NoBTS), the Natal Blood Transfusion Service (NBTS), the Border Blood Transfusion Service (BBTS), the Eastern Province Blood Transfusion Service (EPBTS) and a small organisation operating in Durban under the name of Medimatch. Figure 1.1 shows a map of South Africa on which the approximate geographical areas served by these services can be identified. The SABTS with its head office in Johannesburg served the Mpumalanga, Gauteng, North West, Northern Cape and Free State provinces. The NoBTS with its head office in Pietersburg (now known as Polokwane) served the Limpopo province. The NBTS with its head office in Pinetown near Durban served Kwazulu-Natal. The BBTS with its head office in East London served the eastern half of the Eastern Cape. The EPBTS with its head office in Port Elizabeth served the western half of the Eastern Cape. Although participating in the initial amalgamation discussions, the WPBTS withdrew prior to the final amalgamation which brought about the creation of SANBS in April 2000. The WPBTS with its head office in Cape Town continues to serve the Western Cape. Figure 1.1 also indicates the boundaries of the area served by SANBS and the location of Bloemfontein within this area. The area covered by the map in Figure 1.2 which shows the area served by the Bloemfontein Branch of SANBS, is also indicated. It should be noted that Lesotho is excluded from the area served by SANBS due to the fact that it is an independent sovereign country with its own blood transfusion service.

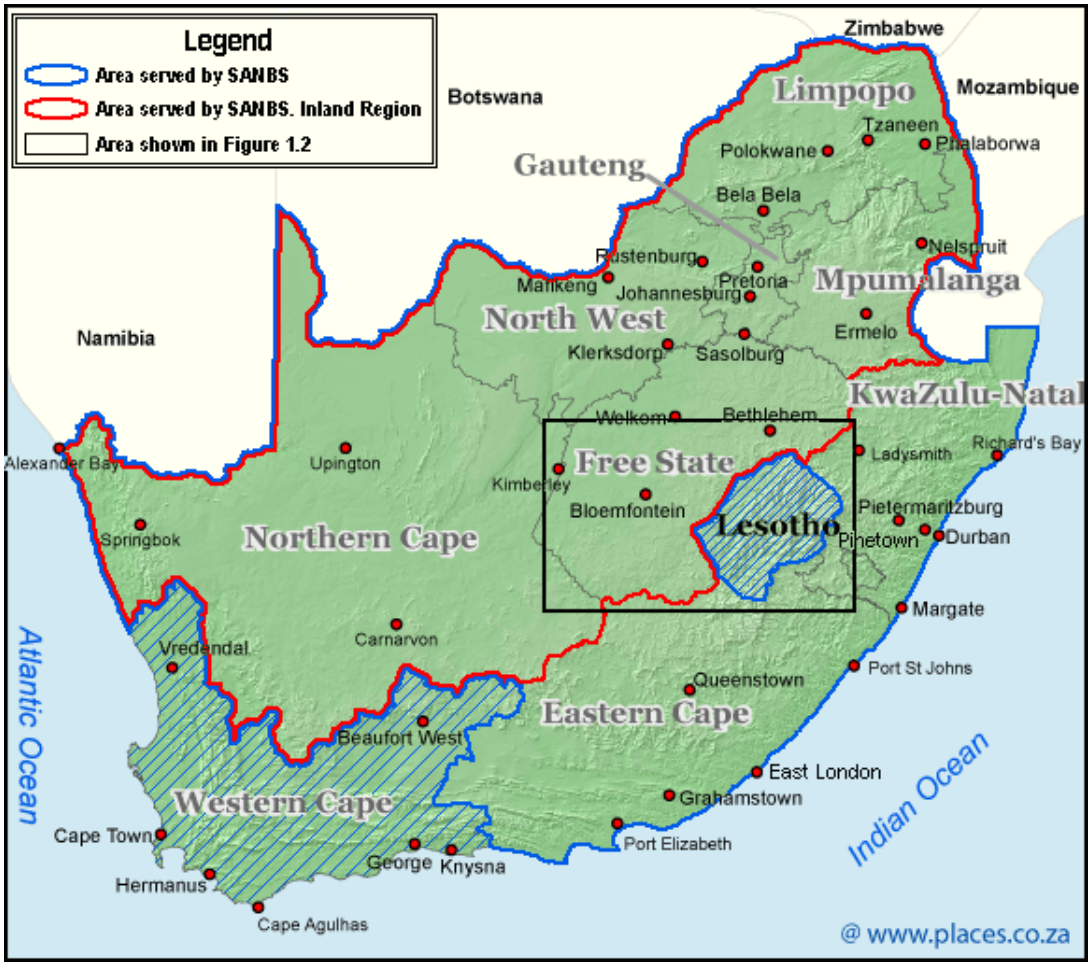

Figure 1.1: Map of South Africa indicating the area served by SANBS (modified from SA PLACES)

At the time of this study, SANBS was operationally managed as two regions, namely the East Coast Region and the Inland Region. The East Coast Region consisted of the areas served by the former NBTS, BBTS, EPBTS and Medimatch, with regional head-office located in Pinetown, Natal. The Inland Region consisted of the areas served by the former SABTS and NoBTS, with regional head-office located in Roodepoort, Gauteng. At the next lower level, the Inland Region was managed through 21 branches (each under the control of a Branch

Manager) located in the larger centres, with each branch serving a particular geographical area within the Inland Region. Since the process of amalgamation of the services had not been completed at the time of this study, the operational management structure and many of the operational practices still differed between the two regions in terms of the details of the practices, specific procedures and specific tests. It should therefore be noted that this study is based on the practices, specific procedures and tests as prescribed in the Inland Region of SANBS during this period because the whole blood donations analysed in this study were obtained in the blood collection area of the Bloemfontein branch. Figure 1.2 shows the area served by the Bloemfontein branch of SANBS.

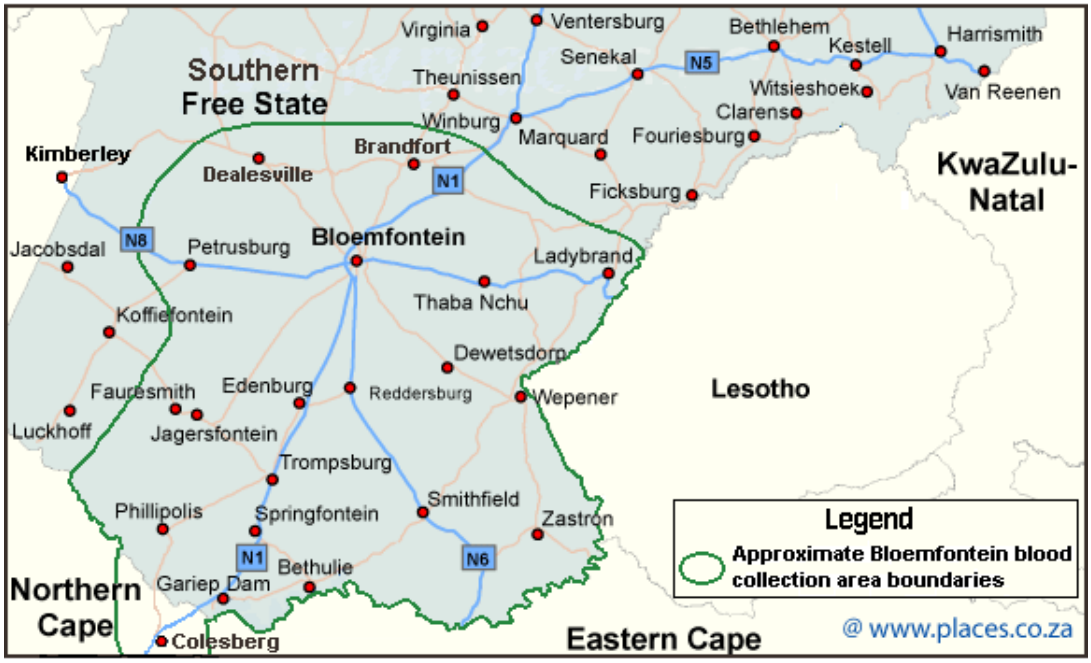

Figure 1.2: Approximate area served by the Bloemfontein Branch of SANBS (modified from SA PLACES)

The mission statement of SANBS is as follows: “The mission of the South African National Blood Service (SANBS), an association of voluntary, non-remunerated blood donors, is to provide all patients with sufficient, safe, quality blood products and medical services related to blood transfusion in an equitable, cost effective manner.” (BTS53E rev. 3, 2004). To achieve this, SANBS collects human blood from voluntary blood donors, determines the blood group and performs an array of tests for presence of transmissible diseases, processes the blood into different components and distributes it for transfusion to patients with acute blood loss or diseases resulting in a severe lack of one or more of the components which make up whole blood in the body. A broad overview of these processes, as prescribed by the Inland Region of SANBS, is given below. Only the processes implicated in this study will be discussed in greater detail in the following chapters.

1.2. The blood collection process

The blood collection process starts with the recruitment of potential donors whose blood is anticipated to be suitable for transfusion to patients. The National Blood Transfusion Council of South Africa (1999) lays down the minimum requirements which voluntary blood donors need to meet in order for their blood donations to be considered suitable for transfusion to patients. The basic criteria include the following: donor age, donation interval, general health, drug therapy, haemoglobin concentration or haematocrit value, pulse and

blood pressure, pregnancy and donor weight. All potential donors are medically evaluated by a physician or nursing sister prior to donation to ensure that the donation of blood would not harm the donor and that the donated blood is not expected to harm the recipient. The method of evaluation consists of the completion and assessment of a health questionnaire, a haemoglobin screening test, a blood pressure determination and a pulse rate determination.

If the potential donor is deemed fit to donate, approximately 450ml of blood is taken into a container containing 70ml of an anticoagulant-preservative solution. Various containers have been used over time as dictated by technology and processing requirements. During 2004 and 2005 the choice was limited to single blood packs used for blood not intended for blood component preparation, and OPTI-system triple blood packs for blood intended for blood component preparation. Figure 1.3 provides a schematic diagram of these two types of blood packs. The whole blood donations are then sent to the branch Components Laboratory for processing into their main constituent blood components as described in 1.4.

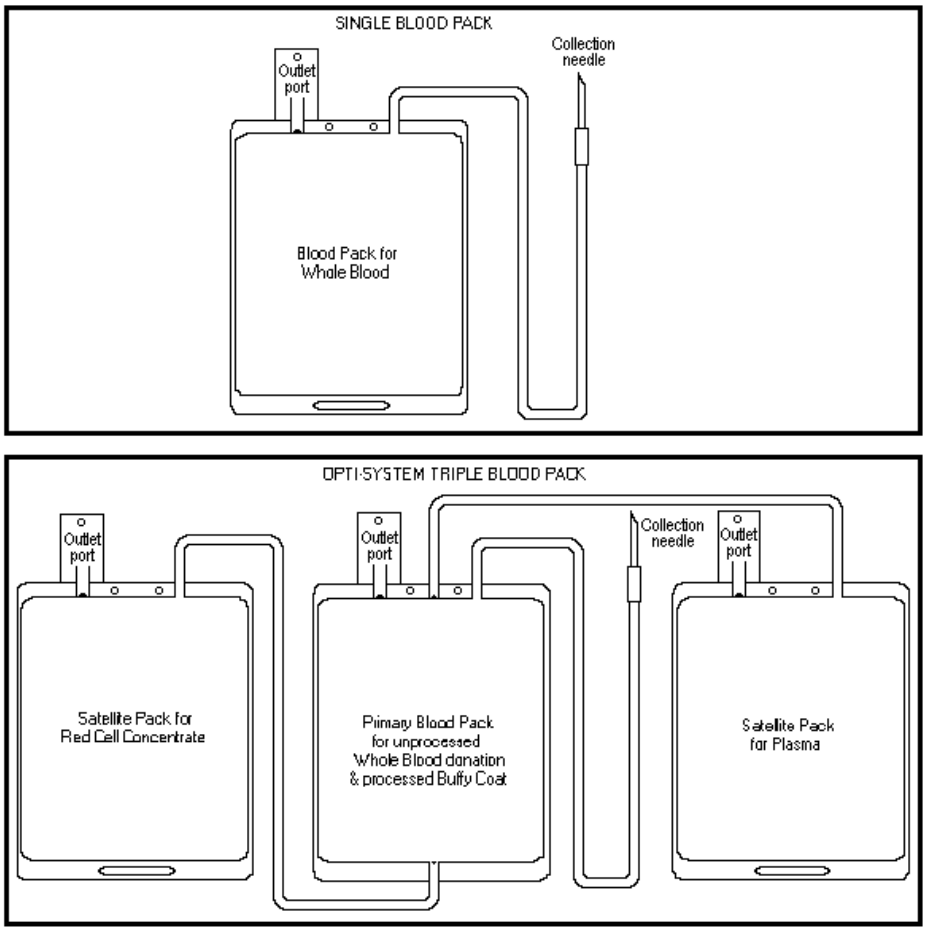

Figure 1.3: Blood packs used for blood collection during 2004 and 2005

In addition, two blood specimens are drawn from the pack of donated blood at the end of the donation process. These specimens are then sent to the SANBS Donor Serology and Donor Virology laboratories in Roodepoort for testing. One specimen is used for blood group determination and antibody screening, and the other for blood transfusion transmissible disease marker screening, as indicated in 1.3 below.

1.3. Determination of the blood group and markers for blood transfusion transmissible diseases

The National Blood Transfusion Council of South Africa has laid down very specific requirements with regard to the determination of the blood groups of the donations, and tests to determine the presence of markers for blood transfusion transmissible diseases (National Blood Transfusion Council of South Africa, 1999). The routine testing requirements for all donations prior to release as prescribed are as follows. One of the blood specimens taken at the end of the donation process is used to determine the ABO type, the Rh_o (D) type, the anti-A and / or anti-B titre, and the presence of irregular blood group antibodies by the SANBS Donor Serology Laboratory in Roodepoort. This laboratory also carries out the VDRL test for antibodies to syphilis.

The other specimen is tested for the presence of the hepatitis B surface antigen (HBsAg), the hepatitis C virus (HCV) and the human immunodeficiency virus (HIV) using the ELISA methodology. In the case of HCV, the specimens are tested for antibodies to HCV as indicated in SOP-DON-68 rev. 0 (1999). For HIV, the specimens are tested for the HIV-1.2.O antibodies as well as the HIV-1 and -2 p24 antigens as indicated in SOP-DON-44 rev. 1 (2003). These tests are carried out at the SANBS Donor Virology Laboratory in Roodepoort.

1.4. Blood processing

The donated unit of whole blood can be processed into a number of blood component products for transfusion into patients. Due to the scarcity of donated blood relative to the demand, virtually all whole blood donations are processed into their main constituent components of red cells, platelets and plasma. Each of these component products have their specific roles in the body; red cells provide the oxygen transport capacity, platelets play a vital role in the control of haemorrhage, and plasma provides coagulation factors and circulatory volume. Transfusions of red cell concentrates are therefore generally indicated in situations of severe haemorrhage or haematological disease affecting the patient's red cells. Platelet concentrates are generally indicated in situations of haematological disease affecting the patient's platelets or excessive platelet consumption during haemorrhagic episodes. Plasma (thawed fresh frozen plasma or reconstituted lyophilised [dried] plasma) is generally indicated in situations of circulatory volume loss without red cell loss (e.g. generalized burns) or excessive coagulation factor consumption due to haemorrhagic episodes. The storage conditions and shelf-life of each of these products differ, red cell concentrates are stored at 1 – 6ºC for a maximum of 35 days, platelet concentrates are stored at 20 – 24ºC for a maximum of five days, and fresh frozen plasma is stored at less than -18ºC for a maximum of one year.

This practice allows the transfusion of the specific blood component product indicated by a patient's condition, leaving the remaining products available for other patients. The advantage of this practice lies in the ability to provide sufficient blood from a scarce resource to a greater number of patients. The disadvantage of this practice lies in the fact that a single donation from a donor infected with a transfusion transmissible disease, could transmit the disease to as many as 5 different patients, depending on the number of component products prepared from that donation and transfused. The products generally prepared in the Components Laboratory in Bloemfontein are indicated in Table 1.1.

Table 1.1: Blood component products prepared from donated whole blood

PARENT PRODUCT	1st LEVEL DAUGHTER PRODUCT	2nd LEVEL DAUGHTER PRODUCT
Whole Blood (⬅525 ml)	Red Cell Concentrates (⬅300ml)	Paediatric Red Cell Concentrates (3 x ⬅75ml)
		Leuco-depleted Red Cell Concentrates (⬅250ml)
	*Fresh Frozen Plasma**	Donor-retested Fresh Frozen Plasma (⬅260ml)
		*Plasma frozen for the National Bioproducts Institute**
	*Plasma for Processing** *Buffy Coats**	Pooled Random Donor Platelet Concentrates (⬅250ml) [Prepared from 1 x Plasma for Processing + 5 x Buffy Coats]

** Intermediate products*

A considerable amount of the fresh frozen plasma prepared in Bloemfontein is sent to the National Bioproducts Institute (NBI) in

Pinetown for the preparation of a number of virus-inactivated plasma products (e.g. factor VIII concentrates, factor IX concentrates and lyophilised plasma) and fractionated products (e.g. 20% albumin) for SANBS. This process requires the pooling of the plasma obtained from no more than 100 donations per pool. The NBI makes use of the solvent-detergent method of virus inactivation. Their difficulty, while the prevalence of HIV is high, lies in the fact that the viral load of an unknown number of donations in a given batch, which tested negative for HIV but were within the window period could exceed the amount of inactivation achieved with the amount of inactivating reagents that is added.

1.5. The issuing of blood

Once the blood has been processed into the required components and the results of the blood grouping tests and disease marker tests have been received, the units considered safe for transfusion to patients are appropriately labelled and sent to the cross-match laboratories. At the cross-match laboratories specimens of blood from patients requiring blood transfusions, are received. The ABO and Rh_o(D) type of the patient, and the presence of irregular blood group antibodies is determined as prescribed in SOP-BBK-002 rev. 4 (2004). Blood of an appropriate ABO and Rh_o(D) type and any other required quality characteristics such as the lowest risk category available, is then selected, checked, and a compatibility test performed according to

SOP-BBK-002 rev. 4 (2004) prior to the issuing of blood for transfusion to the patient.

1.6. The broader African context

Lachman (1995) reported that in some areas of sub-Saharan Africa the prevalence of HIV in sexually active adults varied between 10% and 33%. UNAIDS (2007) indicates that South Africa has the largest number of people living with HIV/AIDS in the world, estimated by the WHO (2008) to have been approximately 5.5 million in 2005. This translates to an adult (aged 16 – 49) prevalence of 16.2%. However, a high HIV prevalence is not limited to South Africa. Most of sub-Saharan Africa suffers from this pandemic. Tapko, Sam and Diarra-Nama (2007) reported that globally more than 60% of people living with HIV or approximately 22.5 million people (UNAIDS, 2007) were concentrated in the little more than 10% of the total world population living in sub-Saharan Africa. The WHO estimated in 2002 that approximately 5% to 10% of all HIV transmissions occur through infected blood transfusions (United States of America: Department of State, 2006). The magnitude of the problem is echoed by the HIV/AIDS Survey Indicators Database (2008) which states that the risk of transfusion-associated HIV transmission is highest in this area although doubt is expressed regarding the usefulness of donor screening policies in countries with a high HIV prevalence where more than one adult in five is infected. The statistics quoted by the United States of America: Department of State (2006) are largely based on

assumptions regarding the HIV prevalence in the individual countries and each country's donation screening procedures. Initiatives such as the United States of America (USA) President's Emergency Plan for AIDS Relief (PEPFAR) are intended to contribute considerably towards reducing the prevalence of HIV by funding suitable projects. Blood transfusion services can also obtain funding from PEPFAR to finance projects intended to limit the transmission of HIV through blood transfusions. Table 1.2 provides a summary of the recently reported prevalence of HIV in the populations of a number of countries in sub-Saharan Africa and in the blood donations collected and tested in those countries. Table 1.2 also provides the same information for a number of other countries to highlight the magnitude of the challenge in sub-Saharan Africa. It is particularly noticeable and alarming that the statistics on the prevalence of HIV in the general population and in blood donors for Europe and North America are usually quoted per 100,000, whereas the equivalent statistics for most countries in sub-Saharan Africa are usually quoted as percentages in the literature. Figure 1.4 provides a global overview of HIV prevalence and highlights the fact that sub-Saharan Africa has a much greater challenge in identifying blood donors not at HIV exposure risk, in sufficient numbers to serve the needs of patients requiring blood transfusions.

Table 1.2: Reported adult (aged 15 – 49) HIV prevalence in various countries of the world

	Country	Reported HIV prevalence in the general population [1]	Year	Source (see notes below)	Reported prevalence in blood donations	Year	Source (see note below)
1	Botswana	25.2%	2004	**UN**	4.00%	2005	**U**
2	Ethiopia	1.4%	2005	**UN**	3.40%	2005	**U**
3	Kenya	6.7%	2003	**UN**	1.80%	2005	**U**
4	Mozambique	16.1%	2005	**W**	6.43%	2005	**U**
5	Namibia	19.6%	2005	**W**	0.50%	2005	**U**
6	Nigeria	3.9%	2005	**W**	4.40%	2005	**U**
7	Rwanda	3.0%	2005	**UN**	1.10%	2005	**U**
8	South Africa	16.2%	2005	**UN**	0.09%	2005	**U**
9	Tanzania	7.0%	2004	**UN**	5.70%	2005	**U**
10	Uganda	7.1%	2005	**UN**	1.60%	2005	**U**
11	Zambia	15.6%	2002	**UN**	8.00%	2005	**U**
12	Kazakhstan	0.1%	2005	**W**	0.0088%	2003	**L**
13	Ukraine	1.4%	2005	**W**	0.1284%	2004	**L**
14	Russian Federation	1.1%	2005	**W**	0.0234%	2004	**L**
15	Romania	<0.1%	2005	**W**	0.0077%	2004	**L**
16	Turkey	<0.2%	2005	**W**	0.0055%	2004	**L**
17	Hungary	0.1%	2005	**W**	0.0006%	2004	**L**
18	Poland	0.1%	2005	**W**	0.0017%	2004	**L**
19	France	0.4%	2005	**W**	0.0014%	2004	**L**
20	Germany	0.1%	2005	**W**	0.0012%	2004	**L**
21	Spain	0.6%	2005	**W**	0.0058%	2004	**L**
22	United Kingdom	0.2%	2005	**W**	0.0006%	2004	**L**
23	India	0.9%	2005	**W**	0.54% [2]	2002	**S**
24	Canada	0.3%	2005	**W**	0.0004%	2000	**C**
25	United States of America	0.6%	2005	**W**	0.0097% [3]	2001	**D**

Notes:

[1] The HIV prevalence figures in the general population are estimates. The figures attributed to UNAIDS are derived from population-based surveys. The figures attributed to WHO are derived from the *2006 Report on the global AIDS epidemic*.

[2] Based on a study of blood donors in Delhi including blood replacement donors, which is not necessarily an accurate reflection of the whole of India.

[3] Prevalence among new donors, prevalence in the total donor population is not cited.

UN: UNAIDS. 2007

W: WHO. 2008

U: United States of America: Department of State. 2006

L: Likatavičius, Hamers, *et al*. 2007

S: Singh, Verma, *et al*. 2005

C: Chiavetta, Escobar, *et al*. 2003

D: Dodd, Notari IV, Stramer. 2002

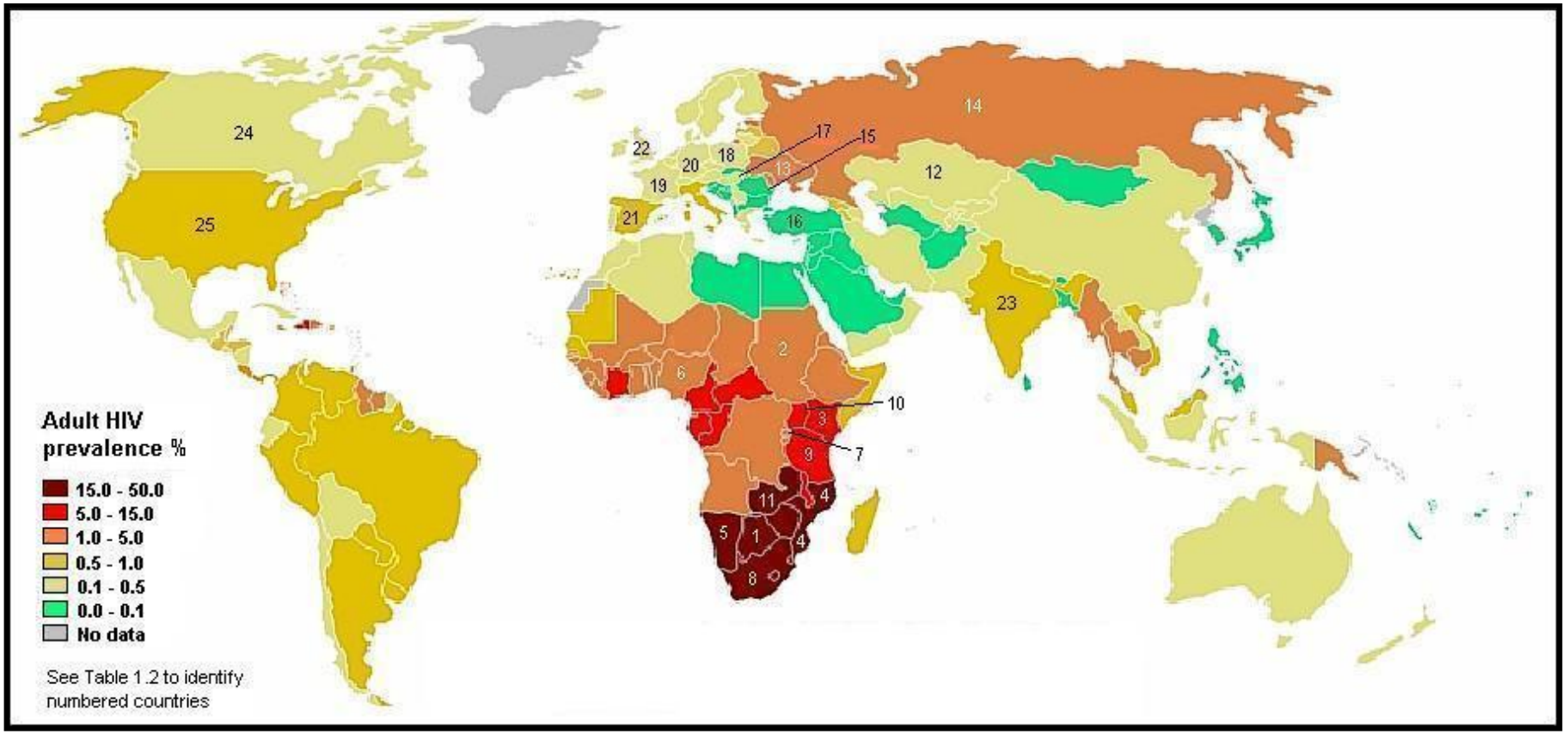

Figure 1.4: World HIV prevalence (modified from Wikipedia, http://en.wikipedia.org)

In 1994 the Regional Committee of the World Health Organization African Region, through Resolution AFR/RC44/R12 (1994) urged the member states to, among others, enact blood safety policies for the attainment of HIV-free blood transfusions. Tapko (2002), in a presentation at the 4th Arab Congress and 3rd African Congress of Blood Transfusion in Tunis in 2002, estimated that at the time over 25% of the approximately 2.3 million units of blood transfused in sub-Saharan Africa, were still not tested for HIV resulting in an estimated 5% to 10% cases of HIV infection due to the transmission of HIV by blood transfusion. This situation, as reported by Tapko (2002), is primarily brought about by the shortage of financial, physical and trained human resources in many African countries, which particularly impacts on their ability to implement highly sensitive tests for HIV. Collier and Oxford (1993) also note that the similar prevalence of HIV in males and females in Africa is indicative of a heterosexual transmission, in contrast to the primarily male homosexual and intravenous drug abuse transmission modes apparent in the USA and Europe.

In African countries other than South Africa, extremely small white and Asian populations in relation to the total population make the use of the SABTS 1999 Model or the Combination Model, with their racial indicators, impractical. Although doubt has been expressed regarding the feasibility of donor screening in countries with a high HIV prevalence and per implication possibly also donation risk

categorization, this tool may provide a measure of safety for patients receiving blood transfusions at a relatively low operational cost. Most sub-Saharan African countries are unable to provide sufficient blood for transfusion from voluntary blood donors. However, the author's experience indicates that the times of peak supply and peak demand of certain ABO and Rhesus blood groups, seldom coincide. The value of the risk categorization system would therefore lie in the ability to ensure that if units of blood should expire due to insufficient demand at any particular point in time, they would ideally be donations from donors exhibiting indicators of the highest risk of possible window-period HIV transmission.

1.7. Motivation for this study

Many countries in sub-Saharan Africa have limited HIV-testing infrastructure and expertise in respect of the routine testing of all donations for the HI-virus. The use of a more acceptable model, with a high potential of accurately predicting the risk of exposure to HIV as a point of departure, has the potential of contributing to the reduced risk of HIV transmission in those countries at minimal additional operational cost. In contrast to the reservation expressed by the HIV/AIDS Survey Indicators Database, the author believes that the management of the risk of HIV transmission through transfusion, by the application of a suitable donation risk categorization model, is of even greater importance in those countries.

CHAPTER 2: LITERATURE AND HISTORICAL REVIEW

Although blood transfusions are intrinsically intended to be life-saving medical interventions, the procedure also carries a number of risks, some of which can even threaten the life of the patient. In 1981 acquired immuno-deficiency syndrome (AIDS) was identified in previously healthy male homosexuals based on the unusual prevalence of *Pneumocystis carinii* pneumonia (PCP) and Kaposi's sarcoma. Both of these conditions were very rare in otherwise healthy persons (Collier and Oxford, 1993). Since December 1982 the transmission of the unidentified agent associated with certain risk behaviours such as male homosexual intercourse and intra-venous drug abuse by the donors, causing AIDS, has been added to the list of risks to which blood transfusion recipients could be exposed. By 1983 the agent suspected to cause AIDS had been identified as a retrovirus, initially called the Human T-lymphocyte Virus III (HTLV III) in the United States of America or Lymphadenopathy-associated Virus (LAV) in France until 1986. After it was shown that the two viruses were the same, they were renamed the Human Immuno-deficiency Virus (HIV) in 1986 by the International Committee for the Taxonomy of Viruses (Swanevelder, 1994). In 1990, HIV was further subdivided into two identified species of virus in the family of *Retroviridae* and sub-family of *Lentivirinae*, namely HIV-1 and HIV-2 as defined in the National Library of Medicine – Medical Subject Headings (2007).

As summarised by Lachman (1995), HIV infection leads to functional abnormalities and depletion of a group of cells associated with a person's normal immune response, known as the CD4+ T-lymphocytes. These T-lymphocytes play a cardinal role in the immune surveillance of the body for infectious agents by the processing of the "foreign" antigens of the infectious agents for presentation to the B-lymphocytes which effect the antigen-specific immunoglobulin production. The CD4+ T-lymphocytes also control the auto-immune tendencies of the immune system in conjunction with the CD8 T-lymphocytes. Increasing functional abnormalities and depletion of the CD4+ T-lymphocytes lead to opportunistic infection by a variety of pathogens, ultimately leading to the death of the infected person. According to Lachman (1995) approximately 2.5% of cases of AIDS reported to the Centre for Disease Control (CDC) in the USA, were associated with blood transfusions. Furthermore Lachman (1995) reported that approximately 95% of recipients of HIV-infected blood became seropositive, and approximately 50% of these patients developed AIDS symptoms within 7 years of the implicated transfusion.

2.1. The early years of HIV risk management in the SABTS

It should be noted that, of the practices discussed in this section, little documentation has survived. Thus pertinent references are not possible. The information given in this section is primarily based on the recollection of the author and other staff members of the SABTS at the time, as well as deductions from surviving donor records and the few surviving circulars of the relevant period to which references are made.

In keeping with the observed epidemiology in the USA and Europe up to 1993, the development of AIDS could be associated with intravenous drug use, or male-to-male sexual intercourse (Collier and Oxford, 1993). Once the risk posed by overtly healthy persons engaging in male-to-male sexual intercourse or intravenous drug abuse was recognized in 1982, the blood transfusion services in South Africa initiated pre-donation screening of all its donors at every donation. Initially this screening consisted of the deferral of prospective donors at the discretion of donor clinic staff based on visible indicators of the possible high-risk activities stated above. This deferral followed a similar ban on the acceptance of donations from males who had recently engaged in homosexual intercourse, as was enforced in Europe and North America. The visible signs most commonly sought included needle-prick lesions in the case of intravenous drug users and, depending on the opinion of the staff-member dealing with the donor, the wearing of ear-rings and certain mannerisms considered effeminate, in the case of homosexual and bi-sexual men. This method of screening for practicing homosexual and bi-sexual men was highly subjective and depended largely on the preconceptions of the staff-member dealing with the donor at the time.

By October 1988 this method of screening was replaced by the first version of a questionnaire aimed at educating potential new donors. Life-style risk factors, as known at the time, which could place the

potential donor at risk of being exposed to the causative agent, as prescribed in the Bloemfontein Branch circular A10/88 (1988), were highlighted. It was envisaged that potential new donors who recognised elements of their own life-styles in the questionnaire, would exclude themselves voluntarily from donating blood. By September 1991 a questionnaire aimed at regular donors, asked for confirmation that the donor deemed his / her blood was safe for transfusion. This new questionnaire was implemented as prescribed in a protocol issued by the SABTS head office and numbered at the Bloemfontein Branch for reference purposes as S18/91 (1991). The various versions of the questionnaire successively in use from 1991 also attempted to achieve a more objective evaluation by requesting new donors to record answers to a number of specific questions with regard to known high-risk activities.

By October 1985 the SABTS instituted testing of all donations for the antibody to the HI virus, as subsequently prescribed by the National Blood Transfusion Council of South Africa (1990). This alleviated some of the risk of HIV transmission posed by donors who had been infected by HIV, through the transfusion of their donated blood. The risk posed by the transfusion of a unit of blood donated while the donor was in the window period of infectivity i.e. the period between the donor's infection by the virus and the first time that a test could provide a positive result, remained. By June 1986, management of the risk of HIV transmission was also implemented with regard to the process of

issuing blood through a directive requiring the preferential issue of blood from donors with the highest number of previous HIV tests as indicated on the blood pack label (the number of HIV tests on record prefixed by an “H”). Until 1988 fresh whole blood and fresh red cell concentrates were routinely requested for certain procedures and treatments, notably where the physicians felt the need for platelets and the labile coagulation factors. The HIV test results for these products, to be transfused less than 48 hours after collection, were generally not yet available at the time of issue, which gave the “H” number a very particular importance. This is evidenced by the Bloemfontein Branch circular B2/88 issued in January 1988, which prohibited the unauthorised issue units of blood marked “H0”, “H1” or “H2”. Only units marked “H3” or higher were considered acceptable for issue prior to the availability of the HIV test result. However, during June 1988 the Bloemfontein Branch of the SABTS discontinued the practice of routinely providing fresh whole blood and fresh red cell concentrates to patients. This decision was brought about by the identification of a probable transmission of HIV to a patient through the transfusion of a unit of fresh whole blood subsequently found to be HIV positive. Areas in the SABTS close to Johannesburg could still continue to provide these products due to the much reduced time associated with the transport of the specimens drawn during the blood collection process, to the Donor Virology Laboratory, resulting in HIV test results routinely being available within 18 to 36 hours of collection of the donation.

2.2. The broader base of HIV transmission and implementation of HIV testing in the SABTS

By the early 1990's it had been conclusively shown that HIV was infecting a substantial portion of the South African population through heterosexual transmission. Annual national surveys undertaken by the South African Department of Health in women attending antenatal clinics since 1990 have shown a steady increase in the prevalence of this sentinel group from 0.74% in 1990 to 30.2% in 2005. Estimates of HIV in the general South African population between the ages of 15 and 49 years had grown to 16.2% in 2005, as reported by Shisana *et al* (2005).

As already mentioned, it was known that a window period of infectivity existed between the time of infection with the HI virus and the development of antibodies that could be identified by means of a screening test for the first time. The poor sensitivity of these first-generation test systems resulted in an estimated window period of 45 days. As indicated by Heyns and Swanevelder (2005), donated blood or blood products collected within this period would be infective although the test used would provide a negative result. By the same token, the WHO estimated the risk of HIV infection following an HIV-infected blood transfusion to be more than 90% (Swanevelder, 1994). Since the initial test system was used in 1985 to determine the presence of the HI virus, more sensitive and specific reagents and test protocols for more viral markers have been developed, reducing the

length of the window period, but not eliminating it. This statement is supported by the Haemovigilance Annual Report: 2003 (Heyns and Nel, 2004), which indicates that in the period between 2000 and 2003, nine possible transmissions of HIV from transfused blood products prepared from eight blood donations which returned a negative test for HIV, were reported. This calculates to a risk of approximately 1:390000 transfused donations. Table 2.1 indicates the sequence of test systems used by the SABTS and SANBS since 1985, together with the estimated remaining window periods associated with these test systems.

Table 2.1: Tests for HIV used by the SABTS and SANBS between 1985 and 2005

TEST	TEST TRADE-NAME	TEST SUBSTRATE	MARKER IDENTIFIED	DATE IMPLEMENTED	SCREEN / CONFIRMATORY TEST	ESTIMATED WINDOW PERIOD
1st generation Enzyme-linked Immunosorbant-assay (12-unit pool test)	Organon Technika: HTLV-III, Uniform I, Uniform II	Viral lysate	Anti-HIV antibody	Oct 1985	Screen	45 days
2nd generation Enzyme-linked Immunosorbant-assay (individual unit test)	Dade-Behring: Enzygnost	Synthetic peptide	Anti-HIV-1+2 antibody	1991	Screen	33 days
3rd generation Enzyme-linked Immunosorbant-assay	Ortho Clinical Diagnostics: HIV-1 / HIV-2 Ab-capture ELISA test system	Recombinant antigen	Anti-HIV-1+2 antibody	Before 1996 (archived SOP effective 5/12/1997)	Screen	22 days
3rd generation Enzyme-linked Immunosorbant-assay	Ortho Clinical Diagnostics: HIV-1 p24 antigen ELISA test system	Recombinant antibody	HIV-1 p24 antigen	Jun 1996	Screen	16 days
3rd generation Enzyme-linked Immunosorbant-assay	Organon Technica: Vironostika HIV-1 antigen test	Recombinant antibody	HIV-1 p24 antigen	Dec 1999	Screen	16 days
3rd generation Enzyme-linked Immunosorbant-assay	Murex HIV-1.2.O	Recombinant antigen	Anti-HIV-1+2+O antibody	Feb 2000	Screen	16 days
3rd generation Enzyme-linked Immunosorbant-assay	Genscreen: HIV-1 / 2 version 2	Recombinant antigen	Anti-HIV-1+2+O antibody	Jun 2001	Confirmatory	16 days
3rd generation Enzyme-linked Immunosorbant-assay	Organon Technica: Vironostika HIV-1 antigen neutralization test	Recombinant antibody	HIV-1 p24 antigen	Jun 2001	Confirmatory	16 days
3rd generation Enzyme-linked Immunosorbant-assay	Innogenetics: Inotest HIV antigen mAb test	Recombinant antibody	HIV-1+2 p24 antigen	Jan 2002	Screen	16 days
3rd generation Enzyme-linked Immunosorbant-assay	Abbott: Prism	Recombinant antigen	Anti-HIV-1+ 2+O antibody	Apr 2002	Screen	16 days

Since June 1996, third generation enzyme-linked immunosorbant assay (ELISA) tests for the anti-HIV-1, -2 and -O(ther) antibodies as well as the third generation ELISA tests for the HIV-1 and -2 p24 antigen were used concurrently. The reason for this is that initially only the viral antigen occurs in sufficient quantity to provide a positive result in a test for HIV soon after infection by the virus. The amount of free virus, however, soon reduces to undetectable levels, while the anti-HIV envelope and anti-HIV core antibody levels (or antibody titres) concurrently increase to easily detectable levels. Once the viral antigen level has become undetectable, only the antibody test is effective; a period usually lasting for several years. Only in the final symptomatic stages of the disease would the viral antigen levels again become detectable. Figure 2.1 indicates this relationship graphically.

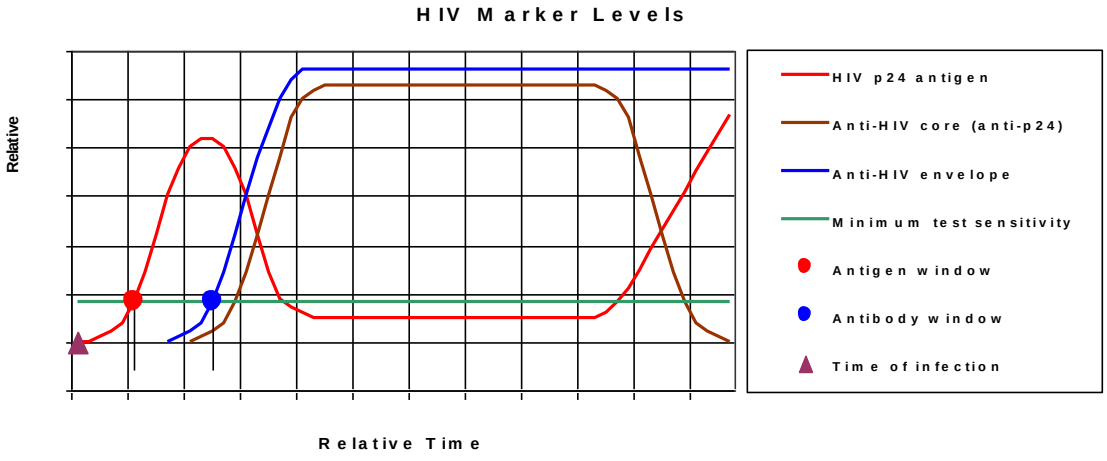

Figure 2.1: Schematic diagram of the relationship between the development of the p24 antigen and anti-HIV antibodies (after Collier and Oxford, 1993)

2.3. Risk management by donor selection in the SABTS / SANBS

The introduction of an operational computer system (Meditech, $T version) during November 1992 by the SABTS enabled the real time electronic capturing of information regarding the blood donations received, processed and tested. Prior to issuing the blood product to a patient the full set of information regarding the donor and the results of the blood group serology and virology screening tests are evaluated by the system to determine the safety and compatibility of the blood selected for that patient. The blood product issue process is completed by the capture of relevant patient and hospital data, ensuring full traceability of the donation. If the blood product was not used prior to its expiry date, the product is incinerated and those details are also captured. The electronic capture of donor data, has also allowed information on the donation history to be freely available to authorized staff in order to ensure that persons known to be at risk of being exposed to transfusion-transmissible diseases would be identifiable at all the clinics of the SABTS. In addition, blood / blood product issue rules were defined in the programme which prevented the computer-issue of untested donations and donations flagged on the system as unsuitable for transfusion.

The continued existence of the window period as seen in Figure 2.1 together with increasing prevalence of HIV (0.26% of donations confirmed HIV-1 positive in 1998) as reported by Heyns, Benjamin, *et*

al (2006), forced the SABTS to develop and adopt a structured Blood Safety Policy in 1999 (SPMED001 rev. 0, 2003). This policy as quoted by Heyns and Swanevelder (2005) encompassed a number of key principles as shown in Table 2.2.

Table 2.2: Key principles embodied in the SABTS Blood Safety Policy

1. A coordinated programme to procure sufficient safe blood from low-risk voluntary, non-remunerated blood donors.
2. A programme that aims to be nationally self-sufficient for low-risk blood products.
3. Issuing blood according to a hierarchy of risk.
4. Recognizing the right to privacy of the individual donor.
5. Protecting the health of blood donors, recipients of blood products and staff members.
6. Educating blood donors, particularly learners, on the importance of donating blood, the spread and pathogenesis of HIV / AIDS, and the effect of a safe healthy lifestyle on the quality and safety of the blood supply.

In practice this policy covered a number of aspects of the day-to-day operations of the SABTS as reported by Williamson (2006). Blood donor clinics in areas of high HIV prevalence were discontinued, a programme for targeting donors for regular repeat donations was instituted, donor education was escalated with regard to the activities leading to increased risk of exposure to HIV, and considerable improvements to the donor health / self-exclusion questionnaire coupled with the institution of the donor interview were initiated.

One of the outcomes of this policy was that the SABTS and subsequently SANBS continued to refine and apply the pre-donation assessments of all prospective donors, both new and existing, to minimise the risk of a window period blood donation entering the blood supply, and through its subsequent transfusion to a patient, from transmitting HIV. The first step in the process in use at the time of this study consisted of the evaluation of the health of the prospective donor in respect of potential risks of donation to the donor as well as to the patient based on a health questionnaire (BTS53E rev. 3) completed by the donor as prescribed by SOP-DON-24 rev. 2 (2002). The health questionnaire also included the questions in Table 2.3 regarding the donor's life-style which could place him / her at risk of being exposed to the HI virus. It should be noted that this procedure is carried out every time a prospective donor presents himself / herself to donate blood, irrespective of the number of previous donations made or any other possible circumstance which may exist.

Table 2.3: HIV-risk assessment lifestyle questions (BTS53E rev. 3)

1. Do you have AIDS or are you HIV positive?
2. Is your main reason for donating blood to undergo an HIV test?
3. **In the past 6 months:**
a. Have you had more than one sex partner, had casual sex, or had sex with someone whose sexual background you don't know?
4. **In the past 12 months:**
a. Have you been a victim of sexual assault?
5. **In the past 5 years:**
a. Have you had sex with a male or female prostitute, escort or sex worker, or exchanged money, drugs, goods or favours in return for sex?
b. Have you had male to male sex?
c. Have you suffered from a sexually transmitted disease (STD) e.g. syphilis, gonorrhoea, genital herpes, genital ulcer, VD or "drop"?
6. Have you ever injected yourself, or been injected, with any drugs or any other substance (including steroids) that were not prescribed for you by a doctor?
7. To your knowledge do any of the above questions apply to your sex partner?
8. Do you consider your blood safe for transfusion to a patient?

The evaluation of the answers provided on the questionnaire was supported by a discussion between the prospective donor and one of the SANBS staff to determine whether the donor had a satisfactory understanding of the questions asked in the questionnaire and also an understanding of the implications of the window period for the HIV test as prescribed in SOP-DON-32 rev. 2 (2002). If the prospective donor was deemed to have no overt risks to himself or the patient by donating, a unit of 450ml of blood as well as two 5ml specimens of blood for virology and serology tests were collected. In the event of any

risks becoming apparent through the assessment of the questionnaire or the discussion, normal procedure dictated that the prospective donor be deferred from donating for a period of time as determined by the nature of the risk and defined in PM-MED-001 rev. 0 (2003). This procedure was also applied to the life-style questions unless the deferral could not be made without public embarrassment to the potential donor. In such cases the donation process was completed as with any other donor but the blood donation was immediately taken aside and privately marked for incineration.

2.4. Risk management by donation risk category hierarchy in the SABTS / SANBS

In 1998 the WHO issued a report which included the recommendation that populations at low risk for transfusion-transmissible infections should be identified (WHO, 1998) for recruitment of voluntary blood donations. This document, in common with other documents on the subject emanating from the WHO and its regional offices, makes little attempt to define possible low-risk populations other than the requirement that blood donations should be obtained from voluntary, non-remunerated and regular blood donors who have been educated in some way regarding life-styles and behaviours which could enhance exposure to transfusion transmissible infections such as HIV. No further attempt is made to suggest avenues of research which could possibly lead to an acceptable set of parameters defining low-risk populations of blood donors.

In the United States of America and Canada prospective blood donors from many sub-Saharan African countries are regarded as high-risk donors in respect of the potential transmission of HIV. The Food and Drug Administration (FDA) of the United States of America put a requirement in place in 1998 whereby persons who were born or lived in a number of central African states after 1977 were barred from donating blood due to the risk of HIV type O transmission as stated on the website of the American Red Cross (2005). The Canadian Blood Services have a similar bar, described as a “geographic deferral” as indicated on their website (Canadian Blood Services, 2006).

Statistical analyses published by the Department of National Health and Population Development in various issues of Epidemiological Comments during the early 1990’s (South Africa: Department of National Health and Population Development, 1993; South Africa: Department of National Health and Population Development, 1994) showed a strong race and gender association in respect of the prevalence of HIV, both in antenatal surveys as well as in data obtained from the various blood transfusion services. In addition, the data from the blood transfusion services showed a strong association with the previous donation history of the donors.

During 1998 the Natal Blood Transfusion Service started importing blood from the Netherlands to mitigate the escalating risk of HIV

transmission by the transfusion of blood donations collected from a donor base with an increasing HIV incidence in Natal as reported in the print media (Correspondent, 1999).

An important outcome of the Blood Safety Policy was therefore the development of a four-tiered HIV risk categorization hierarchy for all blood donations, described in this study as the SABTS 1999 Model (Tables 2.4, 2.5 and 2.6). The four tiers of this risk categorization hierarchy were labelled “I”, “II”, “III” and “IV” in order of increasing risk. Once the various blood products had been prepared from the blood donations, the risk categories were carried onto the blood products as issue priorities which were labelled as “A1”, “A2”, “A3” and “A4” respectively. For the purposes of this study, no distinction has been made between the HIV risk categorization hierarchy and the blood issue priority, and therefore the “A1” to “A4” labels are used throughout to describe the risk categories of the SABTS 1999 Model. In respect of the other models, the same principle has been applied and the blood issue priority labels have been used to describe the risk categories.

This HIV risk categorization hierarchy was implemented to augment the already existing risk management procedures. The upgrading of the operational computer system to the NPR version of the Meditech programme during 1998 and the introduction of a SQL Database data repository enabled the real time analysis of the data entered. The adoption of the Blood Safety Policy in 1999 relied on the improved

functionality of the NPR version of the Meditech programme being applied to the risk management of all blood donations received, by electronically evaluating each donation according to certain predetermined criteria in order to allocate a risk category classification to each donation. The electronic issuing routine on Meditech was also modified to limit the electronic issuing of higher-risk categorized blood products under routine circumstances and by issuing a warning on which an audit trail was kept, to staff authorized to allow the electronic issue of such blood products in situations of extreme shortage.

This meant that not all donations were considered equally acceptable for the preparation of the various blood products and for freely issuing to patients. Therefore, until February 2005 the choice of blood pack into which the blood was drawn and which ultimately determined the potential usability of the blood was prescribed by SOP-DON-043 rev. 2 (2003). This choice was determined by the normally acceptable usage of the donations as applied in the SABTS 1999 Model, as can be seen in Table 2.5. In essence this meant that donations in risk category “A1” could be taken in OPTI-system triple blood packs for processing into plasma products, red cell concentrates and platelet concentrates. Donations in risk category “A2” could be taken in OPTI-system triple blood packs for processing into plasma products and red cell concentrates (except for paediatrics and immune-compromised patients). Until June 2004 donations in risk category “A3” and “A4” could only be taken into single blood packs for the use of the red cell

concentrate in situations of extreme shortage. After June 2004 the NBI was sufficiently satisfied that the disease marker incidence in donations of risk category “A3” was low enough to avoid compromising the efficacy of the virus-inactivating reagents. These donations could now also be collected into OPTI-system triple blood packs for processing into virus-inactivated plasma products while the red cell concentrates would only be used in situations of extreme shortage.

Concurrent to donation testing, initial processing of the donation was undertaken to prepare red cell concentrates, plasma and the buffy-coat concentrates (for the processing of pooled platelet concentrates). Once the virology tests had been completed, the results were sent *via* an interface from the automated test systems into the Meditech programme. These results were then accessed by the technicians in the Components Laboratory prior to the second phase processing to determine which units were suitable for the preparation of specialized products. In addition, the virology and serology test results were used to determine whether the blood or blood products could be included into the blood supply to be transfused as prescribed by the SOP-COM-71 rev. 2 (2003).

The implementation of the HIV risk categorization hierarchy made certain decisions in the components laboratories and in the cross-match laboratories considerably easier. In the components laboratories an easier choice could be made regarding the identification of low HIV

risk donations from which to prepare special products such as infant fresh frozen plasma, pooled platelet concentrates, leucocyte-depleted red cell concentrates and paediatric red cell concentrates as prescribed in SOP-COM-104 rev. 0 (2001), SOP-COM-100 rev. 2 (2003) and SOP-COM-76 rev. 0 (1999). In the cross-match laboratories the technologists and technicians selecting blood for cross-matching and issuing to patients were in a position to exercise the requirement contained in SOP-BBK-2 rev. 3 (2003) and in SOP-BBK-9 rev. 3 (2002) which stated that units of the lowest risk category available, needed to be selected for cross-matching.

During 1999 the SABTS also embarked on a plasma quarantining procedure in order to ensure a greater level of safety when transfusing fresh frozen plasma. According to SOP-COM-114 rev. 0 (2003), all fresh frozen plasma from risk category “A1” and “A2” donations returning a negative test result for the disease marker tests and intended for transfusion to patients, needed to be retained in quarantine. Only after the donor’s subsequent donation (made between 56 and 100 days later) had been tested and found negative for all the tested disease markers, could the plasma be released for patient use as “donor-retested fresh frozen plasma” as prescribed by SOP-COM-126 rev. 0 (2003). In the event of any of the donor’s subsequent donation tests for the disease markers returning a positive result, the quarantined unit of plasma (together with all the products prepared from the donation returning the positive test) would be

changed to “Contaminated” status on the Meditech programme to prevent computer issuing procedures, and all the above-mentioned physical units would be disposed of according to SOP-COM-7 rev. 1 (2003). Quarantined plasma not released after four months in quarantine, due to the donor not having been retested for the disease markers, was sent to NBI as a separate batch for production of 20% albumin. After June 2004, the same procedure applied to fresh frozen plasma from risk category “A3” donations. This procedure could only be applied to the fresh frozen plasma due to its one year shelf-life. Red cell products with a shelf-life of 35 days and platelets with a shelf-life of five days could not be held in quarantine.

2.5. The application of the SABTS / SANBS risk management system in use since 1999

The intention of the risk management system in a country like South Africa with a high HIV prevalence is to protect the recipients of blood transfusions from being infected by this virus. The risk categorization is therefore intended as an aid to limit the possibility of window period transmission of HIV during transfusions by defining low-risk issue parameters. The use of the risk management system as an aid in issuing the lowest risk blood was implemented in July 1999 when the Blood Safety Policy was adopted. It was also used as an aid for targeting low risk donors during recruitment efforts in order to reduce the collection of donations from populations with higher HIV prevalence levels. The categorization system needed to be based on sound

scientific analysis and objectively applicable by the staff of the service as described in SOP-MLD-002 rev. 0 (2003). As mentioned previously, statistical analyses showed a large difference in HIV prevalence between new donors and regular donors, as well as a strong race and gender association.

The risk categorization in use until 30 September 2005 (SABTS 1999 Model) was based on relatively easily identifiable indicators provided by the donors and captured on Meditech as prescribed in SOP-DON-60 rev. 2 (2003), as well as previous donation data captured on the computer as described in SOP-DON-043 rev. 2 (2003). The indicators are shown in Table 2.4.

Table 2.4: Indicators for donation risk category in the SABTS 1999 Model

INDICATOR	DEFINING ALTERNATIVES
Previous donations	New donor (no previous donations on computer record)
	Old donor (previous donations on computer record)
Interval since last donation	Regular donor (<12 months since last donation)
	Lapsed donor (>12 months since last donation)
Gender	Male
	Female
Race	White
	Asian
	Coloured
	Black

According to this risk management system the donations were categorized into issue priorities ranging from “A1” to “A4” in order of increasing HIV risk as shown in Table 2.5. The risk model from which the system is derived defines the HIV prevalence limits for the four risk categories and the normally acceptable usage of the blood after the donor screening processes proved sufficiently effective to consistently remain within the HIV prevalence limits over an extended time period.

Table 2.5: Risk category application of the SABTS 1999 Model

RISK CATEGORY	ISSUE PRIORITY	HIV PREVALENCE LIMITS	NORMALLY ACCEPTABLE USAGE	BLOOD PACK USED
I	A1	<0.0100%	All products for infant and adult immune-compromised patients	OPTI-system triple blood pack
II	A2	0.0100% – 0.0999%	All products for adult immune-competent patients	OPTI-system triple blood pack
III	A3	0.1000% – 0.9999%	Quarantined or virus-inactivated plasma	OPTI-system triple blood pack
IV	A4	1.0000% and greater	Incinerated	Single blood pack

The specific risk allocation of each individual cohort of donors, as determined by combinations of defining alternatives for the four indicators shown in Table 2.4 above, was determined by statistical analysis of the HIV test results obtained from donation testing between 1996 and 1997 (coinciding with the introduction of p24 antigen testing). In the absence of incidence estimates in first-time donors, the

incidence of HIV in the donations was assumed to have a directly proportionate relationship to the number of units anticipated to be within the window period. The parameters of the SABTS 1999 Model are summarised in Table 2.6.

Table 2.6: SABTS 1999 Model parameters

<table>
<tr><th>RISK CATEGORY</th><th>NEW DONORS (includes donors not previously recorded on Meditech)</th><th>REGULAR DONORS (<365 days since previous donation)</th><th>LAPSED DONORS (>365 days since previous donation)</th></tr>
<tr><td rowspan="4">A1</td><td rowspan="4"></td><td>Asian male</td><td rowspan="4"></td></tr>
<tr><td>Asian female</td></tr>
<tr><td>White male</td></tr>
<tr><td>White female</td></tr>
<tr><td rowspan="4">A2</td><td>Asian male</td><td rowspan="2">Coloured male</td><td>Asian male</td></tr>
<tr><td>Asian female</td><td>Asian female</td></tr>
<tr><td>White male</td><td rowspan="2">Coloured female</td><td>White male</td></tr>
<tr><td>White female</td><td>White female</td></tr>
<tr><td rowspan="2">A3</td><td rowspan="2">Coloured male</td><td>Black male</td><td>Coloured male</td></tr>
<tr><td>Black female</td><td>Coloured female</td></tr>
<tr><td rowspan="3">A4</td><td>Coloured female</td><td rowspan="3"></td><td>Black male</td></tr>
<tr><td>Black male</td><td rowspan="2">Black female</td></tr>
<tr><td>Black female</td></tr>
</table>

By selecting blood for transfusion from cohorts of donors exhibiting a very low prevalence of HIV, it was anticipated that the risk of a window period transfusion would be correspondingly low. This risk

categorization model, however, allowed very limited progression for donors' donations through the various risk categories, resulting in the situation where a considerable number of very regular black donors could only reach an "A3" risk category. This meant that their donations were only used in processes where additional safety measures entailing virus inactivation could be put in place, such as fractionated blood products (albumin and factor VIII concentrate) or dried plasma products. Only in very exceptional emergency circumstances could blood products such as red cell concentrates be used.

2.6. The demerits of the SABTS / SANBS risk management system in use since 1999

Over the past years this situation has resulted in declining blood donations from the black population, primarily as a result of the discontinuation of active recruitment and reminder programmes in respect of donors whose last donation had an "A3" and "A4" risk categorization as calculated by the SABTS 1999 Model (see Table 2.6). This made the approximately 80% of the geographical area of South Africa served by SANBS almost totally dependant for its blood supply on the second largest and smallest population groups, namely the white and Asian population groups. These two population groups only constitute 20% of the population in this area. The steadily increasing number of black staff in the lower to middle management positions and in positions in the donor clinics and blood processing laboratories, where the risk categorization needed to be applied, also

placed a strain on their relationship with the higher management levels. This was highlighted in the Commission for Conciliation, Mediation and Arbitration (CCMA) case no FS5169/04 when Hospersa (the trade union which represents the majority of the staff) filed a dispute on behalf of a staff member against SANBS in November 2004 (CCMA, 2004; O'Connor, 2004; Correspondent, 2004). This dispute revolved around the withdrawal of an offer of a permanent position in the Bloemfontein Branch due to the fact that the staff member had inconclusively expressed an unwillingness to work for an institution which used race as part of its risk categorization system. Many of the staff questioned the moral ethics of continuously accepting donations from black donors in order to improve screening techniques and to obtain continually updated statistics while incurring the financial burden of the collection of the blood and knowing that it was highly unlikely that the blood would be transfused to a patient. Finally, the general public, particularly as represented by the media, had difficulty understanding and accepting a rigid risk categorization system which allows the blood of a regular donor with a considerable history of donations with a negative test for HIV, to be almost automatically incinerated based solely on the fact that the race of the donor precludes progression to risk categories "A2" or "A1", as shown in Table 2.6, which is commonly used for transfusions (Pienaar and Rossouw, 2004; Dladla, 2004). Even the medical fraternity was divided on the question as to whether a risk categorization model using the race of the donor as one of the indicators, was acceptable when

measured against the safety of blood transfusions for the patient (Bateman, 2005).

Mikkelsen (2006) subsequently in an article highlighting donor rights and expectations, states that "…the patient's right to safe blood (stemming from his right to health) competes with the right of the donor not to be discriminated against." He concedes that a patient's right to safe blood may prevail, but maintains that the donor still retains a right to a proper explanation for his / her deferral. He therefore suggests that, in order to avoid undue discrimination, all donor deferrals must be based on scientific evidence. The experience of SANBS with the public reaction to the SABTS 1999 Risk Categorization Model has also proven that scientific evidence is not always a match for public socio-political sentiments.

2.7. Alternative models for donation risk categorization

Given the issues above, there has since 2002, been a regular call from the branch managers of SANBS for the institution of a new risk categorization system, or the modification of the existing system, although no specific suggestions were made. As SANBS was the only blood transfusion service in the world using donation risk categorization beyond the distinction between new donors and regular donors, no other existing models could be investigated. During the southern area branch managers' meeting in April 2004, the Kimberley branch manager (Mr D H Brown) suggested that a risk management

model based entirely on the interval since the last donation be investigated. In this study this model is referred to as the Donation Interval Model. The suggested parameters for the model entailed that all donations from new donors and donors whose previous donation had been made more than 365 days (one year) previously, are categorized at the highest risk level of a four-tiered system. With each successive donation made by the donor within a period of 121 days (four months) the risk category of the donation drops by one level till the lowest risk category level is reached. Any donation made by the donor between 122 and 182 days (four to six months) after the previous donation, would result in the risk categorization of that donation remaining the same as that of the previous donation. Any donation made by the donor between 183 and 365 days (six months to one year) after the previous donation, would result in the risk categorization of that donation increasing by one level until the highest risk categorization level is reached. The parameters of the Donation Interval Model are summarised in Table 2.7.

Table 2.7: Donation Interval Model parameters

RISK CATEGORY / CHANGE	DONATION / TEST INTERVAL
Category DI4	>365 days
	New donors
Previous donation category +1 level	183 – 365 days
Previous donation category	122 – 182 days
Previous donation category –1 level	0 – 121 days

However, the author felt that the Donation Interval Model could place severe strains on the total low risk (“A1” and “A2”) blood supply due to the limited regularity of donations by voluntary blood donors. A second alternative model is suggested by this author. This alternative model uses the parameters of the SABTS 1999 risk categorization model as a base-line which is then augmented by the parameters of the Donation Interval Model, and is described as the Combination Model in this study. The parameters of the Combination Model are summarised in Table 2.8. The defining difference between this model and the SABTS 1999 Model is the fact that regular donations at intervals of not more that 121 days (4 months) by a donor, would result in following donations being categorized at the lowest risk level irrespective of the donor’s ethnic group or gender. On the other hand the difference between this model and the Donation Interval Model lies in the fact that donations made by a donor at extended intervals greater than 182 days (six months) would result in a progressive increase of the risk categorization level to the maximum risk category as determined by the SABTS 1999 Model for donors of the specific ethnic group and gender.

Table 2.8: Combination Model parameters

RISK CATEGORY / CHANGE	DONATION / TEST INTERVAL				
COHORT	New donors	>365 days	183 – 365 days	122 – 182 days	0 – 121 days
Asian male	Cb2	Cb2	Prev. cat. -1; max = Cb2	Prev. cat.	Prev. cat. +1; min = Cb1
Asian female	Cb2	Cb2	Prev. cat. -1; max = Cb2	Prev. cat.	Prev. cat. +1; min = Cb1
White male	Cb2	Cb2	Prev. cat. -1; max = Cb2	Prev. cat.	Prev. cat. +1; min = Cb1
White female	Cb2	Cb2	Prev. cat. -1; max = Cb2	Prev. cat.	Prev. cat. +1; min = Cb1
Coloured male	Cb3	Cb3	Prev. cat. -1; max = Cb3	Prev. cat.	Prev. cat. +1; min = Cb1
Coloured female	Cb4	Cb3	Prev. cat. -1; max = Cb3	Prev. cat.	Prev. cat. +1; min = Cb1
Black male	Cb4	Cb4	Prev. cat. -1; max = Cb4	Prev. cat.	Prev. cat. +1; min = Cb1
Black female	Cb4	Cb4	Prev. cat. -1; max = Cb4	Prev. cat.	Prev. cat. +1; min = Cb1

Before a study of the implications of the suggested alternative models could be launched, the arbitration and mediation of the labour dispute between the staff member and SANBS took place. As a result of the media coverage of the case and the risk categorization system used by SANBS, unpublished discussions were held between SANBS and the Department of Health during November and December 2004, regarding possible alternative risk categorisation models which would also be in keeping with the South African constitution. At a further

meeting in February 2005 between SANBS and the Department of Health, a model was proposed which is based on the number of donations made by a donor within the previous 24 months, officially designated as the "Donor Status Risk Management Model" by Heyns, Swanevelder, *et al* (2006) and described as the SANBS 2005 Model in this study. This proposal was implemented on 1 October 2005 together with nucleic acid amplification testing (NAT) (Hill, 2000) in place of the HIV p24 test. This model provides for the risk categories and usually appropriate usage of the donations collected in the Inland Region as indicated in Table 2.9. In the East Coast Region of SANBS, this model was implemented with modified criteria based on the specific HIV prevalence statistics of the region.

Table 2.9: Risk category application of the SANBS 2005 Model in the Inland Region of SANBS

RISK CATEGORY	NORMALLY ACCEPTABLE USAGE	CRITICAL SHORTAGE USAGE
C	Red cell products for adults and infants, platelet products and plasma products	
R	Red cell products for adults and plasma products	Platelet products
PLR1	Plasma products	Red cell products for adults
PLR2	Plasma used	Red cell products for adults if no PLR1 red cells available
PLR3	Plasma used	Red cell products for adults if no PLR2 red cells available
P	Plasma used	

An unpublished predictive statistical analysis carried out by the SANBS data analyst, which was presented at a branch managers' meeting in March 2005, indicated that this model, coupled with the implementation of NAT, appeared potentially safer than the SABTS 1999 Model. An informal predictive statistical analysis of the donation frequency of the donors on the panel, as carried out at the branch managers' meeting in March 2005, indicated that 85% to 90% of donations received would be expected to fall in the "C" and "R" risk categories, which represented a considerable decrease in routinely available blood when compared to the 94% of donations which fell in the "A1" and "A2" risk categories. The parameters of the SANBS 2005 Model are summarised in Table 2.10.

Table 2.10: SANBS 2005 Model parameters defined for the Inland Region

RISK CATEGORY	DONATIONS IN 24 MONTHS	DONOR AGE	DONOR SEX
C	4 and more	All ages	Male & female
R	2 to 3	All ages	Male & female
PLR1	1	All ages	Male & female
PLR2	New donors	16 – 25 years	Male
PLR3	New donors	16 – 25 years	Female
P	New donors	>25 years	Male & female

During a discussion between the Chief Executive Officer (CEO) of SANBS and the author at the branch managers' meeting in March 2005, the CEO made a suggestion that consideration be given to the

use of the donor age as a possible indicator for a more effective risk categorization model. The intention of the suggestion was to find a model combining the anticipated safety of the SANBS 2005 Model with an increased availability of blood categorized as low risk. However, an informal unpublished pilot study of the HIV-positive donations received at the Bloemfontein branch of SANBS since October 1997, which was undertaken prior to the start of this study, showed very little correlation with specific age groups among new donors and is therefore not reported in this study. This can probably be attributed to the fact that the HIV-positivity rate is more reflective of the HIV prevalence in the potential donor population than of the incidence of new HIV infections. A similar situation exists in respect of existing donors who have not donated for more than 24 months (lapsed donors) where the time of seroconversion is poorly defined. The finding in this pilot study did not correspond with the results of Shisana *et al* (2005) when applied to new and lapsed donors. This discrepancy may have been the result of the informality of the pilot study or the ethnic bias inherent in the donor population at the time of this study when compared to the study by Shisana *et al* (2005). In the case of "regular" donors (previous donation within 24 months) the time of seroconversion is more closely defined, resulting in rates of HIV positivity which may more closely approach the incidence of new HIV infections. Analysis of the data obtained in this informal pilot study by the author showed that in the case of "regular" donors there were noticeable differences in the prevalence of HIV-positive donations among the donors of differing ages and

therefore forms the basis of a 5th model. Data published by Shisana *et al* (2005) also shows an unequal prevalence of HIV among different age-groups, similar to the results obtained in the pilot study with regard to “regular” donors. In addition, the study by Shisana *et al* (2005) shows a marked difference in HIV prevalence between males and females within individual age-groups.

The model which is primarily based on the donor age at the time of the donation is described as the Age-based Model in this study. The determination of the final parameters for this model forms the first phase of this study.

CHAPTER 3: AIM OF THE STUDY

This study has the ultimate aim of evaluating the effectiveness of four alternative blood donation risk categorization models against the model in use at the time of this study, namely the SABTS 1999 Model. As stated in Chapter 2, no parameters have been defined for the Age-based Model. The first phase of the study would be the definition of the parameters of this model before the effectiveness of this model can be evaluated in the second phase.

3.1. Phase 1: Defining suitable parameters for the Age-based Model

The parameters of the Age-based Model were not predefined by SABTS or SANBS policies as was the case with the SABTS 1999 Model and the SANBS 2005 Model, or through the precise suggestions of individuals as was the case with the Donation Interval Model and the Combination Model. This means that in order to fulfil the ultimate purpose of this study as stated above, the first phase of this study was to determine potentially suitable parameters for the Age-based Model.

3.2. Phase 2: Comparison of the alternative blood risk categorization models with the SABTS 1999 Model

The success of any blood risk categorization model, from a patient safety point of view, is determined by two outcomes, namely the maximum availability of low-risk red blood cells for transfusion and the lowest incidence of HIV within the window period in those categories of

blood considered suitable for transfusion. The ultimate purpose of this study, through this phase of the study, is to compare the five risk categorization models, namely the SABTS 1999 Model; the Donation Interval Model; the Combination Model; the SANBS 2005 Model and the Age-based Model in terms of these two outcomes using the SABTS 1999 Model as benchmark. Table 3.1 shows the models together with the indicators used in each model.

Table 3.1: Summary of the blood risk categorization models investigated

MODEL		INDICATORS USED	DETAILS
1	SABTS 1999 Model	Donor ethnic group	See Table 2.6
		Donor sex	
		Donation interval	
2	Donation Interval Model	Donation interval	See Table 2.7
3	Combination Model	Donor ethnic group	See Table 2.8
		Donor sex	
		Donation interval	
4	SANBS 2005 Model	Donation interval	See Table 2.10
		Donor sex	
		Donor age	
5	Age-based Model	To be determined	See Section 5.1

3.2.1. The difference in HIV prevalence within each risk category

The purpose of this comparison is to ensure that any suggested alternative would not place patients at any greater risk of a window period transfusion than the SABTS 1999 Model. For this reason the

risk model limits of the SABTS 1999 Model, as indicated in Table 2.5, are accepted as the benchmarks for the purposes of this study. The outcome is the prevalence of HIV-positive donations expressed as a percentage of the total number of donations allocated to each risk category.

3.2.2. The availability of low-risk red blood cells for transfusion

The purpose of this aspect of the study is to determine whether the donor population, as extant in the period October 2004 till September 2005 with their actual donation frequency, would be sufficiently large to provide all the patients with sufficient safe blood as per the normal usage indications applicable for each of the risk categories. The outcome is the number of donations allocated to each risk category and also expressed as a percentage of the total number of donations collected. For this analysis the availability of low-risk red blood cells according to the SABTS 1999 model, is used as the benchmark since this model was the risk management system in use during the period that the donation data was collected.

3.3. The best model for SANBS

The final outcome of this study would be to provide an indication to the management of SANBS, as to which of the studied models is likely to be the best suited to the needs of the patients served by SANBS, given the need for “sufficient safe blood” as stated in the service’s mission statement referred to in Chapter 1.

3.4. The African potential

The same challenges to identify safe blood for transfusion purposes exist throughout sub-Saharan Africa due to the high prevalence of HIV in the general population as reported in Chapter 1. It is intended that the final outcome of this study could provide indications of possible avenues of research to mitigate the impact of the HIV-pandemic on recipients of blood transfusions throughout sub-Saharan Africa.

CHAPTER 4: METHODOLOGY

This study consisted of two distinct phases. The first phase required the collection of the donor demographic data and donation histories of the HIV-positive donors, as recorded during routine operations throughout the Inland Region of SANBS, to determine suitable parameters for the Age-based Model. The second phase required the collection of donor demographic data and donations histories as recorded at the Bloemfontein branch of SANBS in respect of all the voluntary whole blood donations received between 1 October 2004 and 30 September 2005, for the comparative study of the five models. The routine confirmed HIV virology test data for all the specific donations used in both aspects of the study was recorded.

4.1. Materials used

The following data associated with the whole blood donations received from the voluntary donors, as originally captured in the Meditech computer programme, was used for both phases of this study:

- → The donor ethnic group as recorded (Asian, black, coloured or white).
- → The donor gender as recorded (male or female).
- → The blood group of the donor.
- → The collection dates of the specimens associated with the previous tests for HIV markers to a maximum of eight if the donor had made eight or more donations.
- → Date of the donation under investigation.

- → The age of the donor at the time of the donation under investigation.
- → The confirmed HIV marker test results for the donation under investigation.

The specific donations, for which the above-mentioned data was obtained, were determined by the requirements of the two aspects of the study as defined in 4.1.1 and 4.1.2 below.

4.1.1. Phase 1: The development of the parameters for the Age-based Model

The demographic data and donation histories mentioned above, of all the obtainable HIV-positive donations collected by the SANBS, Inland Region were used. The geographic area covered by the source of these donations is indicated in Chapter 1 and comprises Mpumalanga, Gauteng, Limpopo, North West, the Free State and the Northern Cape. The identifying records for HIV-positive donations collected at the Bloemfontein branch of SANBS were obtained from hard-copy records kept at the Bloemfontein branch. Records were available of HIV-positive donations collected since 1997. The identifying records for HIV-positive donations collected in the rest of the SANBS, Inland Region were obtained from the SANBS SQL Database managed by the SANBS Data Analyst. Records were available of HIV-positive donations collected

since 2000. The demographic data and donation histories pertaining to the donors were drawn from records archived in the Meditech computer programme in use by SANBS at the time of the study.

4.1.2. Phase 2: The comparative analysis of the effectiveness of the different suggested risk categorization models

The donors' demographic data, donation histories and the test results of all the voluntary whole blood donations collected by the Bloemfontein Branch of the SANBS, Inland Region during the 12-month period from 1 October 2004 till 30 September 2005, as recorded in the Meditech computer programme, were used in this study. The length of the study period (12 months) was intended to ensure that short-term and seasonal fluctuations in donation regularity were effectively included. At the same time campaigns to recruit new donors and re-recruit lapsed donors, with an extended, irregular periodicity, were effectively included to the extent of their actual annual contribution to the available blood stock. The choice of the specific time period, although initially arbitrary, ultimately coincided with the last twelve months of use of the SABTS 1999 risk categorization model. This meant that the effect of NAT testing was not included in this study, thereby obviating the impact of the inclusion of an additional test sensitivity variable partway during the course of the study. The geographic area

which served as the source of the donations included in this aspect of the study is indicated in Figure 1.2. The HIV tests on all the donations included in this study were carried out by the Donor Virology Laboratory of the SANBS, Inland Region. In the process all four recorded ethnic groups, both sexes, new donors, lapsed donors and regular donors with varying donation intervals, all corresponding to the actual relative proportions were included in the study.

4.1.3. Donations specifically excluded from this study

Data from the following types of donations was specifically excluded from both aspects of this study:

- → Autologous, directed and paid therapeutic blood collections were not included. They were not considered purely voluntary donations made without the likelihood of coercion and were therefore never placed in the general blood inventory.
- → Aphaeresis platelet and plasma donations were not included. The donors of these products are a specialized group of voluntary donors who are not treated and assessed in exactly the same way as voluntary whole blood donors. The routine handling of these donors is characterized by an extended interaction between the donor and the clinic staff of up to 2 hours at any single session in contrast to the 10 to

15 minutes interaction during a voluntary whole blood donation.

→ “Specimen donations” taken for test purposes when donors could not donate for health reasons were not included. These “specimen donations” are recorded in the Meditech programme in a similar way as the actual donations and also contribute to the donors’ total donation count but do not constitute a unit of blood which can potentially be transfused. The test results of these “specimen donations” are used by the Meditech programme to allow or prevent the release of plasma prepared from the previous donation and kept in quarantine till the results of the following donation are known.

In all instances the results of the previous tests carried out in respect of the above types of donations were included in this study since the data was used by the Meditech programme when calculating the risk category of each subsequent donation.

4.2. Methods

Both phases of this study consisted of the following two main activities relating to the data specifically required for each phase:

4.2.1. Collection and entry of donation data

The required donation data was obtained and entered on Microsoft Excel spreadsheets. During the first phase for the development of the parameters for the Age-based Model, data of 497 regular donors returning a confirmed HIV-positive result was entered. During the second phase for the comparative study of the five different models, data from 26664 consecutive unselected voluntary whole blood donations collected at the blood donation clinics served by the Bloemfontein branch of the SANBS, Inland Region between 1 October 2004 and 30 September 2005 was entered. In both cases the four ethnic groups as recorded, the sexes, new donors, lapsed donors and regular donors with varying donation intervals, all corresponding to the actual relative proportions were included in the study.

For the comparative study the risk category of each donation, based on the parameters of each of the five risk categorization models, was then calculated and recorded. The final HIV test result of each donation was also recorded on the spreadsheet. In order to be able to assess the sufficiency of the collected blood within each risk category, the requirement needed to be

analysed. Unpublished internal statistics have been obtained for this purpose. Since this study only encompassed voluntary whole blood donations, only the products prepared from these donations were used as reference points for determining the degree of sufficiency allowed by each risk categorization model.

4.2.2. Statistical analysis

The spreadsheets were set up to generate the following information from the data entered:

- → A unique serial number to represent each individual entered donation. This number was needed to replace the official donation unit number as recorded in the Meditech programme, in order to ensure that the individual results pertaining to the donors and donations remain confidential.
- → The age of the donor at the time of the donation under investigation.
- → The time period between successive disease marker tests expressed as the number of days.
- → The risk category of the donation being studied according to the parameters for each of the five models being analysed in the case of the comparative study.

For the determination of the parameters of the Age-based Model, the donors were grouped according to the sex and the age of the donor when his / her donation returned a confirmed

positive HIV test result. Counts of the number of donors falling within each sex and age combination were done and tabulated. This information was also plotted on graphs and polynomial trend lines developed using the Microsoft Excel trend line function. The R^2 goodness of fit correlation ratios for the trend lines were determined and also recorded. Empirical parameters were determined from the graphs for application in the Age-based Model.

For the comparative study the prevalence of HIV-positive donations within the collected blood was recorded, as well as the availability of blood considered safe for transfusion. In respect of the prevalence of HIV-positive donations the collected and calculated data was analysed to provide totals of HIV-positive donations, totals of all donations and percentages of HIV-positive donations within each risk category of each model studied. Since the study was based on the calculation of the risk category of each donation for each of the models under investigation, further pertinent conclusions could be made regarding the level of effectiveness of each model based on the calculated risk category of each of the individual HIV-positive donations. An analysis was also done on the calculated risk category of the donation prior to the HIV-positive donation where applicable, in order to assess the effectiveness of each model from this vantage point.

With regard to the availability of platelet concentrates and red cell concentrates prepared from whole blood donations considered safe for transfusion, the collected and calculated data was analysed to provide totals of donations received per risk category and the percentage of the donations attributable to each risk category within each model.

Standard statistical techniques, using the Microsoft Excel statistical functions, were used for this purpose. This included the determination of the following information:

- → The percentage of the donations received, allocated to each risk category within each model.
- → The percentage of units with a positive HIV marker test result within each risk category in each model.
- → The determination of the R^2 correlation ratios for the trend lines of the percentage of donors returning an HIV-positive result per age interval.
- → The assessment of the statistical significance of the differences in the above percentages for the alternative models when compared with the results of the SABTS 1999 Model, using the F Test.

CHAPTER 5: RESULTS AND DISCUSSION

In the first phase covering the analysis of HIV-positive donations the donor demographics of 497 donations from “regular” donors with at least one donation in the preceding two years, were analysed. The data is shown in Appendix 1 and can also be found on the enclosed compact disc in the Microsoft Excel file titled CatStudyPr3.xls. Table 5.1 summarises the numbers of the demographic indicators represented in this phase.

Table 5.1: Summary of the demographic indicators (n=497) included in the analysis of HIV-positive donations (Phase 1)

DONOR DATA PROFILE		TOTAL	PERCENTAGE
GENDER	MALE	259	52.11%
	FEMALE	238	47.89%
ETHNIC GROUP	ASIAN	6	1.21%
	BLACK / AFRICAN	324	65.19%
	COLOURED	43	8.65%
	WHITE / CAUCASIAN	124	24.95%
DONATION HISTORY	REGULAR [a]	497	
	LAPSED [b]	Not noted	
	NEW [c]	Not noted	
DONOR AGE	AGE SPECTRUM	16 – 69 years	
	AVERAGE AGE	31 years	

[a] Previous donation recorded on Meditech ≤ 730 days prior to the present donation
[b] Previous donation recorded on Meditech > 730 days prior to the present donation
[c] No previous donation recorded on Meditech

During the second phase, covering the analysis of the donations collected between 1 October 2004 and 30 September 2005, the donor demographics of 26664 donations were analysed. The data can be found on the enclosed compact disc in the Microsoft Excel file titled CatStudyPr4.xls. Table 5.2 summarises the demographic indicators represented in this phase.

Table 5.2: Summary of the demographic indicators (n=26664) included in the analysis of the collected donations (Phase 2)

DONOR DATA PROFILE		TOTAL	PERCENTAGE
GENDER	MALE	16320	61.21%
	FEMALE	10344	38.79%
ETHNIC GROUP	ASIAN	89	0.33%
	BLACK / AFRICAN	996	3.74%
	COLOURED	790	2.96%
	WHITE / CAUCASIAN	24789	92.97%
DONATION HISTORY	REGULAR [a]	23441	87.91%
	LAPSED [b]	1290	4.84%
	NEW [c]	1933	7.25%
DONOR AGE	AGE SPECTRUM	15 – 87 years	
	AVERAGE AGE	37 years	

[a] Previous donation recorded on Meditech ≤ 730 days prior to the present donation
[b] Previous donation recorded on Meditech > 730 days prior to the present donation
[c] No previous donation recorded on Meditech

5.1. Phase 1: Results of the analysis of HIV-positive donations

The donor age distribution of HIV-positive donations received at the Bloemfontein branch of SANBS since October 1997 and HIV-positive donations received throughout the rest of the SANBS, Inland Region since January 2000, was analysed (n=497). Inspection of the results indicated that the relationship between donor age and the number of HIV-positive donations differed for male and female donors. The parameters were therefore separately determined for regular male and female donors. This data is shown in Appendix 1 and also recorded on the enclosed compact disc in Microsoft Excel file CatStudyPr3.xls. The term “regular”, in this context, referred to a donor who had made a donation within the 24 months prior to the date of the donation which returned a positive result for the HIV test.

The age distribution of the donors included in the comparative study (encompassing all the voluntary donations made at the various blood collection clinics of the Bloemfontein branch between October 2004 and September 2005) was also separately determined for regular male and female donors. The choice of 24 months as a limit to the “regular donation” category for this phase of the study was determined by the higher of the two values defined in the risk models applied by SANBS up to the time of publication of this study, namely the SABTS 1999 Model with a 12-month limit, and the SANBS 2005 Model with a 24-month limit. It should be noted that three donations were received from 15-year old donors during this period. Since the legal minimum age to make voluntary blood donations in South Africa is sixteen years, these donations were not included in the analysis of the results. The acceptance of these donations at the time was based on the provision of an incorrect date of birth, which had since been corrected. The following discussion does not make provision for persons younger than sixteen years making voluntary blood donations.

5.1.1. Male donors

The data used to analyse the relationship between the ages of male regular blood donors (n=14603) and the ages of male regular blood donors returning a confirmed HIV-positive test result (n=259) is summarised in Table 5.3.

Table 5.3: Analysis of donations from regular male donors versus HIV-positive donations from regular male donors

DONOR AGE	DONATIONS	% DONATIONS	HIV-POS. DONATIONS	% HIV-POS. DONATIONS	DIFFERENCE IN % HIV-POS. DONATIONS AND % DONATIONS
15	2	0.01%	0	0.00%	Unacceptable age
16	191	1.31%	1	0.39%	-0.92%
17	397	2.72%	1	0.39%	-2.33%
18	432	2.96%	6	2.32%	-0.64%
19	405	2.77%	10	3.86%	1.09%
20	322	2.21%	5	1.93%	-0.28%
21	333	2.28%	7	2.70%	0.42%
22	281	1.92%	6	2.32%	0.40%
23	300	2.05%	14	5.41%	3.36%
24	293	2.01%	13	5.02%	3.01%
25	257	1.76%	9	3.47%	1.71%
26	219	1.50%	8	3.09%	1.59%
27	268	1.84%	10	3.86%	2.02%
28	301	2.06%	9	3.47%	1.41%
29	263	1.80%	11	4.25%	2.45%
30	302	2.07%	12	4.63%	2.56%
31	308	2.11%	7	2.70%	0.59%
32	369	2.53%	13	5.02%	2.49%
33	326	2.23%	5	1.93%	-0.30%
34	340	2.33%	10	3.86%	1.53%
35	309	2.12%	6	2.32%	0.20%
36	332	2.27%	14	5.41%	3.14%
37	328	2.25%	3	1.16%	-1.09%
38	287	1.97%	6	2.32%	0.35%
39	229	1.57%	6	2.32%	0.75%
40	242	1.66%	5	1.93%	0.27%
41	308	2.11%	5	1.93%	-0.18%
42	355	2.43%	2	0.77%	-1.66%
43	322	2.21%	6	2.32%	0.11%
44	279	1.91%	8	3.09%	1.18%
45	277	1.90%	3	1.16%	-0.74%
46	323	2.21%	5	1.93%	-0.28%
47	299	2.05%	2	0.77%	-1.28%
48	341	2.34%	3	1.16%	-1.18%
49	346	2.37%	2	0.77%	-1.60%
50	315	2.16%	3	1.16%	-1.00%
51	251	1.72%	3	1.16%	-0.56%
52	295	2.02%	4	1.54%	-0.48%
53	238	1.63%	3	1.16%	-0.47%

DONOR AGE	DONATIONS	% DONATIONS	HIV-POS. DONATIONS	% HIV-POS. DONATIONS	DIFFERENCE IN % HIV-POS. DONATIONS AND % DONATIONS
54	254	1.74%	2	0.77%	-0.97%
55	250	1.71%	0	0.00%	-1.71%
56	233	1.60%	2	0.77%	-0.83%
57	224	1.53%	1	0.39%	-1.14%
58	220	1.51%	1	0.39%	-1.12%
59	270	1.85%	0	0.00%	-1.85%
60	187	1.28%	1	0.39%	-0.89%
61	186	1.27%	0	0.00%	-1.27%
62	155	1.06%	0	0.00%	-1.06%
63	161	1.10%	0	0.00%	-1.10%
64	141	0.97%	0	0.00%	-0.97%
65	100	0.68%	0	0.00%	-0.68%
66	77	0.53%	3	1.16%	0.63%
67	94	0.64%	0	0.00%	-0.64%
68	81	0.55%	2	0.77%	0.22%
69	72	0.49%	1	0.39%	-0.10%
70	40	0.27%	0	0.00%	-0.27%
71	30	0.21%	0	0.00%	-0.21%
72	46	0.32%	0	0.00%	-0.32%
73	38	0.26%	0	0.00%	-0.26%
74	48	0.33%	0	0.00%	-0.33%
75	39	0.27%	0	0.00%	-0.27%
76	18	0.12%	0	0.00%	-0.12%
77	17	0.12%	0	0.00%	-0.12%
78	8	0.05%	0	0.00%	-0.05%
79	1	0.01%	0	0.00%	-0.01%
80	10	0.07%	0	0.00%	-0.07%
81	8	0.05%	0	0.00%	-0.05%
82	4	0.03%	0	0.00%	-0.03%
83	4	0.03%	0	0.00%	-0.03%
84	0	0.00%	0	0.00%	0.00%
85	0	0.00%	0	0.00%	0.00%
86	0	0.00%	0	0.00%	0.00%
87	2	0.01%	0	0.00%	-0.01%
88	0	0.00%	0	0.00%	0.00%
89	0	0.00%	0	0.00%	0.00%
TOTAL	14603	100.00%	259	100.00%	
TREND LINE R^2		0.8273		0.8133	

See Table 5.4 for the definition of the colour legend

Analysis of the data using the Microsoft Excel polynomial trend line function showed that the HIV-positive donations peaked in the age-group of 21 to 34 years with a contribution of more than 3.00% for each year of donor age, as indicated in Figure 5.1 below. The trend lines showed a reasonably good fit as indicated by the coefficients of determination (R^2) for the male donor age percentages and the male HIV-donor age percentages indicated in Table 5.3.

In the case of regular male donors the trend line of the percentage HIV-positive donations for each year of age, rose above the trend line of the percentage donations for each year of age between the ages of 19 and 41 years. This indicated a higher percentage contribution of HIV-positive donations to the total number of donations than the overall percentage contribution of the donations by the particular age-group of male donors. This would be indicative of a failure on the part of the donor education campaign and the pre-donation screening system. The donations from regular male donors within these age-groups should be considered to be within elevated HIV-risk categories. Further analysis of this peak showed that regular male donors in the age-group 21 to 34 years accounted for 51.74% of the HIV-positive donations obtained from regular male donors (more than 3% for each year of donor age) compared to the 28.49% contribution by this age-group to the total number of donations received from regular male donors as shown in Table 5.4 below.

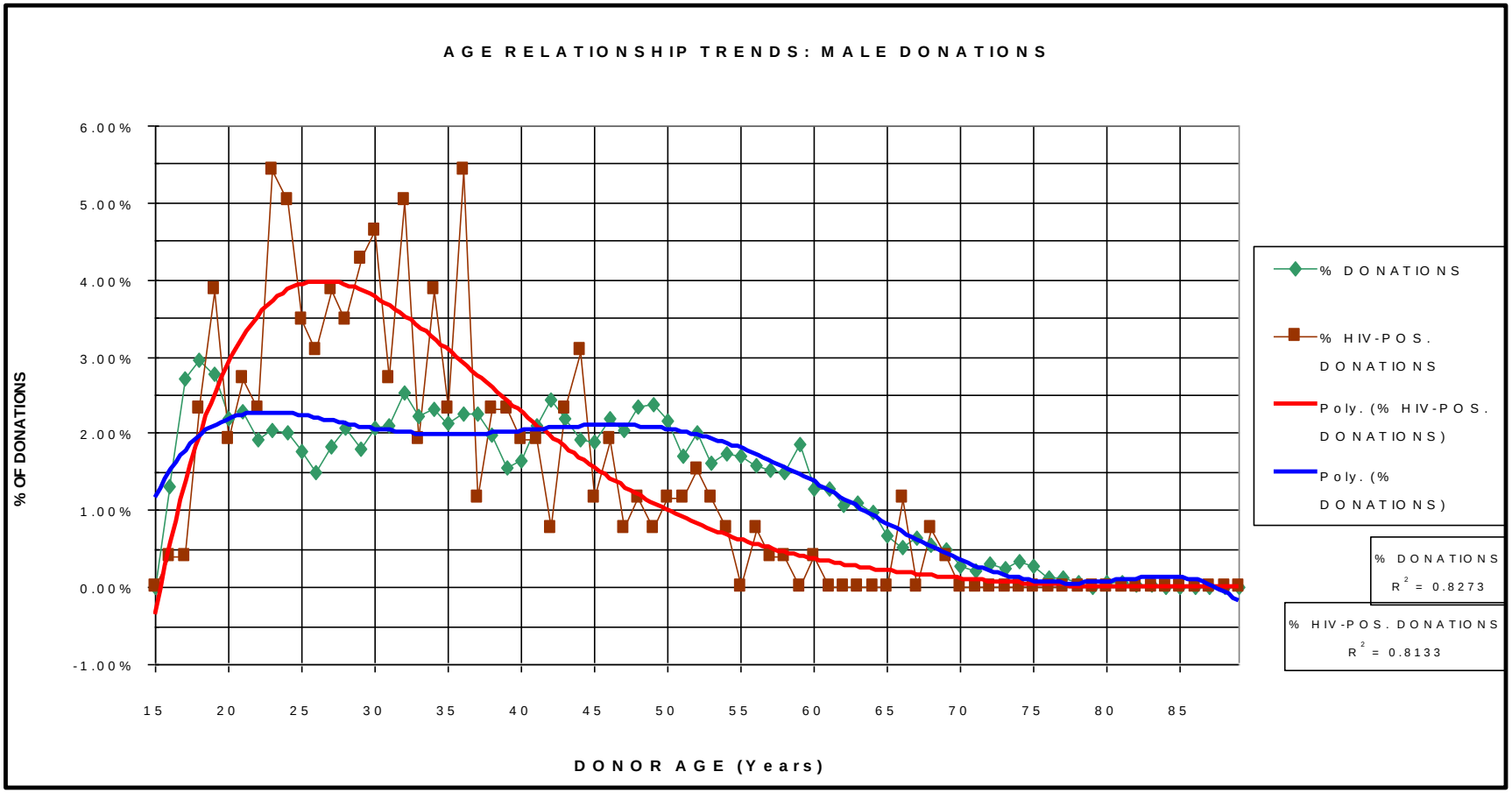

Figure 5.1: Graphic representation of relationship between donations from regular male donors (n=14603) and HIV-positive donations from regular male donors (n=259)

Based on the trend line analysis in Figure 5.1, empirical categorizations of donations from male regular donors were set up. The categories applied to all the donations from male donors and their specific rationales are indicated in Table 5.4.

Table 5.4: Contribution of age-groups to percentage of donations and percentage of HIV-positive donations from regular male donors

CATEGORY RATIONALE	AGE-GROUP	RISK CATEGORY	% DONATIONS	% HIV-POSITIVE DONATIONS
HIV % trend line below donation % trend line	16 – 18 Yrs 41+ Yrs	AC1	54.69%	27.03%
HIV % trend line above donation % trend line but <3% contribution to total HIV %	19 – 20 Yrs 35 – 40 Yrs	AC2	16.80%	21.24%
HIV % trend line above donation % trend line and 3% to 5% contribution to total HIV %	21 – 34 Yrs	AC3	28.49%	51.74%
HIV % trend line above donation % trend line and >5% contribution to total HIV %	Not applicable	AC4	0.00%	0.00%
New donors & donors <1 per 24 months	New / lapsed donors	AC5	New / lapsed donors	New / lapsed donors

5.1.2. Female donors

The data used to analyse the relationship between the ages of female regular blood donors (n=8838) and the ages of female regular blood donors returning a confirmed HIV-positive test result (n=238) is summarised in Table 5.5.

Table 5.5: Analysis of donations from regular female donors versus HIV-positive donations from regular female donors

DONOR AGE	DONATIONS	% DONATIONS	HIV-POS. DONATIONS	% HIV-POS. DONATIONS	DIFFERENCE IN % HIV-POS. DONATIONS AND % DONATIONS
15	1	0.01%	0	0.00%	Unacceptable age
16	189	2.14%	8	3.36%	1.22%
17	324	3.67%	21	8.82%	5.15%
18	282	3.19%	14	5.88%	2.69%
19	326	3.69%	24	10.08%	6.39%
20	332	3.76%	12	5.04%	1.28%
21	338	3.82%	11	4.62%	0.80%
22	325	3.68%	8	3.36%	-0.32%
23	252	2.85%	8	3.36%	0.51%
24	194	2.20%	12	5.04%	2.84%
25	211	2.39%	7	2.94%	0.55%
26	203	2.30%	6	2.52%	0.22%
27	161	1.82%	6	2.52%	0.70%
28	198	2.24%	5	2.10%	-0.14%
29	179	2.03%	8	3.36%	1.33%
30	191	2.16%	10	4.20%	2.04%
31	206	2.33%	5	2.10%	-0.23%
32	205	2.32%	5	2.10%	-0.22%
33	222	2.51%	6	2.52%	0.01%
34	167	1.89%	5	2.10%	0.21%
35	184	2.08%	6	2.52%	0.44%
36	177	2.00%	7	2.94%	0.94%
37	212	2.40%	3	1.26%	-1.14%
38	189	2.14%	4	1.68%	-0.46%
39	152	1.72%	5	2.10%	0.38%
40	140	1.58%	2	0.84%	-0.74%
41	195	2.21%	4	1.68%	-0.53%
42	167	1.89%	3	1.26%	-0.63%
43	170	1.92%	1	0.42%	-1.50%
44	181	2.05%	4	1.68%	-0.37%
45	203	2.30%	3	1.26%	-1.04%
46	164	1.86%	3	1.26%	-0.60%
47	157	1.78%	1	0.42%	-1.36%
48	167	1.89%	0	0.00%	-1.89%
49	160	1.81%	3	1.26%	-0.55%
50	152	1.72%	1	0.42%	-1.30%
51	128	1.45%	0	0.00%	-1.45%
52	149	1.69%	2	0.84%	-0.85%
53	160	1.81%	0	0.00%	-1.81%
54	147	1.66%	1	0.42%	-1.24%
55	97	1.10%	0	0.00%	-1.10%
56	88	1.00%	1	0.42%	-0.58%
57	128	1.45%	1	0.42%	-1.03%

DONOR AGE	DONATIONS	% DONATIONS	HIV-POS. DONATIONS	% HIV-POS. DONATIONS	DIFFERENCE IN % HIV-POS. DONATIONS AND % DONATIONS
58	106	1.20%	0	0.00%	-1.20%
59	90	1.02%	0	0.00%	-1.02%
60	61	0.69%	0	0.00%	-0.69%
61	77	0.87%	0	0.00%	-0.87%
62	68	0.77%	1	0.42%	-0.35%
63	31	0.35%	0	0.00%	-0.35%
64	30	0.34%	0	0.00%	-0.34%
65	31	0.35%	0	0.00%	-0.35%
66	17	0.19%	0	0.00%	-0.19%
67	27	0.31%	1	0.42%	0.11%
68	21	0.24%	0	0.00%	-0.24%
69	22	0.25%	0	0.00%	-0.25%
70	16	0.18%	0	0.00%	-0.18%
71	20	0.23%	0	0.00%	-0.23%
72	4	0.05%	0	0.00%	-0.05%
73	9	0.10%	0	0.00%	-0.10%
74	9	0.10%	0	0.00%	-0.10%
75	2	0.02%	0	0.00%	-0.02%
76	6	0.07%	0	0.00%	-0.07%
77	5	0.06%	0	0.00%	-0.06%
78	9	0.10%	0	0.00%	-0.10%
79	3	0.03%	0	0.00%	-0.03%
80	0	0.00%	0	0.00%	0.00%
81	0	0.00%	0	0.00%	0.00%
82	1	0.01%	0	0.00%	-0.01%
83	0	0.00%	0	0.00%	0.00%
84	0	0.00%	0	0.00%	0.00%
85	0	0.00%	0	0.00%	0.00%
86	0	0.00%	0	0.00%	0.00%
87	0	0.00%	0	0.00%	0.00%
88	0	0.00%	0	0.00%	0.00%
89	0	0.00%	0	0.00%	0.00%
TOTAL	8838	100.00%	238	100.00%	
TREND LINE R^2		0.8893		0.7298	

See Table 5.6 for the definition of the colour legend

Analysis of the data using the Microsoft Excel polynomial trend line function showed that in the case of regular female donors the HIV-positive donations peaked in the age-group of 16 to 20 years with a contribution of more than 5% for each year of donor age, as indicated

in Figure 5.2 below. The trend lines showed a reasonably good fit as indicated by the coefficients of determination (R^2) for the female donor age percentages and the female HIV-donor age percentages indicated in Table 5.5.

In the case of regular female donors the trend line of the percentage HIV-positive donations for each year of age, rose above the trend line of the percentage donations for each year of age between the ages of 16 and 34 years. This indicated a higher percentage contribution of HIV-positive donations to the total number of donations than the overall percentage contribution of the donations by the particular age-group of female donors. This would be indicative of a failure on the part of the donor education campaign and the pre-donation screening system. The donations from regular female donors within these age-groups should be considered to be within elevated HIV-risk categories. An analysis of this peak indicated that regular female donors in the age-group 16 to 20 years accounted for 33.18% of the HIV-positive donations obtained from regular female donors compared to the 16.44% contribution by this age-group to the total number of donations received from regular female donors as shown in Table 5.6.

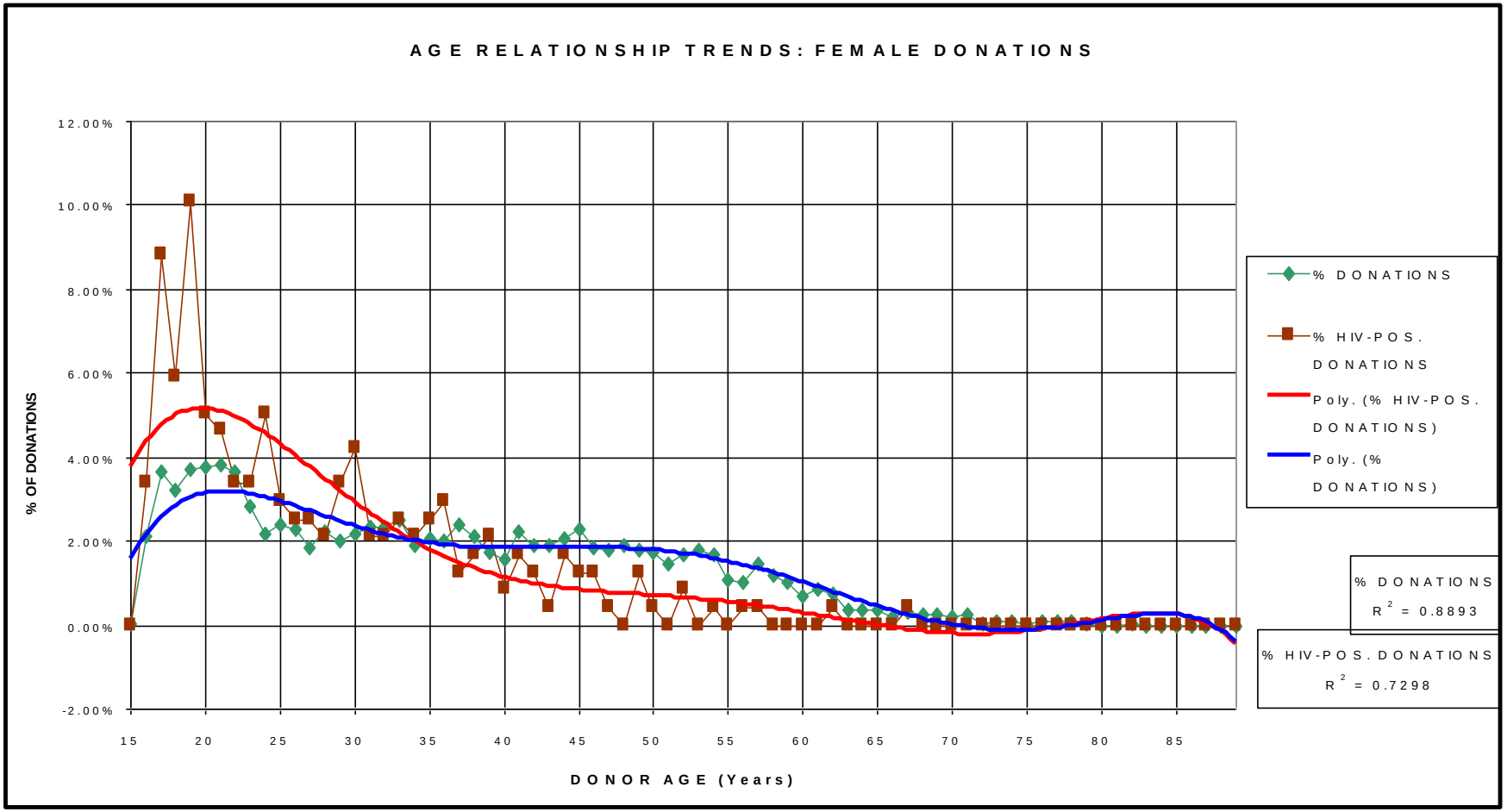

Figure 5.2: Graphic representation of relationship between donations from regular female donors (n=8838) and HIV-positive donations from regular female donors (n=238)

Based on the trend line analysis in Figure 5.2 empirical categorizations of donations from female regular donors were set up. The categories applied to all the donations from female donors and their specific rationales are indicated in Table 5.6.

Table 5.6: Contribution of age-groups to percentage of donations and percentage of HIV-positive donations from regular female donors

CATEGORY RATIONALE	AGE-GROUP	RISK CATEGORY	% DONATIONS	% HIV-POSITIVE DONATIONS
HIV % trend line below donation % trend line	34+ Yrs	AC1	50.91%	26.08%
HIV % trend line above donation % trend line but <3% contribution to total HIV %	28 – 33 Yrs	AC2	13.59%	16.38%
HIV % trend line above donation % trend line and 3% to 5% contribution to total HIV %	21 – 27 Yrs	AC3	19.06%	24.36%
HIV % trend line above donation % trend line and >5% contribution to total HIV %	16 – 20 Yrs	AC4	16.44%	33.18%
New donors & donors <1 per 24 months	New / lapsed donors	AC5	New / lapsed donors	New / lapsed donors

From the information in Tables 5.4 and 5.6 the parameters of the Age-based Model can be summarized as indicated in Table 5.7. These parameters were subsequently applied in the study of the donations collected between October 2004 and September 2005 as reported in Section 5.2 below.

Table 5.7: Age-based Model parameters

RISK CATEGORY	MINIMUM DONATIONS PER PERIOD	DONOR AGE GROUPS	
		MALE DONORS	FEMALE DONORS
AC1	1 / 24 months	<19 & > 40 Yrs	> 33 Yrs
AC2	1 / 24 months	19 – 20 & 35 – 40 Yrs	28 – 33 Yrs
AC3	1 / 24 months	21 - 34 Yrs	21 – 27 Yrs
AC4	1 / 24 months	Not applied	<21 Yrs
AC5	<1 / 24 months & new donors	All ages	All ages

5.2. Phase 2: Results of the data from the collected donations

A total of 26664 donations of whole blood were received by the Bloemfontein branch of SANBS in the period from 1 October 2004 till 30 September 2005.

The data collected in respect of these donations is recorded on the enclosed compact disc in the Microsoft Excel file titled CatStudyPr4.xls. The calculated risk category for each donation according to each of the five risk management models is also recorded in the file. These results are summarised below in terms of the potential risk associated with each model, based on the number of HIV-positive donations found within each risk category, and in terms of the relative numbers of donations available for use according to the criteria defined in Chapter 2 and section 5.1. Of the 26664 donations, 17 were found to be HIV-positive. Although the data collected in

respect of the HIV-positive donations is also included in the Microsoft Excel file titled CatStudyPr4.xls, the data has been duplicated as a separate table in Appendix 2 and on the enclosed compact disc in Microsoft Excel file titled CatStudyPr5.xls for reference ease.

5.2.1. Potential risk profile of the models

The risk limits, as applied by the SABTS in its SABTS 1999 Model, are indicated in Table 5.8 and also applied to the other four models in this study, with the exponential extrapolation required for the SANBS 2005 Model and the Age-based Model. The extrapolation consists of the subdivision of the “A3” risk category of the SABTS 1999 Model into three sub-categories (“PLR1”, “PLR2” and “PLR3”) in the case of the SANBS 2005 Model. In the case of the Age-based Model the “A3” risk category of the SABTS 1999 Model was subdivided into two subcategories (“AC3” and “AC4”).

Table 5.8: HIV prevalence per donation risk categories according to the studied models (n=26664)

Risk limits based on SABTS 1999 Model		<0.0100%	0.0100% - 0.0999%	0.1000% - 0.9999%			1.0000% and greater	
				0.100% - 0.2149%	0.215% - 0.4639%	0.464% - 0.9999%		
				0.100% - 0.2999%	0.3000% - 0.9999%			
USAGE*	Generally acceptable	All products	Adult red cell products & plasma products	Adult plasma products	Adult plasma products	Adult plasma products	Fractionated plasma products	
	Severe shortage	All products	Adult red cell products & plasma products	Adult red cell products & adult plasma products	Adult red cell products & adult plasma products	Adult red cell products & adult plasma products	Fractionated plasma products	
SABTS 1999 Model	RISK CATEGORY	A1	A2	A3			A4	TOTAL
	TOTAL TESTED	21246	4225	740			453	26664
	TOTAL HIV-POS.	0	6	3			8	17
	% HIV-POS.	**0.0000%**	**0.1420%**	**0.4054%**			**1.7660%**	**0.0638%**
Donation Interval Model	RISK CATEGORY	DI1	DI2	DI3			DI4	TOTAL
	TOTAL TESTED	15019	2808	2922			5915	26664
	TOTAL HIV-POS.	1	0	0			16	17
	% HIV-POS.	**0.0067%**	**0.0000%**	**0.0000%**			**0.2705%**	**0.0638%**
Combination Model	RISK CATEGORY	Cb1	Cb2	Cb3			Cb4	TOTAL
	TOTAL TESTED	19273	6454	360			577	26664
	TOTAL HIV-POS.	1	5	3			8	17
	% HIV-POS.	**0.0052%**	**0.0775%**	**0.8333%**			**1.3865%**	**0.0638%**
SANBS 2005 Model	RISK CATEGORY	C	R	PLR1	PLR2	PLR3	P	TOTAL
	TOTAL TESTED	16621	6817	1293	732	584	617	26664
	TOTAL HIV-POS.	2	1	7	2	0	5	17
	% HIV-POS.	**0.0120%**	**0.0147%**	**0.5414%**	**0.2732%**	**0.0000%**	**0.8104%**	**0.0638%**
Age-based Model	RISK CATEGORY	AC1	AC2	AC3	AC4		AC5	TOTAL
	TOTAL TESTED	12488	3654	5844	1454		3224	26664
	TOTAL HIV-POS.	2	0	1	0		14	17
	% HIV-POS.	**0.0160%**	**0.0000%**	**0.0171%**	**0.0000%**		**0.4342%**	**0.0638%**

* Based on the requirements for the SABTS 1999 Model and the SANBS 2005 Model

The last donations received from each donor prior to the HIV-positive donation, which may have been in the window period, were also analysed to provide an additional indication of the effectiveness of the alternative models. Of the seventeen confirmed HIV-positive donations received during this study, seven donations were made by new donors, previous potential window-period donations therefore did not exist. The remaining ten donations were made by donors who had a record of previous donations. SANBS in SOP-DON-44 rev. 1 (2003) requires a look-back investigation to be undertaken on the previous donation if the donation was made within five years of an anti-HIV 1.O.2 positive test result, or if it was made within one year of an HIV 1 p24 antigen positive and anti-HIV 1.O.2 negative test result. All the donations collected from HIV-positive donors in this study who had donated previously and now tested anti-HIV 1.O.2 positive were also subjected to the risk categorization calculation for each of the five models analysed. The data collected and the risk category calculation for these donations are shown in Appendix 3 and recorded on the enclosed compact disc in the Microsoft Excel file titled CatStudyPr6.xls. For this purpose the donations were subdivided into 2 groups, namely donations made more than five years prior to the HIV-positive donation and donations made five years and less prior to the HIV-positive donation. The results of this analysis are shown in Table 5.9.

Table 5.9: Summary of the risk categories of the donations prior to the HIV-positive donation

MODEL	RISK CAT.	DONORS >5 YEARS TILL HIV-POSITIVE DONATION	% DONORS >5 YEARS TILL HIV-POSITIVE DONATION	DONORS <5 YEARS INTERVAL TILL HIV-POSITIVE DONATION	% DONORS <5 YEARS INTERVAL TILL HIV-POSITIVE DONATION
NEW DONORS	7				
SABTS 1999 MODEL	A1	2	40.00%	0	0.00%
	A2	1	20.00%	1	20.00%
	A3	1	20.00%	4	80.00%
	A4	1	20.00%	0	0.00%
DONATION INTERVAL MODEL	DI1	3	60.00%	2	40.00%
	DI2	1	20.00%	0	0.00%
	DI3	0	0.00%	3	60.00%
	DI4	1	20.00%	0	0.00%
COMBINATION MODEL	Cb1	4	80.00%	2	40.00%
	Cb2	0	0.00%	1	20.00%
	Cb3	0	0.00%	2	40.00%
	Cb4	1	20.00%	0	0.00%
SANBS 2005 MODEL	C	3	60.00%	2	40.00%
	R	1	20.00%	3	60.00%
	PLR1	0	0.00%	0	0.00%
	PLR2	0	0.00%	0	0.00%
	PLR3	1	20.00%	0	0.00%
	P	0	0.00%	0	0.00%
AGE-BASED MODEL	AC1	2	40.00%	2	40.00%
	AC2	0	0.00%	1	20.00%
	AC3	2	40.00%	2	40.00%
	AC4	0	0.00%	0	0.00%
	AC5	1	20.00%	0	0.00%

5.2.2. Availability of low-risk blood according to the models

The donations available after disposal of the HIV-positive donations, were analysed to determine the relative number of donations which would be available within each of the risk categories associated with each of the models studied. The results of this analysis are given in Table 5.10.

Table 5.10: Availability of blood according to risk category within each model

MODEL	RISK CATEGORY	NUMBER OF DONATIONS		CUMULATIVE NUMBER OF DONATIONS	PERCENTAGE OF DONATIONS	CUMULATIVE % OF DONATIONS
SABTS 1999 Model	A1	21246		21246	79.73%	79.73%
	A2	4219		25465	15.83%	95.56%
	A3	737		26202	2.77%	98.33%
	A4	445		26647	1.67%	100.00%
Donation Interval Model	DI1	15018		15018	56.36%	56.36%
	DI2	2808		17826	10.54%	66.90%
	DI3	2922		20748	10.97%	77.87%
	DI4	5899		26647	22.14%	100.00%
	F ratio	0.3985				
Combination Model	Cb1	19272		19272	72.32%	72.32%
	Cb2	6449		25721	24.20%	96.52%
	Cb3	357		26078	1.34%	97.86%
	Cb4	569		26647	2.14%	100.00%
	F ratio	0.8641				
SANBS 2005 Model	C	16619		16619	62.37%	62.37%
	R	6816		23435	25.58%	87.95%
	PLR1	2600	1286	24721	4.83%	92.78%
	PLR2		730	25451	2.74%	95.52%
	PLR3		584	26035	2.19%	97.71%
	P	612		26647	2.30%	100.00%
	F ratio	0.6055				
Age-based Model	AC1	12486		12486	46.86%	46.86%
	AC2	3654		16140	13.71%	60.57%
	AC3	7297	5843	21983	21.93%	82.50%
	AC4		1454	23437	5.46%	87.96%
	AC5	3210		26647	12.05%	100.00%
	F ratio	0.2047				

The amount of blood needed for transfusion to patients was obtained from unpublished internal statistics and summarized in Table 5.11. Since this study only encompassed voluntary whole blood donations, only the products prepared from these donations were used as reference points for determining the degree of sufficiency allowed by each risk categorization model.

Table 5.11: Usage of blood products during 2005 in the area served by the Bloemfontein branch of SANBS

DONATION TYPE USED	SOURCE COMPONENT	PRODUCT	UNITS ISSUED	% OF TOTAL DONATION TYPE
Voluntary whole blood donation	Red Cells	Whole Blood	19	0.07%
		Red Cell Concentrate	14341	55.84%
		Filtered Red Cell Concentrate	8568	33.71%
		Paediatric Filtered Red Cell Concentrate	2756	10.73%
		Total red cells required	**25684**	**100%**
	Platelets	Pooled Platelet Concentrate	458	1.78%
		Total platelets required	**458**	**1.78%**
	Plasma	Adult Fresh Frozen Plasma	4092	15.93%
		Infant Fresh Frozen Plasma	176	0.69%
		Frozen Cryoprecipitate	130	0.51%
		Total plasma products required	**4398**	**17.12%**
	Total voluntary whole blood donations required		**25684**	
Voluntary aphaeresis donation	Platelets	Paediatric Platelet Concentrate	141	9.02%
		Adult Platelet Concentrate	1422	90.88%
Autologous & directed whole blood donation	Red Cells	Autologous Whole Blood	50	30.86%
		Directed Red Cell Concentrate	112	69.14%

5.3. Discussion

5.3.1. Potential risk profile of the five models

Table 5.8 clearly highlights the difficulty in applying an objective and effective risk categorization hierarchy in terms of the blood donations received, while simultaneously steering clear of pitfalls based on peoples' perceptions of discrimination. It is assumed that the relative prevalence of donations within the window period corresponds with the relative prevalence of donations testing HIV-positive. According to the SANBS blood risk management policy applied till 2005, the primary focus of the risk categorization is on the identification of safe sources of platelets and red cells for paediatrics and other immuno-

compromised patients from donors statistically exhibiting a risk of HIV prevalence less than 0.0100%, and red cells for immuno-competent adults which could also be sourced from donors statistically exhibiting a risk of HIV prevalence between 0.0100% and 0.0999%. The relative risks associated with the use of donations falling in higher risk categories, with a risk of HIV prevalence up to 0.9999%, as occurs in situations of extreme blood shortage, will also be discussed. Since plasma is quarantined till the next donation has been made and tested, before being released for transfusion, the merits of the different models in terms of this product are not discussed.

Due to the exceedingly small numbers of HIV-positive donations collected during this study, the HIV prevalence of the individual risk categories, as determined in this study, is not considered to be statistically significant. These figures, particularly where they are derived from multiple HIV-positive donations, still constitute a meaningful guide to possible HIV-risk pitfalls. In addition, the potential impact of NAT has not been considered in this study. Unpublished data, in respect of the donations received in the area served by the Bloemfontein branch, indicates an increase in the number of HIV-positive donations received since October 2005 when compared to the equivalent period before 30 September 2005. This change should, however, not only be attributed to the increased sensitivity of NAT. Additional factors such as new and lapsed donor recruitment drives and regular donor reminder systems without an ethnic target

element may also be playing a role due to the still-existing higher HIV prevalence in the racial groups previously considered to be high-risk populations, as well as limitations in the pre-donation screening system. In spite of the possibility of increased risk in the donations collected, and very possibly due to the increased sensitivity of NAT, unpublished data also suggests that no identified instance of HIV transmission has been reported till March 2008, through the transfusion of donations subjected to NAT after September 2005 throughout SANBS (representing approximately 1,500.000 transfused donations over this period).

5.3.1.1. The SABTS 1999 Model

Of the five models studied, the SABTS 1999 Model provided the greatest level of protection against HIV-transmission by the transfusion of platelet concentrates and paediatric red cell concentrates, since these are exclusively prepared from donations falling within the lowest risk category ("A1"). No HIV-positive donations accepted routinely within the ambit of this study were categorized as "A1".

In terms of red cell concentrates prepared for transfusion to adults, this model proved considerably less superior. The risk limit defined for risk category "A2" is less than 0.1000%. In the course of this study, six HIV-positive donations occurred among the 4221 donations that fell in risk category "A2" giving this category a

0.1420% prevalence. An analysis of these donations showed that two of the donations (33.33%) came from white male new donors, one of the donations (16.67%) came from a white female new donor, two of the donations (33.33%) came from lapsed white male donors who had made their previous donations more than seven years previously, and one donation (16.67%) had been accepted from a regular coloured female donor who had made her previous donation six months previously. This last donation is the most serious cause for concern, particularly since it was typed as an O Rh_o-negative and therefore the previous donation, which may have been in the window-period, would probably have been used for transfusion to a patient.

In times of extreme blood shortage, when donations of the next lower risk category are used, the 0.4054% prevalence of HIV-positive donations in risk category “A3” was found to be comfortably within the set risk limits of less than 1.0000%. The three HIV-positive donations which fell in this risk category were identified as being a new donor, a lapsed donor whose previous donation had been made almost eight years previously, and one very regular donor whose previous donation had been made 2 months previously. The fact that this donation was typed as a group O Rh_o-positive would have increased the possibility that the previous donations may have been transfused, due to serious blood shortages.

The categories within which the HIV-positive donations fell in respect of the SABTS 1999 Model are illustrated graphically in Figure 5.3.

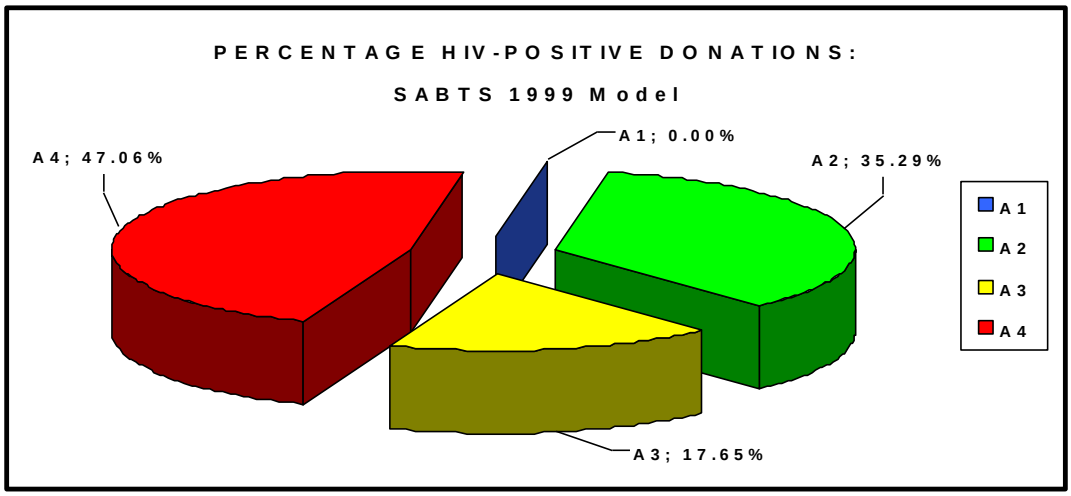

Figure 5.3: Percentage of HIV-positive donations by risk category using the SABTS 1999 Model

The performance of the SABTS 1999 Model against the set risk limit standards is graphically illustrated in Figure 5.4.

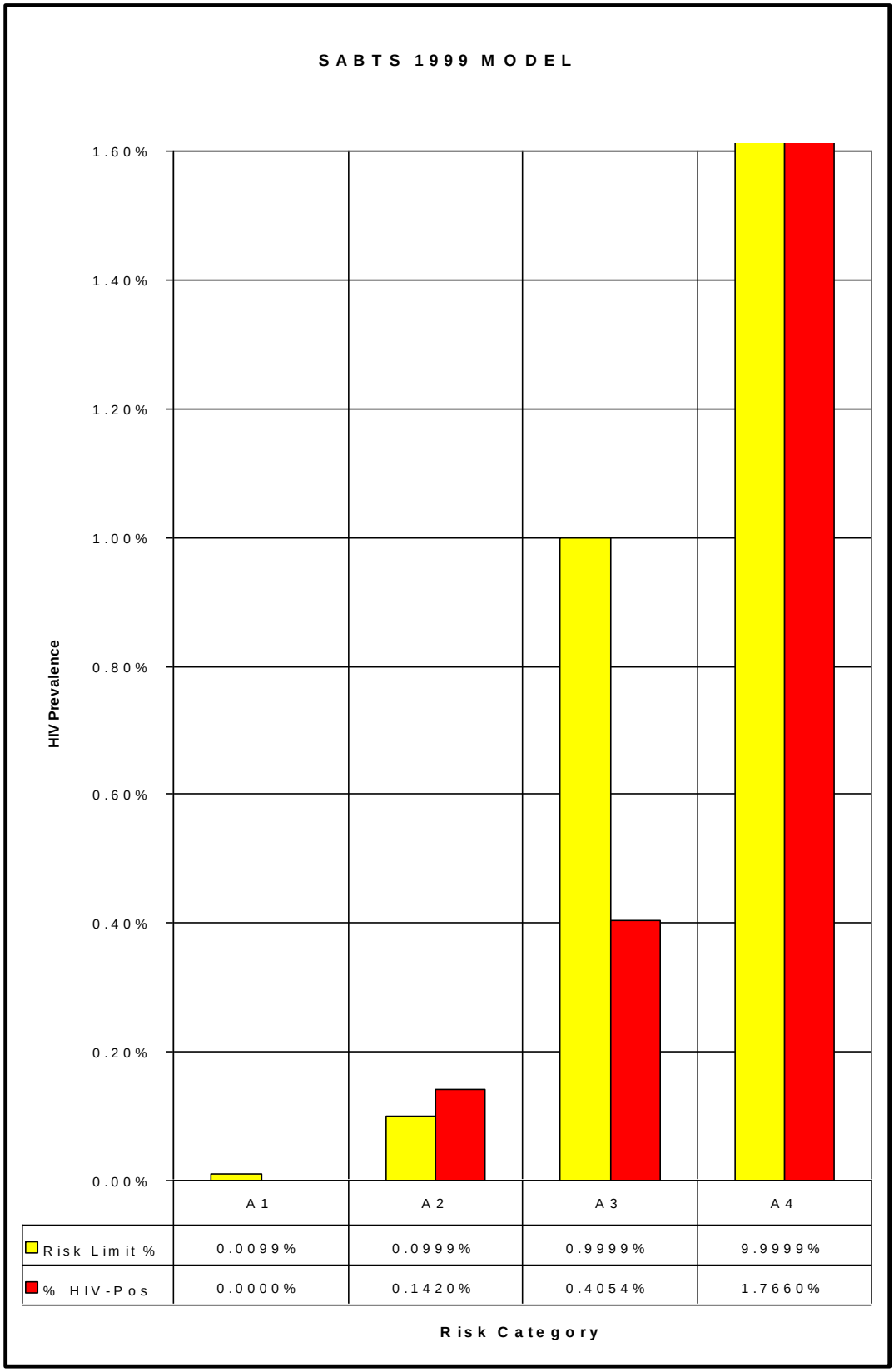

Figure 5.4: HIV prevalence per risk category using the SABTS 1999 Model

5.3.1.2. The Donation Interval Model

The Donation Interval Model provided the next best level of protection against HIV-transmission by the transfusion of platelet concentrates and paediatric red cell concentrates. One of the 17 HIV-positive donations collected would have been considered suitable for transfusion prior to the receipt of the HIV test results of the donation due to its “DI1” risk categorization. An investigation of the results showed that this was the same donation from a very regular donor whose donation was categorized as “A3” in the SABTS 1999 Model. If this model had been in use, the previous donation, which has a high probability of having been in the window-period, would most probably have been used for transfusion to a patient since the blood was typed as group O Rh_o-positive. The prevalence of HIV-positive donations in risk category “DI1” is 0.0067% and, in spite of the HIV-positive donation mentioned, the risk category still falls comfortably within the set risk limit of less than 0.0100%.

At the next risk level, the Donation Interval Model is superior, with its HIV prevalence of 0.0000%, compared to the SABTS 1999 Model with a prevalence of 0.1420%. All the HIV-positive donations categorized as “A2” in the SABTS 1999 Model were categorized as “DI4” in the Donation Interval Model.

A similar situation exists when red cells for transfusion to adults need to be found in situations of extreme shortage. There were no HIV-positive donations categorized as “DI3” in the Donation Interval Model.

Sixteen of the HIV-positive donations fell within the highest risk category (“DI4”) in the Donation Interval Model, which is considered the almost ideal categorization from a risk elimination perspective. The categories within which the HIV-positive donations fell in respect of the Donation Interval Model are illustrated graphically in Figure 5.5.

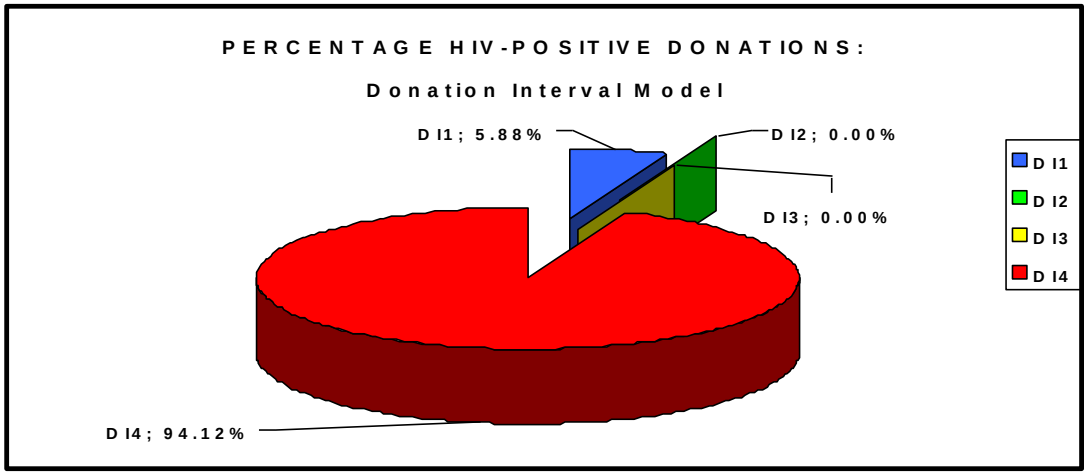

Figure 5.5: Percentage of HIV-positive donations by risk category using the Donation Interval Model

The performance of the Donation Interval Model against the risk limit standards set for the SABTS 1999 Model is graphically illustrated in Figure 5.6.

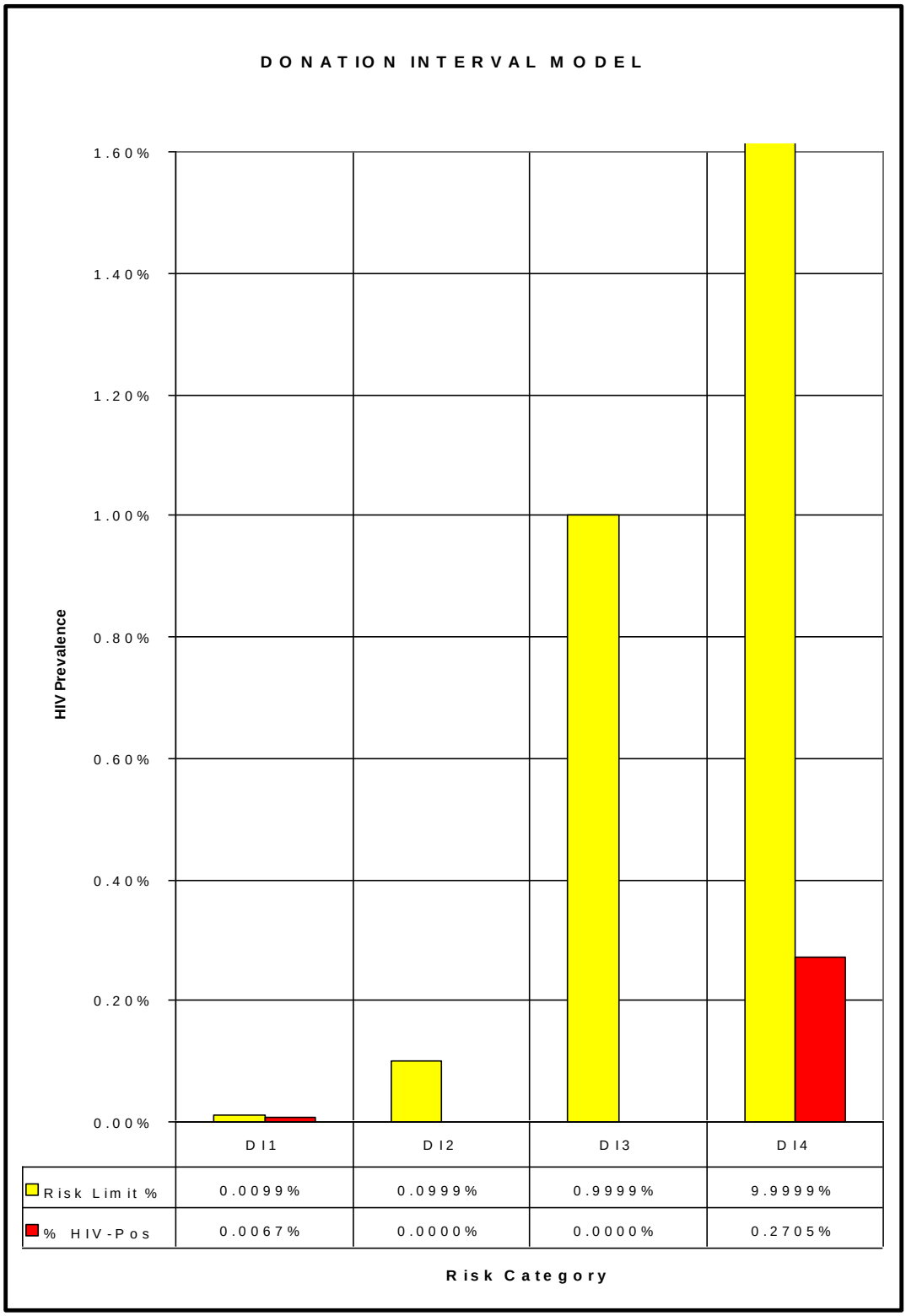

Figure 5.6: HIV prevalence per risk category using the Donation Interval Model

5.3.1.3. The Combination Model

The Combination Model provided a similar level of protection against HIV-transmission by the transfusion of platelet concentrates and paediatric red cell concentrates. One of the 17 HIV-positive donations collected would have been considered suitable for transfusion prior to the receipt of the HIV test results of the donation due to its “Cb1” risk categorization. An investigation of the results showed that this was the same donation from a very regular donor whose donation was categorized as “A3” in the SABTS 1999 Model. If this model had been in use, the previous donation, which has a high probability of having been in the window-period, would most probably have been used for transfusion to a patient since the blood was typed as group O Rh_o-positive. The prevalence of HIV-positive donations in risk category “Cb1” is 0.0052% and, in spite of the HIV-positive donation mentioned, the risk category still falls comfortably within the set risk limit of less than 0.0100%.

At the next risk level, the Combination Model has an HIV-positive donation prevalence of 0.0775%, which is poorer than the equivalent risk category in the Donation Interval Model, but a slight improvement on the equivalent category in the SABTS 1999 Model. The five HIV-positive donations which were categorized as “Cb2”, constituted three new donors and two lapsed donors who had made their previous donations more than seven years

previously. These were the same donors classified as “A2” in the SABTS 1999 Model. The Combination Model succeeded in categorizing the single regular donor from “A2” in the SABTS 1999 Model to “Cb3” in the Combination Model. The prevalence of these HIV-positive donations in the Combination Model is, however, still within the suggested risk limit of less than 0.1000% for risk category “Cb2”.

A similar situation exists when red cells for transfusion to adults need to be found in situations of extreme shortage. The three HIV-positive donations which fell into the “Cb3” category of the Combination Model consisted of a donation from a new donor, a donation from a lapsed donor who had made his previous donation almost 8 years previously, and a donation from a regular donor who had made his previous donation six months previously. The 0.8333% prevalence in risk category “Cb3” remains within the suggested risk limit of less than 1.0000%.

The categories within which the HIV-positive donations fell in respect of the Combination Model are illustrated graphically in Figure 5.7.

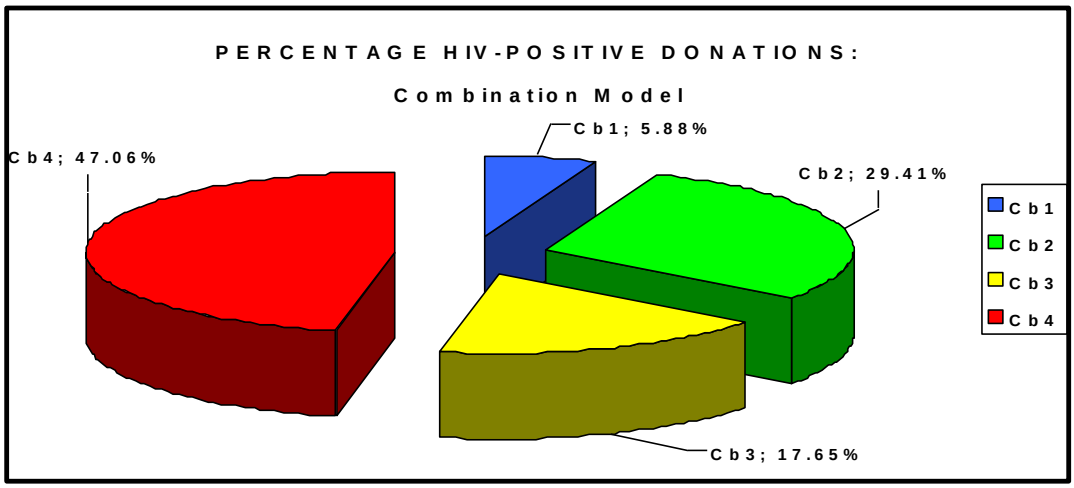

Figure 5.7: Percentage of HIV-positive donations by risk category using the Combination Model

The performance of the Combination Model against the risk limit standards set for the SABTS 1999 Model is graphically illustrated in Figure 5.8

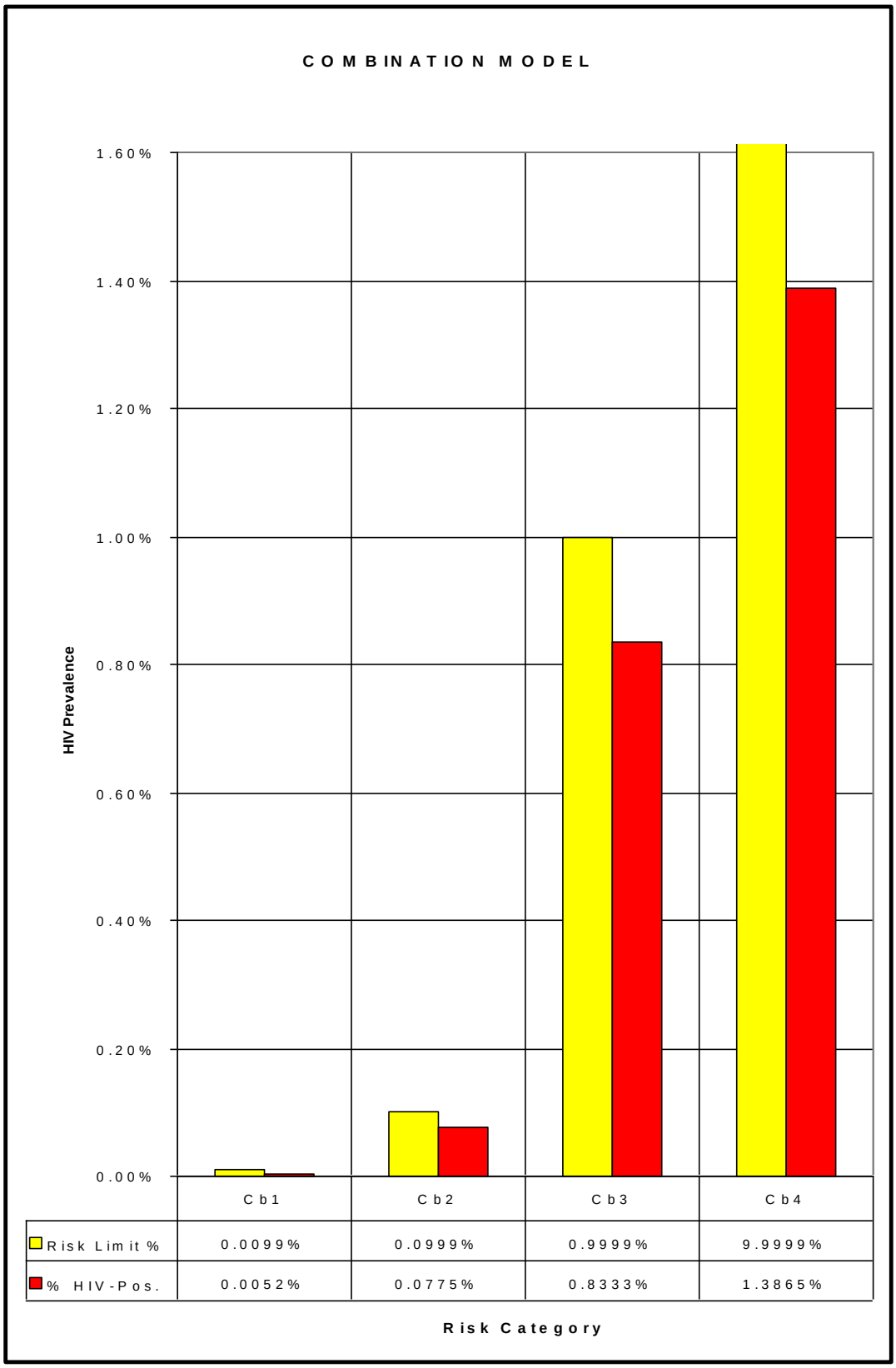

Figure 5.8: HIV prevalence per risk category using the Combination Model

5.3.1.4. The SANBS 2005 Model

The SANBS 2005 Model was implemented by SANBS following the directive by the South African Department of Health to discontinue the use of the SABTS 1999 Model due to its use of race as an indicator. This model proved to be one of the models with the poorest safety factor when donations required for the preparation of platelet concentrates and paediatric red cell concentrates needed to be identified. In this model two donations returning an HIV-positive result were categorized as “C”. These two HIV-positive donations were made by two regular donors who had respectively made their previous donations two months and twelve months previously. The donation collected two months previously (the same donation categorized as “DI1” in the Donation Interval Model) was typed as group O Rh_o-positive and would most likely have been transfused if the SANBS 2005 Model had been applied at the time of this study. The “C” categorized donation from the donor whose last donation had been made twelve months previously was categorized as “A4”, “DI4” and “Cb4” within their respective models. The performance of this model in terms of the risk limits set for the SABTS 1999 Model was unsatisfactory at 0.0120%, compared to the set standard of less than 0.0100 %.

In terms of donations allocated to the preparation of red cell concentrates for transfusion to adults, the SANBS 2005 Model,

although returning one HIV-positive donation in risk category “R”, recorded a prevalence of 0.0147%, which was well within the suggested risk limit standards. This donation was an HIV-positive donation accepted from the group O Rh_o-negative regular donor whose previous donation had been made six months earlier and whose present donation was categorized as “A2” according to the SABTS 1999 Model.

The safety factor according to the SANBS 2005 Model, associated with donations to be considered for the preparation of red cell concentrates for adults in situations of extreme shortage, proved disappointing with seven, two and no HIV-positive donations respectively for the “PLR1”, “PLR2” and “PLR3” categories. The ideal model should have allocated categories to these donations in reverse order. With an extrapolated risk limit of less than 0.2150% for “PLR1”, this category, at 0.5414%, did not meet the required standard. All seven HIV-positive donations were donated by donors who had made their previous donations more than 3½ years earlier. The HIV prevalence in the “PLR2” and “PLR3” risk categories proved well within the suggested limits of less than 0.4640% and less than 1.0000% respectively. Both the “PLR2” HIV-positive donations were accepted from new donors.

The categories within which the HIV-positive donations fell, in respect of the SANBS 2005 Model, are illustrated graphically in Figure 5.9.

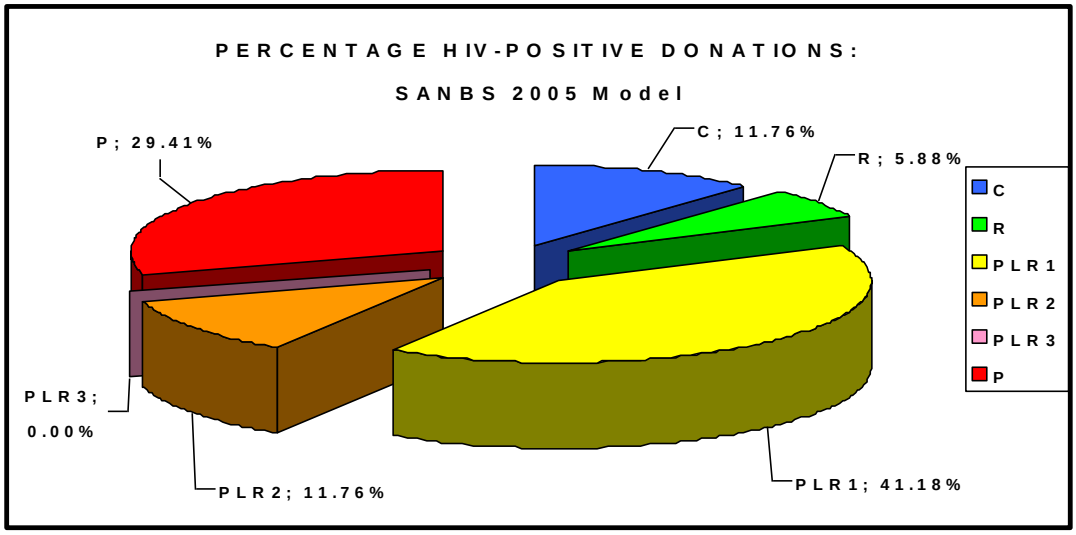

Figure 5.9: Percentage of HIV-positive donations by risk category using the SANBS 2005 Model

The performance of the SANBS 2005 Model against the extrapolated risk limit standards set for the SABTS 1999 Model is graphically illustrated in Figure 5.10.

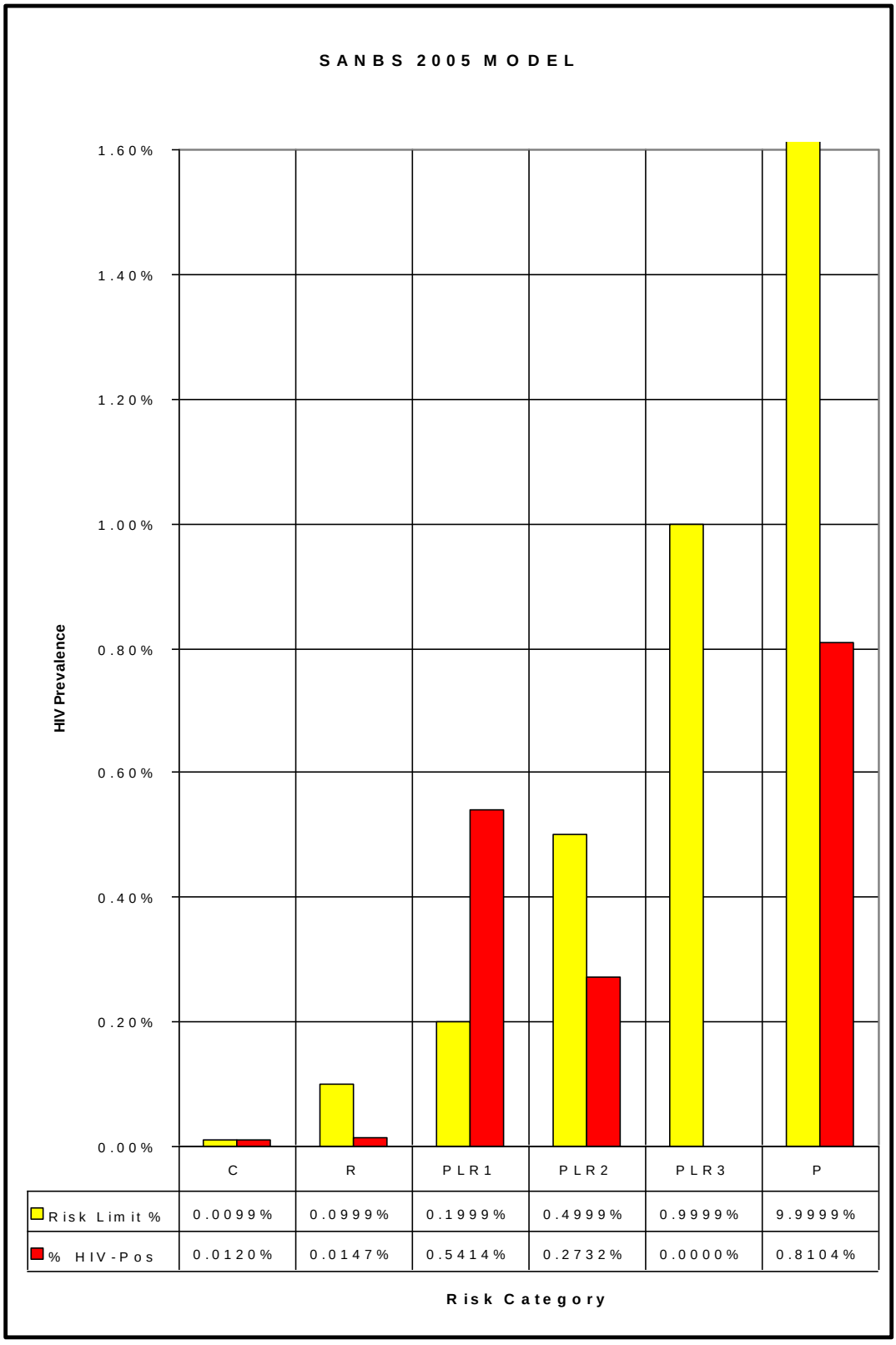

Figure 5.10: HIV prevalence per risk category using the SANBS 2005 Model

5.3.1.5. The Age-based Model

The Age-based Model also proved to be a model with a poor safety factor when donations for the preparation of platelet concentrates and paediatric red cell concentrates needed to be identified. Two donations which returned an HIV-positive result were categorized as “AC1”. The two HIV-positive donations categorized as “AC1” in the Age-based Model were donated by two regular donors who had made their previous donations two months and six months earlier. The donation collected two months previously (the same donation categorized as “DI1” in the Donation Interval Model) was typed as group O Rh_o-positive and would most likely have been transfused if the Age-based Model had been applied. The other HIV-positive donation to be categorized as “AC1” in the Age-based Model was a donation from a group O Rh_o-negative donor who had made his previous donation six months previously (the same group O Rh_o-negative donation categorized as “A2” in the SABTS 1999 Model). The performance of the Age-based model in terms of the risk limits set for the SABTS 1999 Model is poor at 0.0160%, compared to the set standard of less than 0.0100 %.

In terms of donations allocated to the preparation of red cell concentrates for transfusion to adults, the Age-based Model recorded no HIV-positive donations, which places the “AC2” risk category on par with the “DI2” risk category of the Donation

Interval Model and represents an improvement over the other three models.

The safety factor, according to the Age-based Model, associated with donations to be considered for the preparation of red cell concentrates for adults in situations of extreme shortage proved a safer option than the SABTS 1999 Model, the Combination Model and the SANBS 2005 Model. The prevalence in the “AC3” category was 0.0171% compared to the suggested limit of less than 0.3000%, and the prevalence in the “AC4” category was 0.0000% compared to the suggested limit of less than 1.0000%. One HIV-positive donation was allocated to the “AC3” category, this being the donation accepted from a regular donor who had last donated twelve months previously. This was the same donation categorized as “C” in the SANBS 2005 Model.

The categories within which the HIV-positive donations fell in respect of the Age-based Model are illustrated graphically in Figure 5.11.

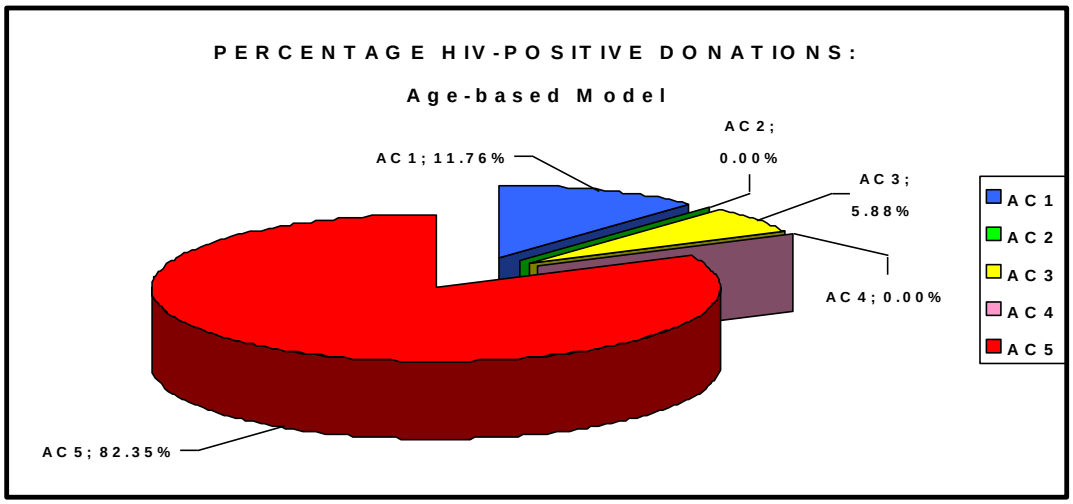

Figure 5.11: Percentage of HIV-positive donations by risk category using the Age-based Model

The performance of the Age-based Model against the extrapolated risk limit standards set for the SABTS 1999 Model is graphically illustrated in Figure 5.12.

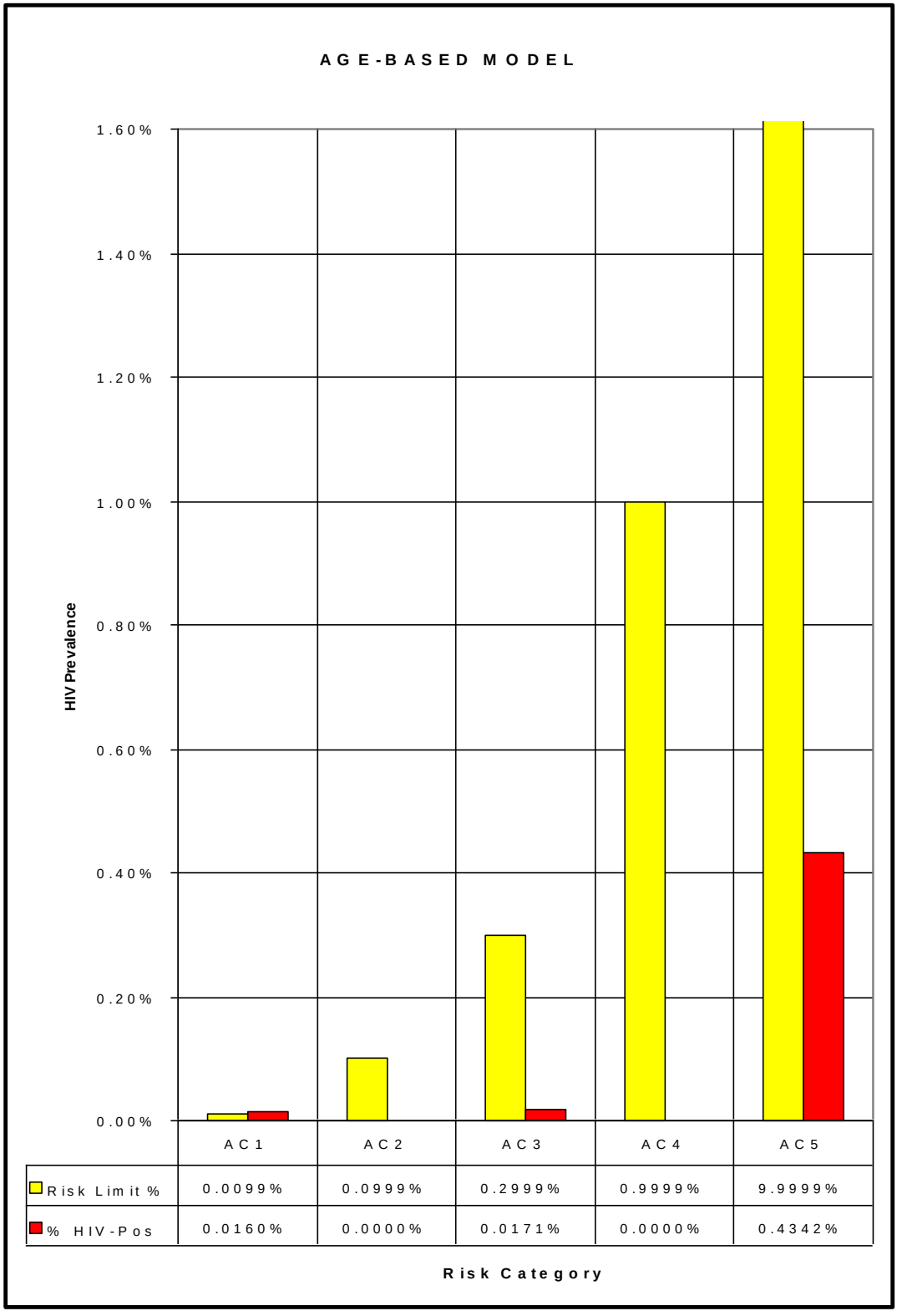

Figure 5.12: HIV prevalence per risk category using the Age-based Model

5.3.2. The risk assessment of the donation prior to the sero-converted donation

The real risk of HIV transmission does not lie with the seventeen identified HIV-positive donations, but with unidentified HIV-positive donations still in the window period of infection. The donations received from donors prior to their HIV-positive donations, could potentially have been in the window period. Since the subgroup of donations made five years or less prior to the HIV-positive donation, was the group on which a look-back investigation needed to be done, this would then have been the subgroup providing the potential of HIV transmission to patients. Although the total donations in this group, namely five, are extremely small, there was a marked difference between the SABTS 1999 Model and the other four models at the level of the two lowest risk categories for each of the models constituting the source of red cell concentrates available for routine use for patients. The SABTS 1999 Model allowed 1 donation (20%) into the “A2” risk category compared to the other models which allowed between 40% (the Donation Interval Model) and 100% (the SANBS 2005 Model) into these risk categories. According to this criterion the SABTS 1999 Model would be the preferred model for the risk categorization of whole blood donations.

5.3.3. The availability of sufficient blood

The analysis of the categorization of the 26647 HIV-negative collected donations includes another dimension of risk categorization, namely the availability of sufficient donated units, since the ideal of ***sufficient,*** safe blood needs to be attained. This aspect of the study also used the SABTS 1999 Model as a benchmark. The numbers of donations contained within each risk category are high enough so that the percentages can be considered statistically significant. The degree of significance to which the availability of blood, according to each model, varied, was determined using the F ratio and is indicated in Table 5.10. In all the models investigated in this study, the precedent set by SANBS in the application of its SABTS 1999 Model and maintained in the SANBS 2005 Model, where the two lowest risk categories are considered suitable sources of red blood cells for routine transfusion, has been applied as indicated in Table 5.8.

5.3.3.1. The SABTS 1999 Model

As shown in Table 5.10, the relative amount of risk category “A1” blood available for the preparation of platelet concentrates and paediatric red cell concentrates amounts to almost 80% of the blood collected. This compares with the 12.5% demand for these products in the area served by the Bloemfontein branch of SANBS. Subject to quality limitations, this allows a very easy choice of donated whole blood for the preparation of these products with the remainder being available for the preparation of other blood products requiring less stringent selection criteria from

the HIV risk management perspective. The cumulative percentage of risk category “A1” and “A2” blood, amounting to over 95%, is about 400 donations short of the number needed to serve the demands of the patients for all the red cell requirements which amounted to (25684 during 2005) as indicated in Table 5.10. This shortfall was low enough so that it could comfortably be made up by transferring excess donations from surrounding branches. The relative percentages of the collected blood, according to risk category when applying the SABTS 1999 Model, are illustrated graphically in Figure 5.13.

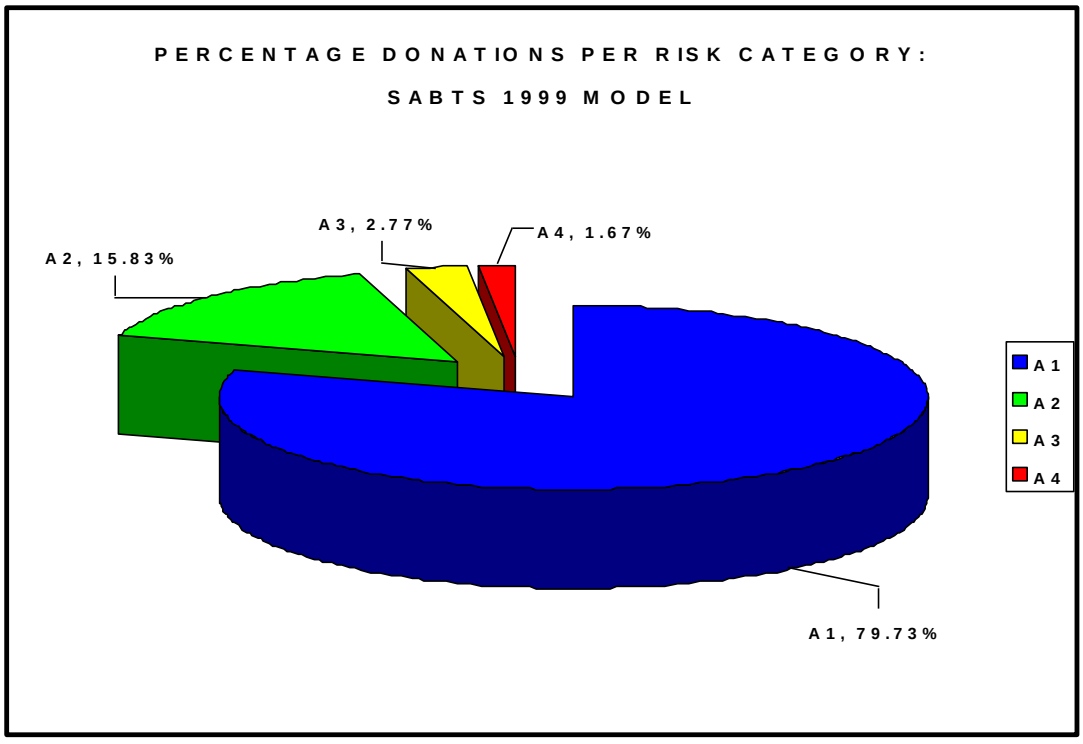

Figure 5.13: Percentages of whole blood donations by risk category using the SABTS 1999 Model

As indicated in Chapter 2 the SABTS 1999 Model was based on information which indicated that the ethnic group of the donor was a strong indicator of HIV exposure risk in the area served by the Inland Region of SANBS due to the differing primary modes of HIV infection. Tables 5.7 and 5.8 clearly show that this model generally fulfilled its purpose. By the middle of 2004 there had been several warnings about the effectiveness of the pre-donation screening procedure. If improved effectiveness of the screening procedure, using the pre-donation self-exclusion questionnaire with its prescribed discussion with the donor, did not bring about an improvement in the increasing HIV sero-conversion trend among lapsed and new white male donors, the donation risk categorization of these subgroups needed to be escalated to a higher level. At the time of this study the required improvement had not been achieved. This accounts for the fact that in this study, the prevalence of HIV-positive donations categorized as HIV risk category “A2” exceeded the risk limits for category “A2” blood according to the SABTS 1999 Model.

5.3.3.2. The Donation Interval Model

The Donation Interval Model is extremely dependant on very regular donations. Due to the short interval allowed between donations, which would allow an improvement on the previous donation risk category (up to 121 days) or for the maintenance of the previous donation risk category (up to 183 days), the volumes

of blood categorized as the safest (“DI1”) is sufficient for the provision of platelet concentrates and paediatric red cells at 56% of the total whole blood collected subject to quality limitations and blood group requirements. The cumulative figure for risk categories “DI1” and “DI2” only provides approximately 17800 donations (almost 67%) for the preparation of the required red cell products – almost 8000 donations short of the required 25684 units of red cell concentrate. Even the additional use of risk category “DI3”, whose red cells are intended for use in times of extreme shortage, would only provide a total of 20700 donations which still leaves a shortfall of approximately 5000 donations. The relative percentages of the collected blood according to risk category when applying the Donation Interval Model, is illustrated graphically in Figure 5.14.

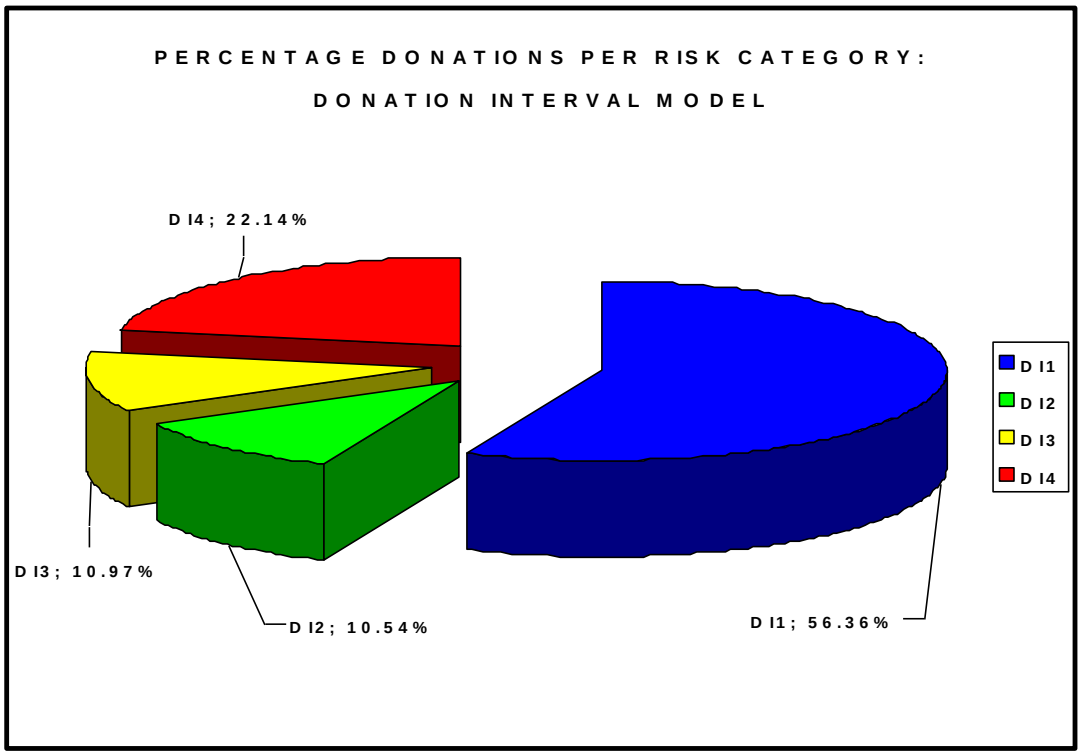

Figure 5.14: Percentages of whole blood donations by risk category using the Donation Interval Model

As stated in Chapter 2 the Donation Interval Model was suggested due to an increasing awareness of the sensitivity of a donation risk categorization system, using race as the indicator with the greatest influence on the potential usage of the donations. This model attempted to apply a completely non-racial and non-gender approach as can be seen in Table 2.8. Tables 5.7 and 5.8 clearly show that this model would have been very successful from a blood safety point of view, but most unsuccessful from a blood availability point of view.

The fact that only one of the sixteen HIV-positive donations was "mis-allocated" to risk category "DI1" and the remaining sixteen HIV-positive donations were ideally allocated to risk category "DI4" gives a strong indication that the interval since the donor's previous donation alone, was a strong predictive indicator of the risk of HIV exposure. Given the high number of donations allocated to risk category "DI4" and the resulting low percentage of HIV-positives, this model's downfall is over-prediction leading to the unnecessary wastage of donated red cells and the inability to provide sufficient "low-risk" red cells for transfusion to patients.

Despite the noted difficulties, further research using modifications of the interval between donations principle, similar to the Donation Interval Model, may well prove valuable. This research would have the distinct advantage of possibly being applicable those areas in sub-Saharan Africa where blood is collected from voluntary donors, since neither race nor gender is used as an indicator. The possibility also exists that the use of this principle could make the blood transfusion risk management by the use of a donation risk hierarchy less susceptible to changes in sexual behaviour than would be the case with donor demographics-based indicators. A likely prerequisite for the successful application of any variation of this model would probably be a network computer system, which would allow the recording of donations made by a donor over an extended geographic area

and the easy calculation of each donation's risk category according to the specific parameters of the model variant used.

5.3.3.3. The Combination Model

A possible solution to the insufficiency of donated blood within the two lowest risk categories lies in the application of a combination of the SABTS 1999 Model and the Donation Interval Model. As mentioned in Chapter 3, one of the shortcomings of the SABTS 1999 Model is the fact that donations from black and coloured donors can only reach an "A3" and "A2" risk category respectively at best. The Combination Model applies the SABTS 1999 Model's criteria as a minimum risk category level. In essence this would mean that donations from Asian new donors would still enter the risk hierarchy at the equivalent of risk category "A2" (being "Cb2") and the next donation, if made within 120 days of the previous donation, would be classified as the equivalent of risk category "A1" (being "Cb1"). At the opposite end of the spectrum donations from black donors would still enter the risk hierarchy at the equivalent of risk category "A4" (being "Cb4"), but if subsequent donations are repeatedly made within a 120 day interval, the risk classification would successively drop to the equivalent of risk category "A1". The data in Table 5.7 shows that the volumes of blood categorized as the safest ("Cb1") is ample for the provision of platelet concentrates and paediatric red cells at 72% of the total whole blood collected. The cumulative figure for risk categories

“Cb1” and “Cb2” provides approximately 25700 donations (over 96% of the collections) for the preparation of the required red cell products. In terms of availability this model has the potential to fulfil the sufficiency requirements. The use of risk category “Cb3”, whose red cells are intended for use in extreme shortages, would only provide an additional 360 donations since this risk category comprises merely 1.35% of the total donations. An additional advantage to this model is that risk category “Cb4” donations only amount to 2.16%, limiting the number of potentially unusable red cells due to risk categorization and therefore also represents a more efficient use of the donated blood, even when red cells of risk category “Cb3” are not used. The relative percentages of the collected blood according to risk category when applying the Combination Model, is illustrated graphically in Figure 5.15.

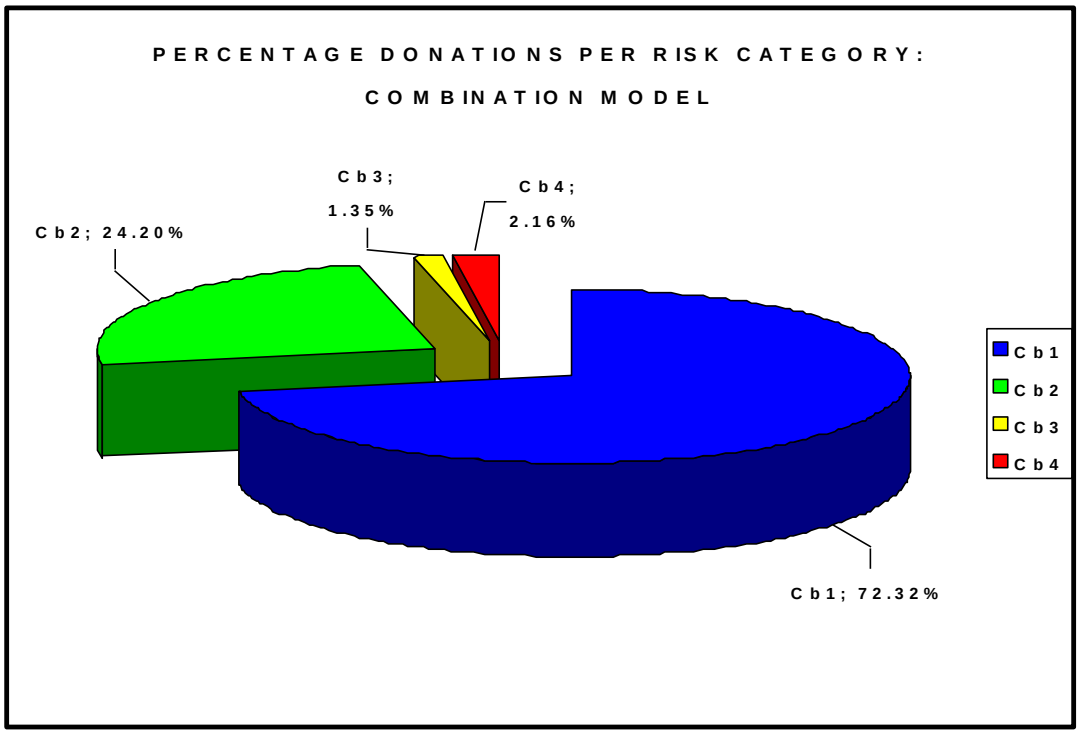

Figure 5.15: Percentage of whole blood donations by risk category using the Combination Model

The initial opinion that the Donation Interval Model would allow insufficient blood to be made available under routine conditions when compared with the SABTS 1999 Model, proved well founded. This opinion prompted the investigation of a model combining the unlimited progression down the risk category scale for donations from very regular donors irrespective of race or gender as propagated in the Donation Interval Model, with the race- and gender-based upper risk category limits defined by the SABTS 1999 Model. This approach, while allowing an even better availability of blood for routine transfusions than the SABTS 1999 Model, proved less than satisfactory from a blood safety point of

view for reasons due to the higher prevalence of HIV-positive donations in the “Cb2” category than in the “Cb3” category. This model would be as non-viable outside South Africa as the SABTS 1999 Model. The implementation of this model, had it been suggested at an earlier stage prior to the negative publicity generated by the SABTS 1999 Model, may have forestalled the worst of the negative publicity and allowed more time to develop a more suitable model without recourse to race as an indicator.

5.3.3.4. The SANBS 2005 Model

The SANBS 2005 Model is also a donation frequency-based model similar to the Donation Interval Model. It is, however, a more “lenient” model in respect of the regularity of the donations and an attempt is also made to make better use of donations from new donors through an age-based sub-categorization, than was the case with the SABTS 1999 Model as shown in Table 2.10. As shown in Table 5.7 the relative amount of risk category “C” blood available for the preparation of platelet concentrates and paediatric red cell concentrates amounts to just over 62% of the blood collected. This compares with the 12.5% demand for these products in the area served by the Bloemfontein branch of SANBS. As mentioned previously, subject to quality limitations and blood group requirements, this allows a very easy choice of donated whole blood for the preparation of these products with the remainder being available for the preparation of other blood

products requiring less stringent selection criteria in respect of HIV risk management. The cumulative percentage of risk category “C” and “R” blood which amounts to almost 88% is about 2300 donations short of the number needed to serve the demands of the patients for all the red cell requirements of 25684 units of red cells during 2005. The relative percentages of the collected blood according to risk category when applying the SANBS 2005 Model, are illustrated graphically in Figure 5.16.

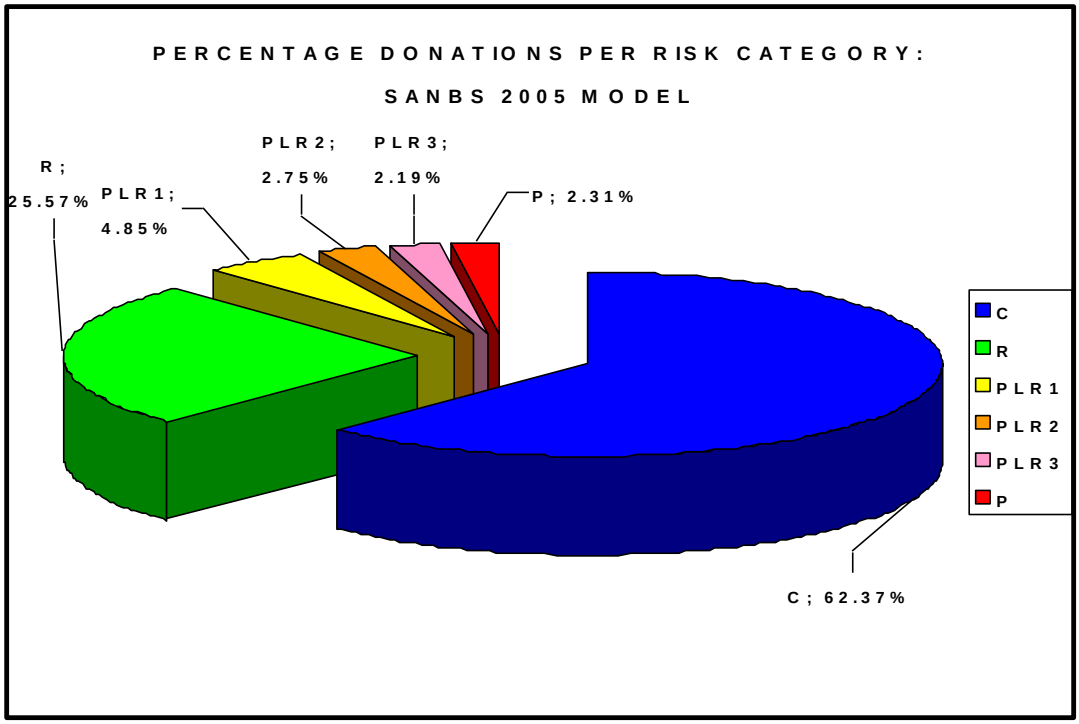

Figure 5.16: Percentage of whole blood donations by risk category using the SANBS 2005 Model

The model is based on a donation interval format, but also attempts to make better use of donations from new donors. The

more liberal donation intervals allowed by this model, has allowed an increase in the number of donations when compared to the Donation Interval Model. The use of selected donations from new donors has further helped to provide more red cells in times of extreme shortage. In terms of the blood safety aspect, this model shows similar performance to the SABTS 1999 Model when the red cells for routine use are considered. It is noticeable that the increased “leniency” in terms of the donation interval, when compared to the Donation Interval Model, has resulted in a considerable deterioration of the safety of the blood for routine use. The safety of the categories of blood which can be used in times of extreme shortage shows an illogical trend with regard to the donations collected by the Bloemfontein Branch. It is clear that the age parameters applied to the donations from new donors are not suited to their intended task in the geographic area and time period covered by this study. This is a particularly serious situation, given the fact that blood categorized as “PLR1” is presently (in 2007) almost routinely transfused to patients in the area served by SANBS. This is due to the growth in the need for blood far outstripping the growth in the number of “C” and “R” blood donations collected since the implementation of this model. Further research into this aspect is therefore necessary, and the results obtained during the analysis of HIV-positive donations during the first phase of this study, may give an indication of

possible modifications which could be investigated in respect of donations obtained from new donors.

5.3.3.5. The Age-based Model

The Age-based Model seeks to exploit the donor age in regular donors who have made at least one donation in the preceding 24 months, as an indicator of HIV risk. Unpublished data undertaken in a pilot study, which prompted the study discussed in 5.1 above, suggested that the donor's age possibly played a role in the likelihood of the donor being exposed to HIV. As discussed in 5.1 a clear relationship can be identified in terms of "recent" exposure. This has lead to this study's suggestion of a 5-level risk categorization hierarchy as indicated in Table 5.7. The data in Table 5.10 shows that the volumes of blood categorized as the safest ("AC1") is sufficient for the provision of platelet concentrates and paediatric red cells, at almost 47% of the total whole blood collected. The cumulative figure for risk categories "AC1" and "AC2" only provides approximately 16000 donations (just over 60% of the collections) for the preparation of the required red cell products. In terms of availability this model has a shortfall of almost 10000 donations needed for routine use for the preparation of the 25684 red cell concentrates required in 2005. The use of donations from risk categories "AC3" and "AC4" whose red cells are intended for use in times of extreme shortage would only provide an additional almost 7300 donations, since these risk

categories comprise almost 22% and a little more than 5% of the total donations, respectively. It is therefore clear that this model does not provide any advantages over the SANBS 2005 Model as far as red cell sufficiency is concerned. The relative percentages of the collected blood according to risk category when applying the Age-based Model, is illustrated graphically in Figure 5.17.

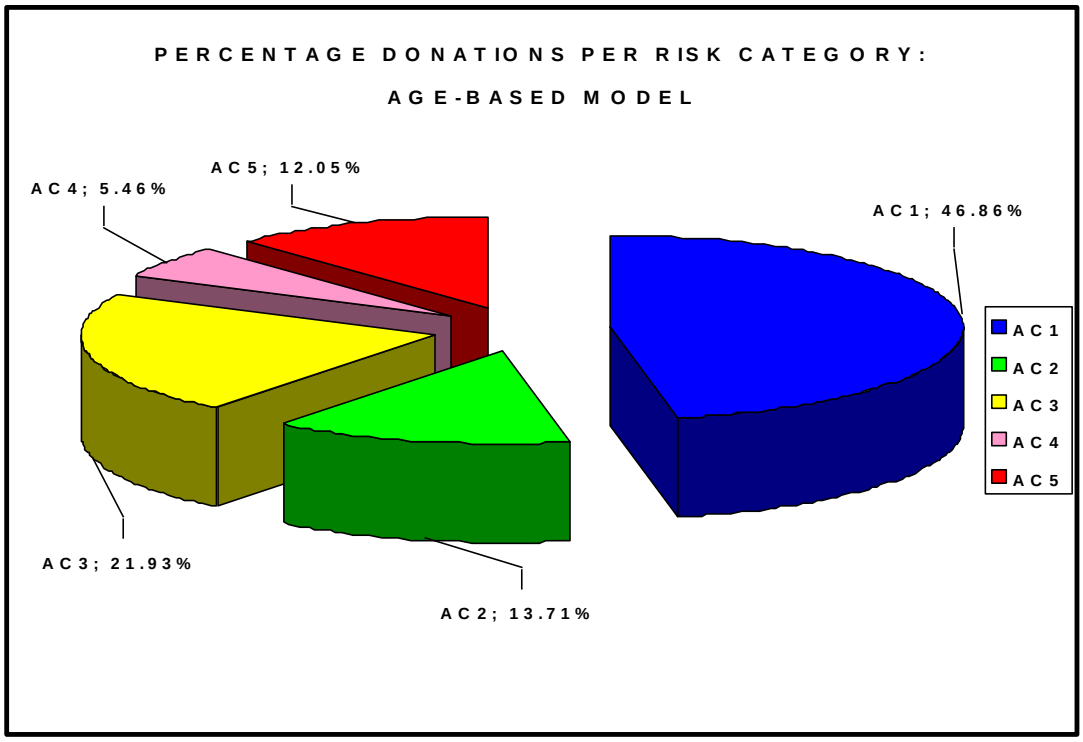

Figure 5.17: Percentage of whole blood donations by risk category using the Age-based Model

At first glance the Age-based Model imparts a good impression. Further analysis, however, shows that its success is purely due to the fact that the donations from all new donors and lapsed donors are considered high risk donations of which only the plasma is

suitable for use. Two of the three donations collected from regular donors were categorized as being suitable for paediatric and immune-compromised patients, which is most unsatisfactory when compared with the SABTS 1999 Model, the Donation Interval Model and the Combination Model, but equivalent to the performance of the SANBS 2005 Model. A much larger study, encompassing a more statistically significant number of HIV-positive donations, may still validate this model, since the results obtained from the second phase of the study, in respect of the donations made during the study period, do not appear to correlate very well with the results obtained in the first phase of the study to determine the criteria for the Age-based Model.

This study centred on the HIV prevalence of each risk category within different models and on the availability of “safe” blood for transfusion when these models are applied. Two further aspects, not included in this study, should be recognized as also playing an important role in the choice of a suitable model. Firstly, the ethical consideration of collecting blood from voluntary donors when the likelihood of using the blood as intended by the donor is minimal. Secondly, the financial implication of collecting blood from donors with a high likelihood of the blood being discarded.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

This study has highlighted the dilemma facing blood transfusion services across the world and is particularly exacerbated in sub-Saharan Africa due to the high prevalence of HIV, a scarcity of resources and insufficient regular voluntary non-remunerated donors. This dilemma calls for a balance between patients being fatally infected by HIV through the transfused blood, or patients losing their lives because blood considered safe enough for transfusion was not available.

6.1. Conclusions

The analysis of these five models strengthens the notion that the greater the level of safety sought, the smaller the pool of suitably categorized donations available for use will be. This is emphasized more if the specific indicators used only partially contribute to the HIV risk status of the donor, and therefore to the likelihood of the donations being correctly categorized. Changes in social behaviour over time, particularly sexual behaviours in the case of HIV, also play a strong role in the changes to the effectiveness of any mix of indicators of increased risk of HIV exposure at any given time. This study has shown some promising avenues for further investigation, and also some dead-ends, in terms of the availability of sufficient blood. From the blood safety point of view, it is rather more difficult to draw conclusions since the numbers of HIV-positive donations received in the course of the study were very few, only seventeen in total, due to

the low prevalence of HIV among blood donors during the period covered by the second phase of this study. This is in keeping with a world-wide phenomenon where blood for transfusion to patients is collected from voluntary non-remunerated blood donors. The differences in the percentages could therefore not be considered statistically significant. The limited geographic area of the study *vis-à-vis* the geographic area served by SANBS also places constraints on the direct extrapolation of any of the findings contained in this study without similar research covering other geographic areas.

In spite of these limitations, this study can still serve as a guide regarding the applicability of these models, Some of the models show sufficient potential warranting further corroboration on a national basis. At the same time, this study also provides a good indication of potential risk categorization models which do not warrant further investigation.

Over the time period covered by this study it is particularly noticeable (from Appendix 3 and Figures 5.3, 5.4, 5.6 and 5.8) that the prevalence of HIV-positive donations in the lower HIV risk categories was far from ideal when the SABTS 1999 Model and the Combination model was applied, while these two models provided the best availability of “low HIV risk” blood for patient use (as indicated in Table 5.8 and Figures 5.13 and 5.15). In contrast it is clear that the Donation Interval Model, and to a slightly lesser extent the Age-based Model, can successfully be used to relegate HIV-positive donations to the highest HIV risk

category (as can be seen in Appendix 3 and Figures 5.5, 5.7, 5.10 and 5.12). This improvement would unfortunately be at the cost of blood availability, which outweighs the gains achieved in terms of blood safety.

The results of this study have shown that each of the models studied has advantages and disadvantages. Given all the factors, stated in Chapters 2 and 5, the SANBS 2005 Model probably remains the most useful choice at this time, since the other alternatives without a racial indicator proved unsuccessful at providing an improved model in terms of the balance between blood safety and availability.

This study has highlighted the possible avenues of investigation using modifications to the donation regularity criteria as well as the donor age criteria. Geographical indicators were not considered, since the study is limited to blood donations received in the geographical area served by the Bloemfontein Branch of SANBS, and different geographic areas show differences in HIV prevalence in donated blood. The impact of these differences on the application of the model could therefore not be assessed.

Although doubt has been expressed regarding the feasibility of donor screening in countries with a high HIV prevalence and per implication possibly also donation risk categorization, this tool may provide a measure of safety for patients receiving blood transfusions at a

relatively low operational cost. Most sub-Saharan African countries are unable to provide sufficient blood for transfusion from voluntary blood donors. Because the times of peak supply and peak demand of blood of certain ABO and Rhesus groups seldom coincide, the value of the risk categorization system would lie in the ability to ensure that if units of blood should expire due to insufficient demand at any particular point in time, they should ideally be the donations from the group of donors exhibiting indicators of the highest risk of possible window-period HIV transmission. In those African countries where the blood transfusion services are under-funded, to the extent that the efficacy of donation testing for HIV is compromised, assistance programmes such as PEPFAR could be engaged to provide the funding for the required expertise, research and computer infrastructure, allowing the effective risk categorization of the voluntary blood donations collected for transfusion. By visibly enhancing the safety of voluntarily donated blood, public awareness of the inherent safety and extent of the need for regular voluntary blood donations may be improved. Model variations based on the SANBS 2005 Model, Donation Interval Model and the Age-based Model could be investigated in other areas of Africa for possible implementation, together with any existing or improved donor education and screening processes.

6.2. Recommendations

As the socio-political situation and life-style norms and behaviours on the ground level change in Africa and particularly in South Africa, so

the demographics of the blood donor base can be expected to change. This study can therefore not be the final word on the issue of donation risk categorization in countries with a high HIV prevalence.

For as long as the window period of infectivity remains a problem, further research in this direction will remain necessary until one or more indicators are identified which are minimally affected by changing social norms and behaviours in the communities providing the blood donations. The successful implementation of a model will also be determined by the use of indicators which are not considered prejudicial by the communities.

It should be stressed that the management of the risk of HIV transmission through blood donation risk categorization is only one tool in the risk management arsenal. Other tools must include processes such as donor education, effective pre-donation screening by appropriate questions and education regarding evidence-based, clinically appropriate transfusions.

The impact of NAT has not been considered in this study. It has been the premise of SANBS since the implementation of NAT in October 2005, concurrently with the implementation of the SANBS 2005 Model, that the reduction in the window period would play a major role in mitigating the possible deficiencies of the SANBS 2005 Model, as subsequently highlighted in this study, through the increased

sensitivity of the test procedure. Continuous monitoring of the test results of the collected blood and additional research will determine the validity of this premise.

The following specific recommendations based on the results of this study can be made:

- → The SANBS 2005 Model is the most useful choice for SANBS at this time, and should therefore be used until a better model is developed, or NAT has proven sufficiently effective to allow the discontinuation of donation risk categorization of donations from regular donors.
- → The parameters for the “PLR1”, “PLR2” and “PLR3” risk categories in the SANBS 2005 Model need to be investigated to re-assess their validity throughout the area served by SANBS.
- → Further investigation using modifications to the donation regularity criteria and the donor age criteria should be undertaken by SANBS in respect of the SANBS 2005 Model.
- → The effect of changes in the demographic composition of the SANBS donor base, emanating from the changed recruitment and recall criteria, should be investigated to determine the continued validity of the findings of this study.
- → Any modification of the models considered to have promising results, should be investigated in all the geographical areas served by SANBS (or any other area where implementation is considered)

to ensure effectiveness of the model when applied to the donations obtained from the specific local donor cohorts.

- → Due to resource constraints in sub-Saharan Africa, initiatives such as PEPFAR could be encouraged to provide the funding for the initial research to determine the parameters of a suitable blood risk categorization model for those countries which cannot implement NAT testing of all their donations.
- → Assistance programmes such as PEPFAR could also play an invaluable role in the provision of suitable computer infra-structure for recording all the appropriate donor and donation details and allocation of a risk category to each donation based on the recorded donor and donation information.

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Appendix 1: Ethics Committee letter of approval

South African National Blood Service

RESEARCH AND MEDICAL ETHICS COMMITTEE

Mr E Leipoldt
South African National Blood Service
Bloemfontein

26th January 2006

Dear Mr Leipoldt

An alternative approach to risk categorization of donated blood for the South African National Blood Service.

Thank you for submitting an application for review of the above protocol.

Review, by the SANBS Ethics Committee, of the ethical implications of the use of electronic donor records from the SANBS donor data repository as outlined in the submitted protocol, was favorable.

Your application is therefore approved.

Best wishes for the success of your study.

Yours sincerely,

Yours sincerely,

T. Scanes (Committee Secretary)
pp Dr. B Naidoo
CHAIRPERSON: RESEARCH & MEDICAL ETHICS COMMITTEE
SOUTH AFRICAN NATIONAL BLOOD SERVICE

SANBS RESEARCH AND MEDICAL ETHICS COMMITTEE

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APPENDIX 2: HIV-positive donations received by SANBS, Inland Region between 1997 and 2006

DONATION CATEGORIZATION STUDY: SANBS, INLAND REGION CONFIRMED HIV-POSITIVE DONATIONS: 1997 - 2006												
	DEMOGRAPHICS			TEST / DONATION DATES								
Donation Serial No	Ethnic*	Sex**	Age HIV Pos	8th Prev. Test Date	7th Prev. Test Date	6th Prev. Test Date	5th Prev. Test Date	4th Prev. Test Date	3rd Prev. Test Date	2nd Prev. Test Date	Prev. Test Date	Date HIV Pos. Donation
H001	W	M	37	1994/12/29	1995/03/02	1995/05/31	1995/08/07	1995/10/17	1995/12/13	1996/04/10	1997/02/10	1997/06/18
H002	W	M	32	1995/11/10	1996/01/09	1996/03/14	1996/05/04	1996/07/26	1996/11/06	1997/04/17	1997/06/19	1997/08/01
H003	W	M	36	1995/06/13	1995/08/08	1995/10/10	1996/02/21	1996/08/20	1996/10/22	1996/12/17	1997/04/22	1997/08/19
H004	B	M	53	1996/03/26	1996/05/21	1996/07/16	1996/11/05	1997/01/07	1997/03/04	1997/04/29	1997/07/08	1997/11/11
H005	W	M	38	1993/06/18	1995/08/17	1995/10/27	1996/01/10	1996/03/13	1996/05/10	1996/07/29	1996/11/05	1997/12/09
H006	B	F	30	#N/A	#N/A	#N/A	#N/A	#N/A	0	1996/12/05	1997/04/24	1997/12/24
H007	B	M	30	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1997/02/28	1998/01/08
H008	B	M	23	1995/10/20	1996/02/09	1996/04/12	1996/06/07	1996/08/02	1997/01/20	1997/04/11	1997/08/15	1998/01/19
H009	B	F	19	#N/A	0	1995/10/20	1996/02/09	1996/04/12	1996/08/02	1997/08/15	1997/10/17	1998/02/06
H010	B	M	27	#N/A	0	1996/05/30	1996/09/19	1996/11/21	1997/02/26	1997/04/30	1997/06/25	1998/02/11
H011	B	M	34	0	1996/07/08	1997/02/17	1997/04/14	1997/06/11	1997/08/13	1997/10/29	1998/01/21	1998/03/25
H012	B	F	29	#N/A	0	1994/08/31	1996/12/05	1997/02/17	1997/04/21	1997/08/25	1997/10/27	1998/04/20
H013	B	M	29	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1997/08/12	1998/04/29
H014	B	M	31	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1992/08/28	1998/04/29
H015	B	M	41	#N/A	#N/A	#N/A	#N/A	#N/A	0	1992/12/02	1993/11/10	1998/04/29
H016	B	F	22	#N/A	#N/A	#N/A	#N/A	#N/A	0	1995/08/24	1996/02/08	1998/05/21
H017	B	F	22	#N/A	#N/A	0	1997/01/21	1997/05/20	1997/09/16	1997/11/18	1998/04/07	1998/06/09
H018	B	M	21	#N/A	#N/A	#N/A	0	1997/01/17	1997/12/05	1998/02/06	1998/04/21	1998/06/19
H019	B	M	33	1996/11/04	1997/01/22	1997/03/25	1997/05/21	1997/07/23	1997/09/17	1997/11/21	1998/03/24	1998/07/15
H020	B	M	44	#N/A	#N/A	#N/A	#N/A	#N/A	0	1997/05/28	1997/07/28	1998/08/27
H021	B	F	26	#N/A	#N/A	#N/A	0	1994/11/22	1995/07/04	1997/06/23	1997/12/15	1998/09/02
H022	B	F	29	#N/A	#N/A	#N/A	#N/A	0	1995/03/01	1995/04/26	1995/06/21	1998/09/10
H023	B	M	31	1996/03/13	1996/11/13	1997/04/22	1997/08/12	1997/10/21	1998/02/24	1998/04/29	1998/07/07	1998/09/29
H024	B	M	32	#N/A	0	1993/02/26	1996/05/15	1996/09/11	1996/11/13	1997/04/22	1998/04/29	1998/09/29
H025	W	M	24	1995/08/24	1997/02/26	1997/04/29	1997/07/04	1997/09/01	1997/12/03	1998/01/28	1998/04/24	1998/09/30
H026	B	F	24	#N/A	#N/A	#N/A	#N/A	#N/A	0	1995/07/20	1995/11/13	1998/10/07
H027	B	M	23	#N/A	#N/A	#N/A	#N/A	0	1998/02/26	1998/05/07	1998/07/23	1998/10/13
H028	B	F	21	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1997/07/24	1998/10/19
H029	B	F	33	#N/A	#N/A	#N/A	#N/A	#N/A	0	1996/03/20	1996/07/24	1998/11/04

Donation Serial No	DEMOGRAPHICS			TEST / DONATION DATES								
	Ethnic*	Sex**	Age HIV Pos	8th Prev. Test Date	7th Prev. Test Date	6th Prev. Test Date	5th Prev. Test Date	4th Prev. Test Date	3rd Prev. Test Date	2nd Prev. Test Date	Prev. Test Date	Date HIV Pos. Donation
H030	B	M	32	1997/05/28	1997/07/23	1997/09/17	1997/11/12	1998/01/08	1998/03/05	1998/06/04	1998/08/27	1998/11/05
H031	W	M	34	1996/04/03	1996/11/29	1997/04/17	1997/06/26	1997/09/04	1997/11/07	1998/06/19	1998/08/21	1998/11/20
H032	B	F	22	#N/A	#N/A	#N/A	#N/A	0	1997/04/18	1997/06/13	1997/08/08	1998/11/27
H033	B	M	34	#N/A	#N/A	0	1993/11/18	1994/01/14	1994/03/15	1994/06/13	1994/10/18	1999/02/19
H034	B	F	20	#N/A	#N/A	#N/A	#N/A	#N/A	0	1998/09/03	1998/12/05	1999/02/26
H035	B	F	16	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1998/08/06	1999/03/11
H036	B	F	24	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1993/02/03	1999/04/01
H037	B	F	25	#N/A	#N/A	0	1997/02/21	1997/04/18	1997/06/17	1997/08/15	1997/10/15	1999/04/13
H038	C	F	47	#N/A	0	1997/05/12	1997/11/24	1998/01/26	1998/03/23	1998/07/13	1998/09/08	1999/04/29
H039	B	F	18	#N/A	#N/A	#N/A	#N/A	#N/A	0	1998/03/11	1999/02/19	1999/04/30
H040	B	F	18	#N/A	#N/A	#N/A	#N/A	#N/A	0	1998/03/23	1998/08/26	1999/05/12
H041	B	F	25	#N/A	#N/A	#N/A	#N/A	0	1998/08/26	1998/10/08	1998/12/03	1999/05/20
H042	B	F	17	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1998/05/25	1999/05/26
H043	B	F	23	1996/04/11	1996/07/25	1996/10/07	1997/01/23	1997/04/17	1997/07/14	1997/09/11	1997/11/10	1999/07/09
H044	C	F	33	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/04/04	1999/08/15
H045	B	M	24	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1996/12/13	1999/09/14
H046	B	M	20	1996/04/11	1996/06/06	1996/10/03	1997/04/10	1997/06/05	1997/10/02	1998/01/29	1998/07/16	1999/10/07
H047	B	F	17	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/02/12	1999/10/22
H048	B	M	26	#N/A	#N/A	0	1998/11/06	1999/01/14	1999/03/19	1999/05/14	1999/08/28	1999/10/28
H049	B	F	57	0	1992/11/16	1993/03/04	1993/10/20	1993/12/31	1994/03/02	1994/05/02	1997/01/31	1999/11/05
H050	B	M	39	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/10/07	1999/12/02
H051	B	F	33	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1994/01/31	2000/01/04
H052	B	F	21	#N/A	#N/A	#N/A	#N/A	#N/A	0	1998/03/10	1998/05/18	2000/01/06
H053	B	F	28	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1994/08/10	2000/01/07
H054	B	F	29	1997/04/01	1997/05/30	1997/08/13	1997/10/27	1997/12/22	1998/03/31	1999/01/22	1999/07/20	2000/01/10
H055	W	M	33	1998/06/17	1998/08/17	1998/10/12	1998/12/11	1999/02/17	1999/06/18	1999/08/18	1999/10/11	2000/01/10
H056	W	M	23	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1993/07/29	2000/01/12
H057	B	M	43	#N/A	#N/A	0	1993/01/19	1993/04/22	1998/02/09	1999/01/11	1999/08/10	2000/01/12
H058	W	F	56	#N/A	#N/A	#N/A	#N/A	#N/A	0	1995/11/24	1996/01/25	2000/01/12
H059	W	F	31	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1992/06/04	2000/01/18
H060	B	F	45	1998/01/20	1998/03/24	1998/05/19	1998/07/21	1998/09/29	1999/02/09	1999/04/13	1999/06/15	2000/01/18
H061	B	F	19	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1998/07/28	2000/01/19

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	Ethnic*	Sex**	Age HIV Pos	8th Prev. Test Date	7th Prev. Test Date	6th Prev. Test Date	5th Prev. Test Date	4th Prev. Test Date	3rd Prev. Test Date	2nd Prev. Test Date	Prev. Test Date	Date HIV Pos. Donation
H062	B	F	30	#N/A	#N/A	#N/A	0	1994/11/03	1995/01/26	1995/11/09	1996/05/02	2000/01/25
H063	B	F	40	0	1997/06/10	1997/08/06	1997/10/01	1997/12/30	1999/01/12	1999/04/01	1999/11/30	2000/01/26
H064	B	M	23	1996/04/25	1996/08/05	1997/05/27	1998/02/23	1998/05/11	1998/08/19	1999/01/27	1999/08/26	2000/01/28
H065	B	F	19	#N/A	#N/A	0	1998/02/16	1998/05/04	1998/07/22	1998/09/14	1999/05/05	2000/02/01
H066	B	F	34	#N/A	#N/A	#N/A	#N/A	0	1996/03/20	1996/07/17	1999/04/01	2000/02/03
H067	B	F	49	1998/08/27	1998/10/22	1998/12/17	1999/02/17	1999/04/14	1999/06/21	1999/08/17	1999/12/08	2000/02/03
H068	B	F	18	#N/A	#N/A	#N/A	0	1998/08/20	1998/10/20	1999/02/26	1999/05/04	2000/02/07
H069	W	M	41	1997/11/18	1998/01/14	1998/03/13	1998/05/27	1998/07/22	1998/10/29	1998/12/23	1999/02/27	2000/02/07
H070	C	F	18	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/05/24	2000/02/08
H071	B	F	20	#N/A	#N/A	#N/A	#N/A	0	1999/03/02	1999/06/08	1999/10/05	2000/02/08
H072	B	M	30	#N/A	#N/A	#N/A	#N/A	0	1998/07/14	1998/09/08	1998/11/03	2000/02/08
H073	B	M	49	1996/05/20	1996/07/22	1997/05/15	1997/07/17	1997/09/18	1997/11/12	1998/03/11	1998/09/22	2000/02/08
H074	B	M	21	#N/A	#N/A	#N/A	#N/A	0	1999/02/03	1999/10/14	1999/12/07	2000/02/10
H075	B	M	31	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1997/01/25	2000/02/10
H076	B	F	40	#N/A	#N/A	0	1992/12/03	1993/03/18	1993/06/21	1993/08/17	1993/10/25	2000/02/10
H077	B	F	21	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/05/10	1999/08/31	2000/02/11
H078	B	M	23	0	1997/04/10	1997/06/06	1997/08/12	1997/10/16	1998/01/15	1998/10/23	1999/04/09	2000/02/11
H079	B	F	18	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1998/09/02	2000/02/14
H080	B	M	20	#N/A	#N/A	#N/A	#N/A	0	1999/02/19	1999/04/30	1999/09/03	2000/02/14
H081	B	M	29	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/02/16	2000/02/15
H082	B	M	32	1995/09/06	1996/05/02	1996/10/15	1997/11/07	1998/08/21	1998/10/13	1999/08/05	1999/09/16	2000/02/15
H083	B	M	16	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/02/18	2000/02/16
H084	C	M	25	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1996/03/13	2000/02/16
H085	B	F	41	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/02/19	2000/02/17
H086	W	M	44	#N/A	0	1992/11/12	1997/01/26	1998/01/11	1998/03/16	1998/06/07	1999/04/27	2000/02/18
H087	C	F	21	0	1996/02/13	1996/07/24	1997/04/01	1997/07/08	1997/11/14	1998/03/24	1998/12/08	2000/02/22
H088	B	F	24	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/08/23	2000/02/23
H089	W	F	36	1993/02/26	1993/05/24	1993/09/03	1994/04/25	1995/10/21	1998/04/27	1998/07/20	1998/10/06	2000/02/23
H090	B	M	41	1995/01/30	1995/12/18	1996/06/13	1996/11/13	1997/02/18	1997/07/03	1997/11/17	1998/02/16	2000/02/24
H091	W	M	21	1995/05/03	1997/07/31	1997/10/01	1998/01/08	1999/01/21	1999/04/06	1999/06/01	1999/10/22	2000/02/28
H092	W	M	45	1998/02/04	1998/09/02	1998/12/02	1999/02/03	1999/04/07	1999/07/07	1999/09/01	1999/11/03	2000/03/01
H093	B	F	27	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1998/12/10	2000/03/02

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	Ethnic*	Sex**	Age HIV Pos	8th Prev. Test Date	7th Prev. Test Date	6th Prev. Test Date	5th Prev. Test Date	4th Prev. Test Date	3rd Prev. Test Date	2nd Prev. Test Date	Prev. Test Date	Date HIV Pos. Donation
H094	B	M	33	1993/04/05	1994/10/26	1998/07/30	1999/04/07	1999/06/01	1999/07/29	1999/09/30	1999/11/26	2000/03/02
H095	B	M	24	#N/A	#N/A	#N/A	#N/A	0	1999/02/17	1999/05/12	1999/08/26	2000/03/07
H096	B	F	32	#N/A	#N/A	#N/A	#N/A	#N/A	0	1998/06/30	1998/08/25	2000/03/07
H097	W	M	25	1998/05/09	1998/07/04	1998/08/29	1998/10/24	1998/12/24	1999/04/01	1999/06/01	1999/11/27	2000/03/13
H098	C	M	30	#N/A	#N/A	0	1995/10/25	1995/12/20	1996/02/20	1996/05/16	1996/08/02	2000/03/13
H099	B	F	33	#N/A	#N/A	0	1998/04/09	1999/02/25	1999/06/25	1999/10/11	1999/12/29	2000/03/13
H100	B	M	28	#N/A	#N/A	0	1998/12/07	1999/02/03	1999/04/07	1999/06/11	1999/08/10	2000/03/14
H101	B	M	30	#N/A	#N/A	#N/A	0	1993/01/26	1993/03/30	1993/05/25	1996/03/11	2000/03/15
H102	B	F	20	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/02/25	2000/03/20
H103	B	F	20	#N/A	#N/A	#N/A	#N/A	#N/A	0	1998/05/28	1998/09/03	2000/03/20
H104	B	M	31	#N/A	#N/A	0	1995/03/13	1996/05/04	1996/06/14	1998/09/04	1999/09/13	2000/03/20
H105	B	M	21	#N/A	#N/A	0	1998/12/09	1999/03/02	1999/04/28	1999/08/23	1999/11/15	2000/03/22
H106	B	M	28	0	1998/05/18	1998/07/21	1998/09/22	1999/01/21	1999/05/25	1999/07/27	1999/09/28	2000/03/23
H107	B	M	35	1998/11/30	1999/01/25	1999/03/29	1999/05/24	1999/07/19	1999/09/28	1999/11/25	2000/01/20	2000/03/23
H108	B	F	25	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/04/06	2000/03/24
H109	B	F	22	#N/A	#N/A	#N/A	0	1996/05/13	1997/06/05	1998/03/02	1998/11/12	2000/03/27
H110	B	M	33	#N/A	#N/A	#N/A	#N/A	0	1993/07/15	1993/09/09	1996/06/20	2000/03/30
H111	B	F	39	#N/A	#N/A	#N/A	#N/A	#N/A	0	1992/12/21	1993/10/16	2000/03/31
H112	B	F	29	#N/A	#N/A	#N/A	#N/A	0	1998/08/21	1999/05/18	1999/07/14	2000/04/04
H113	B	M	34	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1996/04/11	2000/04/12
H114	B	M	30	#N/A	#N/A	#N/A	#N/A	#N/A	0	1997/07/23	1997/11/03	2000/04/13
H115	C	M	36	#N/A	0	1993/05/10	1993/09/28	1993/11/25	1994/05/26	1995/01/25	1999/10/26	2000/04/13
H116	W	M	21	#N/A	0	1998/09/01	1999/03/10	1999/05/05	1999/07/01	1999/09/18	1999/12/09	2000/04/14
H117	B	F	33	0	1998/07/10	1998/09/07	1998/12/28	1999/03/03	1999/05/10	1999/08/10	2000/02/18	2000/04/14
H118	B	M	32	#N/A	#N/A	#N/A	#N/A	#N/A	0	1992/12/22	1993/02/24	2000/04/17
H119	B	M	25	1996/06/18	1996/08/12	1997/08/14	1998/01/20	1998/04/21	1998/10/27	1999/03/29	1999/07/21	2000/04/18
H120	W	M	19	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1998/11/16	2000/04/19
H121	B	F	17	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/04/29	1999/08/19	2000/04/20
H122	C	F	24	1994/03/01	1995/04/26	1996/02/07	1996/05/08	1996/08/21	1997/08/29	1997/11/01	1998/04/24	2000/04/29
H123	B	F	33	1995/09/04	1995/10/31	1996/01/02	1996/02/27	1996/04/23	1996/08/18	1996/12/22	1997/02/22	2000/05/02
H124	B	F	16	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2000/01/21	2000/05/05
H125	B	F	23	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/10/12	1999/12/08	2000/05/05

Donation Serial No	DEMOGRAPHICS			TEST / DONATION DATES								
	Ethnic*	Sex**	Age HIV Pos	8th Prev. Test Date	7th Prev. Test Date	6th Prev. Test Date	5th Prev. Test Date	4th Prev. Test Date	3rd Prev. Test Date	2nd Prev. Test Date	Prev. Test Date	Date HIV Pos. Donation
H126	B	F	19	#N/A	#N/A	#N/A	0	1998/08/25	1998/11/23	1999/02/23	1999/04/29	2000/05/11
H127	B	F	36	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2000/04/19	2000/05/11
H128	B	M	37	1998/10/26	1998/12/14	1999/02/09	1999/04/13	1999/09/01	1999/11/10	2000/01/13	2000/03/11	2000/05/11
H129	W	F	28	1998/05/06	1998/07/02	1998/08/27	1998/10/22	1998/12/18	1999/04/01	1999/06/08	1999/08/19	2000/05/12
H130	B	F	30	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/04/30	2000/05/12
H131	B	F	19	#N/A	#N/A	#N/A	#N/A	0	1999/03/09	1999/05/11	1999/08/17	2000/05/16
H132	B	F	20	#N/A	#N/A	#N/A	#N/A	0	1999/02/11	1999/04/22	1999/08/27	2000/05/16
H133	B	M	34	1995/09/29	1996/03/23	1996/05/17	1996/11/02	1997/08/29	1997/10/31	1998/08/28	1998/10/23	2000/05/17
H134	B	M	34	#N/A	#N/A	0	1997/10/03	1999/06/30	1999/08/25	1999/10/27	2000/02/23	2000/05/22
H135	B	F	23	#N/A	#N/A	0	1996/03/07	1996/05/27	1996/09/12	1997/03/13	1997/06/03	2000/05/27
H136	W	M	38	1999/02/17	1999/04/14	1999/06/10	1999/08/05	1999/10/04	1999/12/08	2000/02/07	2000/04/04	2000/05/31
H137	B	M	25	#N/A	#N/A	#N/A	#N/A	0	1996/09/18	1997/04/23	1997/10/29	2000/06/05
H138	B	M	43	1999/03/12	1999/05/04	1999/06/30	1999/08/25	1999/10/19	1999/12/15	2000/02/14	2000/04/10	2000/06/05
H139	B	M	44	1998/01/15	1998/04/08	1998/06/03	1999/01/19	1999/03/16	1999/05/11	1999/07/21	1999/11/24	2000/06/05
H140	W	F	23	#N/A	#N/A	#N/A	0	1996/03/05	1996/07/23	1996/10/22	1997/02/06	2000/06/06
H141	B	F	46	1995/09/02	1995/11/18	1996/04/24	1996/09/21	1996/12/19	1998/06/02	1998/08/01	1999/12/13	2000/06/06
H142	C	F	23	#N/A	#N/A	#N/A	0	1994/02/18	1994/07/27	1994/10/24	1995/05/05	2000/06/10
H143	W	F	26	1996/08/14	1996/10/16	1997/04/09	1997/10/25	1998/02/11	1999/04/10	1999/11/13	2000/01/15	2000/06/10
H144	B	M	31	1995/07/03	1995/09/05	1995/12/05	1996/03/14	1997/01/30	1997/05/06	1997/07/04	1997/09/05	2000/06/15
H145	B	M	51	1997/10/29	1997/12/27	1998/02/21	1998/04/18	1998/06/13	1998/08/08	1998/10/03	2000/04/12	2000/06/15
H146	B	F	28	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1998/05/28	2000/06/23
H147	B	F	31	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1994/04/22	2000/06/23
H148	B	M	34	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2000/03/30	2000/06/27
H149	B	M	25	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1995/08/22	2000/07/03
H150	B	M	38	0	1997/09/29	1997/11/26	1998/04/06	1998/11/10	1999/06/07	1999/11/08	2000/01/11	2000/07/04
H151	B	F	44	#N/A	#N/A	#N/A	#N/A	0	1993/11/18	1994/11/02	1995/07/25	2000/07/05
H152	B	M	24	1997/11/14	1998/02/23	1998/05/11	1998/08/19	1998/10/16	1998/12/03	1999/02/23	2000/04/07	2000/07/07
H153	B	F	35	#N/A	#N/A	#N/A	0	1998/09/16	1999/02/08	1999/04/23	1999/07/12	2000/07/11
H154	B	M	52	#N/A	#N/A	#N/A	#N/A	#N/A	0	1993/08/04	1994/04/13	2000/07/12
H155	B	M	42	#N/A	#N/A	#N/A	#N/A	0	1993/03/18	1993/07/08	1997/07/03	2000/07/13
H156	B	F	25	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2000/05/10	2000/07/14
H157	B	M	46	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1995/01/12	2000/07/14

Donation Serial No	DEMOGRAPHICS			TEST / DONATION DATES								
	Ethnic*	Sex**	Age HIV Pos	8th Prev. Test Date	7th Prev. Test Date	6th Prev. Test Date	5th Prev. Test Date	4th Prev. Test Date	3rd Prev. Test Date	2nd Prev. Test Date	Prev. Test Date	Date HIV Pos. Donation
H158	B	F	19	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/07/20	2000/07/17
H159	B	F	19	0	1998/08/27	1999/04/14	1999/07/05	1999/09/21	1999/11/16	2000/02/22	2000/04/12	2000/07/19
H160	B	F	29	#N/A	#N/A	#N/A	#N/A	0	1999/04/28	1999/08/17	1999/10/13	2000/07/19
H161	W	M	44	1998/01/15	1998/03/12	1998/07/16	1998/09/17	1998/11/19	2000/01/08	2000/03/09	2000/05/25	2000/07/20
H162	B	F	30	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/05/27	1999/11/03	2000/07/21
H163	B	M	32	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1997/04/07	2000/07/21
H164	B	F	19	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/05/24	2000/02/21	2000/07/26
H165	W	M	21	#N/A	#N/A	#N/A	0	1996/11/01	1997/07/18	1997/12/01	1998/04/30	2000/07/26
H166	B	F	23	#N/A	#N/A	#N/A	#N/A	#N/A	0	1994/06/13	1996/02/21	2000/07/28
H167	W	M	24	#N/A	#N/A	#N/A	#N/A	#N/A	0	1993/03/31	1994/07/01	2000/07/29
H168	B	F	30	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1996/01/05	2000/07/31
H169	B	M	20	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1998/08/13	2000/08/10
H170	W	M	34	1998/02/14	1998/08/01	1998/09/25	1998/12/11	1999/03/27	1999/09/06	1999/12/29	2000/04/22	2000/08/12
H171	B	F	19	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1998/03/27	2000/08/16
H172	C	F	23	#N/A	#N/A	0	1994/02/25	1994/07/22	1994/10/13	1995/02/20	1995/09/05	2000/08/16
H173	B	M	42	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1996/09/23	2000/08/17
H174	B	M	27	#N/A	0	1997/06/18	1997/08/13	1998/01/21	1998/03/20	1998/08/18	1998/10/14	2000/08/18
H175	W	F	39	#N/A	0	1997/01/07	1998/12/10	1999/04/23	1999/06/30	1999/09/14	1999/11/29	2000/08/23
H176	B	M	29	#N/A	#N/A	#N/A	0	1999/06/29	1999/10/26	1999/12/28	2000/02/24	2000/08/24
H177	B	M	29	#N/A	#N/A	#N/A	0	1996/10/02	1997/11/14	2000/04/25	2000/06/27	2000/08/29
H178	B	M	30	1997/08/21	1997/12/11	1998/04/16	1998/08/20	1998/10/22	1998/12/17	1999/04/22	1999/10/28	2000/08/29
H179	W	M	36	1996/05/13	1997/08/18	1997/12/01	1998/04/06	1998/09/28	1999/07/21	1999/09/22	2000/02/16	2000/08/30
H180	B	M	37	#N/A	#N/A	#N/A	#N/A	0	1994/08/16	1995/02/02	1996/02/22	2000/08/30
H181	B	F	25	#N/A	#N/A	#N/A	#N/A	0	1995/08/04	1995/10/06	1996/02/21	2000/08/31
H182	B	M	36	#N/A	#N/A	#N/A	#N/A	#N/A	0	1993/10/27	1993/12/22	2000/08/31
H183	B	M	47	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/02/23	2000/09/06
H184	B	M	27	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2000/04/19	2000/09/07
H185	B	M	26	#N/A	#N/A	0	1996/09/19	1996/11/21	1997/05/14	1997/09/17	1998/01/15	2000/09/12
H186	W	M	25	#N/A	0	1994/07/14	1995/02/21	1997/09/27	1997/12/19	1998/03/20	1998/07/04	2000/09/16
H187	B	F	23	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1997/06/10	2000/09/18
H188	B	F	20	#N/A	#N/A	0	1998/08/26	1999/02/17	1999/05/12	1999/08/26	2000/03/07	2000/09/20
H189	B	M	32	0	1993/10/28	1994/11/25	1995/07/12	1996/06/18	1996/12/05	1997/11/28	1998/09/11	2000/09/20

Donation Serial No	DEMOGRAPHICS			TEST / DONATION DATES								
	Ethnic*	Sex**	Age HIV Pos	8th Prev. Test Date	7th Prev. Test Date	6th Prev. Test Date	5th Prev. Test Date	4th Prev. Test Date	3rd Prev. Test Date	2nd Prev. Test Date	Prev. Test Date	Date HIV Pos. Donation
H190	B	M	27	#N/A	#N/A	#N/A	#N/A	0	1996/11/11	1997/08/29	1997/10/31	2000/09/21
H191	W	F	24	#N/A	#N/A	#N/A	0	1995/01/30	1995/03/27	1995/05/29	1998/03/03	2000/09/26
H192	W	M	43	1995/06/28	1997/03/26	1998/01/29	1999/04/07	1999/12/01	2000/01/26	2000/03/22	2000/06/07	2000/09/27
H193	W	M	22	1997/12/13	1998/02/25	1998/05/09	1998/10/12	1998/12/29	1999/06/08	2000/01/21	2000/06/06	2000/09/28
H194	B	M	37	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1993/04/03	2000/09/30
H195	B	F	17	#N/A	#N/A	#N/A	#N/A	#N/A	0	2000/04/13	2000/07/25	2000/10/03
H196	B	M	39	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1998/07/29	2000/10/11
H197	C	M	32	1996/07/30	1996/09/25	1996/11/21	1997/01/20	1997/11/04	1999/08/30	2000/02/22	2000/05/11	2000/10/13
H198	B	F	21	0	1998/03/11	1998/09/02	1999/04/30	1999/09/03	1999/11/26	2000/01/21	2000/06/23	2000/10/20
H199	W	M	60	1999/05/28	1999/07/23	1999/09/17	1999/11/12	2000/01/10	2000/03/10	2000/05/12	2000/07/28	2000/10/20
H200	B	F	18	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2000/03/20	2000/10/23
H201	B	M	34	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2000/08/11	2000/10/24
H202	B	M	35	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2000/02/03	2000/10/25
H203	C	M	21	1997/06/19	1997/08/21	1997/10/16	1997/12/11	1998/02/19	1998/04/23	1999/04/29	1999/06/24	2000/10/26
H204	B	F	57	#N/A	#N/A	#N/A	#N/A	0	1994/04/13	2000/02/17	2000/04/17	2000/10/26
H205	B	M	30	0	1992/09/10	1992/11/27	1993/02/11	1993/07/28	1993/09/27	1995/07/13	1998/04/25	2000/10/27
H206	C	M	27	1993/07/26	1993/09/28	1994/01/19	1994/03/16	1994/05/11	1994/07/13	1994/11/09	1995/02/11	2000/10/28
H207	W	M	33	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1992/04/07	2000/10/30
H208	B	F	23	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1995/08/21	2000/11/04
H209	C	M	36	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2000/01/11	2000/11/04
H210	B	F	44	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/05/14	2000/11/06
H211	B	F	30	#N/A	#N/A	#N/A	#N/A	0	1998/06/23	1999/02/19	1999/06/11	2000/11/07
H212	B	M	30	#N/A	#N/A	#N/A	#N/A	#N/A	0	1997/01/15	1997/06/02	2000/11/08
H213	B	F	40	#N/A	#N/A	#N/A	#N/A	0	1999/06/17	1999/10/21	2000/02/24	2000/11/09
H214	B	F	25	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1998/10/09	2000/11/10
H215	C	F	24	0	1995/10/26	1996/10/30	1998/10/29	1999/05/14	1999/08/12	1999/10/12	2000/09/07	2000/11/17
H216	B	F	27	#N/A	#N/A	#N/A	0	1997/07/24	1998/03/19	1998/07/09	1998/09/03	2000/11/17
H217	B	M	33	#N/A	#N/A	#N/A	0	1998/10/08	1999/04/08	1999/06/03	1999/08/04	2000/11/20
H218	B	M	29	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1993/11/19	2000/11/27
H219	B	F	19	1998/09/03	1999/02/25	1999/05/05	1999/08/25	1999/11/22	2000/01/21	2000/03/17	2000/05/12	2000/11/29
H220	B	M	40	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1994/03/30	2000/11/29
H221	C	M	28	1998/12/04	1999/02/05	1999/08/06	1999/10/08	1999/12/03	2000/06/02	2000/08/04	2000/10/06	2000/12/01

Donation Serial No	DEMOGRAPHICS			TEST / DONATION DATES								
	Ethnic*	Sex**	Age HIV Pos	8th Prev. Test Date	7th Prev. Test Date	6th Prev. Test Date	5th Prev. Test Date	4th Prev. Test Date	3rd Prev. Test Date	2nd Prev. Test Date	Prev. Test Date	Date HIV Pos. Donation
H222	B	M	45	1998/10/09	1998/12/04	1999/02/05	1999/04/09	1999/06/04	1999/10/08	2000/04/07	2000/08/04	2000/12/01
H223	W	M	24	1997/08/12	1997/10/22	1998/01/08	1998/04/06	1998/06/09	1998/08/05	2000/05/18	2000/07/14	2000/12/02
H224	W	F	54	#N/A	#N/A	#N/A	0	1994/05/18	1998/07/03	1999/07/31	1999/11/29	2000/12/02
H225	B	M	25	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1998/03/13	2000/12/06
H226	C	F	23	#N/A	#N/A	0	1994/08/11	1995/05/16	1995/08/31	1996/04/26	2000/06/14	2000/12/13
H227	B	F	25	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1995/06/19	2000/12/13
H228	W	M	47	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1996/10/10	2000/12/13
H229	B	F	36	#N/A	#N/A	#N/A	#N/A	#N/A	0	1992/09/12	1998/08/24	2000/12/14
H230	W	M	35	1994/01/11	1994/03/09	1994/05/14	1994/08/15	1994/10/17	1995/01/03	1995/03/13	1995/07/13	2000/12/18
H231	C	F	26	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2000/10/25	2000/12/20
H232	W	M	25	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1997/07/31	2000/12/28
H233	B	F	22	1998/08/21	1998/12/03	1999/03/16	1999/08/16	2000/03/10	2000/05/05	2000/07/28	2000/11/03	2000/12/29
H234	W	F	22	1999/08/27	1999/10/22	1999/12/14	2000/02/07	2000/05/30	2000/07/24	2000/09/18	2000/11/10	2001/01/04
H235	B	F	22	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/02/13	1999/05/04	2001/01/04
H236	B	M	31	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1998/04/17	2001/01/04
H237	W	M	52	1998/08/26	1998/10/23	1998/12/18	1999/02/12	1999/04/09	1999/06/04	1999/08/06	1999/10/01	2001/01/05
H238	B	F	25	#N/A	#N/A	#N/A	0	1997/07/07	1998/01/12	1998/07/06	1999/03/08	2001/01/08
H239	B	F	27	#N/A	#N/A	#N/A	#N/A	#N/A	0	1993/03/29	2000/05/08	2001/01/08
H240	B	F	28	#N/A	#N/A	#N/A	#N/A	#N/A	0	1994/02/16	1996/05/21	2001/01/08
H241	B	M	40	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1996/08/14	2001/01/10
H242	B	F	20	0	1997/11/10	1998/05/13	1998/07/15	1998/09/09	1998/11/06	1999/02/11	2000/06/26	2001/01/11
H243	B	M	23	#N/A	#N/A	#N/A	#N/A	#N/A	0	2000/05/02	2000/06/27	2001/01/16
H244	B	F	18	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/07/26	2000/01/13	2001/01/18
H245	B	F	32	#N/A	0	1999/03/04	1999/08/26	1999/10/21	2000/02/24	2000/05/04	2000/07/06	2001/01/18
H246	B	M	29	1998/05/04	1998/11/02	1999/01/30	1999/08/28	1999/11/01	2000/07/26	2000/09/26	2000/11/13	2001/01/19
H247	B	M	38	#N/A	#N/A	#N/A	#N/A	0	1994/04/25	1994/08/10	1994/11/28	2001/01/19
H248	B	F	41	#N/A	#N/A	#N/A	#N/A	#N/A	0	1995/08/17	1995/10/19	2001/01/25
H249	B	M	25	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1995/02/22	2001/01/31
H250	B	M	27	#N/A	#N/A	#N/A	0	1998/12/01	1999/02/26	1999/07/27	1999/11/10	2001/02/01
H251	B	F	41	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/06/06	2001/02/04
H252	B	F	19	#N/A	#N/A	#N/A	#N/A	0	1999/03/17	1999/05/20	2000/08/29	2001/02/06
H253	B	F	53	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1996/04/09	2001/02/07

Donation Serial No	DEMOGRAPHICS			TEST / DONATION DATES								
	Ethnic*	Sex**	Age HIV Pos	8th Prev. Test Date	7th Prev. Test Date	6th Prev. Test Date	5th Prev. Test Date	4th Prev. Test Date	3rd Prev. Test Date	2nd Prev. Test Date	Prev. Test Date	Date HIV Pos. Donation
H254	B	F	24	#N/A	#N/A	0	1998/11/23	1999/01/18	1999/03/15	1999/10/25	1999/12/20	2001/02/10
H255	B	F	29	1998/05/18	1998/07/20	1998/09/21	1998/11/16	1999/04/19	1999/11/15	2000/03/13	2000/07/10	2001/02/12
H256	C	F	35	#N/A	#N/A	#N/A	#N/A	0	1996/10/30	1997/03/05	1997/06/20	2001/02/15
H257	B	M	33	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1996/02/28	2001/02/19
H258	B	M	19	#N/A	#N/A	#N/A	#N/A	#N/A	0	1998/03/19	2000/02/22	2001/02/20
H259	B	M	24	#N/A	#N/A	#N/A	0	1998/05/05	1998/10/05	1999/02/15	1999/04/22	2001/02/20
H260	B	F	30	#N/A	#N/A	#N/A	#N/A	0	1997/02/03	1997/09/17	1998/02/24	2001/02/21
H261	C	F	35	#N/A	#N/A	#N/A	#N/A	0	1996/04/16	1996/06/21	1996/09/27	2001/02/21
H262	B	F	19	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/01/25	1999/04/14	2001/02/23
H263	B	F	17	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2000/03/16	2001/02/27
H264	B	F	19	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/02/16	2001/02/27
H265	W	M	19	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2000/06/30	2001/03/02
H266	W	M	61	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1996/08/07	2001/03/02
H267	C	F	44	0	1998/04/14	1998/06/23	1998/11/03	1999/01/12	1999/07/06	1999/09/07	2000/05/16	2001/03/06
H268	B	F	23	#N/A	#N/A	#N/A	0	1999/02/17	1999/04/14	1999/08/04	2000/10/18	2001/03/08
H269	W	M	27	#N/A	#N/A	0	1993/10/11	1993/12/10	1994/02/18	1994/05/09	1995/04/06	2001/03/08
H270	W	M	41	1998/12/30	1999/02/26	1999/04/24	1999/08/13	1999/10/13	2000/03/09	2000/05/23	2000/08/01	2001/03/08
H271	C	M	26	#N/A	#N/A	#N/A	#N/A	0	1997/10/21	1998/03/04	1999/06/10	2001/03/12
H272	B	F	39	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2000/11/13	2001/03/13
H273	B	M	19	#N/A	#N/A	#N/A	#N/A	0	1999/03/04	1999/05/10	1999/07/28	2001/03/14
H274	B	F	21	#N/A	#N/A	0	1997/05/07	1998/03/20	1998/05/29	1999/02/01	1999/04/16	2001/03/14
H275	B	M	23	#N/A	#N/A	#N/A	#N/A	#N/A	0	2000/08/21	2000/10/16	2001/03/15
H276	W	F	18	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2000/11/20	2001/03/16
H277	B	M	29	#N/A	#N/A	0	1998/12/30	2000/04/14	2000/08/14	2000/10/20	2001/01/15	2001/03/16
H278	B	M	32	#N/A	#N/A	#N/A	#N/A	#N/A	0	1992/09/17	1993/02/01	2001/03/19
H279	B	M	36	1997/10/29	1998/08/12	1998/10/07	1999/03/24	1999/05/19	1999/07/14	1999/09/08	1999/12/29	2001/03/22
H280	B	M	44	0	1993/04/15	1998/05/13	1998/07/17	1998/09/11	1998/11/10	1999/01/19	1999/03/11	2001/03/24
H281	B	F	32	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2000/08/07	2001/03/26
H282	B	M	34	#N/A	#N/A	#N/A	#N/A	#N/A	0	1997/03/03	1997/10/28	2001/03/26
H283	B	F	19	#N/A	#N/A	#N/A	#N/A	0	1999/03/08	1999/05/25	2000/08/07	2001/03/27
H284	B	M	21	#N/A	#N/A	#N/A	#N/A	0	1999/09/10	2000/01/21	2000/07/15	2001/03/28
H285	B	M	22	#N/A	#N/A	#N/A	#N/A	0	2000/03/02	2000/05/31	2000/11/14	2001/03/28

Donation Serial No	DEMOGRAPHICS			TEST / DONATION DATES								
	Ethnic*	Sex**	Age HIV Pos	8th Prev. Test Date	7th Prev. Test Date	6th Prev. Test Date	5th Prev. Test Date	4th Prev. Test Date	3rd Prev. Test Date	2nd Prev. Test Date	Prev. Test Date	Date HIV Pos. Donation
H286	B	F	24	#N/A	#N/A	#N/A	#N/A	#N/A	0	2000/12/06	2001/02/01	2001/03/29
H287	B	F	23	0	1995/03/09	1996/02/21	1996/04/16	1996/08/13	1997/02/07	1997/08/06	1999/01/06	2001/04/02
H288	W	M	42	1994/12/03	1995/02/15	1995/05/11	1995/06/30	1995/09/02	1995/10/28	1995/11/30	1996/02/24	2001/04/04
H289	B	M	27	#N/A	#N/A	#N/A	#N/A	#N/A	0	1995/02/21	1996/10/09	2001/04/10
H290	C	F	24	#N/A	0	1993/03/16	1993/07/13	1993/09/14	1997/02/18	1997/04/15	1997/06/24	2001/04/17
H291	W	M	40	#N/A	#N/A	#N/A	0	1993/09/25	1994/09/13	1994/11/15	1997/02/14	2001/04/18
H292	B	M	23	1999/07/16	1999/09/09	1999/11/13	2000/02/02	2000/04/01	2000/07/07	2000/09/26	2001/01/29	2001/04/26
H293	B	F	20	#N/A	#N/A	#N/A	#N/A	0	1999/04/14	1999/10/20	2000/10/18	2001/05/03
H294	B	M	31	#N/A	#N/A	#N/A	0	1998/12/21	1999/03/19	1999/07/14	2000/07/27	2001/05/04
H295	B	M	41	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2000/11/06	2001/05/09
H296	B	M	19	1999/01/28	1999/04/20	1999/09/21	2000/01/27	2000/04/13	2000/07/20	2000/09/14	2001/02/06	2001/05/10
H297	W	M	26	1994/05/19	1994/09/02	1994/10/31	1995/01/12	1996/09/03	1997/05/06	1997/10/13	2001/01/05	2001/05/10
H298	B	M	38	1999/08/02	1999/12/09	2000/02/10	2000/04/06	2000/06/15	2000/10/05	2000/11/30	2001/02/08	2001/05/10
H299	W	M	22	1999/05/17	1999/07/06	1999/08/30	1999/10/25	1999/12/20	2000/02/16	2000/05/17	2000/11/27	2001/05/11
H300	B	F	24	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/10/21	2000/05/15	2001/05/11
H301	B	M	26	#N/A	#N/A	#N/A	#N/A	#N/A	0	1992/09/14	1997/05/27	2001/05/12
H302	B	M	27	0	1995/04/04	2000/01/20	2000/03/20	2000/08/07	2000/11/14	2001/01/23	2001/03/20	2001/05/15
H303	W	M	25	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1994/08/27	2001/05/22
H304	C	M	46	1999/08/04	1999/12/08	2000/02/09	2000/04/05	2000/06/07	2000/08/02	2000/12/06	2001/01/31	2001/05/23
H305	B	F	41	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2000/12/18	2001/05/25
H306	W	M	47	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1993/01/13	2001/05/25
H307	C	M	35	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/06/18	2001/05/26
H308	B	F	35	0	1994/07/15	1994/09/14	1994/11/16	1995/01/18	1995/05/31	1995/08/02	1995/10/04	2001/05/26
H309	B	F	19	#N/A	#N/A	#N/A	#N/A	0	2000/10/09	2001/01/22	2001/03/26	2001/05/29
H310	W	M	48	1999/08/02	1999/10/11	2000/02/08	2000/05/03	2000/08/25	2000/10/20	2000/12/27	2001/04/09	2001/06/05
H311	B	F	32	1998/05/27	1998/09/16	1998/11/11	1999/06/23	1999/08/18	1999/10/22	1999/12/17	2000/10/18	2001/06/12
H312	C	F	26	#N/A	#N/A	#N/A	#N/A	#N/A	0	1995/03/24	1995/05/19	2001/06/24
H313	W	F	21	1996/09/30	1996/12/12	1997/03/20	1997/06/11	1997/08/28	1998/11/09	1999/02/18	1999/05/11	2001/06/26
H314	W	M	64	#N/A	#N/A	#N/A	#N/A	#N/A	0	1997/12/08	1998/02/02	2001/06/30
H315	B	M	30	#N/A	#N/A	#N/A	#N/A	0	1996/04/10	1997/04/04	1998/11/30	2001/07/04
H316	B	M	30	#N/A	#N/A	0	2000/02/22	2000/06/13	2000/08/08	2000/11/28	2001/01/23	2001/07/10
H317	B	F	58	1997/04/16	1997/07/09	1997/11/06	1998/04/09	1998/07/09	1998/10/02	1999/03/03	1999/05/04	2001/07/10

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	Ethnic*	Sex**	Age HIV Pos	8th Prev. Test Date	7th Prev. Test Date	6th Prev. Test Date	5th Prev. Test Date	4th Prev. Test Date	3rd Prev. Test Date	2nd Prev. Test Date	Prev. Test Date	Date HIV Pos. Donation
H318	B	M	29	1998/10/23	1998/12/18	1999/04/16	1999/06/11	1999/08/06	1999/12/03	2000/02/04	2000/06/20	2001/07/12
H319	A	M	31	#N/A	#N/A	#N/A	#N/A	0	2000/03/24	2000/06/14	2000/12/13	2001/07/15
H320	B	M	23	0	2000/01/17	2000/03/15	2000/05/10	2000/07/17	2000/10/27	2001/01/19	2001/03/16	2001/07/17
H321	B	F	24	#N/A	#N/A	#N/A	#N/A	0	2000/05/17	2000/07/13	2000/09/13	2001/07/17
H322	B	F	17	#N/A	#N/A	#N/A	0	2000/02/07	2000/04/13	2000/07/25	2000/10/03	2001/07/26
H323	B	M	25	2000/02/22	2000/04/18	2000/06/13	2000/08/08	2000/10/23	2001/01/15	2001/04/09	2001/06/04	2001/07/30
H324	W	M	51	2000/03/08	2000/05/04	2000/07/12	2000/09/19	2000/11/21	2001/01/16	2001/03/19	2001/05/17	2001/07/31
H325	B	F	26	#N/A	0	1999/09/09	2000/02/01	2000/04/14	2000/10/17	2001/02/22	2001/05/29	2001/08/01
H326	B	F	23	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1996/03/11	2001/08/10
H327	B	M	27	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2000/12/06	2001/08/15
H328	W	F	33	#N/A	#N/A	#N/A	#N/A	#N/A	0	1994/11/22	1995/09/18	2001/08/15
H329	C	F	36	#N/A	#N/A	#N/A	#N/A	#N/A	0	2000/07/03	2000/11/14	2001/08/16
H330	B	M	25	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1995/03/23	2001/08/18
H331	B	M	40	1995/03/27	1995/07/12	1996/03/25	1996/09/20	1998/01/16	1998/07/08	1998/09/11	1998/11/23	2001/08/20
H332	B	M	28	1996/03/01	1996/05/16	1997/04/03	1998/09/08	1999/06/24	1999/08/19	1999/12/09	2000/04/10	2001/08/21
H333	A	F	26	1999/11/17	2000/01/12	2000/03/08	2000/06/09	2000/08/07	2000/10/17	2000/12/13	2001/03/07	2001/08/27
H334	B	F	26	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1995/02/22	2001/08/28
H335	W	F	43	#N/A	#N/A	#N/A	#N/A	0	1993/04/21	1993/09/06	1994/01/25	2001/08/30
H336	B	F	34	#N/A	#N/A	#N/A	#N/A	#N/A	0	1992/11/05	1995/05/09	2001/08/31
H337	B	M	21	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1996/09/02	2001/09/08
H338	C	M	29	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/11/18	2001/07/12	2001/09/13
H339	B	F	19	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2001/05/03	2001/09/17
H340	B	F	31	0	1999/11/15	2000/03/20	2000/05/29	2000/07/24	2000/09/18	2001/03/19	2001/05/14	2001/09/17
H341	B	M	54	1999/04/06	1999/06/09	2000/01/25	2000/05/30	2000/08/22	2000/10/24	2001/03/13	2001/05/21	2001/09/17
H342	A	M	58	1999/09/20	1999/12/04	2000/01/29	2000/06/24	2000/10/14	2001/01/06	2001/03/10	2001/05/05	2001/09/17
H343	B	M	32	1996/06/05	1996/09/25	1997/08/13	1997/11/19	1999/02/25	1999/07/26	1999/10/05	2000/05/08	2001/09/19
H344	B	F	25	#N/A	#N/A	#N/A	0	1994/10/21	1995/03/24	1996/05/06	1997/07/11	2001/09/27
H345	B	M	24	#N/A	#N/A	#N/A	#N/A	0	2001/03/22	2001/05/25	2001/07/25	2001/10/11
H346	W	M	34	#N/A	#N/A	0	1992/11/07	1993/07/24	1995/08/08	1996/11/07	1997/02/19	2001/10/11
H347	B	F	18	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2001/01/26	2001/10/12
H348	B	M	22	#N/A	#N/A	0	1996/08/28	2000/04/17	2001/02/27	2001/04/24	2001/07/04	2001/10/16
H349	B	F	17	#N/A	#N/A	#N/A	#N/A	0	2000/05/22	2000/07/20	2000/09/14	2001/10/18

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	Ethnic*	Sex**	Age HIV Pos	8th Prev. Test Date	7th Prev. Test Date	6th Prev. Test Date	5th Prev. Test Date	4th Prev. Test Date	3rd Prev. Test Date	2nd Prev. Test Date	Prev. Test Date	Date HIV Pos. Donation
H350	B	F	30	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1995/04/06	2001/10/18
H351	B	F	31	#N/A	#N/A	#N/A	0	1995/08/03	1996/01/11	1996/04/23	1997/03/18	2001/10/27
H352	B	F	17	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2001/04/20	2001/10/29
H353	B	F	26	#N/A	#N/A	0	1996/10/02	1998/03/19	1998/07/23	1998/09/17	1998/11/12	2001/10/30
H354	B	M	39	#N/A	#N/A	#N/A	#N/A	#N/A	0	1992/04/14	1994/05/27	2001/10/30
H355	B	F	24	#N/A	#N/A	#N/A	0	1993/12/23	1997/06/18	1997/08/13	1997/10/11	2001/11/02
H356	W	M	25	#N/A	#N/A	#N/A	#N/A	0	1994/08/06	1995/02/06	1996/09/09	2001/11/14
H357	B	F	36	#N/A	0	1999/07/14	1999/11/18	2000/05/17	2000/09/13	2000/11/15	2001/05/10	2001/11/20
H358	W	M	34	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1991/10/01	2001/11/21
H359	B	M	43	1995/08/22	1996/03/19	1996/07/04	1997/06/18	1998/04/08	1999/02/10	1999/10/13	2000/04/12	2001/11/21
H360	B	F	32	1995/09/19	1996/02/20	1996/05/10	1996/09/04	1996/12/31	1997/06/04	1997/08/22	1997/11/04	2001/11/22
H361	B	M	46	1997/04/01	1997/06/04	1997/10/24	1998/02/19	1998/04/17	1998/07/27	1998/12/03	1999/01/28	2001/11/22
H362	B	F	30	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/07/06	1999/12/14	2001/11/25
H363	B	F	46	#N/A	#N/A	0	1996/11/12	1997/10/02	1999/02/03	1999/06/17	2000/10/19	2001/11/28
H364	B	M	30	#N/A	#N/A	#N/A	#N/A	0	1998/11/27	2000/10/02	2000/11/27	2001/12/03
H365	B	F	27	1997/01/30	1997/04/30	1997/12/22	1998/02/12	1998/05/22	1998/07/06	1998/09/15	1999/03/02	2001/12/12
H366	B	M	35	#N/A	#N/A	#N/A	0	1993/11/19	1995/03/25	1998/12/30	1999/11/13	2001/12/15
H367	C	M	25	1998/07/21	1998/10/02	1998/12/09	1999/06/19	2000/09/28	2001/04/18	2001/07/04	2001/10/05	2001/12/19
H368	C	M	28	#N/A	#N/A	#N/A	#N/A	#N/A	0	1998/09/20	1999/03/07	2001/12/21
H369	B	M	42	#N/A	#N/A	#N/A	0	1992/09/08	1993/04/15	1993/08/16	1993/10/11	2001/12/23
H370	B	F	24	1997/04/22	1997/10/14	1998/06/11	1998/12/07	1999/05/06	1999/09/06	2000/01/19	2000/12/01	2001/12/28
H371	B	F	32	#N/A	#N/A	#N/A	0	1999/03/09	1999/05/04	1999/08/03	1999/10/26	2001/12/31
H372	W	M	36	2000/07/11	2000/09/14	2000/11/16	2001/02/05	2001/04/04	2001/05/30	2001/07/26	2001/10/08	2002/01/07
H373	B	F	38	2000/04/28	2000/08/07	2000/10/20	2000/12/20	2001/02/21	2001/04/20	2001/06/22	2001/08/10	2002/01/11
H374	W	F	20	0	1997/08/28	1998/08/20	1998/11/18	1999/11/27	2000/09/16	2001/01/13	2001/06/02	2002/01/12
H375	B	M	29	#N/A	#N/A	#N/A	#N/A	0	1996/04/03	1997/07/16	1998/03/18	2002/01/15
H376	W	M	35	#N/A	#N/A	#N/A	#N/A	0	2001/05/03	2001/07/02	2001/08/30	2002/01/15
H377	B	F	36	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2001/06/09	2002/01/19
H378	B	M	24	1999/09/22	1999/11/17	2000/01/19	2000/03/15	2000/07/19	2000/09/20	2001/03/20	2001/09/19	2002/01/23
H379	B	F	37	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1997/07/24	2002/01/23
H380	B	M	24	1997/08/04	1997/10/16	1998/12/03	1999/02/08	1999/06/07	1999/10/09	2000/06/29	2001/02/15	2002/01/24
H381	W	M	21	#N/A	0	1997/05/27	1997/08/27	1997/10/29	1998/11/16	1999/04/28	1999/11/19	2002/01/26

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H382	W	M	35	#N/A	0	1993/10/01	1999/05/19	2001/01/18	2001/05/07	2001/08/06	2001/10/05	2002/01/29
H383	B	F	29	#N/A	#N/A	#N/A	#N/A	#N/A	0	2001/01/03	2001/04/25	2002/01/30
H384	B	M	18	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2001/10/10	2002/02/05
H385	B	F	19	#N/A	#N/A	#N/A	#N/A	#N/A	0	2001/02/05	2001/04/21	2002/02/05
H386	B	F	35	1996/04/24	1996/07/31	1997/02/26	1997/05/12	1999/02/08	2001/01/19	2001/04/23	2001/07/17	2002/02/07
H387	B	F	30	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1993/06/08	2002/02/12
H388	W	M	36	1994/05/19	1995/01/21	1995/04/12	1996/08/31	1997/07/09	1997/09/23	1997/12/31	1999/01/19	2002/02/15
H389	B	F	38	1997/04/23	1998/07/03	1998/06/24	1998/11/04	1999/01/20	1999/03/31	1999/07/21	1999/09/29	2002/02/20
H390	C	M	61	1993/09/08	1994/05/18	1994/09/07	1995/01/04	1995/06/21	1995/10/18	1996/08/07	1997/01/09	2002/02/21
H391	B	F	19	#N/A	#N/A	#N/A	#N/A	0	2001/04/19	2001/07/19	2001/11/06	2002/02/25
H392	B	F	21	#N/A	#N/A	0	1998/10/04	1998/12/13	1999/03/28	2000/01/23	2001/02/18	2002/02/25
H393	B	M	38	1996/09/02	1996/12/13	1997/04/14	1997/06/09	1997/08/13	1997/10/14	1998/02/18	1998/09/03	2002/02/25
H394	W	F	18	1999/04/26	1999/07/23	1999/09/17	1999/12/07	2000/02/26	2000/06/20	2001/03/19	2001/05/28	2002/02/26
H395	B	F	22	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2001/05/14	2002/02/27
H396	B	F	27	#N/A	#N/A	#N/A	#N/A	0	1999/11/22	2000/01/17	2000/07/26	2002/03/01
H397	W	F	21	#N/A	#N/A	#N/A	#N/A	#N/A	0	2001/01/15	2001/03/12	2002/03/04
H398	A	M	22	1999/04/09	1999/06/04	1999/10/08	1999/12/03	2000/02/04	2000/08/04	2001/10/05	2002/01/08	2002/03/05
H399	B	F	17	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2001/08/22	2002/03/06
H400	B	F	33	#N/A	#N/A	#N/A	0	1999/02/10	1999/04/07	1999/06/11	2000/02/16	2002/03/13
H401	B	F	24	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1995/10/23	2002/03/14
H402	C	M	31	#N/A	#N/A	#N/A	#N/A	0	1994/07/12	1995/04/03	2001/10/18	2002/03/14
H403	B	M	32	#N/A	#N/A	#N/A	#N/A	0	1993/05/13	1993/08/12	1994/02/03	2002/03/21
H404	B	F	23	#N/A	#N/A	#N/A	0	1998/05/11	1998/08/19	1998/10/16	1998/12/04	2002/03/24
H405	B	M	24	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2002/01/25	2002/03/25
H406	B	F	28	#N/A	0	1994/05/27	1994/10/01	1994/11/26	1995/03/27	1996/07/17	1996/10/28	2002/03/25
H407	W	M	31	0	1992/07/03	1994/04/05	1994/08/24	1994/10/26	1995/02/01	1995/04/12	1995/10/30	2002/03/27
H408	C	F	23	#N/A	#N/A	0	1999/11/27	2000/12/02	2001/09/27	2001/11/29	2002/01/31	2002/03/28
H409	B	F	26	#N/A	#N/A	#N/A	#N/A	#N/A	0	1996/02/02	1996/10/25	2002/04/01
H410	B	F	36	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1994/03/29	2002/04/01
H411	B	M	37	1996/09/03	1997/01/29	1997/04/18	1997/06/23	1997/08/19	1998/02/25	1998/04/23	1998/06/17	2002/04/01
H412	B	F	20	0	2000/05/23	2000/08/08	2000/10/03	2000/11/28	2001/05/09	2001/11/14	2002/01/09	2002/04/03
H413	B	F	25	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1998/04/04	2002/04/04

Donation Serial No	DEMOGRAPHICS			TEST / DONATION DATES								
	Ethnic*	Sex**	Age HIV Pos	8th Prev. Test Date	7th Prev. Test Date	6th Prev. Test Date	5th Prev. Test Date	4th Prev. Test Date	3rd Prev. Test Date	2nd Prev. Test Date	Prev. Test Date	Date HIV Pos. Donation
H414	B	M	30	#N/A	#N/A	#N/A	#N/A	0	1998/03/27	1998/05/22	1999/06/22	2002/04/04
H415	B	F	29	1993/07/20	1993/12/21	1994/05/06	1995/09/07	1996/09/16	1996/11/18	1997/09/30	1998/11/20	2002/04/06
H416	W	M	43	1998/02/09	1998/04/08	1998/06/11	1998/08/22	1998/10/28	2000/08/29	2000/10/25	2001/04/18	2002/04/10
H417	B	M	36	#N/A	#N/A	0	1998/10/16	2001/02/22	2001/05/04	2001/09/05	2001/11/07	2002/04/11
H418	B	F	16	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2002/02/07	2002/04/17
H419	C	F	25	1996/02/27	1996/05/02	1996/08/22	1997/01/30	1997/04/29	1997/08/12	1997/10/23	1998/09/05	2002/04/17
H420	B	M	28	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1996/07/30	2002/04/18
H421	B	F	27	#N/A	#N/A	#N/A	#N/A	#N/A	0	1993/02/10	1993/03/03	2002/04/19
H422	W	M	24	#N/A	#N/A	#N/A	0	2000/03/08	2000/07/12	2000/09/13	2001/08/22	2002/04/23
H423	B	F	28	#N/A	#N/A	#N/A	#N/A	#N/A	0	1992/09/16	1993/02/26	2002/04/24
H424	W	M	34	1993/04/08	1993/10/22	1997/08/21	1997/12/22	1998/03/31	1998/06/30	2000/10/24	2001/02/24	2002/04/24
H425	B	M	36	2000/02/25	2000/05/05	2000/07/28	2000/09/21	2001/01/10	2001/04/25	2001/08/31	2001/12/19	2002/04/24
H426	B	F	17	#N/A	#N/A	#N/A	0	2000/09/15	2001/02/07	2001/05/02	2001/09/14	2002/04/25
H427	B	M	23	#N/A	#N/A	#N/A	#N/A	0	1996/08/27	1997/04/08	1998/09/05	2002/04/25
H428	W	F	31	2000/12/18	2001/02/21	2001/04/18	2001/06/14	2001/08/10	2001/10/05	2001/12/01	2002/02/26	2002/05/03
H429	W	M	28	1994/11/08	1994/12/28	1995/05/02	1995/07/26	1995/12/04	1996/01/31	1996/05/22	1997/01/03	2002/05/06
H430	C	F	27	#N/A	0	1999/10/01	2000/10/09	2001/01/09	2001/03/13	2001/05/08	2001/09/11	2002/05/07
H431	B	F	35	#N/A	#N/A	#N/A	#N/A	#N/A	0	1995/06/14	1997/07/16	2002/05/07
H432	W	M	40	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1993/11/25	2002/05/07
H433	B	F	22	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/02/03	2002/05/10
H434	B	M	24	#N/A	#N/A	#N/A	#N/A	#N/A	0	1997/09/25	1998/04/28	2002/05/13
H435	B	F	45	1999/02/23	2001/02/20	2001/04/25	2001/07/04	2001/09/12	2001/11/07	2002/01/24	2002/03/22	2002/05/17
H436	B	F	29	#N/A	#N/A	#N/A	#N/A	#N/A	0	1997/03/18	1998/03/04	2002/05/18
H437	W	F	42	#N/A	#N/A	0	1997/09/03	2000/05/21	2000/07/16	2000/09/10	2000/12/31	2002/05/18
H438	B	F	17	#N/A	#N/A	#N/A	#N/A	#N/A	0	2001/08/02	2001/10/16	2002/05/24
H439	B	F	30	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2001/06/09	2002/05/31
H440	B	M	27	#N/A	#N/A	0	2000/02/12	2000/04/08	2000/06/05	2000/08/04	2000/09/29	2002/06/18
H441	W	M	32	#N/A	#N/A	#N/A	0	1993/04/28	1995/01/10	1995/03/06	1995/06/22	2002/06/26
H442	B	M	48	#N/A	#N/A	#N/A	#N/A	0	1995/03/22	1995/09/12	1995/11/14	2002/07/02
H443	B	M	26	2000/06/14	2000/08/10	2000/10/11	2001/04/11	2001/06/06	2001/08/01	2001/09/16	2002/01/16	2002/07/03
H444	B	F	33	#N/A	#N/A	#N/A	#N/A	#N/A	0	1995/11/30	1996/07/18	2002/07/03
H445	W	F	37	2000/09/27	2000/11/29	2001/03/07	2001/05/02	2001/07/04	2001/09/05	2002/01/09	2002/03/06	2002/07/10

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	Ethnic*	Sex**	Age HIV Pos	8th Prev. Test Date	7th Prev. Test Date	6th Prev. Test Date	5th Prev. Test Date	4th Prev. Test Date	3rd Prev. Test Date	2nd Prev. Test Date	Prev. Test Date	Date HIV Pos. Donation
H446	B	F	17	#N/A	#N/A	0	2001/02/23	2001/06/08	2001/08/14	2001/10/18	2002/01/30	2002/07/19
H447	B	F	18	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2002/03/04	2002/07/23
H448	W	M	46	#N/A	#N/A	0	2000/06/22	2000/10/26	2001/02/22	2001/04/19	2001/06/21	2002/07/24
H449	C	F	23	1996/02/15	1997/02/18	1997/04/23	1997/07/29	1997/10/22	1998/01/27	1998/05/12	1998/07/27	2002/07/30
H450	B	M	26	1999/04/08	1999/08/05	1999/10/14	2000/02/10	2000/04/13	2000/12/07	2001/02/01	2001/04/05	2002/08/01
H451	W	F	55	1997/04/21	1997/09/04	1998/11/07	1999/02/11	1999/11/15	2000/01/10	2000/03/16	2000/05/25	2002/08/01
H452	B	M	30	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1995/10/31	2002/08/07
H453	B	M	32	1999/05/25	1999/09/28	1999/11/23	2000/01/25	2000/07/24	2000/09/27	2001/09/06	2002/02/05	2002/08/07
H454	B	M	28	2000/09/14	2000/11/16	2001/02/15	2001/04/18	2001/10/24	2002/01/11	2002/04/04	2002/06/06	2002/08/08
H455	W	M	25	#N/A	#N/A	#N/A	0	1993/12/14	1994/04/11	1994/07/04	1994/09/30	2002/08/10
H456	B	M	25	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2002/04/18	2002/08/19
H457	B	M	30	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1994/08/16	2002/08/23
H458	B	M	40	0	1995/07/03	1998/08/04	2000/10/10	2000/12/20	2001/05/24	2002/01/11	2002/03/26	2002/09/02
H459	B	M	32	2000/08/08	2000/10/03	2001/03/27	2001/05/29	2001/07/31	2001/09/25	2002/01/29	2002/05/22	2002/09/18
H460	W	M	30	1996/12/14	1997/04/24	1997/07/23	1997/09/17	1997/12/02	1998/02/25	1998/05/26	1999/01/18	2002/09/23
H461	B	M	31	1996/12/05	1997/03/18	1997/07/15	1997/09/16	1998/02/10	1998/10/07	1998/12/02	1999/09/29	2002/09/26
H462	B	F	50	#N/A	0	2001/04/26	2001/06/22	2001/10/26	2002/01/25	2002/04/05	2002/05/31	2002/09/27
H463	W	M	47	0	1997/11/07	1998/12/07	2001/03/05	2001/06/04	2001/10/31	2002/01/19	2002/03/28	2002/09/28
H464	B	F	20	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2000/03/23	2002/10/04
H465	W	M	24	2001/01/02	2001/03/27	2001/07/03	2001/09/03	2001/11/05	2002/01/15	2002/03/12	2002/07/16	2002/10/09
H466	W	F	33	1998/06/10	1998/08/12	1999/02/10	1999/04/14	1999/08/11	1999/12/08	2000/06/14	2000/10/11	2002/10/09
H467	B	M	19	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2002/03/14	2002/10/10
H468	B	M	36	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1997/08/28	2002/10/10
H469	B	M	23	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1994/03/15	2002/10/11
H470	B	F	29	1995/11/10	1996/05/10	1996/09/13	1996/11/08	1997/01/10	1997/07/11	1997/11/14	1998/03/06	2002/10/21
H471	B	M	41	1995/06/07	1996/08/07	1996/12/04	1997/04/30	1997/06/25	1998/01/14	1998/03/11	1998/05/13	2002/10/23
H472	W	F	24	1999/08/26	1999/10/21	1999/12/28	2000/02/22	2000/06/29	2001/02/14	2001/08/16	2001/12/06	2002/10/24
H473	B	M	46	#N/A	0	1993/09/02	2000/05/17	2000/07/21	2000/10/10	2002/02/08	2002/04/11	2002/10/24
H474	B	F	19	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/03/11	2002/11/11
H475	B	M	27	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1995/02/07	2002/11/11
H476	B	M	47	#N/A	#N/A	#N/A	#N/A	#N/A	0	1998/03/02	1998/04/28	2002/11/12
H477	B	M	27	#N/A	#N/A	#N/A	#N/A	#N/A	0	2001/09/13	2001/11/08	2002/11/14

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	Ethnic*	Sex**	Age HIV Pos	8th Prev. Test Date	7th Prev. Test Date	6th Prev. Test Date	5th Prev. Test Date	4th Prev. Test Date	3rd Prev. Test Date	2nd Prev. Test Date	Prev. Test Date	Date HIV Pos. Donation
H478	W	M	61	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1997/11/06	2002/11/26
H479	B	F	29	#N/A	#N/A	#N/A	#N/A	0	2000/02/03	2000/06/08	2000/08/10	2002/11/27
H480	B	M	26	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2002/09/02	2002/12/02
H481	B	M	29	1996/07/02	1996/11/19	1997/01/15	1997/05/07	1997/07/09	1997/09/03	1998/07/14	1998/09/15	2002/12/03
H482	B	F	35	0	1998/08/26	1998/10/28	2000/03/03	2001/01/31	2001/09/27	2002/02/13	2002/04/17	2002/12/04
H483	B	F	21	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1998/02/17	2002/12/05
H484	B	M	38	2001/07/25	2001/09/20	2001/12/04	2002/01/29	2002/03/26	2002/05/24	2002/07/24	2002/09/18	2002/12/05
H485	W	M	45	2001/07/02	2001/09/11	2001/11/14	2002/01/08	2002/02/18	2002/04/22	2002/06/20	2002/08/21	2002/12/10
H486	A	F	31	1996/11/08	1997/01/13	1998/01/14	2000/04/14	2000/06/30	2000/10/10	2001/11/17	2002/01/15	2002/12/14
H487	C	M	21	1996/08/08	1997/02/03	1997/05/05	1998/03/03	1998/05/05	1999/05/05	1999/08/18	1999/11/02	2002/12/21
H488	B	M	31	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1993/04/01	2002/12/21
H489	B	M	40	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/03/02	2001/07/05	2002/12/28
H490	B	F	26	2000/03/29	2000/06/09	2000/08/10	2000/12/14	2001/07/09	2002/04/15	2002/06/11	2002/09/19	2002/12/31
H491	W	M	19	0	2001/08/28	2001/10/22	2001/12/18	2002/02/15	2002/04/26	2002/06/21	2002/09/18	2003/01/02
H492	W	M	52	2001/07/24	2001/09/18	2001/11/15	2002/01/25	2002/03/28	2002/05/28	2002/07/30	2002/10/02	2003/01/06
H493	C	F	39	#N/A	#N/A	#N/A	0	1994/04/12	1994/07/13	1994/10/27	1995/08/10	2003/01/08
H494	W	M	32	2000/01/26	2000/03/22	2000/05/24	2000/07/26	2002/04/04	2002/05/30	2002/07/29	2002/09/23	2003/01/15
H495	W	M	49	#N/A	0	1998/12/05	1999/03/19	2001/10/01	2001/12/31	2002/03/01	2002/05/15	2003/01/15
H496	W	M	24	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1994/11/26	2003/01/23
H497	W	M	23	2001/02/26	2001/05/17	2001/07/12	2001/11/26	2002/02/23	2002/05/03	2002/06/28	2002/08/23	2003/01/27
H498	B	M	40	2001/04/02	2001/06/25	2001/09/12	2001/11/19	2002/01/28	2002/04/29	2002/07/18	2002/09/12	2003/02/01
H499	B	M	50	2001/07/05	2001/08/30	2001/10/25	2001/12/20	2002/02/28	2002/04/25	2002/06/27	2002/08/29	2003/02/07
H500	B	F	27	#N/A	#N/A	#N/A	#N/A	0	2002/02/17	2002/05/26	2002/07/28	2003/02/09
H501	B	F	22	#N/A	#N/A	#N/A	#N/A	0	1998/02/20	1998/08/14	2000/03/04	2003/02/12
H502	B	F	23	#N/A	#N/A	0	1999/01/26	1999/04/14	1999/06/10	1999/08/26	1999/10/22	2003/02/12
H503	B	M	29	#N/A	#N/A	#N/A	0	1999/02/02	1999/08/03	1999/10/05	2000/11/07	2003/02/14
H504	B	M	24	#N/A	#N/A	#N/A	#N/A	#N/A	0	2000/10/04	2001/01/31	2003/02/17
H505	W	M	33	2001/06/11	2001/08/06	2001/10/01	2001/11/26	2002/01/21	2002/03/18	2002/09/02	2002/10/18	2003/02/17
H506	B	F	17	#N/A	#N/A	#N/A	#N/A	#N/A	0	2002/03/06	2002/05/21	2003/02/27
H507	B	F	17	#N/A	#N/A	#N/A	#N/A	0	2001/07/20	2002/03/01	2002/05/10	2003/02/28
H508	B	M	29	2001/06/29	2001/09/19	2001/11/14	2002/01/10	2002/03/13	2002/05/15	2002/08/23	2002/11/28	2003/02/28
H509	B	M	39	2001/01/22	2001/08/22	2001/10/19	2001/12/14	2002/02/14	2002/04/11	2002/06/06	2002/08/19	2003/03/03

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H510	B	M	30	2001/05/02	2001/06/27	2001/08/27	2001/11/30	2002/02/11	2002/04/15	2002/06/24	2002/10/08	2003/03/05
H511	W	M	46	2001/07/18	2001/09/05	2001/11/07	2002/02/13	2002/04/24	2002/08/10	2002/10/09	2002/12/11	2003/03/05
H512	B	F	36	#N/A	0	1998/12/10	2000/03/25	2001/04/21	2001/06/30	2001/09/01	2002/04/12	2003/03/25
H513	B	F	35	#N/A	#N/A	#N/A	#N/A	#N/A	0	2002/08/28	2002/10/30	2003/03/26
H514	B	M	32	#N/A	#N/A	#N/A	0	1997/03/05	1997/05/06	1997/07/01	1998/02/10	2003/03/27
H515	B	F	44	2000/09/07	2000/11/09	2001/01/18	2001/03/22	2001/05/17	2001/07/12	2001/12/06	2002/04/11	2003/03/27
H516	B	F	36	#N/A	0	1999/03/11	2001/02/08	2001/04/12	2002/02/14	2002/04/11	2002/10/10	2003/04/03
H517	W	M	35	#N/A	#N/A	#N/A	#N/A	0	1996/05/14	1997/03/14	2003/02/11	2003/04/08
H518	B	F	24	#N/A	#N/A	#N/A	#N/A	0	1999/02/26	2000/05/17	2000/07/12	2003/04/09
H519	B	F	35	1999/01/21	1999/04/26	1999/10/02	1999/11/27	2000/03/04	2000/05/13	2000/12/29	2001/03/07	2003/04/09
H520	B	F	43	#N/A	#N/A	#N/A	0	1993/11/11	1994/04/11	1994/09/28	1994/11/30	2003/04/09
H521	C	F	19	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2002/05/07	2003/04/15
H522	W	M	20	2001/12/19	2002/02/15	2002/04/15	2002/06/18	2002/08/13	2002/10/10	2002/12/05	2003/01/30	2003/04/21
H523	W	M	32	2001/07/11	2001/09/08	2001/11/07	2002/01/22	2002/03/30	2002/05/30	2002/07/25	2002/11/26	2003/04/22
H524	W	M	50	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1992/04/07	2003/05/02
H525	W	M	23	0	1998/02/23	1998/05/04	1998/10/26	1999/01/25	1999/04/26	1999/07/26	1999/12/20	2003/05/05
H526	C	F	16	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2003/03/12	2003/05/07
H527	W	F	28	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1992/09/01	2003/05/09
H528	W	M	43	#N/A	#N/A	#N/A	0	1993/04/08	1993/08/05	1993/09/30	1993/11/25	2003/05/09
H529	B	F	30	#N/A	#N/A	#N/A	#N/A	#N/A	0	2002/07/16	2002/11/19	2003/05/13
H530	W	M	25	1997/08/07	1997/12/15	2000/07/26	2000/10/05	2002/08/05	2002/10/25	2002/12/18	2003/02/13	2003/05/19
H531	W	F	25	2000/11/28	2001/03/22	2001/07/31	2001/09/25	2002/01/22	2002/03/26	2002/11/20	2003/01/20	2003/05/19
H532	B	M	36	2002/03/11	2002/04/29	2002/06/21	2002/08/12	2002/10/03	2002/11/28	2003/01/27	2003/03/24	2003/05/21
H533	B	F	42	#N/A	#N/A	#N/A	#N/A	#N/A	0	1993/11/18	2002/11/30	2003/05/30
H534	W	M	26	2002/01/10	2002/03/07	2002/05/27	2002/07/25	2002/09/23	2002/11/25	2003/02/05	2003/04/07	2003/06/02
H535	B	M	44	2001/08/21	2001/10/16	2001/12/11	2005/02/05	2002/04/18	2002/06/12	2002/09/25	2002/11/20	2003/06/04
H536	B	F	31	1998/01/02	1998/02/27	1998/04/24	1998/06/20	1999/02/23	1999/04/20	1999/06/15	1999/09/27	2003/06/06
H537	W	M	42	1993/12/07	1996/11/26	2001/04/17	2001/07/03	2001/09/03	2001/11/07	2002/03/05	2002/07/19	2003/06/06
H538	B	M	37	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1996/05/10	2003/06/09
H539	B	M	34	1998/08/04	1998/10/13	1999/01/19	1999/03/19	1999/12/02	2000/03/06	2001/08/07	2002/02/07	2003/06/13
H540	W	M	42	#N/A	0	1993/08/05	1997/04/03	1997/11/14	1998/03/18	1998/06/09	1998/08/19	2003/06/28
H541	B	M	53	2001/10/31	2002/01/17	2002/03/13	2002/05/15	2002/07/10	2002/09/11	2002/11/13	2003/01/15	2003/07/02

Donation Serial No	DEMOGRAPHICS			TEST / DONATION DATES								
	Ethnic*	Sex**	Age HIV Pos	8th Prev. Test Date	7th Prev. Test Date	6th Prev. Test Date	5th Prev. Test Date	4th Prev. Test Date	3rd Prev. Test Date	2nd Prev. Test Date	Prev. Test Date	Date HIV Pos. Donation
H542	W	M	42	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2002/08/20	2003/07/08
H543	W	M	66	2002/01/02	2002/02/27	2002/06/26	2002/08/21	2002/10/16	2002/12/19	2003/02/17	2003/05/09	2003/07/09
H544	B	F	38	#N/A	0	2001/11/06	2002/02/05	2002/06/13	2002/08/07	2002/11/27	2003/02/05	2003/07/10
H545	B	F	19	#N/A	#N/A	#N/A	0	2001/04/20	2001/07/20	2002/02/01	2002/07/26	2003/07/18
H546	B	M	40	1997/10/30	1998/06/09	1998/10/23	1998/12/29	1999/07/16	2000/06/29	2000/10/16	2001/05/14	2003/07/18
H547	W	F	30	1998/03/28	1998/11/11	1999/01/11	1999/03/06	1999/05/08	1999/07/03	1999/08/28	1999/10/23	2003/07/23
H548	W	M	66	2002/01/30	2002/04/05	2002/06/07	2002/08/07	2002/10/09	2003/01/22	2003/03/20	2003/05/24	2003/07/28
H549	C	F	19	2001/05/10	2001/07/30	2001/09/25	2002/02/18	2002/05/16	2002/07/25	2002/09/26	2003/01/23	2003/08/05
H550	B	M	27	2001/01/15	2001/03/26	2001/05/25	2001/10/22	2002/01/14	2002/05/06	2002/07/24	2002/10/14	2003/08/05
H551	B	M	28	#N/A	#N/A	#N/A	#N/A	0	1999/01/21	1999/11/25	2000/05/11	2003/08/08
H552	B	F	22	#N/A	#N/A	#N/A	#N/A	#N/A	0	1997/08/29	1999/06/17	2003/08/11
H553	B	M	48	1997/08/19	1997/10/20	1998/07/04	1998/08/30	1998/10/29	1999/01/21	1999/07/02	1999/08/19	2003/08/19
H554	B	F	39	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2001/06/21	2003/08/20
H555	C	M	39	2002/01/04	2002/03/01	2002/05/03	2002/07/05	2002/09/06	2002/11/01	2003/01/10	2003/03/07	2003/08/22
H556	B	F	28	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1994/08/19	2003/09/02
H557	C	M	30	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1996/12/11	2003/09/03
H558	B	F	56	1999/10/12	1999/12/21	2000/04/03	2000/07/03	2000/10/07	2000/12/04	2001/04/12	2002/04/26	2003/09/04
H559	B	F	45	#N/A	#N/A	#N/A	#N/A	0	1996/10/09	1999/07/13	2000/01/17	2003/09/29
H560	W	F	45	1993/08/30	1993/11/17	1994/05/27	1994/09/26	1995/05/22	1995/10/06	1998/01/26	1998/05/25	2003/09/29
H561	W	F	19	2001/12/19	2002/02/20	2002/04/29	2002/06/25	2002/08/21	2002/12/19	2003/03/10	2003/06/26	2003/09/30
H562	B	F	42	#N/A	0	2001/05/07	2001/07/31	2001/10/15	2003/02/17	2003/05/16	2003/07/17	2003/10/02
H563	B	M	34	#N/A	#N/A	#N/A	#N/A	#N/A	0	1994/08/11	1994/12/08	2003/10/03
H564	B	M	39	#N/A	0	1992/10/23	1993/03/10	1994/10/06	2002/09/12	2003/01/23	2003/03/27	2003/10/08
H565	B	F	23	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/02/23	2003/10/09
H566	C	F	52	2000/12/02	2001/03/17	2001/05/12	2001/12/21	2002/02/16	2002/06/22	2002/08/17	2002/10/19	2003/10/11
H567	W	M	68	2001/09/12	2002/01/15	2002/04/04	2002/06/06	2002/08/01	2002/10/21	2002/12/31	2003/03/03	2003/10/16
H568	B	M	38	2001/11/02	2002/01/04	2002/03/01	2002/05/03	2002/11/01	2003/03/07	2003/05/02	2003/08/22	2003/10/17
H569	B	M	40	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1997/05/20	2003/10/24
H570	B	M	37	1995/06/26	1995/09/13	1996/03/18	1999/05/11	1999/07/20	1999/09/23	1999/11/25	2000/11/02	2003/11/05
H571	B	F	39	2001/12/24	2002/02/25	2002/04/23	2002/07/02	2002/09/30	2003/01/11	2003/04/03	2003/05/29	2003/11/06
H572	B	M	36	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1998/11/25	2003/11/12
H573	B	M	38	#N/A	#N/A	#N/A	#N/A	#N/A	0	1995/06/07	1996/03/13	2003/11/21

Donation Serial No	DEMOGRAPHICS			TEST / DONATION DATES								
	Ethnic*	Sex**	Age HIV Pos	8th Prev. Test Date	7th Prev. Test Date	6th Prev. Test Date	5th Prev. Test Date	4th Prev. Test Date	3rd Prev. Test Date	2nd Prev. Test Date	Prev. Test Date	Date HIV Pos. Donation
H574	B	M	28	#N/A	#N/A	#N/A	#N/A	0	1993/03/09	1993/08/06	1994/02/15	2003/11/24
H575	W	M	32	2002/06/25	2002/09/16	2002/12/02	2003/01/31	2003/04/08	2003/06/03	2003/07/29	2003/09/25	2003/11/25
H576	B	M	30	2001/01/21	2002/04/03	2002/06/12	2002/08/14	2002/10/23	2003/01/15	2003/03/19	2003/05/21	2003/11/26
H577	W	M	25	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1997/04/25	2003/11/27
H578	B	F	35	#N/A	#N/A	#N/A	#N/A	#N/A	0	1993/03/26	1994/09/23	2003/11/27
H579	W	F	29	#N/A	0	1993/04/07	1993/06/21	1993/08/16	1993/10/25	1993/12/20	2001/11/01	2003/11/28
H580	W	F	31	#N/A	#N/A	#N/A	0	2003/02/26	2003/04/24	2003/07/07	2003/09/06	2003/11/29
H581	W	F	26	#N/A	#N/A	#N/A	0	1994/03/05	1998/02/28	1998/11/20	2000/07/28	2003/12/05
H582	B	F	30	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1998/07/31	2003/12/07
H583	C	M	43	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2000/06/22	2003/12/10
H584	W	M	56	2002/07/13	2002/09/16	2002/11/13	2003/01/18	2003/03/15	2003/05/10	2003/07/05	2003/08/30	2003/12/13
H585	W	F	24	#N/A	0	1994/09/09	1995/02/16	1995/05/11	1996/05/22	1997/01/24	2002/07/22	2003/12/17
H586	C	F	22	#N/A	#N/A	#N/A	#N/A	0	2001/03/14	2001/11/22	2002/12/19	2003/12/18
H587	W	M	25	2001/05/04	2001/07/18	2001/10/31	2002/08/02	2002/11/20	2003/01/16	2003/03/17	2003/10/25	2004/01/12
H588	W	M	29	2001/10/27	2002/01/24	2002/07/09	2002/11/21	2003/02/05	2003/04/03	2003/06/19	2003/09/05	2004/01/19
H589	W	M	31	1995/05/13	1995/07/26	1997/09/29	1999/02/27	1999/08/28	2000/09/02	2000/11/07	2001/01/02	2004/01/21
H590	B	F	20	2000/05/11	2000/08/11	2000/10/05	2000/12/01	2001/09/27	2001/12/07	2002/02/14	2002/04/26	2004/01/30
H591	B	F	23	1999/04/13	1999/06/28	1999/09/30	2000/04/19	2000/08/01	2001/09/06	2001/11/08	2003/12/02	2004/02/03
H592	B	M	19	#N/A	#N/A	#N/A	0	2003/02/06	2003/05/06	2003/08/07	2003/12/05	2004/02/10
H593	B	M	36	#N/A	#N/A	0	2000/05/09	2001/10/09	2002/02/05	2002/06/13	2002/10/24	2004/02/10
H594	B	F	37	#N/A	#N/A	#N/A	#N/A	#N/A	0	2002/06/19	2003/02/09	2004/02/10
H595	B	M	58	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1992/09/29	2004/02/14
H596	B	F	44	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1995/06/30	2004/02/27
H597	B	M	46	#N/A	#N/A	#N/A	0	1995/06/19	1995/08/28	1996/04/22	1996/08/19	2004/03/01
H598	B	F	24	1997/06/06	1997/08/19	1998/01/30	1998/04/17	1998/08/14	1998/10/16	1999/02/19	1999/06/12	2004/03/03
H599	B	F	37	1999/07/22	1999/09/16	1999/11/18	2000/05/18	2001/01/11	2001/05/10	2001/07/12	2001/09/06	2004/03/04
H600	B	M	42	1995/05/11	1995/12/21	1996/04/11	1996/06/06	1996/08/01	1997/01/16	1999/02/18	2001/03/15	2004/03/04
H601	B	M	36	#N/A	#N/A	#N/A	#N/A	0	1995/12/11	1996/06/28	1997/08/08	2004/03/06
H602	C	F	24	#N/A	#N/A	#N/A	0	1996/03/13	1997/08/14	1998/10/14	2000/02/24	2004/03/10
H603	W	M	22	2002/10/19	2002/12/17	2003/04/08	2003/06/03	2003/07/29	2003/09/23	2003/11/18	2004/01/19	2004/03/15
H604	W	M	25	2002/07/04	2002/10/17	2003/01/20	2003/04/14	2003/06/19	2003/09/04	2003/11/13	2004/01/12	2004/03/15
H605	B	M	28	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2000/03/22	2004/03/17

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	Ethnic*	Sex**	Age HIV Pos	8th Prev. Test Date	7th Prev. Test Date	6th Prev. Test Date	5th Prev. Test Date	4th Prev. Test Date	3rd Prev. Test Date	2nd Prev. Test Date	Prev. Test Date	Date HIV Pos. Donation
H606	B	F	23	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2001/07/16	2004/03/20
H607	W	M	18	2002/07/17	2002/09/11	2002/11/06	2003/03/12	2003/05/14	2003/08/20	2003/11/19	2004/01/15	2004/03/23
H608	B	M	41	#N/A	#N/A	#N/A	0	1992/01/23	1994/02/17	1994/12/14	1995/07/06	2004/03/27
H609	B	F	35	0	1996/10/30	1997/05/14	1997/11/12	1998/03/11	1998/11/11	1999/08/04	2001/05/18	2004/03/30
H610	W	M	39	2002/08/08	2003/02/26	2003/04/23	2003/06/18	2003/08/13	2003/10/08	2003/12/03	2004/01/28	2004/04/01
H611	W	F	23	#N/A	#N/A	0	2002/04/08	2002/06/03	2002/10/07	2003/10/06	2003/12/01	2004/04/05
H612	W	M	32	1999/04/16	1999/09/21	1999/12/15	2000/02/15	2000/06/02	2000/08/19	2001/08/04	2001/10/07	2004/04/06
H613	B	M	28	2001/08/21	2001/10/23	2002/02/19	2002/04/23	2002/06/25	2002/08/20	2002/12/17	2003/02/25	2004/04/20
H614	W	F	62	1997/01/30	1997/05/29	1997/07/31	1997/09/25	2003/03/20	2003/05/22	2003/09/18	2003/11/20	2004/04/21
H615	W	F	44	1994/05/06	1996/12/21	2000/02/09	2000/04/11	2001/09/28	2001/11/26	2002/08/31	2003/07/18	2004/04/27
H616	B	F	25	#N/A	0	1999/04/21	1999/08/11	2000/02/15	2000/04/19	2001/05/17	2001/08/14	2004/05/11
H617	B	F	29	#N/A	#N/A	#N/A	0	2002/02/18	2002/08/19	2002/10/17	2003/11/07	2004/05/11
H618	C	M	32	2002/11/12	2003/01/07	2003/03/04	2003/04/30	2003/06/25	2003/08/26	2003/10/22	2003/12/23	2004/05/12
H619	B	M	31	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2004/03/15	2004/05/17
H620	W	M	69	2002/07/24	2002/09/18	2002/11/20	2003/01/22	2003/03/19	2003/05/21	2003/07/23	2003/12/17	2004/05/19
H621	B	F	37	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2000/01/27	2004/05/25
H622	B	M	38	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1992/03/19	2004/06/01
H623	B	F	31	2001/02/04	2001/04/01	2001/05/27	2001/11/25	2002/04/07	2002/06/02	2002/10/06	2002/12/15	2004/06/06
H624	B	F	34	0	2002/10/09	2002/12/05	2003/02/11	2003/04/15	2003/06/10	2003/10/14	2004/02/10	2004/06/08
H625	B	F	28	#N/A	#N/A	#N/A	#N/A	#N/A	0	2002/02/16	2003/12/05	2004/06/09
H626	W	M	43	2001/04/04	2001/06/06	2001/09/17	2001/11/21	2002/02/05	2002/07/24	2003/06/05	2003/08/15	2004/06/09
H627	W	F	43	2002/07/10	2002/09/04	2002/11/05	2003/03/13	2003/05/09	2003/07/09	2003/11/17	2004/02/06	2004/06/14
H628	C	M	29	1997/04/29	1997/10/23	1997/12/18	1998/05/06	1998/08/13	1999/04/24	2000/05/26	2000/08/04	2004/06/15
H629	B	M	30	1997/12/02	1998/06/22	1998/11/04	1999/01/06	1999/06/14	2001/12/01	2002/12/07	2003/03/06	2004/06/15
H630	B	F	35	#N/A	0	1999/05/23	1999/07/21	1999/09/15	1999/11/10	2000/01/28	2000/04/07	2004/06/17
H631	B	F	28	#N/A	#N/A	#N/A	#N/A	#N/A	0	2004/02/23	2004/04/21	2004/06/22
H632	C	M	32	1998/02/02	1998/07/03	1998/08/25	1998/12/08	2001/02/22	2001/11/03	2002/10/03	2003/03/01	2004/06/26
H633	B	F	23	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2004/05/07	2004/07/02
H634	C	F	32	#N/A	#N/A	#N/A	#N/A	0	1998/11/05	1999/01/07	1999/09/09	2004/07/02
H635	W	M	25	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2000/03/06	2004/07/05
H636	W	M	39	2002/11/28	2003/02/12	2003/04/09	2003/06/04	2003/09/23	2003/11/19	2004/03/10	2004/05/05	2004/07/05
H637	W	F	39	2002/10/17	2002/12/12	2003/02/06	2003/04/03	2003/06/12	2003/07/31	2003/10/02	2004/05/10	2004/07/06

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H638	C	F	34	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2004/03/05	2004/07/12
H639	B	M	30	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/08/19	2004/07/13
H640	C	F	34	#N/A	0	1994/04/15	1994/06/17	1994/08/19	1994/10/24	1994/12/19	1995/10/18	2004/07/21
H641	B	F	17	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2004/02/27	2004/07/22
H642	C	F	38	#N/A	#N/A	#N/A	#N/A	0	1998/01/31	1998/03/28	1998/09/26	2004/07/24
H643	W	M	42	1996/04/18	1999/04/26	1999/11/11	2000/02/01	2000/04/07	2000/07/07	2000/10/04	2001/02/07	2004/07/26
H644	B	F	21	0	1998/09/02	1999/05/17	1999/07/28	1999/10/20	2000/04/10	2001/01/29	2003/07/22	2004/07/28
H645	B	F	32	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2001/08/16	2004/07/29
H646	C	F	16	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2003/02/18	2004/07/30
H647	B	M	19	#N/A	#N/A	#N/A	#N/A	#N/A	0	2003/02/18	2003/10/31	2004/07/30
H648	B	M	19	0	2002/02/12	2002/05/10	2002/10/11	2003/02/11	2003/04/23	2003/07/31	2003/12/05	2004/08/03
H649	B	F	20	#N/A	#N/A	#N/A	0	2001/03/06	2001/05/08	2002/02/19	2002/04/16	2004/08/03
H650	B	M	32	#N/A	#N/A	#N/A	#N/A	#N/A	0	1993/03/19	1998/08/21	2004/08/05
H651	C	F	30	#N/A	#N/A	0	1999/05/08	2001/07/22	2001/09/16	2001/11/11	2002/06/18	2004/08/07
H652	W	M	41	2003/05/07	2003/07/02	2003/08/27	2003/10/27	2003/12/22	2004/02/16	2004/04/15	2004/06/12	2004/08/07
H653	C	M	18	#N/A	#N/A	#N/A	#N/A	#N/A	0	2004/01/29	2004/04/29	2004/08/11
H654	B	F	21	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/07/29	2004/08/11
H655	B	M	20	#N/A	#N/A	#N/A	#N/A	#N/A	0	2000/02/29	2004/06/17	2004/08/13
H656	B	F	36	0	1999/03/09	1999/07/02	1999/11/02	2000/02/18	2000/06/21	2000/08/15	2002/03/31	2004/08/16
H657	W	M	66	2000/08/23	2001/01/10	2001/03/28	2001/09/05	2001/10/31	2002/01/16	2002/05/29	2002/09/25	2004/08/17
H658	B	F	21	#N/A	#N/A	#N/A	0	2002/03/12	2002/05/17	2002/07/12	2003/02/20	2004/08/23
H659	B	M	34	#N/A	#N/A	0	1992/10/23	1994/10/28	1997/08/21	2000/01/22	2000/11/13	2004/08/24
H660	W	F	27	1995/10/10	1998/03/03	1998/05/05	1999/03/09	2001/07/10	2001/12/12	2003/01/07	2003/07/31	2004/08/25
H661	B	F	19	#N/A	#N/A	#N/A	#N/A	#N/A	0	2004/02/18	2004/05/12	2004/08/26
H662	B	F	17	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2004/05/21	2004/08/27
H663	W	F	41	2002/01/10	2002/03/12	2002/06/03	2002/07/29	2003/01/20	2003/05/12	2003/07/15	2004/04/20	2004/08/29
H664	B	M	24	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2004/02/27	2004/09/02
H665	B	M	32	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1993/10/22	2004/09/02
H666	B	M	40	2002/10/18	2003/02/07	2003/04/25	2003/07/18	2003/09/12	2004/01/30	2004/03/26	2004/05/21	2004/09/03
H667	W	F	46	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/02/02	2004/09/08
H668	B	M	42	1998/12/05	1999/02/01	1999/03/29	1999/06/01	1999/07/27	1999/09/21	1999/11/25	2000/03/02	2004/09/13
H669	C	M	37	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1994/11/07	2004/09/19

Donation Serial No	DEMOGRAPHICS			TEST / DONATION DATES								
	Ethnic*	Sex**	Age HIV Pos	8th Prev. Test Date	7th Prev. Test Date	6th Prev. Test Date	5th Prev. Test Date	4th Prev. Test Date	3rd Prev. Test Date	2nd Prev. Test Date	Prev. Test Date	Date HIV Pos. Donation
H670	B	F	39	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2000/12/14	2004/09/22
H671	B	M	33	#N/A	#N/A	#N/A	#N/A	#N/A	0	1992/08/10	1993/02/18	2004/09/28
H672	A	M	28	0	1997/08/19	1997/10/21	1997/12/19	1998/02/24	1998/05/05	1998/07/21	2001/08/18	2004/10/06
H673	B	M	24	2002/02/15	2002/05/03	2002/07/29	2002/10/08	2003/02/04	2003/05/08	2003/08/01	2003/09/26	2004/10/18
H674	B	M	38	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/05/28	2004/10/19
H675	B	F	24	#N/A	#N/A	#N/A	#N/A	#N/A	0	2003/10/31	2004/03/12	2004/10/22
H676	W	F	38	1995/07/15	1995/09/25	1995/12/04	1996/02/05	1996/04/02	1996/08/06	1997/02/12	1997/11/17	2004/10/29
H677	B	F	32	#N/A	#N/A	#N/A	0	1994/04/25	1995/05/25	1995/09/21	1995/11/23	2004/10/31
H678	W	M	26	1995/09/28	1998/05/13	1998/07/10	1998/09/12	1998/11/26	1999/01/13	1999/03/12	2001/02/06	2004/11/09
H679	B	F	30	#N/A	0	1995/03/03	1996/02/05	2000/07/05	2001/03/26	2002/04/02	2003/06/09	2004/11/13
H680	A	M	23	#N/A	#N/A	0	2002/01/31	2002/04/09	2002/09/17	2002/11/14	2003/01/28	2004/11/18
H681	B	F	46	2001/03/18	2001/05/20	2001/08/12	2002/02/02	2002/12/07	2003/02/15	2003/07/19	2003/12/20	2004/11/20
H682	B	F	28	2000/01/06	2000/04/06	2000/06/08	2000/08/10	2000/11/09	2001/03/15	2001/08/16	2003/09/11	2004/11/22
H683	W	M	28	1998/05/22	1998/08/24	1998/12/14	1999/07/13	2000/03/01	2003/03/29	2004/01/29	2004/03/29	2004/11/23
H684	B	M	27	1998/03/03	1998/05/05	1998/08/04	1998/09/29	1999/02/23	1999/05/04	1999/08/10	2001/10/03	2004/12/03
H685	B	M	38	#N/A	#N/A	#N/A	#N/A	0	1992/07/28	1994/08/26	1994/10/06	2004/12/06
H686	B	F	41	#N/A	#N/A	0	1999/05/13	1999/09/16	1999/11/18	2000/03/16	2000/09/20	2004/12/06
H687	B	M	30	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/09/21	2004/12/08
H688	W	M	57	1995/02/02	1995/11/13	1996/04/01	1996/07/23	1996/09/23	1996/12/06	1997/07/03	1997/10/06	2005/01/24
H689	C	F	45	1999/10/11	1999/12/30	2000/06/29	2000/10/12	2001/01/29	2002/05/08	2004/05/11	2004/08/05	2005/02/04
H690	W	M	23	1999/02/13	1999/05/25	1999/08/02	2002/09/21	2004/05/24	2004/07/27	2004/09/21	2004/11/23	2005/02/11
H691	C	F	35	1994/01/20	1994/03/24	1994/05/19	1994/09/22	1996/06/19	1996/08/21	1996/10/16	1997/02/19	2005/02/16
H692	B	M	30	0	2002/05/13	2002/06/07	2002/08/08	2002/09/11	2002/12/23	2003/07/21	2003/10/06	2005/02/22
H693	W	F	67	#N/A	#N/A	#N/A	#N/A	#N/A	0	2003/03/07	2004/08/12	2005/02/22
H694	B	F	17	#N/A	#N/A	#N/A	#N/A	#N/A	0	2004/08/17	2004/10/20	2005/02/23
H695	B	F	31	#N/A	#N/A	#N/A	#N/A	0	2000/11/09	2001/06/28	2001/08/30	2005/02/24
H696	B	F	18	#N/A	#N/A	#N/A	#N/A	0	2004/01/21	2004/05/17	2004/09/09	2005/03/01
H697	B	M	30	1998/09/17	1999/03/29	1999/06/11	1999/08/17	1999/10/12	2000/03/06	2000/05/11	2000/07/10	2005/03/04
H698	B	F	22	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/10/07	2005/03/07
H699	W	M	54	2003/09/03	2003/10/29	2003/12/24	2004/02/18	2004/04/15	2004/06/23	2004/08/18	2004/12/29	2005/03/10
H700	B	M	51	2003/04/24	2003/11/07	2004/01/05	2004/03/10	2004/05/19	2004/07/23	2004/10/04	2005/01/10	2005/03/11
H701	B	M	44	2002/11/20	2003/03/26	2003/05/21	2003/07/23	2003/09/17	2004/03/17	2004/05/19	2004/11/17	2005/03/16

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	Ethnic*	Sex**	Age HIV Pos	8th Prev. Test Date	7th Prev. Test Date	6th Prev. Test Date	5th Prev. Test Date	4th Prev. Test Date	3rd Prev. Test Date	2nd Prev. Test Date	Prev. Test Date	Date HIV Pos. Donation
H702	W	M	17	0	2003/07/01	2003/09/02	2003/11/04	2004/03/02	2004/05/04	2004/07/06	2004/09/07	2005/03/30
H703	C	M	27	1998/08/17	1998/10/12	1998/12/07	1999/02/19	1999/04/22	1999/07/27	1999/10/08	2000/11/24	2005/04/02
H704	W	F	33	#N/A	#N/A	#N/A	#N/A	0	2004/10/13	2004/12/09	2005/02/07	2005/04/05
H705	B	F	17	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2004/07/23	2005/04/08
H706	W	M	68	2000/07/18	2003/05/20	2003/06/20	2003/07/18	2003/08/20	2003/10/30	2004/10/13	2004/12/08	2005/04/13
H707	W	M	38	1995/10/31	1996/05/28	1996/09/17	1997/03/11	1997/05/06	1997/09/02	1997/11/04	1998/03/03	2005/04/20
H708	B	F	29	#N/A	#N/A	#N/A	#N/A	0	1994/10/28	1995/05/08	1996/02/02	2005/04/21
H709	C	M	23	1998/08/11	1999/03/05	1999/05/31	1999/10/04	2001/02/01	2001/07/03	2001/09/13	2003/05/21	2005/04/28
H710	C	M	18	#N/A	#N/A	#N/A	0	2004/01/30	2004/04/30	2004/10/27	2005/01/28	2005/04/29
H711	W	F	19	2002/03/05	2002/05/03	2002/07/01	2003/03/17	2003/05/07	2003/07/23	2003/10/09	2004/01/24	2005/05/04
H712	B	M	37	1998/10/05	1998/12/31	1999/07/19	1999/11/03	2000/04/07	2000/06/12	2001/05/18	2001/11/20	2005/05/07
H713	C	F	19	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2003/05/05	2005/05/11
H714	W	M	31	2001/04/09	2001/06/19	2001/08/16	2001/10/11	2001/12/11	2002/02/15	2002/05/15	2004/02/09	2005/05/12
H715	B	M	48	1998/09/02	1998/11/04	1999/01/13	1999/03/10	1999/05/05	1999/09/01	1999/11/03	2000/01/20	2005/05/18
H716	W	F	49	#N/A	0	1995/11/07	2003/10/10	2004/08/25	2004/10/20	2004/12/29	2005/03/03	2005/05/19
H717	B	F	17	#N/A	#N/A	#N/A	#N/A	#N/A	0	2004/03/17	2004/08/06	2005/05/27
H718	C	F	24	#N/A	#N/A	0	2000/11/03	2001/11/30	2002/05/25	2003/07/19	2005/03/28	2005/05/28
H719	W	M	34	1996/09/10	1996/12/30	1997/02/27	1997/11/27	1998/03/11	1998/05/13	1998/07/08	1998/09/18	2005/05/28
H720	B	F	33	#N/A	0	1997/02/04	1997/04/22	1998/02/17	1998/09/10	1999/06/24	2000/04/19	2005/07/05
H721	C	F	28	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1993/08/19	2005/07/06
H722	W	F	30	1997/03/27	1999/10/26	1999/12/22	2000/03/20	2003/07/10	2003/11/12	2004/09/01	2004/12/01	2005/07/06
H723	W	M	52	2003/08/06	2003/11/05	2004/01/07	2004/04/07	2004/06/02	2004/09/01	2004/12/14	2005/03/09	2005/07/06
H724	B	M	54	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2001/01/18	2005/07/07
H725	B	M	42	#N/A	0	1995/05/17	1995/07/12	1995/09/06	1996/03/06	1996/05/09	1996/09/04	2005/07/08
H726	B	M	33	0	1993/01/26	1993/10/11	1994/06/20	1994/08/25	1996/03/19	1997/12/04	1998/03/24	2005/07/15
H727	B	M	28	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1997/01/24	2005/07/18
H728	W	M	33	#N/A	#N/A	#N/A	#N/A	0	1993/12/28	1997/08/05	1997/08/12	2005/07/23
H729	W	M	60	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1993/02/03	2005/08/06
H730	C	M	32	#N/A	#N/A	#N/A	#N/A	#N/A	0	1996/09/06	1997/01/14	2005/08/07
H731	C	M	24	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/05/13	2005/08/09
H732	W	M	44	2003/06/04	2003/07/30	2004/08/25	2004/10/20	2004/12/16	2005/02/09	2005/04/06	2005/06/01	2005/08/10
H733	W	M	56	2004/04/06	2004/06/01	2004/07/27	2004/09/28	2004/11/23	2005/01/25	2005/03/29	2005/05/31	2005/08/16

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H734	B	F	17	#N/A	#N/A	#N/A	#N/A	0	2004/08/02	2005/01/18	2005/04/05	2005/08/18
H735	B	M	35	#N/A	#N/A	#N/A	#N/A	#N/A	0	1994/01/27	1994/05/26	2005/08/19
H736	B	M	36	2002/10/11	2002/12/06	2003/02/19	2003/04/16	2003/06/13	2003/08/13	2003/10/08	2003/12/03	2005/08/19
H737	B	M	36	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/05/07	2005/08/22
H738	W	M	42	#N/A	#N/A	#N/A	#N/A	#N/A	0	1995/01/03	1995/07/03	2005/08/24
H739	B	F	35	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1995/02/23	2005/08/27
H740	B	M	38	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1995/11/24	2005/08/27
H741	B	F	20	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2004/04/15	2005/08/30
H742	B	M	27	2002/09/05	2003/01/03	2003/12/17	2004/02/16	2004/04/15	2004/06/15	2004/08/30	2005/01/17	2005/08/30
H743	W	M	39	1997/12/23	2000/07/29	2000/12/10	2001/02/15	2001/06/29	2001/09/01	2001/11/03	2002/01/02	2005/09/02
H744	B	M	29	#N/A	#N/A	0	1993/03/25	1993/09/09	1999/08/18	2000/09/08	2001/12/18	2005/09/03
H745	W	M	35	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1993/03/08	2005/09/03
H746	W	M	22	#N/A	#N/A	#N/A	#N/A	0	1998/05/13	1998/09/09	1999/11/25	2005/09/10
H747	B	F	48	1997/12/02	1998/01/27	1998/03/24	1998/07/07	1998/09/08	1998/11/10	1999/03/02	1999/08/03	2005/09/22
H748	B	M	46	2001/11/15	2002/11/04	2003/02/17	2003/05/12	2003/11/17	2004/01/26	2004/03/29	2004/06/07	2005/10/03
H749	B	F	16	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2005/04/12	2005/10/04
H750	W	M	50	2004/05/27	2004/07/22	2004/09/16	2004/11/11	2005/01/06	2005/04/28	2005/06/23	2005/08/18	2005/10/13
H751	B	F	52	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2005/07/20	2005/10/14
H752	W	F	38	2004/04/20	2004/06/15	2004/08/17	2004/12/06	2005/02/15	2005/04/19	2005/06/14	2005/08/16	2005/10/18
H753	B	F	31	#N/A	#N/A	#N/A	0	1997/03/20	1999/04/17	2000/11/29	2001/10/04	2005/10/19
H754	B	M	45	#N/A	#N/A	#N/A	#N/A	#N/A	0	1998/09/03	1999/02/09	2005/10/19
H755	B	M	22	#N/A	#N/A	#N/A	0	1999/05/28	1999/07/28	1999/10/20	2000/10/04	2005/10/21
H756	C	M	32	#N/A	#N/A	#N/A	#N/A	0	1997/10/16	1998/10/13	1999/04/13	2005/10/21
H757	A	F	35	#N/A	#N/A	#N/A	#N/A	0	2002/04/24	2002/06/20	2002/10/23	2005/10/25
H758	B	M	30	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2005/07/13	2005/10/26
H759	B	M	48	2001/07/27	2002/09/27	2002/11/29	2003/01/31	2003/05/30	2003/07/25	2004/10/01	2005/02/25	2005/10/28
H760	W	M	62	1999/01/06	1999/04/19	1999/11/08	2000/02/07	2000/04/10	2000/05/22	2000/09/18	2001/01/16	2005/11/03
H761	B	M	40	1996/07/09	1996/09/10	1997/03/18	1997/05/13	1997/07/07	1998/03/26	1998/07/06	1998/10/26	2005/11/08
H762	W	F	37	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1997/05/22	2005/11/11
H763	B	M	48	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1998/01/12	2005/11/17
H764	C	F	32	#N/A	#N/A	#N/A	#N/A	#N/A	0	1996/08/22	2005/05/15	2005/11/18
H765	W	F	38	2001/05/28	2014/07/30	2001/10/01	2004/04/01	2004/11/20	2005/01/15	2005/03/12	2005/06/20	2005/11/19

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H766	B	F	28	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2002/11/09	2005/11/26
H767	W	M	41	1997/12/02	1998/02/03	1998/05/19	1998/12/15	2001/02/03	2001/04/29	2001/09/19	2002/09/03	2005/11/27
H768	W	F	16	#N/A	#N/A	#N/A	#N/A	#N/A	0	2005/05/12	2005/08/12	2005/11/28
H769	B	M	28	#N/A	#N/A	#N/A	#N/A	#N/A	0	1995/02/24	1996/05/02	2005/11/30
H770	W	M	31	2002/06/19	2002/08/21	2002/09/18	2002/11/20	2003/01/22	2003/03/19	2003/05/21	2003/07/23	2005/12/07
H771	W	F	37	2002/07/23	2003/01/28	2003/05/27	2003/09/23	2004/05/25	2004/07/21	2004/12/22	2005/02/16	2005/12/07
H772	C	M	52	2003/01/17	2003/03/22	2003/08/02	2003/11/15	2004/05/17	2004/10/22	2004/12/18	2005/02/12	2005/12/07
H773	C	F	33	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2001/05/28	2005/12/10
H774	B	F	25	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2005/04/19	2005/12/14
H775	W	M	28	2001/04/09	2002/01/04	2002/03/18	2002/07/10	2002/09/17	2002/11/25	2003/01/22	2003/04/29	2005/12/16
H776	B	M	38	0	1999/09/01	1999/11/18	2000/01/18	2000/08/26	2000/10/31	2001/02/13	2001/04/11	2005/12/23
H777	W	M	23	2003/07/30	2003/10/01	2003/11/26	2004/06/02	2004/08/18	2004/11/03	2004/12/29	2005/04/13	2006/01/03
H778	W	M	50	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2005/10/19	2006/01/04
H779	W	M	45	1994/05/30	1994/11/15	1995/05/09	1995/07/11	1997/06/01	1999/02/07	1999/05/25	1999/10/15	2006/01/12
H780	B	F	49	#N/A	#N/A	#N/A	#N/A	#N/A	0	2004/04/05	2004/05/31	2006/01/23
H781	W	F	44	#N/A	#N/A	#N/A	#N/A	#N/A	0	2000/11/17	2001/01/12	2006/01/24
H782	W	M	28	2004/08/26	2004/10/28	2005/01/27	2005/03/31	2005/05/26	2005/07/28	2005/09/29	2005/11/24	2006/01/26
H783	B	F	35	#N/A	0	2000/04/20	2003/10/02	2004/01/22	2004/03/18	2004/07/08	2004/09/23	2006/01/26
H784	C	M	38	2002/01/18	2002/03/15	2002/09/20	2002/11/15	2003/01/17	2003/03/14	2003/05/16	2003/07/18	2006/01/27
H785	W	F	28	2004/05/13	2004/09/03	2004/11/11	2005/01/13	2005/04/10	2005/07/27	2005/10/03	2005/12/01	2006/01/28
H786	B	M	40	#N/A	#N/A	#N/A	#N/A	#N/A	0	2005/09/29	2005/11/28	2006/02/02
H787	B	F	35	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/03/03	1999/04/28	2006/02/07
H788	C	M	27	#N/A	#N/A	#N/A	0	1995/02/09	1995/05/11	1995/08/23	1996/02/06	2006/02/09
H789	B	F	26	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2000/05/08	2006/02/13
H790	W	M	23	1999/07/01	1999/08/27	1999/11/25	2000/01/31	2000/03/28	2000/07/28	2001/07/01	2001/12/22	2006/02/14
H791	B	M	26	2004/05/24	2004/07/19	2004/09/14	2005/01/03	2005/03/10	2005/05/31	2005/06/27	2005/12/19	2006/02/14
H792	B	F	39	2002/08/23	2003/02/07	2003/10/10	2004/01/30	2004/05/21	2004/07/16	2004/09/17	2004/11/23	2006/02/17
H793	W	M	43	#N/A	#N/A	0	2001/08/27	2001/10/15	2001/12/10	2002/02/11	2002/04/15	2006/02/20
H794	B	M	36	#N/A	#N/A	#N/A	#N/A	0	2003/10/07	2005/02/21	2005/10/11	2006/02/21
H795	B	F	19	#N/A	#N/A	#N/A	#N/A	#N/A	0	2005/01/27	2005/04/06	2006/02/22
H796	B	F	24	#N/A	#N/A	#N/A	#N/A	#N/A	0	2004/10/15	2005/12/08	2006/02/23
H797	W	M	38	1992/09/15	1993/01/19	1993/03/16	1993/09/25	1994/02/22	1994/11/15	1995/02/10	1995/04/18	2006/02/25

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H798	W	M	51	1993/06/24	1993/08/20	1993/11/18	1994/02/14	1994/06/28	1994/11/15	1995/05/03	1995/07/11	2006/02/25
H799	B	F	19	#N/A	#N/A	#N/A	#N/A	0	2005/02/10	2005/05/10	2005/10/19	2006/02/28
H800	B	F	44	#N/A	#N/A	0	1999/12/03	2000/01/28	2000/03/31	2001/08/03	2001/11/13	2006/03/07
H801	C	F	24	#N/A	#N/A	#N/A	#N/A	#N/A	0	1998/02/03	1998/04/06	2006/03/10
H802	B	F	30	2000/04/12	2000/06/14	2000/10/13	2002/08/15	2002/11/06	2004/09/02	2004/11/02	2005/04/22	2006/03/11
H803	B	F	23	#N/A	#N/A	#N/A	0	2000/09/19	2001/04/12	2003/10/08	2004/01/30	2006/03/13
H804	C	F	28	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1994/12/28	2006/03/17
H805	W	M	27	2001/01/17	2001/03/17	2001/07/02	2001/08/27	2001/10/24	2002/02/11	2002/04/08	2002/06/03	2006/03/23
H806	B	F	34	#N/A	#N/A	#N/A	#N/A	#N/A	0	1996/02/27	1996/10/01	2006/03/26
H807	B	M	18	#N/A	#N/A	#N/A	#N/A	0	2004/04/30	2005/04/08	2005/07/22	2006/03/29
H808	W	M	23	2001/10/10	2002/02/11	2002/07/25	2002/10/28	2003/01/22	2003/05/29	2003/10/16	2005/08/29	2006/04/05
H809	B	M	29	#N/A	#N/A	#N/A	#N/A	#N/A	0	2004/11/25	2005/02/09	2006/04/12
H810	B	M	35	#N/A	0	1995/05/12	1995/07/07	1996/01/12	1996/03/14	1996/05/16	1997/04/05	2006/04/20
H811	B	F	33	#N/A	#N/A	#N/A	0	1998/01/22	1998/05/21	1998/07/23	1998/09/17	2006/04/21
H812	B	F	32	#N/A	#N/A	0	1996/02/16	1996/04/13	1996/07/30	1998/02/21	1998/04/25	2006/04/23
H813	C	F	24	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/09/23	2006/04/26
H814	B	M	39	#N/A	#N/A	#N/A	#N/A	0	1996/08/02	1998/02/04	1999/02/02	2006/04/28
H815	W	M	57	2002/05/02	2002/08/23	2002/10/18	2002/12/13	2003/06/12	2004/05/14	2004/08/06	2005/07/08	2006/04/29
H816	B	F	33	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1993/04/30	2006/05/12
H817	W	F	42	1997/12/03	1998/02/12	1998/04/14	1998/06/25	1998/08/28	1998/12/01	1999/03/24	2003/09/16	2006/05/19
H818	B	M	36	#N/A	#N/A	#N/A	#N/A	#N/A	0	2003/11/29	2005/08/30	2006/06/01
H819	B	M	34	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2006/02/09	2006/06/08
H820	W	M	53	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1997/11/21	2006/06/09
H821	B	F	52	1996/10/19	1997/05/06	1997/07/01	1997/08/26	1998/01/08	1998/03/05	1998/05/29	1998/09/03	2006/06/12
H822	C	F	34	#N/A	0	1996/12/30	1998/04/02	1998/06/29	1998/09/30	1998/11/30	2006/01/16	2006/06/16
H823	C	F	35	2002/07/04	2004/03/30	2004/12/09	2005/03/31	2005/05/26	2005/09/15	2006/02/22	2006/04/19	2006/06/20
H824	B	M	53	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2006/02/01	2006/06/20
H825	B	M	42	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1996/09/25	2006/06/22
H826	W	M	27	2002/06/14	2002/10/18	2002/12/13	2003/02/14	2003/06/20	2004/02/04	2004/04/07	2004/06/08	2006/06/24
H827	C	M	53	#N/A	#N/A	0	1995/10/12	2002/11/14	2003/07/17	2003/11/06	2004/03/18	2006/07/08
H828	W	F	39	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/03/05	1999/03/30	2006/07/13
H829	B	M	49	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1997/07/09	2006/07/18

Donation Serial No	DEMOGRAPHICS			TEST / DONATION DATES								
	Ethnic*	Sex**	Age HIV Pos	8th Prev. Test Date	7th Prev. Test Date	6th Prev. Test Date	5th Prev. Test Date	4th Prev. Test Date	3rd Prev. Test Date	2nd Prev. Test Date	Prev. Test Date	Date HIV Pos. Donation
H830	B	M	50	#N/A	#N/A	#N/A	#N/A	#N/A	0	1994/10/05	1995/09/06	2006/07/18
H831	B	F	29	1996/02/16	1997/02/05	1997/04/08	1997/06/25	1997/12/04	1998/02/05	2001/01/26	2001/03/29	2006/07/20
H832	B	F	18	#N/A	#N/A	#N/A	#N/A	#N/A	0	2005/07/15	2006/04/28	2006/07/21
H833	B	F	21	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2006/04/24	2006/07/21
H834	B	F	52	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1994/04/16	2006/07/25
H835	W	M	30	#N/A	#N/A	#N/A	#N/A	0	1994/05/07	1999/11/26	2000/09/15	2006/07/29
H836	W	M	44	2004/03/12	2004/09/21	2004/12/21	2005/02/15	2005/06/21	2005/09/20	2005/11/15	2006/01/24	2006/07/29
H837	B	F	18	#N/A	#N/A	#N/A	#N/A	#N/A	0	2005/08/25	2005/10/20	2006/07/31
H838	W	M	36	2000/10/29	2001/04/23	2001/07/10	2001/12/20	2002/01/31	2002/03/28	2003/01/29	2004/02/19	2006/07/31
H839	B	M	61	0	1993/03/30	1993/06/17	1994/12/13	1995/03/29	1995/09/27	1996/09/04	1997/06/24	2006/07/31
H840	C	F	17	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2005/03/09	2006/08/01
H841	B	M	30	#N/A	#N/A	#N/A	0	2005/06/28	2005/09/05	2005/11/07	2006/02/27	2006/08/07
H842	C	M	39	1993/11/03	1994/05/25	1994/10/07	1995/02/08	1995/05/03	1996/01/02	1996/03/22	1996/07/15	2006/08/14
H843	B	M	18	#N/A	#N/A	#N/A	#N/A	0	2006/01/11	2006/03/08	2006/05/05	2006/08/18
H844	B	M	24	#N/A	#N/A	#N/A	#N/A	#N/A	0	2001/09/08	2002/05/21	2006/08/18
H845	B	M	35	1997/11/17	1998/01/12	1998/03/16	1998/05/11	1998/07/13	1998/09/14	1998/11/16	1999/03/16	2006/08/18
H846	B	M	27	#N/A	#N/A	#N/A	#N/A	0	1998/12/18	1999/02/20	1999/04/17	2006/08/19
H847	B	M	57	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1996/08/14	2006/08/21
H848	B	M	28	#N/A	#N/A	#N/A	#N/A	#N/A	0	2005/08/19	2005/11/16	2006/08/25
H849	B	F	34	#N/A	#N/A	#N/A	#N/A	#N/A	0	2005/08/29	2005/10/24	2006/08/28
H850	C	F	31	1999/01/14	1999/03/12	1999/05/24	1999/08/18	2002/02/18	2002/04/15	2002/09/18	2003/02/14	2006/09/05
H851	W	F	34	2003/02/08	2003/06/11	2003/09/10	2003/11/06	2004/01/02	2004/03/25	2004/05/27	2004/07/30	2006/09/05
H852	B	M	33	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1995/11/20	2006/09/07
H853	W	M	48	#N/A	#N/A	#N/A	#N/A	#N/A	0	2006/03/11	2006/06/07	2006/09/09
H854	B	F	16	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2005/10/11	2006/09/12
H855	C	F	29	#N/A	#N/A	#N/A	#N/A	#N/A	0	2002/08/01	2005/10/15	2006/09/14
H856	B	M	41	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2005/03/13	2006/09/15
H857	W	M	30	2001/04/09	2001/06/06	2001/12/14	2002/08/30	2003/03/07	2003/08/13	2004/04/02	2004/11/03	2006/09/25
H858	B	M	41	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1997/10/30	2006/09/26
H859	W	F	33	1995/06/05	1995/10/23	1996/09/04	1997/08/04	1997/10/07	1997/12/02	2004/10/04	2006/06/12	2006/10/02
H860	W	M	43	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2002/07/19	2006/10/03
H861	B	M	36	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2006/04/28	2006/10/04

Donation Serial No	DEMOGRAPHICS			TEST / DONATION DATES								
	Ethnic*	Sex**	Age HIV Pos	8th Prev. Test Date	7th Prev. Test Date	6th Prev. Test Date	5th Prev. Test Date	4th Prev. Test Date	3rd Prev. Test Date	2nd Prev. Test Date	Prev. Test Date	Date HIV Pos. Donation
H862	B	M	37	2003/02/13	2003/04/10	2004/02/05	2004/08/05	2004/10/07	2006/02/09	2006/06/08	2006/08/10	2006/10/05
H863	B	F	37	#N/A	#N/A	#N/A	#N/A	#N/A	0	1998/05/15	1999/01/20	2006/10/05
H864	W	F	33	#N/A	#N/A	#N/A	#N/A	#N/A	0	1996/03/27	1996/07/24	2006/10/11
H865	B	M	25	#N/A	#N/A	#N/A	#N/A	0	2005/08/07	2006/02/19	2006/06/25	2006/10/15

Ethnic*	A = Asian	Sex**	F = Female
	B = Black / African		M = Male
	C = Coloured		
	W = White / Caucasian		

APPENDIX 3: HIV-positive donations received by SANBS, Bloemfontein between October 2004 and September 2005

DONATION CATEGORIZATION STUDY: BLOEMFONTEIN VOLUNTARY DONATIONS - Confirmed HIV-positive donations: Oct 2004 - Sept 2005

Donation Serial No	DEMOGRAPHICS				TEST / DONATION DATES									MODEL RISK CATEGORIZATIONS					Conf. HIV Result
	Ethnic*	Sex**	Age	Blood Group	8th Prev. Test Date	7th Prev. Test Date	6th Prev. Test Date	5th Prev. Test Date	4th Prev. Test Date	3rd Prev. Test Date	2nd Prev. Test Date	Prev. Test Date	Present Donation Date	SABTS 1999 Model	Donation Interval Model	Combination Model	SANBS 2005 Model	Age-based Model	
01501	B	M	24	ABPos	2002/02/15	2002/05/03	2002/07/29	2002/10/08	2003/02/04	2003/05/08	2003/08/01	2003/09/26	2004/10/18	A4	DI4	Cb4	C	AC3	Pos
03228	C	M	37	APos	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2004/11/09	A3	DI4	Cb3	P	AC5	Pos
03562	B	M	30	APos	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2004/11/12	A4	DI4	Cb4	P	AC5	Pos
06142	W	M	23	OPos	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2004/12/11	A2	DI4	Cb2	PLR2	AC5	Pos
08643	W	M	57	ABPos	1995/02/02	1995/11/13	1996/04/01	1996/07/23	1996/09/23	1996/12/06	1997/07/03	1997/10/06	2005/01/24	A2	DI4	Cb2	PLR1	AC5	Pos
09730	C	F	45	ONeg	1999/10/11	1999/12/30	2000/06/29	2000/10/12	2001/01/29	2002/05/08	2004/05/11	2004/08/05	2005/02/04	A2	DI4	Cb3	R	AC1	Pos
10565	C	F	35	OPos	1994/01/20	1994/03/24	1994/05/19	1994/09/22	1996/06/19	1996/08/21	1996/10/16	1997/02/19	2005/02/16	A3	DI4	Cb3	PLR1	AC5	Pos
11076	B	F	31	OPos	#N/A	#N/A	#N/A	#N/A	0	2000/11/09	2001/06/28	2001/08/30	2005/02/24	A4	DI4	Cb4	PLR1	AC5	Pos
11758	B	F	22	OPos	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/10/07	2005/03/07	A4	DI4	Cb4	PLR1	AC5	Pos
12107	B	M	51	OPos	2003/04/24	2003/11/07	2004/01/05	2004/03/10	2004/05/19	2004/07/23	2004/10/04	2005/01/10	2005/03/11	A3	DI1	Cb1	C	AC1	Pos
15305	W	M	38	APos	1995/10/31	1996/05/28	1996/09/17	1997/03/11	1997/05/06	1997/09/02	1997/11/04	1998/03/03	2005/04/20	A2	DI4	Cb2	PLR1	AC5	Pos
16342	B	M	37	APos	1998/10/05	1998/12/31	1999/07/19	1999/11/03	2000/04/07	2000/06/12	2001/05/18	2001/11/20	2005/05/07	A4	DI4	Cb4	PLR1	AC5	Pos
17114	B	M	48	APos	1998/09/02	1998/11/04	1999/01/13	1999/03/10	1999/05/05	1999/09/01	1999/11/03	2000/01/20	2005/05/18	A4	DI4	Cb4	PLR1	AC5	Pos
21654	W	M	23	OPos	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2005/07/27	A2	DI4	Cb2	PLR2	AC5	Pos
24205	B	M	28	APos	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2005/08/30	A4	DI4	Cb4	P	AC5	Pos
24482	W	F	30	OPos	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2005/08/31	A2	DI4	Cb2	P	AC5	Pos
26416	B	M	60	BPos	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	2005/09/29	A4	DI4	Cb4	P	AC5	Pos

Ethnic*	A = Asian	Sex**	F = Female
	B = Black / African		M = Male
	C = Coloured		
	W = White / Caucasian		

APPENDIX 4: Risk categorization of the last donations prior to the HIV-positive donations received by SANBS, Bloemfontein between October 2004 and September 2005

DONATION CATEGORIZATION STUDY: BLOEMFONTEIN HIV POSITIVE DONATIONS 1004 - 0905 - PREVIOUS DONATIONS

Donation Serial No	DEMOGRAPHICS				TEST / DONATION DATES									MODEL RISK CATEGORIZATIONS				
	Ethnic*	Sex**	Age	Blood Group	8th Prev. Test Date	7th Prev. Test Date	6th Prev. Test Date	5th Prev. Test Date	4th Prev. Test Date	3rd Prev. Test Date	2nd Prev. Test Date	Prev. Test Date	Present Donation Date	SABTS 1999 Model	Donation Interval Model	Combination Model	SANBS 2005 Model	Age-based Model
01501	B	M	23	ABPos	2001/11/16	2002/02/15	2002/05/03	2002/07/29	2002/10/08	2003/02/04	2003/05/08	2003/08/01	2003/09/26	A3	DI1	Cb1	C	AC3
08643	W	M	50	ABPos	1994/11/15	1995/02/02	1995/11/13	1996/04/01	1996/07/23	1996/09/23	1996/12/06	1997/07/03	1997/10/06	A1	DI1	Cb1	C	AC1
09730	C	F	45	ONeg	1998/12/03	1999/10/11	1999/12/30	2000/06/29	2000/10/12	2001/01/29	2002/05/08	2004/05/11	2004/08/05	A2	DI3	Cb2	R	AC1
10565	C	F	27	OPos	1993/09/16	1994/01/20	1994/03/24	1994/05/19	1994/09/22	1996/06/19	1996/08/21	1996/10/16	1997/02/19	A2	DI2	Cb1	R	AC3
11076	B	F	28	OPos	#N/A	#N/A	#N/A	#N/A	#N/A	0	2000/11/09	2001/06/28	2001/08/30	A3	DI3	Cb3	R	AC2
11758	B	F	16	OPos	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	1999/10/07	A4	DI4	Cb4	PLR3	AC5
12107	B	M	51	OPos	2003/02/20	2003/04/24	2003/11/07	2004/01/05	2004/03/10	2004/05/19	2004/07/23	2004/10/04	2005/01/10	A3	DI1	Cb1	C	AC1
15305	W	M	31	APos	1995/09/05	1995/10/31	1996/05/28	1996/09/17	1997/03/11	1997/05/06	1997/09/02	1997/11/04	1998/03/03	A1	DI1	Cb1	C	AC3
16342	B	M	34	APos	1998/06/29	1998/10/05	1998/12/31	1999/07/19	1999/11/03	2000/04/07	2000/06/12	2001/05/18	2001/11/20	A3	DI3	Cb3	R	AC3
17114	B	M	42	APos	1998/07/01	1998/09/02	1998/11/04	1999/01/13	1999/03/10	1999/05/05	1999/09/01	1999/11/03	2000/01/20	A3	DI1	Cb1	C	AC1

Ethnic*	A = Asian	Sex**	F = Female
	B = Black / African		M = Male
	C = Coloured		
	W = White / Caucasian		

Conf. HIV Result
Neg
Neg
Neg
Neg
Neg
Neg
Neg
Neg
Neg
Neg