ADVERSE REACTIONS IN VOLUNTARY WHOLE BLOOD DONORS: Experience at the National Blood Transfusion Centre in Democratic Republic of Congo

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KEYWORDS
Blood donation, adverse reactions, vasovagal reaction, needle-related complications

ABSTRACT

BACKGROUND
Whole blood donation, generally considered as a safe procedure, may be sometimes associated with adverse reactions and injuries of variable severity during or after the blood donation process. There are few reports of adverse events related to blood donation in the Democratic Republic of Congo.

OBJECTIVES
The aim of this study was to document the frequencies and types of adverse reactions in whole blood donors.

MATERIALS AND METHODS
A prospective study was conducted and data collected from January 2006 to December 2012 at the National Blood Transfusion Centre in Kinshasa, Democratic Republic of Congo. In this centre, all blood donors are voluntary and blood donation is only of whole blood. All donor events and complications were recorded in the consecutive 150696 whole blood donations at the centre and were later analyzed.

RESULTS
Overall 2717 (1.8%) of the 150696 donors showed adverse reactions. Vasovagal reactions (dizziness, intense thirst, nausea, sweating, palpitations, vomiting, blurred vision and loss of consciousness) accounted for 84.3%, and local reactions (haematoma, contact allergy, etc) for 15.7% of all adverse reactions. 71.0% of adverse reactions observed, were in first-time blood donors.

CONCLUSION
Analysis of adverse reactions related to blood donation is necessary in order to design appropriate voluntary donor motivational strategies, and to improve pre-donation counseling, and donor care during, and after blood donation. Blood centres have an obligation to assure blood donor safety by constant effort to minimise blood donation complications, so as to promote voluntary blood donation.
INTRODUCTION

Whole blood donation, a procedure generally considered as safe, may be sometimes associated with adverse reactions and injuries of variable severity during or after the blood donation process\(^1\). In Democratic Republic of Congo (DRC), there is lack of awareness and community motivation for voluntary blood donation. This results in the shortage of donor blood, and the predominance of the replacement system of blood donation, which in turn causes high prevalence of transfusion transmitted infections. There is need to implement strategies to increase the recruitment and retention of voluntary blood donors so as to ensure adequate blood supply. To achieve this purpose it is essential to make the blood donation experience as pleasant as possible, especially for the first time donor, and to assure blood donor safety during, and after blood donation. Adverse reactions and injuries in blood donors are known to have a negative impact on the donors’ willingness to return and become repeat donors\(^2\). Little is reported about adverse events related to blood donation in DRC. The aim of this study was to document the types and frequencies of adverse reactions in whole blood donors. The results of this study should help in the design of appropriate donor motivational strategies, and the pre-donation counseling, and care, of donors. Physicians who deal with blood donors should also benefit from the results, by becoming familiar with possible donor adverse reactions, and their management and prognoses\(^3\).

MATERIALS AND METHODS

The study was conducted at the National Blood Transfusion Centre in Kinshasa, DRC, from January 2006 to December 2012. In this centre, all blood donors are voluntary and blood donation is only of whole blood. The blood donors were selected using criteria established by the National Programme of Blood Transfusion. For donation, the lowest body weight accepted was 45 kilograms (kg), and the minimum acceptable concentration of haemoglobin was 12 g/dl or 38% haematocrit. An 18 gauge needle was used, and was inserted, without local anesthesia, into a prominent vein in the ante-cubital fossa area, after sterile swabbing, to take the donation. From female donors with weight ranged from 45 to 64 kg, 250ml of whole blood were collected and 450ml from those weighing more than 64kg. From male donors 250ml of blood were collected from those weighing from 45 to 59kg and 450ml from those with weight greater than 59kg. All adverse reactions during or after blood donation at the collection sites, were recorded.

RESULTS

Frequency of adverse reactions

Adverse reactions were reported in 2717 of the 150696 blood donations. The overall adverse reactions frequency was 1.8 %, that is, 1 case of adverse reactions in every 55 donations. The frequency distribution of symptoms occurring in donors during or after the donation is presented in Table I.

<table>
<thead>
<tr>
<th>Adverse reaction</th>
<th>Number (n)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systemic reaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dizziness</td>
<td>581</td>
<td>21,4</td>
</tr>
<tr>
<td>Intense thirst</td>
<td>502</td>
<td>18,5</td>
</tr>
<tr>
<td>Nausea</td>
<td>458</td>
<td>16,9</td>
</tr>
<tr>
<td>Sweating and palpitations</td>
<td>305</td>
<td>11,2</td>
</tr>
<tr>
<td>Vomiting</td>
<td>213</td>
<td>7,8</td>
</tr>
<tr>
<td>Blurred vision</td>
<td>182</td>
<td>6,7</td>
</tr>
<tr>
<td>Loss of consciousness</td>
<td>50</td>
<td>1,8</td>
</tr>
<tr>
<td>Local reaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Haematoma</td>
<td>274</td>
<td>10,1</td>
</tr>
<tr>
<td>Contact allergy</td>
<td>152</td>
<td>5,6</td>
</tr>
<tr>
<td>Total</td>
<td>2717</td>
<td>100,0</td>
</tr>
</tbody>
</table>

Vasovagal reactions (dizziness, intense thirst, nausea, sweating, palpitations, vomiting, blurred vision and loss of consciousness) were the most commonly observed reactions. They occurred in 2291/2717 (84.3%) of donors showing reactions. Local reactions (hematoma, contact allergy) were recorded in 426/2717 (15.7%) of donors showing adverse reactions.

Frequency of adverse reactions in relation to type of donor is shown in figure 1.

**Figure 1:** Absolute frequency of adverse reactions and type of donor

Adverse reactions most commonly occurred in first-time blood donors and accounted for 1930/2717 (71.0%) of donors showing adverse events. 4.3% of first-time donors (1930/45201) showed adverse reactions, while the figure for repeat donors was 0.7% (787/105495).
DISCUSSION

1.8% of the 150696 whole blood donations were complicated by adverse reactions. This frequency, like the 1.2% observed in Italy7, is in accordance with other studies in which frequency of adverse events related to blood donation ranged from 0.28 to 2.5%6,4. Our results confirm the fact that blood donation is, generally, a safe procedure. However, vasovagal reactions are fairly common.

First-time donor status is recognised to be a risk factor for vasovagal reaction9 and the frequency of the vasovagal reactions varied in various studies: 0.20% in Italian centres8, 53.7%1 and 70% in India2. Fortunately, the vasovagal reactions observed in our study were mostly of mild intensity. There was no major episode that necessitated hospitalisation. With a frequency of adverse reactions of 1 in every 55 donations shown in our study, the National Blood Transfusion Centre must continue to monitor events related to blood donation and make constant effort to reduce the frequency of adverse reactions to the lowest level possible.

Some practices could help to minimize occurrence of adverse events during blood donation. These include a friendly and warm atmosphere for donation, and engagement of the donor in friendly conversation. Attendants must develop the capacity to recognize quickly and to react fast and correctly, at the onset of symptoms and signs of impending fainting, such as dizziness, feeling of weakness, and sweating10. After donation, it is important to offer refreshments (lemonade, tea, coffee, juice, sandwiches, and biscuits) to the donors so that they can remain seated, and be under observation for about 15 - 30 minutes in the recovery room10,2. At this time, blood donors may be given some post donation counseling about healthy living, and be encouraged to return for future donation.

Hematoma is the most common local reaction observed in our study: It occurred in 10.1% of donors showing adverse reactions. The frequency of hematoma formation was reported as 12 % in India7. The effect of experiencing this venepuncture – related problem10, particularly in first-time donors, could lead to reduction of return rates1 The National Blood Transfusion Centre should offer opportunities to the phlebotomists to improve their skill with practice under supervision of experts10.

CONCLUSION

Analysis of adverse reactions related to blood donation is necessary as basis for design of appropriate voluntary donor motivational strategies, to improve pre-donation counseling, and donor care during and after blood donation. Blood centres have an obligation to assure blood donor safety by constant effort to minimise blood donation complications, so as to maintain higher levels of repeat voluntary blood donation.

REFERENCES

NON-INVASIVE TECHNOLOGY to determine
the haemoglobin level of blood donors at the SANBS

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KEYWORDS
Donor screening, haemoglobin, non-invasive, capillary sample; copper sulphate

ABSTRACT

BACKGROUND
Predonation haemoglobin (Hb) check has been done traditionally by
the copper sulphate (CuSO4), or the haemocue haemoglobinometer
methods. Both of these require a fingerprick of the donor to obtain
capillary blood samples. It is thought that a non-invasive, but
accurate method of Hb check will reduce stress to the donor and
improve the donation experience.

AIM
This study aims to establish the suitability of a non-invasive method,
the Haemospect® transcutaneous Hb measurement system for
screening prospective donors at the cut-off Hb value of 12.5g/dl.

MATERIALS AND METHODS
All donors who presented for platelet and/or plasma donation
at the multi-disciplinary donor centre of SANBS in Port Elizabeth
were considered for enrolment. Hb was measured by both the
standard automated method on venous EDTA samples, and by the
Haemospect® transcutaneous Hb measuring device.

RESULTS
A total of 161 subjects were studied, including white, black, and
coloured, male and female donors. The calculated sensitivity of the
Haemospect® was 94.6%. The average percentage variance in Hb
measurement between the two methods was 1.2%, while 70.8%
of subjects had a percentage variance within10% of the venous
Hb result.

DISCUSSION AND CONCLUSION
The result shows that the accuracy of the Haemospect® measurement
was within the 1.5g/dl ascribed to the CuSO4 method. This
suggests that the non-invasive method was at least as sensitive
as the traditional screening methods. Further large-scale study is
recommended to validate the findings in this pilot study.

INTRODUCTION/BACKGROUND
According to the Standards of Practice for Blood Transfusion in South
Africa (6th ed.), all blood donors must have a haemoglobin (Hb)
level of at least 12.5g/dL to be eligible to donate blood and their
Hb levels must be screened prior to each donation. Currently, the
prevailing screening method used is the Copper Sulphate (CuSO4)
test which requires a finger pricking, using a lancet and the collection
of a capillary blood sample. The capillary blood is allowed to drop
by gravity into a CuSO4 solution of predetermined specific gravity.
The blood drop should sink within 10 – 15 seconds. If this test is not
passed with the first drop of blood, it is repeated with a new sample.
If it fails for a second time, a quantitative Hb screen is then performed
with the Hemocue® machine, again using a capillary blood sample.

Capillary blood sampling is not without challenges. Accurate Hb
estimates require correct technique when collecting the blood
sample, failure to do so may result in inaccurate Hb measurements.
The need for a finger prick in capillary blood sampling contributes
to donor discomfort and this is a frequently encountered complaint
from donors.

Not having to collect the capillary sample will significantly improve
the donor experience. In addition, it is common knowledge that the
use of sharp instruments carries the risk of needle-stick injury and
results in the production of bio-hazardous waste.
However, technology is available to perform point-of-care Hb screening without the need of collecting a capillary blood sample. The concept of non-invasive Hb measurement has been developed for some time, but has been limited as a point-of-care test due to the size and immobility of previously available devices. This technology potentially offers a more efficient and user friendly alternative to screen the Hb levels of donors with the use of a non-invasive, mobile handheld device which uses transcutaneous light spectrometry technology.

In vivo photometric devices have been designed for measuring Hb concentration non-invasively since the 1990’s. The first blood-free assessment of Hb concentrations using the Erlangen photometer (EMPHO) was published in 1996. This method was based on deeply penetrating white light and lead to proof-of-principle results under laboratory condition. Nadeau and Groner followed suit with a device for in vivo microscopic imaging of superficial, mucosal microcirculation using polarized light. Rabe found solid reliability of a transcutaneous photometric technique using white light to estimate haemoglobin concentrations in new-borns, which was a precursor of the Haemospect® device. All these devices were used in institutional settings. They were too large to be transported and depended on permanent electric power supply. This technology then was not suitable to use in the field.

Several studies in the field with Haemospect®: MBR Optical Systems (Wuppertal, Germany) tested the device in diverse countries in Europe (United Kingdom, Spain, Italy) and the rest of the world (Turkey, Russia). The first two versions of portable transcutaneous Haemospect® were tested in diverse studies in Guatemala4-6. The spectra obtained with the second version had to be analysed on a computer by MBR in Wuppertal. To calculate an algorithm, i.e. the iterative calculations required to transform the spectra into a corresponding haemoglobin value. After processing, the device yielded haemoglobin values that correlated closely with those obtained in whole blood of the same volunteers on the same day. These studies were carried out in people with skin colour 1 to 4 according to the Fitzpatrick Scale. In this scale, skin colour is divided in 6 categories. Although previous experience had suggested that differences in skin colours had no influence on the measurement accuracy; measuring times had to vary. Therefore, it is essential to test this device in dark skinned population.

AIMS AND OBJECTIVES

This study aims to establish the sensitivity and specificity of the Haemospect® transcutaneous Hb measurement in screening donors at the cut-off Hb value of 12.5 g/dl. The Haemospect® measures in a range from 9 to 18 g/dl. However, the error is minimal in the window of decision from 11 to 14 g/dl and comparable to that from the capillary based testing. The purpose of this study, therefore, is to determine whether Haemospect® Hb measurement will be a viable alternative to capillary based testing.

Being able to identify an effective technique for the non-invasive measurement of Hb, holds significant advantages for a Blood Transfusion Service such as SANBS, and includes:

• Reduced risk of spreading blood-borne diseases such as HIV and hepatitis with reduced risk of needle stick injuries.
• Elimination of consumables such as the lancet, alcohol swab, capillary tube, cotton wool, CuSO4 solution and its container, Hemocue® machine and cuvette, the personal protective equipment (PPE) and elimination of bio-hazardous waste generation.
• The elimination of the previously mentioned consumables may reduce cost, but this is not a specific aim of the study.
• A more acceptable procedure to the donor as the pain and stress of the preliminary finger prick is avoided.
• The potential reduction in turn-around time of donors, as the transcutaneous Hb result will be available within 60 seconds.

STUDY DESIGN, MATERIALS AND METHODS

This study was conducted after obtaining ethical approval from the SANBS Human Research Ethics Committee as well as administrative approval from the SANBS management and Medical Director. The study was performed at the Multidisciplinary Donor Centre of SANBS in Port Elizabeth, Eastern Cape, South Africa. All donors who presented for platelet and/or plasma donation were considered for enrolment. This represented a non-random, convenience sample. To ensure adequate inclusion of participants with dark skin color, additional whole blood donors of African descent were included in the study.

Data collected during the study included the following variables:

• Date of procedure
• Donor number
• Age
• Gender
• Race/skin colour
• Pre-FBC Hb result
• Haemospect® Hb result
• Variance
• Percentage of variance

Haemospect® (MBR Optical Systems GmbH, Wuppertal, Germany) which is a non-invasive, mobile handheld device was used to determine the transcutaneous Hb. The device consists of a battery-powered meter that uses reflection spectroscopy, a button sensor and a digiclip. It operates in temperatures ranging from +10 to +40 °C and humidity up to 85%.

It is part of the standard operating procedure (SOP) for all apheresis donors to have a FBC performed prior to the commencement of the apheresis procedure. This sample formed the basis of the comparison.

After completion of the initial donor assessment, the donor was seated on the donor chair and the arm of the donor comfortably positioned on the armrest at heart level. As per SOP, the blood pressure was measured. This gave the heart rate a chance to stabilize and time for the donor to relax. The procedure and purpose of this study was explained to the donor and consent was obtained.

The measurements with the Haemospect® were carried out by a registered nurse, who received previous training for the handling of the device. The non-invasive digiclip of the appropriate size (small and large available) was applied to the middle finger of the donor after having been wiped with an alcohol swab to remove any dirt and deposits. Measurement with the Haemospect® should not be taken on any injured, scarred or tattooed areas or over hairy growth or heavy pigmentation. The reading to determine the transcutaneous Hb level takes approximately 30 seconds. The result on the screen of the Haemospect® was documented in an Excel spread sheet, specifically created for data collection of this study. The digiclip was removed and the apheresis procedure commenced by cleaning the venesection site according to standard procedures, the needle was inserted into a vein in the anterior cubital fossa, secured with tape and the sampling pouch filled.
The time between the non-invasive Hb measurement and the blood sampling was no longer than 15 minutes. The sample pouch line was hermetically sealed and the Haemonetics MCS+ machine started to procedure when the operator selected the “Draw” button. At this point, 3 - 4 ml of blood was collected from the sample pouch, into a 4 ml EDTA tube for the FBC sample. The sample was placed in a small cooler box. The temperature should be kept between 2 - 8 °C, according to SOP. At the end of the clinic, the samples were dispatched to the testing laboratory of SANBS. The venous blood sample was analyzed and reported by SANBS’s Quality Control Laboratory, which uses the ADVIA2120 to perform the FBC tests. Pre-FBC results were available on Meditech the following day from 09:30 and then documented on the data sheet. All data was collated and analyzed using Microsoft Excel 2010 standard statistical functions. Quality Control and Data Management focused on ensuring that the data collected were recorded and interpreted in a precise and consistent manner.

RESULTS

The testing was done from February 3 – 20 March 2014. A total of 161 participants were included of which 44% were female, 6.2% were Black and 8.7% were Coloured. The average age was 48 years. The mean venous Hb was 14.11g/dL and 14.14g/dL by the non-invasive method. This difference is not statistically significant (p=0.77; paired t-test).

The Bland-Altman analysis indicated that the limits of agreement were 2.72 and 2.65 below and above the reference values. With the FBC sample, 12 donors with an Hb level below the cut-off were detected, of which all 12 were found eligible by the Haemospect®, while the Haemospect® failed 8 donors, who had an Hb level above 12.5g/dL on the FBC result.

CONCLUSION

Even though the specificity of the testing method was very low, the sensitivity was within acceptable range and the Bland-Altman plot showed stronger limits of agreement than previously noted for CuSO4 screening.\(^7\) Just more than 70% of the samples were accurate within a 10% variance, which equates to accuracy within 1.5g/dL. This accuracy falls within the parameters previously noted for CuSO4\(^9\), the current screening method in use at the SANBS. The nature of the sample is biased in selection as only donors who passed previous screening tests were included in the study. This is suggesting that the non-invasive technology was at least as sensitive as the other screening methods. The findings of this pilot study suggest the need for further large scale evaluation and validation of this technology on whole blood donors in comparison with the CuSO4, Hemocue and automated FBC methods.

REFERENCES

TRANSFUSION COMPLICATIONS: Estimate of the residual risk of transfusion-transmitted human immunodeficiency virus infection in sub-Saharan Africa: a multinational collaborative study

(Reprinted with permission from ‘Transfusion’, Vol 51, March 2011)


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Blood Transfusion Center, Brazzaville, Congo
Blood Transfusion Center, Abidjan, Ivory Coast
Blood Transfusion Center, Bamako, Mali; the Blood Transfusion Center, Dakar, Senegal
World Health Organization (WHO), African Bureau, Brazzaville, Congo
University of California at San Francisco and the Blood Systems Research Institute, San Francisco, California;
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ABBREVIATIONS
Ab(s) = antibody(-ies); Ag = antigen; IDI(s) = interdonation interval(s); RR = residual risk

CONFlict OF INTERESt
The authors declare no conflict of interest associated with this study.

ABSTRACT

BACKGROUND
Sub-Saharan Africa remains the epicenter of the human immunodeficiency virus (HIV) pan- demic. However, there is a lack of multicenter data on the risk of transfusion-transmitted HIV from blood centers in sub-Saharan Africa.

STUDY DESIGN AND METHODS
The incidence of HIV infections in the blood donations collected in the main blood banks of five countries (Burkina Faso, Congo, Ivory Coast, Mali, and Senegal) was determined to estimate the current transfusion risk of HIV infection using the incidence rate/window period model.

RESULTS
The risk of transfusion-transmitted HIV infections associated with the window period varied from 1 in 90,200 donations (Senegal) to 1 in 25,600 (Congo). Considering the five participating blood centers as a whole, the incidence rate of HIV-positive donors per 100,000 person-years was 56.6 (95% confidence interval [CI], 47.1-67.9); the residual risk (RR) was 34.1 (95% CI, 7.8-70.7) per 1 million donations, which represents 1 in 29,000 donations (95% CI, 1/128,000-1/14,000).

CONCLUSION
RR estimates varied according to the country. This is potentially due to a lower incidence of HIV infection in the general population or to a more efficient selection of blood donors in the countries with the lowest risk. The estimates of the transfusion risk of HIV infection in each country are important, both to assess the impact of current preventative strategies and to contribute data to policy decisions to reinforce transfusion safety.
INTRODUCTION

Sub-Saharan Africa remains most severely affected by the human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS) pandemic. This public health concern extends to transfusion-transmitted HIV.1,2 Ironically, resources devoted to blood screening are extensive in industrialized countries where HIV prevalence and incidence are low and the residual transfusion risk has become immeasurably small (approximately one infection per 1 to 2 million units).3 In contrast, HIV incidence and residual risk (RR) remain high in sub-Saharan Africa, yet resources are lacking.4 According to the World Health Organization (WHO), blood transfusion is responsible for up to 5% of HIV transmission in sub-Saharan Africa.5

Despite screening of blood donations with serologic assays (detection of HIV antibody [Ab]), the risk of transfusion-transmitted HIV persists, mainly due to blood donations collected during the preseroconversion window period, which occurs shortly after the donor is infected and before the serologic markers for the infection can be detected. African blood banks that have implemented screening algorithms assay combining anti-HIV Abs and p24 antigen (Ag) have managed to shorten the window period, but it remains longer than that which would be obtained with nucleic acid testing (NAT).

It is important to estimate the transfusion risk of HIV infection as precisely as possible, both to monitor the impact of currently implemented preventive safety measures and to motivate for further measures to decrease established risk. Current knowledge of transfusion risk in sub-Saharan Africa is drawn from old studies, examining small numbers of blood donors, often limited to only single blood centers.6-8 Another recent approach aiming to assess the risk in sub-Saharan Africa consisted of the use of a mathematical model parameterized with data available in the literature.9 However, there is a lack of good, multicenter data on the risk of transfusion-transmitted HIV from blood centers in sub-Saharan Africa.

For this reason, we determined the incidence of HIV infections in the blood donations collected in the main blood banks of five countries. We used a modified window period model to estimate the current transfusion risk of HIV infection. This information may be useful to adapt the national policy for blood transfusion to the local situation as well as to audit interventions targeting transfusion safety in sub-Saharan Africa.

MATERIALS AND METHODS

The method used to estimate the HIV RR was based on the incidence/window period model.10 With this method, RR is estimated by multiplying the incidence rate of HIV infection in repeat blood donors (expressed per 100,000 person-years) by the length of the preseroconversion window period (expressed as a fraction of a year). This length for anti-HIV was derived from published data: 22 days (range, 6-38 days).11

Five blood transfusion services belonging to five countries of sub-Saharan Francophone Africa participated in the study: Burkina Faso, Congo, Ivory Coast, Mali, and Senegal. For each participating center, the study period corresponded to the time for which established blood donation databases were available. Each center was invited to complete a questionnaire pertaining to the following: the duration of the study period; the total number of donors who donated blood at least twice during the study period; the total number of blood donations tested for HIV among the donors who donated blood at least twice during this period; the number of donors having made an HIV-negative blood donation followed by an HIV-positive donation (whatever the interval between the two donations included in the study period); for included HIV-positive donors, the dates of the two donations, the assays used for the HIV Ab screening, and the obtained results in positive samples (sample/cutoff value or qualitative result for rapid tests); the method used to confirm positive results (additional testing on the same sample, confirmatory assay, or positive result in a subsequent sample); the type of donor (familial or volunteer); and the sex and age of all HIV-positive donors.

Incidence rates were calculated for the donors who donated at least twice during the study period. The number of incident cases (numerator) was the number of donors who gave a negative donation followed by a confirmed HIV-positive blood donation.

In the original model, the denominator, expressed as person-years, was calculated as the sum of the intervals in days (divided by 365) between the first and the last donation for all donors during the study period, irrespective of the HIV status. As this variable was not available for negative donors, the number of person-years was calculated as the number of donations made by individuals who have donated at least twice during the study period, by the mean interval (in years) between donations from these donors. For each center, the mean interdonation interval (IDI) in years was obtained by dividing the number of donations by the number of donors and by multiplying this ratio by the duration of the study period. The IDI for the seroconverting donors was calculated directly from the date of the last HIV-negative and the last HIV-positive donation. The 95% confidence intervals (95% CIs) of the incidence rates were obtained by the Fleiss quadratic method, which is adapted when proportions are low.

RESULTS

The total number of individuals who donated at least twice during the study period was 66,341 for the five participating countries, corresponding to a total of 192,109 blood donations. The mean number of blood donations per donor ranged from 1.2 to 3.3. Table 1 details these characteristics for each country. As detailed in Table 2, three countries (Burkina Faso, Ivory Cost, Mali) used a p24 Ag/Ab combination assay (Genscreen HIV Plus, Bio-Rad, Marnes-la-Coquette, France; Genscreen HIV Ag/Ab Ultra, Bio-Rad; or Murex HIV combination assay, Abbott, Rungis, France) for screening blood donations during the entire study period; one country (Senegal) used alternatively a p24 Ag/Ab combination assay or a rapid test (Determine HIV, Abbott) for screening; one country (Congo) changed its screening strategy over the study period (see Table 2). In all participating countries, positive results were not confirmed by a specific confirmatory assay, but with various other strategies (donation repeated positively with the screening assay, donation positive with a different assay, and/or result positive on a subsequent sample).

The number of incident HIV-positive donations, which ranged from 4 to 83 according to the different countries, is given in Table 1. These incident cases occurred predominantly in males in four countries. The mean (range) age of HIV-positive donors was 33.7 (28.8-40.3). The mean IDI ranged from 331 to 1111 days for all donors and from 123 to 408 days for HIV-positive donors.

The number of incident HIV-positive donations, which ranged from 4 to 83 according to the different countries, is given in Table 1. These incident cases occurred predominantly in males in four countries. The mean (range) age of HIV-positive donors was 33.7 (28.8-40.3).
The mean IDI ranged from 331 to 1111 days for all donors and from 123 to 408 days for HIV-positive donors. Table 3 indicates the incidence rates of HIV-positive donors per 100,000 person-years, and the RR as expressed per 1 million donations and as the prevalence of a unit HIV-infected but negative for HIVAb for each participating country. The incidence rates varied between the countries by a factor of 3.5, from 18.4 per 100,000 person-years in Senegal to 64.9 per 100,000 person-years in Congo. Only Senegal had an incidence rate. In our study, new donors varied from 19% in Congo to 72% in Burkina Faso, giving a percentage of new blood donations going from 10% to 51%, when taking into account the frequency of donations in regular donors. We were guided by the hypothesis that in each country in our study, HIV incidence would be three times higher in new donors than in regular donors, and the estimated RR for all of the blood donations would vary from 1 per 55,000 in Senegal to 1 per 14,000 in Mali.

**Table 1:** Number of donors, blood donations, and incident cases of HIV-positive blood donations and mean IDs in the five participating countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Months (study period)</th>
<th>Number of donors* having made at least two donations during the period</th>
<th>Number of donations made by these donors during the period</th>
<th>Mean number of donations per donor</th>
<th>Mean IDs (days)</th>
<th>Number of HIV cases†</th>
<th>Sex ratio of HIV incident cases (male/female)</th>
<th>Mean age of HIV incident cases (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burkina Faso</td>
<td>36 (Jan 1, 2006 - Dec 31, 2008)</td>
<td>6,629</td>
<td>16,334</td>
<td>2.5</td>
<td>444</td>
<td>236</td>
<td>6</td>
<td>42125</td>
</tr>
<tr>
<td>Congo</td>
<td>72 (Dec 1, 2002 - Dec 5, 2008)</td>
<td>5,653</td>
<td>11,140</td>
<td>2</td>
<td>1111</td>
<td>217</td>
<td>22</td>
<td>42141</td>
</tr>
<tr>
<td>Ivory Coast</td>
<td>36 (Jan 1, 2003 - Dec 31, 2005)</td>
<td>42,799</td>
<td>134,918</td>
<td>3.1</td>
<td>347</td>
<td>273</td>
<td>83</td>
<td>58/25</td>
</tr>
<tr>
<td>Mali</td>
<td>24 (Jan 1, 2006 - Dec 31, 2007)</td>
<td>4,008</td>
<td>5,721</td>
<td>1.2</td>
<td>511</td>
<td>123</td>
<td>5</td>
<td>42095</td>
</tr>
<tr>
<td>Senegal</td>
<td>36 (Jan 1, 2006 - Dec 31, 2008)</td>
<td>7,252</td>
<td>23,996</td>
<td>3.3</td>
<td>331</td>
<td>408</td>
<td>4</td>
<td>0/4</td>
</tr>
</tbody>
</table>

* All were volunteer donors.
† Defined as donors having made, during the study period, a HIV-negative donation followed by a HIV-positive donation.

The mean IDI ranged from 331 to 1111 days for all donors and from 123 to 408 days for HIV-positive donors. Table 3 indicates the incidence rates of HIV-positive donors per 100,000 person-years, and the RR as expressed per 1 million donations and as the prevalence of a unit HIV-infected but negative for HIVAb for each participating country. The incidence rates varied between the countries by a factor of 3.5, from 18.4 per 100,000 person-years in Senegal to 64.9 per 100,000 person-years in Congo. Only Senegal had an incidence rate.

**Table 2:** Assays used for the screening of blood donations in the five participating countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Number of HIV incident cases</th>
<th>Assays used for the screening when the negative donation preceding the positive donation was tested</th>
<th>Assays used for the screening when the positive donation was tested</th>
<th>Confirmation methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burkina Faso</td>
<td>6</td>
<td>p24 Ag/Ab assay* (n = 6)</td>
<td>p24 Ag/Ab assay* (n = 6)</td>
<td>Donation repeatedly positive with the screening assay AND positive with a different assay AND positive on a subsequent sample.</td>
</tr>
<tr>
<td>Congo</td>
<td>22</td>
<td>p24 Ag/Ab assay* (n = 17) Ab assay† (n = 1)</td>
<td>p24 Ag/Ab assay* (n = 17) Ab assay† (n = 1)</td>
<td>Donation repeatedly positive with the screening assay AND positive with a different assay.</td>
</tr>
<tr>
<td>Ivory Coast</td>
<td>83</td>
<td>p24 Ag/Ab assay* (n = 83)</td>
<td>p24 Ag/Ab assay* (n = 83)</td>
<td>Donation repeatedly positive with the screening assay OR positive with a different assay.</td>
</tr>
<tr>
<td>Mali</td>
<td>5</td>
<td>p24 Ag/Ab assay* (n = 5)</td>
<td>p24 Ag/Ab assay* (n = 5)</td>
<td>Donation positive with a different assay.</td>
</tr>
<tr>
<td>Senegal</td>
<td>4</td>
<td>Rapid test† (n = 2)</td>
<td>p24 Ag/Ab assay* (n = 2)</td>
<td>Donation repeatedly positive with the screening assay AND positive with a different assay AND positive on a subsequent sample.</td>
</tr>
</tbody>
</table>

* Genscreen HIV Plus (Bio-Rad), Genscreen HIV Ultra (Bio-Rad), or Murex HIV combination assay (Abbott).
† Murex HIV1.2.0 (Abbott).
‡ Determine HIV (Abbott).
TABLE 3: Incidence rates and RR of transfusion-transmitted HIV infection associated with the window period in the five participating countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Months (study period)</th>
<th>Person-years</th>
<th>Number of incident cases</th>
<th>Incidence rates per 100,000 per year (95% CI)</th>
<th>RR per 1 million donations (95% CI)</th>
<th>RR per number of donations (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burkina Faso</td>
<td>Dec 1, 2006 - Dec 31, 2008</td>
<td>19,887</td>
<td>6</td>
<td>30.2 (12.3-69.3)</td>
<td>18.2 (2.0-72.1)</td>
<td>1/55,000 (1/500,000-1/13,900)</td>
</tr>
<tr>
<td>Congo</td>
<td>Dec 1, 2002 - Dec 5, 2008</td>
<td>33,918</td>
<td>22</td>
<td>64.9 (41.7-100.0)</td>
<td>39.1 (6.9-104.1)</td>
<td>1/25,600 (1/145,000-1/9,600)</td>
</tr>
<tr>
<td>Ivory Coast</td>
<td>Jan 1, 2003 - Dec 31, 2005</td>
<td>128,397</td>
<td>83</td>
<td>64.6 (51.8-80.6)</td>
<td>39.0 (8.5-83.9)</td>
<td>1/25,700 (1/118,000-1/11,900)</td>
</tr>
<tr>
<td>Mali</td>
<td>Jan 1, 2006 - Dec 31, 2007</td>
<td>8,016</td>
<td>5</td>
<td>62.4 (23.0-154.6)</td>
<td>37.6 (3.8-161.0)</td>
<td>1/26,600 (1/263,000-1/6,200)</td>
</tr>
<tr>
<td>Senegal</td>
<td>Jan 1, 2006 - Dec 31, 2008</td>
<td>21,756</td>
<td>4</td>
<td>18.4 (5.9-50.6)</td>
<td>11.1 (1.0-52.6)</td>
<td>1/90,200 (1/1,000,000-1/19,000)</td>
</tr>
</tbody>
</table>

To control for shorter IDIs among HIV-positive donors compared to IDIs among negative blood donors, another study proposed multiplying the incidence rate by an adjustment factor that represented the mean IDI for all donors divided by the mean IDI for seroconverting donors. If this adjustment factor is applied to the incidence data from our study the risk would be greatly increased for Congo (1/5000) and Mali (1/6400), while for the three other countries, the impact would be much less important (Burkina Faso, 1/29,000; Ivory Coast, 1/20,200; Senegal, 1/111,000) because their differences between IDIs among HIV-positive and HIV-negative blood donors is less important.

**DISCUSSION**

Surprisingly little research had been done to assess the risk of HIV transmission by blood transfusion in sub-Saharan Africa, and most published studies are constrained by small number of blood donations or blood donors, cross-sectional design, and data from hospital-based blood banks only. However, reliable information on the risk of transfusion-transmitted HIV infection is of great importance, to monitor the efficacy of current preventive measures and to convince authorities (governments or international organizations) of the need to improve transfusion safety. Our study is the first to quantify the risk of transfusion-transmitted HIV infection across sub-Saharan Africa through the combined participation of blood centers of five countries using a common method (incidence of HIV infections in repeat donors).

RR estimates differed according to country with Senegal displaying the lowest risk when compared to the other countries. This may be due to a lower incidence of HIV infection in the general population in Senegal or to improved selection of blood donors. Our estimates are lower than the previously published data for two countries (1/8562 donations in Guinea and 1/5780 donations in Ivory Coast). Plausible reasons for this difference for Guinea include an earlier study period (1999-2000) with small size population (529 donors). The difference with Ivory Coast is more difficult to explain, since the study periods overlap. For Senegal, a previous study estimated the risk to 1 per 28,571,16 which is consistent with our findings.

A recent study using a mathematic model applied to literature data shows that the median overall risk of acquiring HIV infection from a single unit of whole blood in sub-Saharan Africa was 1 per 1000 units, which is higher than the overall risk observed in our study. For the four countries included in both studies, estimates were lower (Congo, 1/1313 vs. 1/25,600 in our study; Ivory Coast, 1/1231 vs. 1/25,700; Mali, 1/1250 vs. 1/26,600; Senegal, 1/615 vs. 1/90,200). These differences may be partly explained by the fact that the model used by Jayaraman and colleagues is based on estimates of HIV prevalence in donors going back more than 5 years that may have since decreased. The observed decrease in HIV prevalence of Senegalese donors from 2.23% in 2003 to 0.80% in 2005 supports this explanation as the prevalence in the model of Jayaraman and colleagues was 3%. Moreover, the estimates of transfusion risk are based on prevalence, while incidence would be more adequate. Finally, the model included the risk linked to blood donations, which would not be screened for HIV infection, while our estimates only relate to the risk from the preseroconversion "window period," since all blood donations were screened for HIV infection in our five participating centers.

It would be interesting to compare the HIV incidence in the general population with that estimated in blood donors. Unfortunately, estimates of incidence in the general population are difficult to obtain. A recent review of published studies on HIV incidence in 44 countries of sub-Saharan Africa showed that only 15 of them had available incidence estimates. Among them, only one is included in our study, Ivory Coast, where HIV incidence in pregnant women was between 1 and 3%. In consequence, the estimated incidence in repeat blood donors would be between 15 and 50 times lower than that estimated in pregnant women.

The comparison between prevalence in the general population and estimated RR in the five participating countries indicates that our results are plausible: the countries having the highest HIV transfusion risk (Ivory Coast and Congo) are also those with the highest prevalence in the general population (4.7 and 3.2%, respectively) while Senegal, which had the lowest risk, had also lowest prevalence (0.7%); Burkina Faso, which had an intermediate risk, also had prevalence between these two groups of countries (1.8%).
Our approach has limitations, with potential for both underestimation as well as overestimation of risk. One of the causes of the underestimation may be the false-negative results due to the lack of sensitivity of rapid tests reported to be linked with a low Ab titer\textsuperscript{20,21} or to the viral diversity.\textsuperscript{12,24} The latter may extend to viral variants not recognized by serologic tests in Africa due to divergent HIV-1 subtypes; for example, Subtypes A1, D, and C are predominant in Eastern and Southern Africa, whereas recombinant forms such as CRF02-AG and CDF06-cpx represent the majority in Western Africa.\textsuperscript{25} The risk of HIV transmission by transfusion may also stem from poor quality or poor performance of assays,\textsuperscript{26} linked to lack of technical expertise or to unfavorable conditions in which the test kits are stored and the assays are performed as well as unforeseen equipment failure and deficient or absent quality assurance.\textsuperscript{27,28}

Underestimation of risk may also arise through incomplete accounting donations and restricting study to donors who have donated twice during the observational period. In South Africa, the RR linked to the window period was three times higher in new donors (1/18,323) than in regular donors (1/55,393).\textsuperscript{29}

An underestimation may be due to lower mean IDI in HIV-positive donors than in HIV-negative donors. Since for Congo and Mali the mean IDI in HIV-positive donors was much lower than in HIV-negative donors, our data appeared to show that the probability of an infectious window period donation may be greater than the mean probability, as calculated by the basic equation of the incidence/window period model.

Overestimation of risk may be due to the occurrence of both false-negative results on the donation preceding the positive donation and false-positive results in the “HIV-positive” donation due to the absence of a reliable confirmatory strategy, leading to the misclassification of the donor as an incident case. Another cause of overestimation is the window period length used in our study, which was that established with Ab assays (22 days).

Indeed, although different methods for the Ab screening were used, our RR model was based on a single window period estimate across all countries. The window period would be reduced by 5 or 6 days with the HIV combined p24 Ag and Ab assay,\textsuperscript{30} which was used in some of the participating centers.

The limited study period and number of participating centers impose a limitation on the findings, particularly with respect to comparisons between countries. Finally, our results may not be widely generalizable, for example, to smaller, rural African blood centers, since our data were derived from major blood centers in the capitals of each study country. Hemovigilance studies estimate HIV RR by testing all blood recipients before and several months after transfusion to identify newly HIV-infected recipients. While such studies have been conducted in France and other countries, they would be very difficult to perform in sub-Saharan Africa. Our results therefore constitute the most reliable data available at this time on the transfusion risk for HIV infection in sub-Saharan Africa, despite the acknowledged limitations.

There are a number of measures that can be adopted to address residual transfusion risk. Foremost is a strengthening of donor selection and restricting blood donations to regular, volunteer, nonremunerated blood donors, recruited from groups at low risk of blood-borne and sexually transmitted agents. Collections from paid donors, who are known to be at higher risk than other donors, should be discouraged.\textsuperscript{31} In our study, all donors were volunteer, nonremunerated blood donors, suggesting that other measures should be adopted, for example, rigorous biologic screening of blood donations and improved quality control systems in African centers as recommended by the WHO.\textsuperscript{32}

These measures should serve as an adjunct to other public health interventions, such as improving transfusion practice to avoid unnecessary blood transfusions and prevention and proactive management of pathologies associated with anemia in sub-Saharan Africa, for example, obstetric hemorrhage, nutritional deficiencies, and malaria and other infectious diseases, all of which may lead to downstream blood transfusion.

These measures are all the more important since other measures are not applicable in the large majority of countries of sub-Saharan Africa: HIV NAT, as routinely practiced in blood banks of most industrialized countries, would bring a significant benefit to transfusion safety, as reported by some African studies.\textsuperscript{26,33} However, its cost and technical and logistic constraints make it inapplicable to most African blood banks, except in South Africa, where the residual transmission risk of HIV by transfusion has been estimated to 1 in 479,000 after the implementation of NAT.\textsuperscript{29} HIV Ag/Ab assays\textsuperscript{34} could be more broadly used on a cheaper manner than NAT.

REFERENCES


TRANSFUSION IN MASSIVE BLEEDING -
A role for fresh blood?

HEMORRAGIE MASSIVE ET TRANSFUSION - un role pour le sang frais?

Professor Albert Farrugia,
Vice President - Access to care, Plasma Protein Therapeutics Association, MD, USA and
Adjunct Professor, School of Surgery University of Western Australia

The current “manufacturing paradigm” of transfusion practice has detached transfusion from the clinical environment. As an example, fresh whole blood in large-volume hemorrhage may be superior to whole blood reconstituted from multiple components. Multicomponent apheresis can overcome logistical difficulties in matching patient needs with fresh component availability and can deliver the benefits of fresh whole blood. Because of the different transfusion needs of patients in emerging economies and the vulnerability of these blood systems to emerging infections, fresh whole blood and multicomponent apheresis can better meet patient needs when compared with transplants of the “manufacturing paradigm”. Patient blood management is resulting in a dramatic decrease in blood usage in the established economies, whose systems may be expected to undergo substantial change in the coming years. Hence, attempts to impose the established model in emerging counties are ill-advised and not centered on patient outcomes. Logisitics are better targeted and improving the delivery of fresh whole-blood to support decentralized blood services. This alternative transfusion-medicine paradigm could eventually also be adopted by established economies to focus transfusion medicine on local patient needs and to alleviate the problem of the aging volunteer donor base.
QMS in testing

SMQ appliqué aux analyses

Lucy Mary Marowa

KEYWORDS
Quality, test, procurement, prejudice, communication, performance

INTRODUCTION
The quality of a test result is paramount for the diagnosis and prognosis of disease. A good quality test result should be accurate, precise and available in good time. Test results can be affected by numerous factors at pre-analytical, analytical and post-analytical stages. Whilst these facts are well appreciated by health care workers (HCWs), the daily practical applications are taken for granted. This paper discusses some practical situations commonly encountered in the Zimbabwean health sector.

PROCUREMENT PRACTICES
The implementation of technologies and procurement of test consumables is a contentious issue in many institutions due to:
- exclusion of users input in decision processes
- funders imposing procedural tendering and purchasing conditions
- trade-off between cost and efficiency supplier selection
- Availability, suitability and objectivity of criteria
- Regulations /legislation
- Suppliers’ perception of market viability

POOR INVENTORY MANAGEMENT
This compounds the poor procurement practices above through:
- frequent stock-cuts
- poor storage
- losses due to expiries

INTER-PROFESSIONAL PREJUDICES
Certain counter productive attitudes of HCWs hinder the development of synergistically working together. Standoffs between clinicians and laboratory personnel are common, manifesting in the form of test
- requests submitted without clinical data
- failure in establishing or maintaining hospital transfusion committees

INTRA-PROFESSIONAL PREJUDICES
Within the same professions, HCWs segregate themselves according to academic qualifications e.g. degree or diploma holders. This creates unnecessary barriers and artificial separation of duties, leading to:
- immediate pro-patient decisions being deferred;
- delays in interpretation of results necessary for further actions;
- delayed communication of result to the attending clinician;
- Limitations in terms of tests/ activities offered by the institution.
COMMUNICATION SYSTEMS

Conventional wisdom accepts advances in information and communication technologies. However, the health sector in Zimbabwe has generally responded very slowly to these demands and necessary changes. Information sharing is still carried out by traditional means, through meetings, hard copy information and telephone. The health sector needs to move to information sharing through ICT platform to improve speedy diagnosis and treatment. Verbal communication is key to these improvements and continues to be hindered by the prejudices as stated.

LABORATORY PERFORMANCE CHECKS

The MLCSCZ has put in place guidelines, which mandate all laboratories to participate in proficiency testing exercises. However, this is not yet enforceable by regulation, therefore MLCSCZ cannot influence the operations of both public and private laboratories. Customers also are unaware of the need and their right to expect and demand for these practices to be implemented and regulated.

STAFF COMPETENCE

Practical skills are learnt during industrial attachment only because there is no strategy for competence testing of staff after qualification. The academic certificate is the only proof of competence. Lack of, or poor quality of SOPs on the job adds to diminished staff competence.

CONTINUAL IMPROVEMENT

A number of institutions operate without a formal guidance document e.g. a strategic plan, thereby making it difficult to track performance and set continual improvement objectives.

CONCLUSION

Simple, daily misunderstandings, conflicts on issues and decisions inevitably impact on the quality and availability of test result.

The World Health Organisation has over the last few years been encouraging countries on the continent to develop regulatory systems for blood and blood components. It was noted that most countries considered blood products as medicines and thus subject to regulatory control. The presentation will look at the requirements for effective blood regulatory systems and the challenges faced by regulators in meeting these requirements.

L’Organisation mondiale de la Santé a au cours des dernières années, encouragé les pays du continent à développer des systèmes de réglementation pour les sang et des produits sanguins. Il a été noté que la plupart des pays ont considérés les produits sanguins en tant que médicaments et donc soumis à un contrôle réglementaire. La présentation se penchera sur les exigences pour les systèmes de réglementation efficaces du sang et les difficultés rencontrées par les organismes de réglementation pour répondre à ces exigences.
THE BENEFITS OF CRYSTALLOID AND COLLOIDS
in trauma resuscitation in the early phase

LES AVANTAGES DES CRISTALLOÏDE SET COLLOÏDES
en reanimation traumatique dans la phase precoce

Professor MFM James
Emeritus Professor, University of Cape Town
Professeur émérite, Université de Cape Town

The clearest evidence to emerge from trauma resuscitation data is that crystalloid overload is harmful and should be avoided. Crystalloid administration should not exceed 2 L per day in the average adult. Crystalloid remains the most widely used initial resuscitation fluid, but small volume resuscitation in the pre-hospital phase should be limited to 250 mL boluses and should not exceed 1 L in total volume. Once in hospital, resuscitation should focus on blood components including RBCs, coagulation factors as required and limited crystalloid administration. In a retrospective survey of 3137 patients in the emergency department administration of crystalloïd excess of 1.5 L was an independent risk factor for mortality, especially in elderly patients.1 The role of colloids in trauma resuscitation has been inadequately explored due to the difficulties involved in performing such research in the acute situation.

A retrospective study of 1714 patients admitted to a level 1 trauma centre examined the outcomes in patients who did, or did not receive a colloid (Hextend®) as part of the resuscitation strategy. Compared to the crystalloid-only standard of care treatment, the overall mortality analysed by univariate analysis was significantly lower in the colloid-treated patients (5.2% v 8.9%, p = 0.0035), particularly in penetrating trauma. Coagulation measures, urine output and renal function were similar between the groups.2 A recent study comparing OCR in conjunction with either HES (Hextend®) or crystalloid demonstrated a reduction in mortality (7.1% v 39.3%) when colloid was used in conjunction with high ratio OCR compared to any volume of crystalloid. This study also demonstrated an apparent “dose-response” of crystalloid with decreased survival associated with increased use of crystalloid.3

The first randomised, double-blind controlled trial of crystalloid versus HES 130/0.4 in trauma resuscitation has recently been published. In this study of 109 patients, blunt and penetrating trauma were randomised separately. In penetrating trauma (n = 67), the HES group showed faster initial and 24-hour lactate clearance and acid base balance was significantly better on Day 1. The HES group had a zero incidence of renal injury (RIFlE criteria) compared to 16% in patients treated with saline p = 0.019). Maximum SOFA scores were significantly lower in the HES group. Substantially less colloid was required than crystalloid and the use of blood and blood products was similar. The blunt trauma analysis was severely hampered by the fact that patients in the blunt HES group were much more severely injured.

La preuve la plus évidente qui apparait à partir des données de réanimation des traumatismes est que la surcharge cristalloïde est dangereuse et doit être évitée. L'administration de cristalloïde ne doit pas dépasser 2 L par jour chez l'adulte moyen. Les cristalloïdes restent les fluides de la réanimation initiale les plus largement utilisés, mais la réanimation dans la phase pré-hospitalière doit être limitée à un petit volume à savoir 250 ml bolus et ne doit pas dépasser 1 L en volume total. Une fois à l'hôpital, la réanimation doit se concentrer sur les produits sanguins, comprenant les globules rouges, les facteurs de coagulation, selon les besoins et une administration limitée de cristalloïde. Dans une étude rétrospective de 3137 patients en service d'urgence, l'administration de cristalloïde de plus de 1,5 L est un facteur indépendant de risque de mortalité, en particulier chez les patients âgés.

Le rôle des colloïdes dans la réanimation des patients ayant subit des traumatismes a été insuffisamment exploré en raison des difficultés rencontrées dans l'exécution de ces recherches dans la situation aiguë. Une étude rétrospective de 1714 patients admis dans un centre de traumatologie de niveau 1 a examiné les résultats chez les patients qui ont reçu, ou n'ont pas reçu de colloid (Hextend®) dans le cadre de la stratégie de réanimation. Par rapport au traitement par un cristalloïde seul, la mortalité globale déterminée par analyse univariée était significativement plus faible chez les patients traités avec des colloïdes (5.2% v 8.9%, p = 0.0035), en particulier dans les traumatismes pénétrants. La coagulation, la production d’urine et la fonction rénale étaient similaires entre les groupes.2 Une étude récente comparant DCR en association avec l’HES (Hextend®) ou un cristalloïde a démontré une réduction de la mortalité (7.1% v 39.3%) lorsque le colloid a été utilisé en conjonction avec un ratio élevé DCR par rapport à n’importe quel volume de cristalloïdes. Cette étude a aussi démontré une “dose-réponse” apparente de cristalloïdes, avec une diminution de la survie associée à l’utilisation accrue de cristalloïdes.3 Le premier essai double aveugle randomisé, contrôlé cristalloïde contre HES 130/0.4 en réanimation traumatique a été publié récemment. Dans cette étude de 109 patients, avec des traumatismes pénétrants ont été randomisés séparément.

Dans les traumatismes pénétrants (n = 67), le groupe HES a montré une amélioration initiale plus rapide avec une clairance de lactate de 24 heures et un équilibre acide-basique nettement mieux le jour 1.
There was no significant difference in the use of study fluid between groups but the HES group required significantly more blood and blood products. Outcomes were similar in both blunt trauma groups in terms of renal function and organ recovery, with no difference in mortality.4

Good resuscitation practice in trauma would appear to involve early, limited crystalloid resuscitation followed by damage control resuscitation supported by colloids.

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**TRANSFUSION-TRANSMITTED MALARIA**

in sub-Saharan Africa

**Professor Jean-Pierre Allain**
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Transfusion-transmitted malaria (TTM) has been a neglected subject for several decades largely obscured by the near exclusive interest in HIV infection. Now that HIV disease is largely controlled with affordable antiviral treatment (ART), TTM comes to the forefront but very little data is available. TTM will therefore require a massive research effort to answer the many questions raised. There is clear evidence that the plasmodium parasite is transmitted by transfusion but in highly endemic areas where nearly 100% of the population is semi-immune, clinical TTM appears rare but has not been systematically investigated. However, young children over 6 months no longer protected by maternal antibodies are at risk as well as relatively immunocompromised pregnant women. Molecular methods have identified in non-parasitaemic blood recipients transfused with parasitaemic blood a 40% presence of donor parasite post-transfusion, but no clinical evidence of TTM. The infectious dose of parasite is unknown. It depends on the parasite species but mostly on the degree of patient immunity that tends to increase with age. Conversely, there is indirect evidence that antibodies to plasmodium present in non-parasitaemic transfused blood might have a beneficial impact on parasitaemic recipients. The impact of blood or red cell storage at 4°C on plasmodium infectivity is being studied but even 2-3 week storage appears insufficient to prevent infection. The main difficulty in preventing TTM is the high frequency of asymptomatic high level, infectious, parasitaemia in blood donors that ranges between 100 and 10E6 parasite genome/ml (0.1 - 100/_1) and can affect >50% of donors.

Proposed interventions include: donor selection, donor anti-malarial treatment, screening of donated blood, treatment of blood donation, presumptive treatment of recipients. For a variety of reasons none of these are routinely implemented and much research needs to be conducted. WHO recommends malaria screening of blood donations of parasite inactivation by the blood supply if implemented.

The considerable development of resistance to chloroquine has now interdicted the use of this cheap drug for both parasite inactivation in collected blood and presumptive treatment of blood recipients. More effective drugs (artemisinin)are expensive and no or little data on their use in transfusion circumstances is available. Recently, the option of methods of pathogen reduction applied to whole blood is being actively examined and preliminary data obtained in vitro looks promising. A clinical trial to determine the efficacy of such treatment is currently ongoing.
THE TRANSFUSION PRACTICES OF CLINICIANS
in a regional hospital in Durban in KwaZulu-Natal, South Africa

INTRODUCTION AND BACKGROUND
Red cell concentrates (RCC) transfusion is required to increase the oxygen carrying capacity of blood by raising haemoglobin (Hb) concentration in patients with acute or chronic anaemia. However there is a wide variability in the use of red cell concentrates that appears to reflect the clinician’s individual practice rather than the patient’s clinical status. Even though there are guidelines on the use of blood and blood products, there is no consensus on the precise indications for their use.

OBJECTIVES
To assess the extent of adherence to the Clinical Guidelines for use of blood products among the Prince Mshiyeni Memorial Hospital doctors and to examine the factors that influence the doctors’ transfusion practices.

METHODS
This was a two phase study.
1. Phase one consisted of a retrospective cross-sectional study of patients’ records conducted from 01 August to 30 September 2012 to assess the pattern of use for patient-care among the doctors. A total of 308 consecutive patients’ case files from Prince Mshiyeni Memorial Hospital were reviewed. Data were collected using a data collection tool on age, gender, medical discipline, rank of the prescribing clinician, pre-transfusion haemoglobin (Hb). Descriptive statistics namely mean, standard deviation, median, mode and proportions were used to summarize results. Inappropriateness of RCC transfusion was assessed by using the Clinical Guidelines for the Use of Blood Products in South Africa 4th Edition 2008. Cross-matched: transfusion ratio (C:T ratio) was used to assess the level of wastage.
2. Phase 2 was a survey among 228 PMMH doctors to assess their knowledge and attitude regarding the prescribing of red cell concentrates transfusion. A pre-tested questionnaire was distributed to all 228 blood prescribing PMMH clinicians and 144 responded giving a response rate of 63.16%. The aggregate scores of knowledge and attitude were calculated from the responses. Kruskal-Wallis test was used to test if there was any relationship between rank of clinician and knowledge.

LES PRATIQUES TRANSFUSIONNELLES DES CLINICIENS
dans un hôpital régional à Durban dans le KwaZulu-Natal, Afrique du Sud

INTRODUCTION ET Contexte
La transfusion de concentrés de globules rouges (CGR) est nécessaire pour augmenter la capacité du sang à transporter l’oxygène en augmentant le taux d’hémoglobine (Hb) chez les patients atteints d’anémie aiguë ou chronique. Cependant, il y a une grande variabilité dans l’utilisation de concentrés de globules rouges qui semble refléter la pratique individuelle du clinicien plutôt que l’état clinique du patient. Même si il y a des lignes directrices sur l’utilisation du sang et des produits sanguins, il n’existe pas de consensus sur les indications précises de leur utilisation.

OBJECTIF
Évaluer l’ampleur de l’adhésion aux lignes directrices cliniques pour l’utilisation des produits sanguins entre les médecins de l’hôpital; Prince Mshiyeni Memorial Hospital, d’examiner les facteurs qui influencent les pratiques transfusionnelles des médecins.

MÉTHODES
Il s’agissait d’une étude en deux phases.
2. Phase Une enquête auprès de 228 médecins du PMMH pour évaluer leurs connaissances et leur attitude en ce qui concerne la prescription de concentrés de globules rouges. Un questionnaire pré-testé a été distribué à tous les 228 cliniciens prescripteur de sang au PMMH 144 ont répondu, soit un taux de 63,16% de réponses.
The same test was also used to test for relationship between rank of the clinician and attitude.

RESULTS
At this regional hospital the proportion of inappropriate use of RCC was 13.64%. The level of wastage was 14.25 units of RCC for every 100 of units ordered (C:T was 1.17). Guidelines were not used by 60% of the doctors. Twenty five per cent of doctors had low level of knowledge on transfusion.

CONCLUSION
The non-adherence by clinicians to National Clinical Guidelines, the inappropriate use of RCC, the 14.25% level of wastage and the 25% low level of knowledge by the clinicians at this regional hospital remain our concerns and would need to be addressed with extensive and orchestrated education.

BACKGROUND
There is a paucity of reporting on Hospital Transfusion committees (HTC) in Sub Saharan Africa (SSA) although some hospitals have established committees. These HTC’s have been established to link producers and users as well as to ensure appropriate use of blood.1 2 A tertiary hospital blood service in Ghana has operated and hosted its HTC over a period of 14 years. We report on a review of the activities and achievements of the HTC after examining its role over the period.

L’ÉVALUATION D’UN COMITÉ HOSPITALIER DE TRANSFUSION À KUMASI, GHANA; Quatorzans de loyaux services

CONTEXT
Il y a un manque de rapports sur les activités des comités hôpitaux de transfusion (CHT) en Afrique subsaharienne (ASS), bien que certains hôpitaux ont établi des comités. Ces CHT ont été mis en place pour mettre en contact les fournisseurs de produits sanguins et les utilisateurs, ainsi que pour assurer une utilisation appropriée du sang.1 2 Le service de transfusion sanguine d’un hôpital tertiaire au Ghana a mis en place et fait fonctionner son CHT sur une période de 14 années.
STUDY DESIGN AND METHOD
The analysis of the role and function of the HTC was based on the adopted minutes of HTC meetings. During the analysis of minutes, a number of critical elements were identified and systematically reviewed. To cover the wide terms of references given to the HTC, reviews concerned nine broad topics and within each of these topics, specific indexes were systematically reviewed. Thus minutes were broken down into themes and indexes and incomplete data was reinforced by other information sources.

RESULTS
HTC systematically scrutinized the blood supply, blood safety, donor care, clinical use of blood products and costs. Its impact was more of a supervisory board for the blood transfusion service (BTS) hence distinguishing this HTC from others reported on in the literature. Decision making and consensus building was arrived between the hospital management representatives and the Clinical caregivers. They together gave directions to studies conducted to answer questions, provided solutions to challenges and supported changes to the BTS. Hence the BTS’ tasks and responsibilities were thus guided and advanced by the HTC. A research collaboration with an external blood centre and laboratory also spearheaded and facilitated investigations done ahead of major changes effected. Data collected and analyzed were reported in the international literature to disseminate advancement.3-4

CONCLUSIONS
A major SSA tertiary Hospital Transfusion Committee has influenced positively the outcomes of its blood service in terms of increasing; blood supply, safety and quality on the basis of evidence gathered overtime. Major decisions regarding operational costs, donor recruitment and care; and the clinical use of blood were arrived at with minimal funding.

REFERENCES

Nous rapportons un examen des activités et des réalisations de la CHT après avoir examiné son rôle au cours de la période indiquée.

CONCEPTION ET MÉTHODES D’ÉTUDE
L’analyse du rôle et de la fonction du CHT a été basée sur les procès-verbaux adoptés lors des réunions du CHT. Lors de l’analyse des minutes des réunions un certain nombre d’éléments essentiels ont été identifiés et systématiquement analysés. Pour couvrir les larges termes de références données au CHT, notre étude a concerné neuf grands thèmes et dans chacun de ces thèmes, les indices spécifiques ont été systématiquement examinés. Ainsi les minutes ont été décomposés en thèmes et en index et les données incomplètes ont été complets par d’autres sources d’Information.

RÉSULTATS
Le CHT a systématiquement contrôlé l’approvisionnement en sang, la sécurité du sang, les soins aux donneurs, l’utilisation clinique des produits sanguins et des coûts. Son impact a été plus d’un conseil de surveillance pour le service de transfusion sanguine (BTS) donc ce CHT s’est distingué des autres comités tel que rapportés dans la littérature. La prise de décisions et la concertation ont guidé les représentants de la direction de l’hôpital et les fournisseurs de soins. Ensemble, ils ont donné des orientations pour mener des études en vue de répondre aux questions, proposer des solutions aux défis et soutiennent les modifications apportées aux BTS. Par conséquent, les taches et les responsabilités du service de transfusion ont été proposées et guidées par le CHT. Une collaboration de recherche avec un centre de transfusion et un laboratoire externes a également facilité et dirigé les enquêtes effectuées à avant les changements effectués. Les données recueillies et analysées ont été signalés dans la littérature international pour diffuser l’état d’avancement.3-4

CONCLUSIONS
Un Comité hospitalier de transfusion d’un hospital tertiaire a eu une influence majeur positive sur les résultats de son service de transfusion sanguine en termes d’augmentation; de l’approvisionnement en sang, la sécurité et la qua lité sur la base des éléments de preuve recueillis. Les décisions importantes concernant les coûts d’exploitation, le recrutement des donneurs et celles relatives aux oins; ainsi que l’utilisation clinique du sang ont été obtenus avec un financement minimal.
HOW MUCH BLOOD IS NEEDED? The estimation of blood requirements in low and middle-income countries

QUELLE QUANTITE DE SANG EST NECESSAIRE?
L’estimation des besoins en sang dans les pays a revenu faible et moyen

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Providers of blood for transfusion need to know how much blood is required for their populations, and where and when it is needed. An inadequate blood supply will result in the death or disability. A surplus of blood will result in outdated, which is a waste of resource that is expensive to produce and donated in the expectation that it will be used. Furthermore, the supply of blood should be equitable such that access to blood for transfusion is irrespective of age, gender or socio-economic status.

In high-income countries, the median whole blood donation rate is 37 donations per 1000 population, although there is wide variation between countries. For low and middle-income countries (LMIC) the WHO has recommended a donation rate of 10 to 20 donations per 1000 population. Evidence to support this recommendation is limited and practical methods to estimate blood requirements not well developed or tested. Consequently, the Blood Transfusion Safety group of the WHO convened an Experts’ Consultation, which has: reviewed determinants of blood transfusion requirements; proposed standardised definitions of blood requirement; and reviewed methodological approaches to estimating blood requirements.

The main factors influencing blood transfusion requirements for population are demography (total population, age structure), disease burden, health services available and the level of access to these health services. Within a geographically defined population there may be both spatial and temporal differences in blood requirements dictated, for example, by population density and seasonal variations in disease burden. In LMIC, blood transfusion requirements may change significantly and/or rapidly with epidemiological transition and economic development.

To standardise terminology, the WHO Experts’ Consultation has proposed three definitions of blood requirement: current use, current demand, and population need. Both the first two definitions include inappropriate transfusions, where the benefit of transfusion is not supported by evidence, clinical guidelines or expert consensus, but which still create a demand for blood and cause blood to be transfused. An inadequate blood supply will result in unmet demand, which will have consequences in terms of death and disability. The extent to which population need exceeds current demand will depend on health service capacity and access to those health services.

Les fournisseurs de sang destinés à la transfusion ont besoin de savoir combien de sang est nécessaire pour leurs populations, et où et quand il est nécessaire. Un apport sanguin insuffisant entrainera la mort ou l’invalidité. Un surplus de sang se traduira par l’obsolescence, ce qui est un gaspillage de ressources qui coûtent cher pour produire et donner dans l’espoir qu’il sera utilisé. En outre, l’approvisionnement en sang doit être équitable que l’accès à du sang pour la transfusion soit possible indépendamment de l’âge, le sexe ou le statut socio-économique. Dans les pays à revenu élevé, le taux total médian de don de sang est de 37 dons pour 1000 habitants, bien qu’il y ait de grandes variations entre les pays. Pour les pays à revenu faible et intermédiaire (PFR-PRI), l’OMS a recommandé un taux de 10 à 20 dons pour 1000 habitants. Cependant cette recommandation a ses limites vu que les méthodes pratiques pour estimer les besoins en sang pas ne sont bien développées ou testées. Par conséquent, le groupe Sécurité transfusionnelle de l’OMS a organisé une consultation auprès des experts, qui a examiné: les déterminants des besoins de transfusion sanguine; les définitions normalisées à proposer les exigences de sang; les approches méthodologiques pour estimer les besoins en sang. Les principaux facteurs qui influent sur les besoins de transfusion sanguine pour une population sont la démographie (population totale, la structure d’âge), le fardeau de la maladie, les services de santé disponibles et le niveau d’accès à ces services de santé. Au sein d’une population géographiquement définie, il peut y avoir à la fois des différences spatiales et temporelles des besoins en sang qui sont dictées, par exemple, par la densité de population et les variations saisonnières de le fardeau de la morbidité. En LMIC, les exigences de transfusion sanguine peuvent changer de façon significative et / ou rapidement par la transition épidémiologique et le développement économique. Pour uniformiser la terminologie, la consultation d’experts de l’OMS a proposé trois définitions des exigences du sang: l’utilisation actuelle, la demande actuelle et les besoins de la population. Les deux premières définitions comprennent les transfusions toujours une demande pour le sang et entraînent une demande de sang à transfuser. Un apport sanguin insuffisant se traduit par une demande non satisfaite, ce qui aura des conséquences en termes de décès et d’invalidité. Dans la mesure où le besoin de la population dépasse la demande actuelle cela, dépendra de la capacité des services de santé et l’accès à ces services de santé.
In high-income countries with well-established blood transfusion services and an adequate blood supply, current use of blood, demand and population need a rematch, and predicting future blood requirements is greatly simplified by access to good historical data and reference to a baseline. This is not the case in LMIC where methods to estimate blood requirements may have to take into account: an already inadequate supply, a mix of providers, incomplete or inaccurate data, over-requesting by clinicians, rationing by blood banks, and unrecognised unmet demand. Given the complexities involved, a one-size-fits-all approach to estimating blood transfusion requirements in LMIC is unlikely. WHO hopes that standardised definitions and a better understanding of previous approaches will provide a basis for developing several methods (a ‘tool box’), one or more of which can be adapted to suit local conditions by transfusion service providers and health planners.

PAEDIATRIC TRANSFUSION IN AFRICA: which children need blood?

INTRODUCTION
Severe anaemia in children is common in sub-Saharan Africa and case-fatality rates high. Where there are limited resources and blood supplies and safety may be compromised, the World Health Organisation (WHO) advocates a conservative approach to paediatric blood transfusion. Transfusion is recommended for children with a haemoglobin less than 4g/dl, and those with Hb less than 6g/dl if associated with life-threatening complications. There are few data to support or refute these Hb thresholds.

ALMS AND OBJECTIVES
The aim of this study was to conduct a retrospective analysis of in-hospital mortality and admission Hb in an unselected paediatric population admitted to a rural district hospital in Kenya. Secondary objectives were to examine whether outcome was influenced by malaria infection and/or transfusion.

Dans les pays à revenu élevé avec des services de transfusion sanguine bien établies et un approvisionnement en sang adéquat, l’utilisation courante de sang, la demande et les besoins de la population sont adaptés, et la prévision des besoins en sang pour le futur grandement simplifiée par l’accès à des données historiques et en se basant sur un niveau de référence. Ce n’est pas le cas dans PRMF où les méthodes d’estimation des besoins en sang peuvent avoir à prendre en compte: un approvisionnement déjà insuffisant, un mélange de fournisseurs, des données incomplètes ou inexactes, une surdemande en sang par les cliniciens, le rationnement par les banques de sang, et les demandes non satisfaites non reconnues. Compte tenu de la complexité, une approche de l’estimation des besoins de transfusion sanguine dans PRMF et selon un modèle unique est peu probable. L’OMS espère que des définitions normalisées et une meilleure compréhension des approches précédentes fourniront une base pour le développement de plusieurs méthodes (une sorte de “boîte à outils”), ou une ou plusieurs approches peuvent être adaptées aux conditions locales par les fournisseurs de sang des services de transfusion et les planificateurs de la santé.

TRANSFUSION PEDIATRIQUE EN AFRIQUE: Quels enfants ont besoin de sang?

INTRODUCTION
L’anémie sévère chez les enfants est fréquente en Afrique subsaharienne et le taux de mortalité élevé. Lorsque les ressources sont limitées et l’approvisionnement en sang et la sécurité peuvent être compromis, l’Organisation mondiale de la santé (OMS) préconise une approche prudente de la transfusion sanguine en pédiatrie. La transfusion est recommandé pour les enfants avec un taux d’hémoglobine inférieur à 4g/dl, et ceux avec Hb inférieure à 6g/dl si elle est associée à des complications potentiellement mortelles. Il existe peu de données pour appuyer ou réfuter ces seuils d’hémoglobine.

BUTS ET OBJECTIFS
L’objectif de cette étude était de procéder à une analyse rétrospective de mortalité à l’hôpital et le taux d’Hb à l’admission dans une population pédiatrique non sélectionné admis dans un hôpital de district rural au Kenya. Les objectifs secondaires étaient d’examiner si les résultats ont été. L’objectif de cette étude d’observation était de décrire les aspects cliniques et de laboratoire pour la transfusion pédiatrique et d’identifier les domaines potentiels d’intervention pour améliorer la pratique.
Assessing the benefits and harms of blood transfusion.

RESULTS
Data were available for 36,621 consecutive admissions, of which 29,226 were included in the analysis. Overall mortality was 5.3%; 7.7% were transfused; and severe malnutrition was present in 14.6% (4,175/28,734). Admission Hb was less than 4g/dl in 1,143 (3.9%) and less than 6g/dl in 3,469 (11.9%). For all children, an admission Hb less than 3g/dl was associated with a significantly higher risk of death (mortality 11.7%, OR = 2.41, 95% CI1.8-3.24, p<0.001). There was very little variation in the risk of mortality across the range of admission Hb's from 4g/dl to 10.9g/dl. In those children with P. falciparum malaria, odds ratios for risk of death were 6.36 (4.21-9.62, p<0.001) for children with Hb less than 3g/dl; 1.33 (1.06-1.69, p=0.02) for those with Hb 3-3.9g/dl; and 1.76 (1.30-2.37, p<0.001) for those with Hb 4-5.9g/dl. Blood transfusion was only associated with significantly reduced mortalityin those children with malaria and Hb 4-4.9g/dl. Above Hb of 6g/dl transfusion for all children was associated with increased mortality (0.64, 0.56-0.73, p<0.001).

DISCUSSION AND CONCLUSIONS
The burden of anaemia in this large cohort of hospitalized children was substantial. Admission Hb of greater than 4g/dl is not strongly associated with increased mortality. Blood transfusion is associated with improved survival only in those children with malaria and Hb 4-4.9g/dl, and otherwise associated with increased mortality. Where clinicians adhere to a restrictive transfusion regime this is probably due to transfusions being reserved for children with clinically severe disease and significant co-morbidities including severe malnutrition, HIV and bacterial infection. Only limited conclusions can be drawn from such observational studies and prospective clinical trials assessing the benefits and harms of blood transfusion.
COMPARISON PROFILE OF RECIPIENTS OF BLOOD COMPONENTS in an urban referral hospital and a rural district hospital in Zimbabwe

PROFIL COMPARATIF DES RECEVEURS DE PRODUITS SANGUINS dans un hospital de reference urbain et un hospital de district rural au Zimbabwe

Menard Mutenherwa, Nyashadzaishe Mafirakureva, David A Mwere, Jean C Emmanuel, Tonderai Mapako

INTRODUCTION
The National Blood Service Zimbabwe (NBSZ) collects blood from low risk voluntary non-remunerated blood donors for patients and has a data base with detailed information on the profile of all donors. However, specific information on the profile of the blood recipients is lacking. This information and access to specific clinical decisions, justifying transfusions, is an essential requirement for the effective management of a Blood Service. Standards for Blood in Zimbabwe, recently launched, has a monitoring and evaluation component incorporated, with indicators, which require that the profiles and the monitoring of transfused patients are recorded. This patient profile data will also be available to authorised key stakeholders, such as the World Health Organization.

AIMS AND OBJECTIVES
This study aims to improve on the present information gap by comparing patient profiles through examining data on the clinical use of blood in an urban referral hospital (URH) and a rural district hospital (RDH) in Zimbabwe.

STUDY DESIGN AND METHODS
A database developed from a previous study on blood needs estimation for two hospitals was used. The data was collected from transfused patients’ medical records and the hospital blood bank register for the period January to December 2013. The collected data was first handwritten on a specifically designed table and then transferred to excel spread-sheets and analysed using “Stata”, version 13.0. A comparative analysis was carried out using chi square and t-test, for qualitative and quantitative variables, from the transfused patient’s profiles.

RESULTS
The number of blood transfusions in the URH was nine times more than the RDH. There was no significant difference (p=0.278) by sex of the patients transfused at the two hospitals. The recipients of blood components, in the URH and RDH, respectively, were: females 72% versus 68% and male 28% versus32%.

Comparison by recipient age, blood group and clinical condition are shown in Table 1. In both settings, average number of component transfused is similar (1.3) as was the age of recipients (33 years). In the URH, 98% of blood components transfused were red cells, fresh frozen plasma (1%), platelets (0.8%) and paediatric packed red cells (0.07%) compared with 100% red cells at the RDH.
HIV/AIDS related transfusions of red cells resulted in a significant percentage of the total blood components used: 4% in the URH and 2% in the RDH.

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<th>Rural District hospital %</th>
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<td>6</td>
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<td>23</td>
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<table>
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<tr>
<td>Obstetrical and Gynaecological</td>
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**DISCUSSION AND CONCLUSION**

The URH transfused more patients than the RDH hospital due to its referral status. Recipient’s requirements, by blood group, are comparable with blood donation blood group percentages in the general population. However, demand of blood group 0 is higher due to its compatibility with all other blood groups.

This study highlights the significant role that blood transfusion contributes in treatment, management and prevention of serious morbidity and even mortality of HIV/AIDS related clinical conditions.

Hospitals should form Transfusion Committees to monitor and evaluate clinical use of blood and ensure adherence to Clinical Use of Blood guidelines, which include use and justification as part of Haemovigilance Programme, for sustainable feedback to the Health Authorities and NBSZ.

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**PAEDIATRIC BLOOD TRANSFUSION PRACTICES**

at Coast Provincial General Hospital (CPGH) in Mombasa, Kenya

**LES PRATIQUES DE TRANSFUSION SANGUINE EN PEDIATRIE**

a l’Hôpital General de l’acote Provinciale (CPGH) a Mombasa, Kenya

Oliver Hassall, Nabwera HM, Fegan G, Shavadia J, Mandaliya K, Bates I, Maitland K

**INTRODUCTION**

Historically, access to timely and safe blood transfusion in low and middle-income countries (LMIC) has been limited and this has contributed significantly to in-hospital mortality of children with severe anaemia. Clinical transfusion guidelines for LMIC reflect inadequacies in the blood supply and are restrictive. In the past decade the establishment of national blood transfusion services (NBTS) has significantly improved the supply and safety of blood in many countries in sub-Saharan Africa. In Kenya, there are few data relating to the clinical and operational aspects of paediatric blood transfusion since the introduction of the national blood service in 2001. Since 2002 blood for transfusion has been supplied to CPGH by a Regional Blood Transfusion Centre (RBTC) of the Kenya NBTS, supplanting the hospital’s replacement donor system and stock outs are infrequent.

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**INTRODUCTION**

AIMS AND OBJECTIVES
The aim of this observational study was to describe clinical and laboratory aspects of paediatric transfusion and identify potential areas for intervention to improve practice.

METHODS
All requests to the hospital laboratory for blood for transfusion for children aged less than 14 years were identified prospectively over a 2-month period and data retrieved from existing blood bank ledgers. For the first 12 months data relating to clinical management of children for whom blood was requested were extracted from hospital case notes using a pre-defined template.

RESULTS
Over 24 months there were 17558 paediatric admissions and 2789 paediatric blood transfusion requests. Blood was crossmatched for 1950 (70%) of requests and presumed transfused in 1505 (crossmatch-to-transfusion ratio, 1.3; request-to-transfusion ratio, 1.9). The median time interval from the receipt of a transfusion request to issue of blood was 3.58 hours (IQR 1.35-12.83), and children who had a clinical diagnosis of ‘severe anaemia’ had significantly shorter request-to-issue time intervals (means, 9.8 vs 15.5 hours; p<0.05).

Of 1322 children for whom blood was requested in the first 12 months case notes could be retrieved for 590 (45%), of which 132 (22%) died in hospital. Twenty-four percent (141/590) of those crossmatched and 81% (318) were prescribed furosemide. Of blood volumes prescribed to children, 15% (60/410) were for one unit (450ml) compared to 47% (172/367) of those crossmatched and issued by the blood bank.

DISCUSSION AND CONCLUSIONS
In the context of an improved blood supply, these data demonstrate encouraging request-to-issue time intervals in many instances, and the appropriate prioritisation of severe cases. However there is also evidence of over-ordering of blood transfusions by clinicians; issue of excessive blood volumes by the blood bank; unnecessary blood transfusion; and poor concordance with clinical guidelines. To protect the blood supply and avoid unnecessary harm, further work is required to develop appropriate local guidelines and mechanisms to encourage their uptake. Hospital blood banks should be able to provide low volume blood packs, and better communication between laboratory staff and clinicians is essential.

MÉTHODES
L’étude a été menée à l’hôpital de district de Kilifi, où tous les enfants admis ont une évaluation clinique structurée et un ensemble d’enquêtes standards, y compris une numération formule sanguine, recherche de paludisme et des hémocultures. Les cliniciens se sont en grande partie conformés aux directives de l’OMS pour la transfusion. Tous les dossiers d’admission à partir de Janvier 2002 à Septembre 2009 étaient disponibles pour l’analyse. les enfants de moins de 60 jours ont été exclus. Les enfants ont été regroupés en 10 catégories en fonction du taux de l’Hb à l’admission (moins de 3g/dL; incréments 1g/dL à 10.9g/dL; 11.0g/dL et plus), et l’odds ratios de mortalité calculés pour chaque catégorie par rapport à tous les enfants dans une catégorie supérieure.

RÉSULTAT
Les données étaient disponibles pour 36 621 admissions consécutives, dont 29 226 ont été incluses dans l’analyse. la mortalité globale a été de 5,3%; 7,7% ont été transfusés; et la malnutrition sévère était présente dans 14,6% (4175/28734). l’Hb à l’admission était inférieure à 4g/dL pour 1143 cas (3,9%) et moins de 6g/dL pour3469 (11,9%). Pour tous les enfants, ayant une Hb inférieure à 3g/dL, ceci a été associé à un risque significativement plus élevé de décès (mortalité de 11,7%, OR = 2,41, IC 95% 1.8 à 3.24, p <0,001). Il y avait très peu de variation dans le risque de mortalité à travers la gamme de l’Hb à l’admission de 4g/dL à 10.9g/dL. Chez les enfants atteints de paludisme à R falciparum, les odds ratios pour le risque de décès est de 6,36 (4,21 à 9,62, p <0,001) pour les enfants avec Hb inférieure à 3g/dL; de 1,33 (1,06 à 1,69, p = 0,02) pour ceux avec Hb 3-3.9g/dL; et de 1,76 (1,30 à 2,37, p <0,001) pour ceux avec Hb 4-5.9g/dL. La transfusion sanguine a été associée à une mortalité significativement réduite chez les enfants atteints de paludisme et Hb 4-4.9g/dL (3,29, 1,21 à 8,94, p = 0,02). Au-dessus de 6g/dL d’Hb la transfusion pour tous les enfants a été associée à une mortalité accrue (0,64, 0,56a 0,73, p <0,001).

DISCUSSION ET CONCLUSIONS
Le fardeau de l’anémie dans cette grande cohorte d’enfants hospitalisés était important. L’Hb à l’admission supérieure à 4g/dL n’est pas fortement associée à une mortalité accrue. La transfusion sanguine est associée à une meilleure survie que dans les cas d’enfants atteints de paludisme avec une Hb de 4-4.9g/dL, et par ailleurs associée à une mortalité accrue. La où cliniciens adhèrent à un régime restrictif de transfusion c’est probablement en raison du fait que les transfusions étant réservés pour les enfants avec une maladie sévère et co-morbidités importantes,notamment la malnutrition sévère, le VIH et les infections bactériennes. Seules les conclusions limitées peuvent être tirées de ces études observationnelles et des essais cliniques prospectifs évaluant les avantages et les inconvénients de la transfusion sanguine pour les enfants souffrant d’anémie en Afrique sont nécessaires.
MAKE YOUR MONITORING AND EVALUATION PROGRAMME WORK for your organisation

FAITES QUE VOTRE PROGRAMME DE SUIVI ET D’EVALUATION de votre organisation fonctionne

Gail Nothard, Chrispen Dandavare

INTRODUCTION
The purpose and value of monitoring and evaluation (M&E) is often misunderstood. Most often complicated models are used which are understood by a few senior managers in the organisation whereas it is imperative for all levels of staff and management to understand and use the information available through an M&E programme for continuous improvement.

AIMS AND OBJECTIVES
The aims and objectives of this presentation are:-

- To explain the basic tools required for an M&E programme and how they can be practically implemented.
- To show examples of how statistical evidence can guide strategies, training and support quality assurance.
- How to use a basic business scorecard combined with statistical evidence as a reporting and management tool.

Study Design and Methods:
The study design consists of identifying the tools required for the implementation of an M&E programme.

- Strategic or operational plan

Statistical evidence:
- Business scorecards
- Reports

The method will be to use the Lesotho Blood Transfusion Service (LBTS) model and to examine the results of the methodology implemented.

RESULTS
The result of the presentation will be to show how a simple Monitoring and Evaluation programme can be implemented and how the programme can be used as a management tool.

DISCUSSION AND CONCLUSIONS
A Monitoring and Evaluation programme is invaluable to:

- Guide strategies for donor recruitment.
- Highlight problems that may exist in donor collections i.e. unusually high deferrals and discards.
- Identify education needs or donor selection strategies through measuring TTI’s as a % of collections.
- Quantify laboratory errors or non-conformances and identify where an investigation may be required. Simplify monthly reporting.
- Use as a motivational tool for staff by involving them to strive for sufficient and safe blood.

INTRODUCTION
Le but et l’importance du suivi et d’évaluation (S&E) est souvent mal compris. La plupart des modèles souvent complexes sont utilisés et sont compris par quelques cadres supérieurs de l’organisation. Il est cependant impératif pour tout le personnel et la direction qu’il puisse comprendre et utiliser les informations disponibles par biais d’un programme de S & E dans le cadre l’amélioration continue.

OBJECTIFS
Les buts et objectifs de cette présentation sont les suivants:

- Pour expliquer les outils de base nécessaires à un programme de S & E et la façon dont ils peuvent être mises en pratique.
- Pour donner des exemples de la façon dont la preuve statistique peut orienter les stratégies, la formation et appuyer l’assurance de la qualité.
- Comment utiliser un tableau de bord de l’entreprise combiné avec des données statistiques comme un outil d’information et de gestion.
- Conception de l’étude et méthodes:
  - La conception de l’étude consiste à identifier les outils nécessaires à la mise en œuvre d’un programme de S & E.
- Plan stratégique ou opérationnelle
  - La preuve statistique:
    - Tableaux de bord d’entreprise
    - Rapports

La méthode sera d’utiliser le modèle du Lesotho Service de transfusion sanguine (LBTS) et d’examiner les résultats de la méthodologie mise en œuvre.

RÉSULTATS
Le résultat de la présentation est de montrer le programme de S & E est simple à mettre en œuvre et à utiliser comme d’outil de gestion.

DISCUSSION ET CONCLUSIONS
Un programme de S & E est très précieux pour:

- Guide Stratégies pour le recrutement de donneurs.
- Highligh problèmes qui peuvent exister dans les collections de donateurs à savoir reports inhabituellement élevés et des rejets.
- Besoins éducatifs - Identifier ou des stratégies de sélection des donneurs par le biais de la mesure de TTI en % des collections.
- Erreurs de laboratoire - Quantifient non-conformités et identifier où une enquête peut être nécessaire. Simplifier reporting mensuel.
- Utiliser Comme un outil de motivation pour le personnel en les associant à lutter pour sanguin suffisant et sûr.
INTRODUCTION
In the health care sector successful implementation of quality management systems promises improvements in quality and safety. This promise has seen many blood transfusions implementing quality management in their effort to improve the quality and safety of the blood and blood products. Despite the promise of improving the quality and safety, many blood establishments have failed or have found it difficult to successfully implement quality management systems and enjoy the benefits that come with it. Available literature shows that only 20 to 30% of organizations that implemented total quality management achieved improvements in quality, productivity and competitiveness (Karani, 2012).

AIMS AND OBJECTIVES
The purpose of this study was to identify critical success factors which were deployed by organizations that managed to successfully implement their quality management systems. Identification of critical success factors for implementation of quality management systems would identify possible solutions to the problem of failure to implement quality systems faced by many organizationsleading to development of effective strategies for implementation of quality systems.

STUDY DESIGN AND METHODS
Data on critical success factors was collected using a questionnaire administered through e-mail. The first part of the survey used a 5-point Likert style questionnaire to determine the level of agreement or disagreement among survey participants with elements of the critical success factors. The quantitative methodology, which used the ordinal scale of measurement, was chosen to allow the author to analyze data using statistical tools that would have been impossible with qualitative methods. The limitation of this ordinal scale of measurement was that the difference between two levels of an ordinal scale could not be assumed to be the same as the difference between two other levels. To minimize the disadvantage associated with ordinal scales of measurement, elements with mean scores of less than 3.5 on a scale of one to five and coefficients of variation of greater than 30% were referred to focus groups.
RESULTS
A total of ten critical success factors for successful implementation of quality management systems were identified. Management and leadership commitment was found to be the most important critical success factor. To be successful in implementation of quality systems, management must be able to imbue a quality culture with customer focus as a key value of the organization. All actions in the organization must be focused on meeting customer expectations, organizational expectations and technical standards. Management and leadership commitment, quality culture and customer focus are the most important critical success factors which form the foundation on which the rest critical success factors are built.

DISCUSSION AND CONCLUSIONS
Findings of this study show that leadership and management is the key driver of successful implementation of quality management systems. Organizations intending to implement total quality management should analyze their internal environment especially the capability of the organizational leadership. The analysis should include the ability of the management team to create conditions conducive to successful implementation of quality management system.

DISCUSSION ET CONCLUSIONS
Les résultats de cette étude montrent que le leadership et le management constitue le principal moteur de la mise en œuvre réussie d’un système de management de la qua lité. Les organisations qui ont l’intention de mettre en œuvre la gestion de la qualité totale doivent analyser leur environnement intérieur, notamment la capacité organisationnelle de la direction. L’analyse devrait inclure la capacité de l’équipe de gestion de créer des conditions propices à la mise en œuvre réussie d’un système de gestion de la qualité.

QUALITY IMPROVEMENT INITIATIVES towards provision of safe and sufficient blood in Kenya

LES INITIATIVES D’AMELIORATION DE LA QUALITE pour la fourniture de sang sur et en quantite suffisante au Kenya

INTRODUCTION
A structured quality system is vital to a strong, efficient, and self-sustaining national blood transfusion service with the capacity to respond to the needs of safe and sufficient blood for the entire country. Global Communities Blood Safety program funded by the U.S. Centers for Disease Control and Prevention (CDC) under the President’s Emergency Plan for AIDS Relief (PEPFAR) is supporting Kenya National Blood Transfusion Service (KNBTS) to undertake Stepwise Laboratory(Quality) Improvement Process Towards Accreditation (SLIPTA). A structured approach with Strengthening Laboratory Management Towards Accreditation (SLMTA) as a key tool is being used in SLIPTA to ensure a high-quality functional system of blood transfusion services.

METHODS
In January 2013, a baseline audit was conducted at 6 regional blood transfusion centers (RBTcs) using the SLIPTA checklist. SLMTA 1 and 2 workshops were held and intervening mentorship visits were conducted. The program was customized to suit the scope of blood transfusion services and additional trainings provided.

INTRODUCTION
Un système de qualité structuré est indispensable à service de transfusion sanguine national, autonome solide, efficace, et ayant la capacité de répondre aux besoins en sang sûr et en quantité suffisante pour l’ensemble du pays. Le Programme mondial pour la sécurité du sang, financé par le CDC dans le cadre du plan PEPFAR, soutient le service National de Transfusion Sanguine du Kenya (KNBTS) en vue d’entreprendre le Processus d’amélioration par étapes de la qualité en vue de l’accréditation (SLIPTA). Une approche structurée du renforcement de la gestion des laboratoires en vue de l’accréditation (SLMTA) comme un outil clé est utilisé dans SLIPTA pour assurer un système fonctionnel de haute qualité des services de transfusion sanguine.

MÉTHODES
En Janvier 2013, un audit de base a été menée dans six centres régionaux de transfusion sanguine (CRTS) en utilisant la liste de contrôle SLIPTA. 2 ateliers SLMTA ont été organisés et des visites intermédiaires de coaching ont été menées. Le programme a été adapté en fonction des services de transfusion sanguine et des formations supplémentaires prévues.
RESULTS
Six RBTCs and the national office were audited. The average score was 97 out of the possible 258 points (range 61 to 120). Facility and safety and information management section had the highest scores. Notable areas that need major improvement to ensure effective blood services include: taking corrective actions, management of occurrences and conducting internal audits to improve the quality management system. Thirty-four technical and management staff members attended SLMTA 1 and 2 workshops. Participants were drawn from key cadres in blood services including laboratory, donor clinic, management and quality departments. Hands-on activities covering vein-to-vein blood transfusion services have been adopted during the training. Mentors with blood transfusion services were used to during the site visits.

CONCLUSION
Lack of quality practices was widespread supporting the need to implement SLI PTA. An action plan endorsed by the top management of KN BTS has been put in place to respond to deficiencies identified. Internal and external mentors with experience in blood transfusion and quality management system are being utilized to aid in the implementation of SLMTA. Additional training and embedded mentorship on identified deficiencies is being performed to improve quality in KNBTS.

AUDITEE ATTITUDES AND PERCEPTIONS TOWARDS QUALITY MANAGEMENT SYSTEM corrective actions in selected Medical Laboratories In Botswana

ATTITUDES DES AUDITES ET PERCEPTIONS A L’EGARD DU SYSTEME DE GESTION de la qualité des mesures correctives dans certains Laboratoire Medicaux au Botswana

INTRODUCTION
Quality Management Systems (QMS) is intended to standardize organizational operations, meet national and international requirements, help companies to be competitive on the global market, achieve and maintain customer satisfaction. QMS needs to be maintained and monitored, however, deviations from stated criteria are inevitable and these necessitate investigations or corrective actions. Corrective actions are important drivers in maintaining the life of a QMS but often misunderstood or seen as carrying negative connotations. This research sought to identify and evaluate factors that influence the auditees’ attitude and perception towards corrective action processes in QMS.

INTRODUCTION
Le Système de management de la qualité (SMQ) est destiné à normaliser les activités de l’organisation, répondre aux exigences nationales et internationales, aider les entreprises à être compétitives sur le marché mondial, atteindre et maintenir la satisfaction du client. Le SMQ doit être maintenu et surveillé, toutefois, des non conformités par rapport aux exigences sont inévitables et ceci nécessite des enquêtes et des actions correctives. Des mesures correctives sont des moteurs importants dans le maintien de la vie d’un SMQ mais souvent mal compris ou perçues comme des connotations négatives. Cette recherche vise à identifier et évaluer les facteurs qui influent sur l’attitude et la perception des personnes auditées vis-à-vis des actions correctives des processus dans un SMQ.
AIMS AND OBJECTIVES
To assess auditee attitudes and perceptions towards corrective actions in QMS, identify challenges encountered in carryingout corrective action and determine factors that contribute to successful corrective action processes.

STUDY DESIGN AND METHODS
Participants were drawn from laboratory operators, managers and quality leaders in selected Medical and Research laboratories with or were implementing QMS in Botswana. 120 self-administered questionnaires were distributed for data collection of various aspects in corrective action process. The data was analyzed using descriptive statistics, statistical cross tabulations and frequency tabulations.

RESULTS
10 Laboratories participated and 80 responses were received. 16% of the respondents indicated that corrective actions are a punishment while 84% agreed with the fact they are opportunities to improve QMS. The level of QMS knowledge was assessed using descriptive statistics. 5 were the maximum points on each defining question indicating high knowledge of QMS. The mean knowledge level was 4.2 and the median was 5 causing data distribution to be left skewed. Statistical cross tabulations of relationship between knowledge level and perception indicated low perception in those with less knowledge on QMS. Corrective action awareness and competence scored an average of 76%. 60% indicated that they had no challenges with corrective while 40% represented those with challenges. Factors contributing to the success of corrective actions frequently mentioned were: training of staff on QMS and corrective action, training on the use of problem solving tools, management commitment and availability of resources, staff commitment and completion of corrective action within target time.

DISCUSSION AND CONCLUSION
It emerged that companies whose QMS is doing well did their corrective actions timely while those whose QMS is performing poorly are not even interested in what went wrong. Some managers were described as shifting blame to operators causing operators to hide problems indicating that negative attitudes towards corrective actions do exist within organizations. Deficiency in training was attributed in part to: lack of training in QMS, nonparticipation in a corrective action process and lack of training in problem solving tools. The left skewing of level of knowledge data and a standard deviation of 1.4 showed deficiency in that area. QMS knowledge level was cross tabulated with perception indicating low perception in untrained people. 84% of auditees appreciated benefits of corrective action therefore consideration of challenges and success factors will bring more positive attitudes and perceptions. Taking corrective action upon everyonein the organization not just the quality team will result in QMS sustainability, effectiveness and continual improvement in organizations.

REFERENCES
1. David N. Muchemu, 2006 How to Design a World-Class Corrective Action Preventive System for FDA-Regulated Industries. A Handbook of Quality Engineers and Quality Managers
2. Denise E. Robataille and Johanna Rothman, 2004 Corrective action for Software Industries
4. John West and Charles A. Ciafrani, 2004 Unlocking the power of your QMS; the key to performance improvement

BUTS ET OBJECTIFS
Evaluer les attitudes et les perceptions des auditeurs vis-à-vis des actions correctives dans un SMQ, identifier les défis rencontrés dans la mise en œuvre des mesures correctives et déterminer les facteurs qui contribuent à la réussite des mesures correctives préconisées.

CONCEPTION DE L’ÉTUDE ET MÉTHODES
Les participants sont; le personnel des laboratoires, des gestionnaires et les dirigeants de qualité exerçant dans les laboratoires de biologie ou de recherche au Botswana, ayant ou mettant en œuvre un SMQ. 120 questionnaires ont été distribués pour la collecte des données sur divers aspects dans le processus de mesures correctives. Les données ont été analysées à l’aide de statistiques descriptives, des tableaux croisés statistiques et des tableaux de fréquence.

RÉSULTATS
10 laboratoires ont participé à 80 réponses ont été reçues. 16% des réponses ont indiqué que les mesures correctives sont une punition alors que 84% sont d’accord sur la constitution des possibilités d’amélioration du SMQ. Le niveau de connaissances du SMQ a été évalué à l’aide de statistiques descriptives. 5 avaient le maximum de points sur chacune des questions définies ce qui correspond à une forte connaissance du SMQ. La moyenne des connaissances était de 4,2 et la médiane était de 5 ce qui fait que la distribution des données est déviée à gauche. Les tableaux statistiques croisés de relation entre le niveau de connaissance et la perception indiquent une faible perception de ceux qui ont connaissances moindres sur le SMQ. Une moyenne de 76% a été obtenue en ce qui concerne la prise de conscience des mesures correctives et de compétence. 60% ont indiqué qu’ils n’avaient pas de problèmes avec les mesures correctives, tandis que 40% représentaient ceux pour qui cela représente des défis. Les facteurs qui contribuent à la réussite des actions correctives fréquemment mentionnés étaient: la formation du personnel sur SMQ et les mesures correctives, la formation sur l’utilisation des outils de résolution des problèmes, l’engagement de la direction et la disponibilité des ressources, l’engagement du personnel et l’achèvement des mesures correctives dans le délai imparti.

DISCUSSION ET CONCLUSION
Il est apparu que les entreprises dont le SMQ fonctionne correctement mettent ent œuvre leurs mesures correctives en temps utile tandis que ceux dont le SMQ présente des performances médiocres ne sont même pas intéressés parce que se passe mal. Certains gestionnaire sont indiqué que le personnel des laboratoires portent la responsabilité en occultant les problèmes qui conduit à des attitudes négatives à l’égard des actions correctives au sein des organisations. L’irrégularité dans la formation est en partie un facteur responsable à savoir: manque de formation du SMQ, non-participation à un processus de mesures correctives et le manque de formation aux outils de résolution de problèmes. La déviation à gauche du niveau de connaissances et un écart type de 1.4 montre la carence dans ce domaine. Les tableaux de perception SMQ lié au niveau de connaissances indiquent une faible perception des personnes non formées. 84% des entités auditées apprécie les avantages de mesures correctives par conséquent les défis et les facteurs de réussite contribuent à des attitudes et des perceptions plus positives. Faire participer tout le monde et pas seulement l’équipe de qualité dans l’organisation, aux mesures correctives se traduira par la durabilité du SMQ, l’efficacité et l’amélioration continue dans les organisations.
EXTERNAL QUALITY ASSESSMENT (EQA) OR PROFICIENCY TESTING (PT) as applied to the microscopic identification of malarial parasites in blood

INTRODUCTION
Prompt quality assessed laboratory diagnosis is key to effective malaria case management control especially with the introduction of more expensive drugs and the speed at which malaria kills. External Quality Assessment refers to a system of objectively checking laboratory results by means of an external agency. The checking is necessarily retrospective. Thus the main objective of EQA is not to bring day-to-day consistency but to establish between laboratory comparability. This report is on EQA that was done on the microscopic identification of malaria countryside.

OBJECTIVE
To evaluate the performance of laboratories on the microscopic malaria slide evolution.

MATERIAL AND METHODS
Two different malaria test samples were used per distribution. Each laboratory was given ready-to-stain glass slides on which a thick and thin smear of the test malaria sample was done. This EQA exercise was done over the period - January 2013 to March 2014. Five distributions were done.

RESULTS AND DISCUSSION
The table below shows the results of the EQA and the calculations thereof

<table>
<thead>
<tr>
<th>Distribution Date</th>
<th>Laboratories enrolled</th>
<th>Response with results</th>
<th>% correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>February 2013</td>
<td>115</td>
<td>93</td>
<td>59</td>
</tr>
<tr>
<td>May 2013</td>
<td>116</td>
<td>81</td>
<td>64</td>
</tr>
<tr>
<td>August 2013</td>
<td>120</td>
<td>85</td>
<td>75</td>
</tr>
<tr>
<td>November 2013</td>
<td>124</td>
<td>99</td>
<td>48</td>
</tr>
<tr>
<td>February 2014</td>
<td>126</td>
<td>96</td>
<td>80</td>
</tr>
</tbody>
</table>

The expected performance of the malaria scheme was ≥ 80%. The performance displayed here is very poor! With the exception of the February 2014 distribution the rest - February 2013 to November 2014 - were well below 80%. There is need to investigate the malaria scheme with a view to improving its performance.

Witmore Mujaji, Musarurwa C, Nyamayaro T, Machingura I

INTRODUCTION
La rapidité à effectuer un diagnostic de laboratoire fiable et de qualité est essentiel dans la gestion des cas de paludisme en particulier avec l’introduction de médicaments plus coûteux et la vitesse à laquelle le paludisme tue. Le contrôle externe de la qualité se réfère à un système de contrôle objectif des résultats de laboratoire au moyen d’un organisme externe. Le contrôle est nécessairement rétrospectif. Ainsi, l'objectif principal du CEQ n’est pas d’apporter une cohérence au jour le jour, mais à établir un benchmarking entre laboratoire. Ce rapport est sur le CEQ qui a été effectué sur l’identification microscopique du paludisme.

OBJECTIF
Evaluer les performances des laboratoires sur l'analyse microscopique pour la recherche du paludisme.

MATERIEL ET METHODES
Deux échantillons tests pour la recherche du paludisme ont été utilisées pour chaque controle. Chaque laboratoire a reçu une lame de goutte de paissie et un frottis. Cette évaluation a été effectuée au cours de la période - Janvier 2013 à Mars 2014. Cinq échantillons ont été distribués au cours de cette période.

RÉSULTATS ET DISCUSSION
Le tableau ci-dessous montre les résultats du CEQ.

<table>
<thead>
<tr>
<th>Date de la Distribution</th>
<th>Laboratoires concernés</th>
<th>Réponse correcte</th>
<th>Réponse % de</th>
</tr>
</thead>
<tbody>
<tr>
<td>Février 2013</td>
<td>115</td>
<td>93</td>
<td>59</td>
</tr>
<tr>
<td>Mai 2013</td>
<td>116</td>
<td>81</td>
<td>64</td>
</tr>
<tr>
<td>Août 2013</td>
<td>120</td>
<td>85</td>
<td>75</td>
</tr>
<tr>
<td>Novembre 2013</td>
<td>124</td>
<td>99</td>
<td>48</td>
</tr>
<tr>
<td>Février 2014</td>
<td>126</td>
<td>96</td>
<td>80</td>
</tr>
</tbody>
</table>

LABORATORY QUALITY SYSTEMS STRENGTHENING in Zimbabwe

RENFORCEMENT DES SYSTEMES QUALITE dans les laboratoiries au Zimbabwe

Zimuto S, Mujaji WB, Nzombe PS, Mangwanya D, Simbi R

ABSTRACT

Laboratory testing is a key component of any health delivery system. Laboratories produce information used for disease diagnosis, monitoring treatment, research and disease surveillance. Laboratories in Africa are burdened by numerous challenges including high disease burden, limited resources, limited technical and quality systems infrastructure.

The Zimbabwe National Quality Assurance Programme (ZINQAP) Trust is a non profit organisation, formed to address some of the challenges facing laboratories. ZINQAP’s mandate is to assist medical laboratories and testing sites attain and maintain a high level of quality service delivery. This is achieved through the provision of an accredited Proficiency Testing Service as well as training and mentorship in quality systems. ZINQAP is governed by a Board of Trustees, drawn from key stakeholders operating in health, laboratory and quality systems strengthening. Over the years ZINQAP has achieved many significant milestones. In 2005 ZINQAP Proficiency Testing Services was accredited to ISO Guide 43 and ILAC Guide 14, becoming the second medical PT Provider to attain accreditation in Sub-Saharan Africa. In 2011, ZINQAP, transitioned it Quality Management System to the ISO 17043 and attained accreditation to this standard. ZINQAP’s accreditation has been maintained to date. ZINQAP offers PT services to over 200 laboratories and testing sites in Southern Africa.

In order to strengthen the Quality Systems in Laboratories, ZINQAP piloted the Strengthening of Laboratory Management Towards Accreditation (SLMTA) laboratory training and mentorship tool to laboratories in Zimbabwe. ZINQAP has trained and mentored laboratory personnel from 40 laboratories. Six of the laboratories on the SLMTA programme have applied for accreditation to ISO 15189 and one of the laboratories was assessed in March 2014 by the Southern Africa Development Community Accreditation Service (SADCAS) and received a recommendation for accreditation.

In 2011, ZINQAP was selected to be Southern Africa Development Community (SADC) Regional Centre of Excellence (RCE) in Quality Systems. As a SADC RCE, ZINQAP is mandated to support the Quality Assurance initiatives in SADC Member States.

ZINQAP continues to support south to south cooperation and technical assistance for improved quality of health care and health systems strengthening.

Les analyses de laboratoire représentent une composante clé de tout système de prestations de soins. Les laboratoires produisent des informations utilisées pour le diagnostic de la maladie, la surveillance des traitements, la recherche et la surveillance des maladies. Les laboratoires en Afrique sont accablés par de nombreux défis, y compris le fardeau élevé de la maladie, les ressources limitées, Infrastructure limitée tant sur le plan technique que sur le plan des systèmes de qualité.

Le programme national d’assurance qualité du Zimbabwe (ZINQAP) Trust est un organisme à but non lucratif, créé pour relever certains des défis auxquels sont confrontés les laboratoires. Le mandat de ZINQAP est d’aider les laboratoires de biologie clinique les centres de dépistage atteindre et maintenir un haut niveau de qualité quant aux prestations de services. Ce résultat est obtenu grâce à la fourniture d’un servicede contrôle externe de la qualité accrédité ainsi que la formation et le mentorat pour les systèmes qualité. ZINQAP est régis par un conseil d’administration, constitué des principales parties prenantes actives en santé, avec comme objectif le renforcement des laboratoires et des systèmes qualité.

Au fil des ans ZINQAP a réalisé de nombreux objectifs importants. En 2005 les services de contrôle externe de la qualité du ZINQAP a été accrédité ISO Guide 43 et Guide ILAC 14, devenant ainsi le deuxième service médical de contrôle qualité à obtenir l’accréditation en Afrique sub-saharienne. En 2011, ZINQAP, a obtenu l’accréditation de son système de management de la qualité par rapport à la norme ISO 17043. L’accréditation de ZINQAP a été maintenue à ce jour. ZINQAP offre des services de contrôle externe de la qualité à plus de 200 laboratoires et sites de dépistage en Afrique du Sud.

Afin de renforcer les systèmes qualité dans les laboratoires, ZINQAP a piloté le renforcement de la gestion des laboratoires vers l’accréditation (SLMTA) au Zimbabwe, par la formation et le mentorat des laboratoires comme outils de ce renforcement. ZINQAP a formé et supervisé le personnel de 40 laboratoires. Six des laboratoires sur le programme SLMTA ont demandé l’accréditation à la norme ISO 15189 et l’un des laboratoires a été évalué en Mars 2014 par le service d’accréditation de la Communauté de développement d’Afrique Australe (SADCAS) et a reçu une recommandation d’accréditation.

En 2011, ZINQAP a été choisi par (SADC) pour être un centre régional d’excellence (RCE) pour les systèmes qualité. En tant que centre régional d’excellence (RCE), ZINQAP a pour mandat d’appuyer les initiatives d’assurance de la quai ité dans les États membres de la SADC. ZINQAP continue de soutenir la coopération Sud-Sud et l’assistance technique pour améliorer la qua lité des soins de santé et les systèmes de santé.
EVALUATION OF GAPS IN QUALITY MANAGEMENT SYSTEMS OF MEDICAL LABORATORIES in the Matebeleland region, Zimbabwe

INTRODUCTION
Quality Management Systems (QMS) in the laboratory has become too important to leave to chance. In 2011 the national regulatory body for the laboratory medicine, Medical Laboratory and Clinical Scientist Council of Zimbabwe issued minimum guidelines that are based on International Organization of Standardization (ISO) 15189 to all laboratories. The implementation of the QMS has been fraught with many challenges ranging from lack of funding, skills flight, low staff morale and the economic meltdown.

AIMS AND OBJECTIVES
The objective of this study is to investigate the absence or presence of quality in laboratories. Pursuance of an ISO standard is a demonstration that QMS exists. More so, the presence of controlled Standard Operating Procedures (SOPs), participation in Internal and External Quality Assurance is an indicator of absence of quality gaps in the laboratories.

STUDY DESIGN AND METHODS
A cross-sectional survey, using a self-administered questionnaire was administered to 10 laboratories, eight, (80%) in urban and two (20%) in the rural setting. The questionnaire was completed by the laboratory managers and in some laboratories by quality officers.

RESULTS
Six (60%) of the laboratories evaluated were private whilst four (40%) were public. All four public health laboratories evaluated are pursuing accreditation through the Strengthening Laboratory Management Towards Accreditation (SLMTA). Two (20%) public and two (20%) private laboratories are performing blood banking activities. Nine (90%) out often have validated and authorized SOPs in place. All ten (100%) laboratories participate in Internal and External Quality Assurance programs. All (100%) participants demonstrated satisfactory understanding and benefits of Accreditation. There are no equipment service contracts due to lack offunding. There is a significant shortage of laboratory scientists in the region.

INTRODUCTION
Systèmes de management de la qualité (SMQ) dans le laboratoire est devenu trop important pour être laissé au hasard. En 2011, l’organisme de réglementation national pour les laboratoire de biologie, le conseil national des laboratoires de biologie du Zimbabwe a publié des directives minimales pour tous les laboratoires et qui se basent sur la norm (ISO) 15189. La mise en œuvre du SMQ a été lourde vu le nombre de défis; allant du manque de financement, le départ des compétences, le moral bas du personnel et la crise économique.

OBJECTIFS
L’objectif de cette étude est d’évaluer la mise en œuvre ou l’absence de qualité dans les laboratoires. L’application d’une norme ISO est une démonstration que le SMQ existe. Plus encore, la présence de procédures normalisées et contrôlées d’exploitation (SOP), la participation à un contrôle interne et externe d’assurance qualité est un indicateur de l’absence de lacunes en matière de qualité dans les laboratoires.

CONCEPTION DE L’ÉTUDE ETMÉTHODES
Une enquête transversale, à l’aide d’un questionnaire a été adressé à 10 laboratoires, huit (80%) dans les zones urbaines et deux (20%) en milieu rural. Le questionnaire a été rempli par les directeurs de laboratoire et dans certains laboratoires par les responsables qualité.

RÉSULTATS
Six (60%) des laboratoires évalués étaient privés tandis que quatre (40%) étaient publics. Les quatre laboratoires de santé publique évalués ont pour objectif l’accréditation suivant le système de renforcement de la gestion du laboratoire vers l’accréditation (SLMTA). Deux laboratoires publiques (20%) deux privés (20%) effectuent des activités de banques de sang. Neuf (90%) sur dix ont validé et autorisé des SOP. Tous les dix (100%) les laboratoires participent des programmes de contrôle interne et externe d’assurance qualité. Tous (100%) les participants ont démontré une compréhension satisfaisante et les avantages de l’accréditation. Il n’existe aucun contrat de service pour la maintenance des équipements en raison du manque de financement. Il y a une important épénuirie de scientifiques de laboratoire dans la région.
DISCUSSION AND CONCLUSIONS
There is a generally impressive appreciation of QMS in the region.
There is need for regular quality management discussions as inter-
laboratories to share experiences and encouragement. Quality
laboratory practice is possible in the Matebeleland region through
accreditation measures. Further studies need to expand and
evaluate the gaps across the whole country.

DISCUSSION ET CONCLUSIONS
Illy a généralement une sensibilisation importante au SMQ dans la
région. Il est nécessaire de procéder à des discussions régulières
inter-laboratoires de la région sur la gestion de la qualité afin
d'échanger les expériences et s'encourager mutuellement. La mise
en œuvre d’un système qualité dans les laboratoires est possible
dans la région du Matabeleland par la voie de l'accréditation.
Cependant des études supplémentaires doivent se faire pour évaluer
les lacunes dans l'ensemble du pays.

TRANSPLANT PATIENT TAKES ON NEW BLOOD GROUP -
a case study investigated by the South African National Blood Service

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KEYWORDS
Stem cell transplantation, Blood Group, Plasmapheresis, Genotype, Serology

NATURE OF PROBLEM
The literature on stem cell transplantation indicates that it is possible
for a patient to take on the blood group of the stem cell donor. The
Immunohaematology Reference Laboratory recently encountered
a case which demonstrated this phenomenon. The patient,
N.N(P), required a stem cell transplant from her related donor,
N.N(D), however they were of incompatible ABO blood groups. It was
therefore necessary for the clinician to determine the anti-B titre
of the patient to determine the possible effect of transplantation.
Upon full investigation of this case it was noted that the patient’s
ABO blood group had changed from group 0 to group B following
a stem cell transplant.

METHODS
A request was received from Inkosi Albert Luthuli Hospital to
determine the ABO blood group and antibody titres for the patient,
N.N(P), and her related donor, N.N(D). The ABO grouping and allo-
agglutinin titrations were performed. Upon receipt of these titre
results, it was decided that a plasmapheresis procedure was to
be conducted to lower the antibody levels. Subsequent samples
were sent to determine the drop in allo-agglutinin titre. Three
weeks later the stem cell transplantation was then performed.
Post transplant samples were taken and referred to the Reference
Laboratory for testing. Following serological testing, samples were
sent for molecular genotyping. Although the methods for genotyping
are still in the research phase for possible implementation within
South African National Blood Service the test was requested for
confirmation of the serological results.

RESULTS
Serological and molecular results on all samples received for the
patient and donor.
One of the AfSBT strategic objectives is to develop and establish an internationally recognised educational program that will advance the development of blood transfusion skills across the continent and support accreditation endeavours of blood transfusion centres. This sounds a relatively simple attainable task. It is relatively easy to organise a short course or Congress but to create an education programme which is sustainable requires three key components:

1. A good knowledgeable service provider
2. High quality relevant education material
3. A learner who is hungry for knowledge and has a desire for self-improvement.

During this presentation, the importance and challenges of each of the three key components will be discussed.

Practical examples of modules on donor screening and transfusion medicine will be demonstrated.

**DEVELOPING A CURRICULUM OR PROGRAM ON POINT OF CARE TESTING (POCT) FOR MEDICAL DIAGNOSIS** that can be used to clearly articulate a policy document in terms of POCT regulation and operation

**CONTEXTE**

Le test ultime au lit du malade (TULM), se rapporte à des tests qui sont effectués par des utilisateurs cliniques utilisant des dispositifs portés au chevet ou autre site de soins aux patients dont les résultats sont utilisés pour les décisions cliniques immédiates.

**BACKGROUND**

Point of care testing, also known as bedside, near-patient testing or decentralized testing, relates to tests that are conducted by clinical operators using devices brought to the bedside or other site of patient care where results are used for immediate clinical decisions making (Doing now what patients need next).
This migration attesting procedures to outside the laboratory facilities, creates new challenges.

It is important that a Point-of-Care Testing Program at any of given site is carefully planned and monitored. A written Point-of-Care Program/Policy is important since point-of-care testing tends to expand rapidly and may get out of control unless guidelines or policies are in place.1

In Zimbabwe there has been no policy in place and little attention has been devoted in formal teaching or monitoring of health personnel to ensure comprehensive and correct utilization of POCTs in medical practice. There is not much information on the criteria for the evaluation and introduction of POCTs, on the protocol for requesting new or additional services at various levels of health delivery system and on the quality assurance and quality control involved in POCT testing.

POCT is a rapidly expanding area in both the range of investigations available and the complexity of the service to be provided. It is a step into the future2 needs to be managed and not resisted.

AIMS AND OBJECTIVES
- To develop a program of study that ensures that there is a policy on point of care testing.
- Design a standard operations procedure that ensures that point-of-care testing is a carefully planned program with clear protocols for requesting new or additional service, for quality assurance and quality control at various levels of health delivery

STUDY DESIGN AND METHODS
- This is a needs assessment study
- A general needs assessment was conducted through review of published literature on POCT.
- Key stake holders in the health sector were identified.
- A questionnaire was sent to key stakeholders to identify gaps
- A meeting with the stake holders will be called to discuss the gaps and the formation of a multidisciplinary committee.
- The multidisciplinary committee will be expected to oversee the development of a program on POCT.

EXPECTED RESULTS
- Identification of needs for setting up POCT.
- Stake holders provide input on POCT.
- Selection of Committee on POCT.
- Formulation of POCT policy.
- Development of training program.

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ESTABLISHING A STRUCTURED COURSE
FOR THE PATHOLOGY REGISTRAR at
Western Province Blood Transfusion Service

DEFINIR UN COURS STRUCTURE POUR LES AGENTS ‘PATHOLOGY
REGISTRAR’ du Service de Transfusion Sanguine de la province de l'Ouest

Mundey Nadia, Falsal Hassen, Faleqa Adams

INTRODUCTION
In South Africa, according to the College of Medicine of South Africa (CMSA), pathology registrars specialising in haematology must complete at least a three month training period in a transfusion medicine training facility as part of their three and a half year internship as a haematology registrar. Pathology registrars specialising in clinical pathology or a paediatrician, physician or haematological pathologist sub-specialising in clinical haematology may spend a minimum of 3 weeks in a transfusion medicine training facility as part of their training period of 42 and 18 months respectively. The Training Department of Western Province Blood Transfusion Service (WPBTS) is accredited with the Health Professional Council of South Africa (HPCSA) as a training facility that facilitates the registrars in completing their transfusion medicine training period.

NATURE OF PROBLEM
In 2010 the Training Department reviewed all the course outlines of the various courses that are facilitated by their trainers. It was decided that the Pathology Registrar Program needed a more comprehensive course to fulfill the specific needs of the registrars.

ESTABLISHING A FRAMEWORK
The regulations for admission to the College of Pathologists of South Africa in Haematology, Clinical Pathology and Clinical Haematology were obtained from the website of the CMSA. The module that pertains to Blood Transfusion was used as the academic starting point. The Blood Transfusion fourth year internship syllabus for Trainee Medical Technologists, as registered with the HPCSA, was used for the practical aspects. The professional requirements of the various pathology disciplines were obtained from the Haematology Department at Groote Schuur Hospital. A basic set of notes, including theory and practical aspects, were compiled for the registrars.

STRUCTURING THE COURSE
The course outline was structured into a first, second and third rotation. In the first rotation all theoretical and practical aspects are completed by the registrar with the aid of a designated trainer. Registrars are also required to spend a stipulated amount of time in various departments. Registrars spending only 3 weeks at WPBTS have a shorter practical work period due to the completion of case studies while the registrars specialising in Haematology will have their first rotation structured over four weeks.

INTRODUCTION
En Afrique du Sud, selon le Collège de médecine de l'Afrique du Sud (CMSA), les agents "pathology registrars" spécialisés en hématologie doivent compléter au moins une période de formation de trois mois dans un centre de formation en médecine transfusionnelle dans le cadre de leur stage de trois ans et demi en tant qu'agent sus indiqué spécialisé en hématologie. Ce agents spécialisés en pathologie clinique ou un pédiatre, un médecin ou un pathologiste hématologique sous-spécialisé en hématologie clinique peuvent passer un minimum de 3 semaines dans un centre de formation en médecine transfusionnelle dans le cadre de leur période de formation de 42 et 18 mois respectivement. Le Département de la formation de la province du Western Service de transfusion sanguine (WPBTS) est accrédité par le Conseil professionnel de la santé d’Afrique du Sud (HPCSA) comme un centre de formation qui facilite à ces agents leur période de formation en médecine transfusionnelle.

LA NATURE DU PROBLÈME
En 2010, le Département de la formation a examiné tous les plans de cours des différents cours qui seront enseignés par leurs formateurs. Il a été décidé que le Programme au agents cités ci dessus avait besoin d'être plus complet pour répondre à leurs besoins spécifiques.

ÉTABLISSEMENT DU CADRE
Les règles d'admission a été obtenus du site Web de la CMSA. Le module qui se rapporte à la transfusion sanguine a été utilisée comme point de départ théorique. Le programme de quatrième année de transfusion sanguine pour les techniciens biologiques tel que prévu par le HPCSA, a été utilisé pour les aspects pratiques. Les exigences professionnelles des différentes disciplines de pathologie ont été obtenues à partir du service d’hématologie à l’hôpital Groote Schuur. Un ensemble de base de notes, y compris la théorie et les aspects pratiques ont été élaborées pour les agents concernés par la formation.

STRUCTURER LE COURS
Le plan du cours a été structuré en un premier, deuxième et troisième cycle. Dans le premier cycle tous les aspects pratiques et théoriques sont complétés par l'apprenant à l'aide d'un formateur désigné. Les bureaux d'enregistrement sont également tenus de passer certain temps fixé dans les différents départements.
On their second rotation specific theory and practical work is reviewed followed by the review of specific case studies. During their last rotation the registrar reviews any theory, practical and pertinent literature relevant to transfusion medicine. Guidelines were compiled to ensure that all WPBTS facilitators adhere to the same training format.

**EVALUATION**  
A simple pre and post course evaluation form was introduced at the end of 2012. We currently do not have significant data due to the small sample number; but from the few evaluations that have been done, it appears that the expectations of the registrars are being met.

**CLOSING REMARKS**  
Establishing the pathology registrar program created an opportunity for optimum interaction between the registrars and the facilitators to enhance their knowledge of Immunohaematology.

**INTRODUCTION**  
Although donor blood is much safer thanks to robust donor selection and testing initiatives patient identification and labelling errors continue to be the main cause of lifethreatening acute transfusion reactions. These errors occur during phlebotomy; hospital laboratory testing; collection of blood from the laboratory and administration of blood at the bedside. Case studies will be used to highlight these errors and stimulate discussion of preventive measures with participants.

The first three case studies are derived from cases personally experienced as head of a hospital transfusion laboratory whereas the other cases are adapted from SHOT UK haemovigilance program and the Canadian TraQ program case studies. The case studies a re relevant for all staff involved in blood transfusion.

**CASE 1 - mixed field**  
Previous Transfusion at district hospital affect blood grouping  
Patient transfused in emergency at district hospital  
Referred to provincial hospital  
Importance of checking transfusion history  
Antibody identification panel

Les apprenants passent seulement 3 semaines à WPBTS ont un travail pratique sur une courte période pour leur permettre l'achèvement des études de cas, tandis que les agents concernés spécialisés en Hémato ont leur premier cycle structuré sur quatre semaines. Pour leur deuxième cycle un travail spécifique théorique et pratique est suivi par l'étude des cas spécifiques. Lors du dernier cycle l'apprenant revoit toute la théorie, la pratique et la littérature pertinente pour la médecine transfusionnelle. Des directives ont été établies pour s'assurer que tous les animateurs WPBTS respectent le même format de formation.

**Evaluation**  
Un formulaire d'évaluation a été mis en place à la fin de 2012. Nous n'avons actuellement pas de données importantes en raison de la petite taille de l'échantillon, mais les quelques évaluations qui ont été faites, il semble que les attentes des apprenants ont été satisfaites.

**Remarque de clôture**  
L'établissant d'un programme de formation tel que décrit dans cette étude a créé une occasion pour une interaction optimale entre apprenants et les animateurs à permet d'améliorer leur connaissance en immunohématologie.
CASE 2 - wrong hospital number
Wrong hospital number changes crime from GBH to murder
Patient stabbed after leaving local nightclub
Transfused with blood of another patient with same name
Importance of checking hospital number.
Always ask laboratory staff when you notice a discrepancy

CASE 3 - wrong blood transfused
Mix-up of cross-matched blood leads to death of patient
Two patients admitted at same time (8:00pm)
Both needed urgent transfusion
Hospital numbers swapped
Nurse added unit number on collection
One patient died, Nurse suspended and BMS back grouped.

CASE 4 - Wrong blood in tube
Sample labeling error at phlebotomy delays transfusion of our patients
Hazard of pre-labeving tubes before bleeding the patient
Measures taken to protect patient
http://www.shotuk.org

CASE 5 - student Q
Student error leads to death of patient
Poor supervision
Faulty electronic crossmatch
Investigative interview
http://www.traqprogram.ca/

CASE 6 - SHOTUK 2012
Daughter’s blood labelled with mother’s details
http://www.shotuk.org/resources/archived-resources/
[accessed 14/04/2014]
http://www.traqprogram.ca/index.php/case-study-a/case-a8
[accessed 14/04/2014]
RESIDUAL RISK ESTIMATES of viral transfusion transmissible infections in Zimbabwe

BACKGROUND
Several blood establishments have blood safety strategies designed to reduce chances of transfusion transmittable infections (TTIs) in donated blood. Despite all these interventions, window period donations still pose risks and concerns. Accurate estimation of the residual risk allows effective monitoring and evaluation of blood safety strategies. Various residual risk estimation models have been published. It is important to assess the applicability of these models to different settings especially in low-income countries. In this study we estimate the probable risk estimate of TTIs in Zimbabwe based on application of three residual risk models.

METHODS
Three residual risk estimation models based on incidence rate-window period risk models and prevalence data were applied to the National Blood Service Zimbabwe blood donor data from 2002 through 2011. Average residual risk estimates for HIV, HBV and HCV were determined based on average estimates from the three models.

RESULTS
Between 2002 and 2011 there were 494,959 usable blood donations consisting of 56% repeat donations and 44% new donations. Overall the prevalence of HIV, HBV and HCV were 0.17%, 0.24% and 0.04% respectively in repeat donors and 0.66%, 1.91%, and 0.14% in new donors. The overall average point residual risk estimates were for HIV 1 in 5751 (range, 1:7176-5064), HBV 1 in 2170 (range, 1:3991-1081) and HCV 1 in 8,425 (range, 1:19,557-1655).

CONCLUSIONS
The risk of transmitting viral infections through blood in Zimbabwe is low compared to reported estimates from sub-Saharan Africa low-income countries. However, relative to high-income countries these residual risk estimates are still quite high. The three models estimates were generally comparable on the total residual risk estimates for all the markers. Other cost-effectivestrategies need to be considered to enhance blood safety in Zimbabwe, which may include exploring NAT testing and pathogen reduction technologies.

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CONTEXTE

MÉTHODES
Trois modèles d’estimation du risque résiduels basées sur des modèles de délai de la fenêtre sérologique, l’incidence du risque et les données de prévalence ont été appliquées aux données de donneurs de sang du Service National de Transfusion sanguine du Zimbabwe de 2002 à 2011 les estimations des risques résiduels moyens pour le VIH, le VHB et le VHC ont été déterminées sur la base de la moyenne des estimations selon les trois modèles.

RÉSULTATS
Entre 2002 et 2011 il y avait 494 959 dons de sang distribuables constitués provenant de 56% des dons réguliers et 44% de nouveaux donateurs. La prévalence du VIH, le VHB et le VHC étaient de 0,17%, 0,24% et 0,04% respectivement chez les donneurs réguliers et de 0,66%, 1,91% et 0,14% chez les nouveaux donateurs. Les estimations globales de risques résiduels en moyenne étaient pour le VIH 1 en 5751 (intervalle,1:7176-5064), le VHB 1 en 2170 (intervalle 1:3991-1081) et le VHC 1 en 8425 (intervalle, 1:19,557-1655).

CONCLUSIONS
Le risque de transmission d’infections virales par le sang au Zimbabwe est faible par rapport aux estimations retrouvées pour les pays à faible revenu de l’Afrique subsaharienne. Cependant, par rapport aux pays à revenu élevé ces estimations de risques résiduels sont encore très élevées. Les trois estimations modélisées étaient généralement comparables sur les estimations du risque résiduel total pour tous les marqueurs. D’autres stratégies rentables doivent être considérées afin d’améliorer la sécurité du sang au Zimbabwe, ce qui peut inclure l’introduction du dépistage DGV et les technologies de réduction des agents pathogènes.
COST EFFECTIVENESS ANALYSIS OF INTRODUCING HTLV-1 TESTING in South Africa

INTRODUCTION
Human T Lymphotropic Virus type 1 (HTLV-1) is a human retrovirus first reported in the early 1980’s and etiologically linked to Adult T-Cell Leukaemia Lymphoma (ATL) and HTLV Associated Myelopathy/ Tropical Spastic Paraparesis (HAM/TSP). A 1996 study found an HTLV-1 prevalence of 0.008% among blood donors in KwaZulu Natal (KZN) province, with higher prevalence in black and coloured donors (0.13%). Routine screening for HTLV was not implemented at that time. A cross-sectional study of 46,765 donations that were oversampled (4:1) for black and coloured compared to white and Asian donors was conducted in 2013 to determine the prevalence of HTLV-1 in the South African donor population. A prevalence of 0.13% was seen. Extrapolated to SANBS donations overall prevalence was 0.062% with no difference among new, repeat and lapsed donors (p=0.99). There were 58 (0.17%) confirmed positives in Black donors, 1 (0.02%) in each of White and Coloured donors and 0 in Asian donors (p=0.0087). Donors 41 years and older were more likely to be HTLV-1 positive (0.024%) than donors 26-30 years (0.006%), (p <0.0005).

AIMS AND OBJECTIVES
Using this data (abstract submitted), we aim to determine subsequent cost effectiveness of potential HTLV screening strategies in preventing transfusion transmission (TT).

STUDY DESIGN AND METHODS
Five interventions (no screening, universal screening, screening all donors once, screening new donors only, and universal leukodepletion) were compared. The size of the population to be screened was 831 565, 507 054 and 133 050 donors for universal screening, screening all donors once and screening new donors only, respectively. We used a prevalence of 0.062% and an assumed transmission efficiency of 10% (1% is also shown in Table 1). Intervention and donor management costs and estimated number of TT infections prevented were determined.

RESULTS
We estimated that at a 10% assumed transmission efficiency there would be 57.79, 0.58, 0.6, 49.53 and 0.48 potential TT cases that would not be interdicted by no screening, universal screening, screening all donors once, screening new donors only, and universal leukodepletion, respectively. Combined with the cost of screening for each strategy the estimated cost per TT infection prevented were RO, R347 311, R288 857, R664 304 and R56 668 475, respectively. In the first year of screening, with the assumption that HTLV-1 incidence is very low, the strategy of screening all donors once has the best cost effectiveness ratio in terms of cost per TT avoided (Table 1).
In subsequent years the cost effectiveness will shift toward the estimated ratio seen for first time donor screening because repeat and lapsed HTLV seroprevalent donors will be screened out.

**DISCUSSION AND CONCLUSIONS**

Since the 1996 study there has been significant 7.75 fold increase (p<0.0005) in HTLV-1 overall prevalence, most probably due to the increased number of donations from black donors. Assuming a strategy of screening each donor once, it would cost the blood service approximately R288,857 (US$27,510) per TT infection prevented increasing to R664,304 (US$63,267) in subsequent years. SANBS is carefully considering the costs and benefits of introducing HTLV screening in South Africa.

**RÉSULTATS**

Nous avons estimé que, à une possibilité de transmission hypothétique de 10%, il serait de 57,79, 0,58, 0,6, 49,53 eto,48 cas de TT potentiels qui ne seraient pas identifiés par l’absence de dépistage, le dépistage universel, le dépistage de tous les donneurs une fois, le dépistage de nouveaux donneurs seulement et la déleucocytation universelle, respectivement. Combiné avec le coût du dépistage pour chaque stratégie, le coût par contamination par TT empêché étaient RO, R347 311, R288 857, R664 304 et R56 668 475 respectivement. Dans la première année de dépistage, avec l’hypothèse que le HTLV-1 a une incidence très faible, la stratégie de dépistage de tous les donneurs de sang une fois a le meilleur rapport coût-efficacité en termes de coût par TT évité (tableau 1). Dans les années suivantes, la rentabilité se déplacera vers le ratio estimatif pour la sélection des donneurs de première fois car ceux reguleurs et anciens auraient été exclus.

**DISCUSSION ET CONCLUSIONS**

Depuis l’étude de 1996, la prévalence HTLV-1 globale, a augmenté de 7,75 fois plus (p <0,0005) probablement en raison de l’augmentation du nombre de dons des donneurs de couleur noire. En supposant une stratégie de dépistage pour chaque donneur une fois, il en coûterait au service de transfusion sanguine environ R288, 857 (27,510 $ US) par infection de TT empêchée et une augmentation de R664, 304 (63,267 $ US) au cours des années ultérieures. SANBS examine attentivement les coûts et les avantages de l’introduction de dépistage du HTLV en Afrique du Sud.

**THE PREVALENCE OF HIV RISK FACTORS** among South African National Blood Service HIV positive blood donors

**LA PREVALENCE DES FACTEURS DE RISQUE POUR LE VIH** parmi les donneurs de sang VIH positif Service National de Transfusion Sanguine d’Afrique du Sud

*Solomuzl Ngcobo*

**KEYWORDS**

*pre-donation assessment, HIV, risk factors, blood donors*

**MOTS CLÉS:**

*pré-don évaluation, le VIH, les facteurs de risque, les donneurs de sang*

**INTRODUCTION AND BACKGROUND**

Every blood donor completes a set of questions and undergoes one on one interview (pre-donation assessment) before donating blood at South African National Blood Service(SANBS). The questions in the donor questionnaire are specifically designed to exclude donors that have risky behaviours relating to HIV infection.

**AIM OF THE STUDY**

The aim of the study was to assess the prevalence of HIV risk factors among the SANBS HIV positive donors who availed themselves for counselling at SANBS. The aim was to assess HIV risk factors that were missed by the pre-donation assessment that led to HIV risk donors giving blood.

**INTRODUCTION ET CONTEXT**

Chaque donneur de sang complète une série de questions et subit un entretien (d’évaluation pré-don) pour donner du sang au service national de transfusion sanguine d’Afrique du sud (SANBS). Le questionnaire du donneur est spécifiquement conçu pour exclure les donneurs qui ont des comportements à risque liés à l’infection à VIH.

**BUT DE L’ÉTUDE**

L’objectif de l’étude était d’évaluer la prévalence des facteurs de risque pour le VIH parmi les donneurs VIH positifs au SANBS qui se sont présentés pour un conseil 1 au SANBS. L’objectif était d’évaluer les facteurs de risque pour le VIH qui ont été manqués par l’évaluation pré-don conduisant des donneurs à risque pour le VIH à faire don de sang.
METHODOLOGY
A total of 791 records of donors that tested HIV positive after donating blood and availed themselves for HIV counselling at SANBS were reviewed. The period under review was 01 April 2012 to 31 March 2013. Statistical techniques (Mann-Whitney and Pearson chi-squared tests) were used to test if there was any relationship between demographic information and presence of risk factors.

RESULTS
Of the 791 donors, 321 (40.58%) had risky behaviours that could have been identified prior to donating had they answered the questions honestly. Most of the HIV infected donors were single (77.62%) and also Black Africans (90.13%). With regards to educational qualifications 51.37% indicated to have been to school and 34.46% had tertiary education. A total of 502 (63.71%) were first time donors; 78 (9.9%) were lapsed donors and 203 (25%) were repeat donors and the status of five donors was unknown.

DISCUSSION
Statistical analysis showed that gender (p<0.001), education (p=0.018), race (p=0.035) and donor status (p=0.037) were associated with identifiable risk behaviours. Specifically, 50.78% of males did not reveal the truth which could have led them to be excluded from donating blood. Donors with no tertiary education also had more identifiable risks (43.88%) compared to those who had tertiary education (34.70%). With respect to race, Indian donors have more identifiable risk factors (78.57%) compared to other races. Both the first time and lapsed donors had more identifiable risk factors, 43.43% and 42.31% respectively, compared to repeat donors (33%). Even though statistically there was no association between marital status and presence of risk factors (p=0.25), results showed that separated and divorced donors had more identifiable risk factors compared to other marital status. The risk factors that were missed by the pre-donation assessment included:
1. HIV infected sexual partners
2. Born HIV infected
3. Donors with multiple and concurrent partners
4. Commercial sex worker donors

CONCLUSION
It is apparent from this analysis that there would be very few donors who test HIV positive if they were honest when completing the questionnaire or alternatively if the self-exclusion donor questionnaire and one on interviews were more sensitive. It is recommended that the pre-donation assessment should be reviewed on an on-going basis so as to improve its sensitivity.

MÉTHODOLOGIE
Un total de 791 dossiers de donneurs qui se sont avérés séropositifs après le don de sang et se sont prévalus de conseil sur le VIH au SANBS ont été examinés. La période de l’étude a été du 01 Avril 2012 au 31 Mars 2013. Les techniques statistiques (tests de chi carré de Mann-Whitney et de Pearson) ont été utilisés pour tester s’il y avait une relation entre l’information démographique et la présence de facteurs de risque.

RÉSULTATS
Sur les 791 donneurs, 321 (40,58%) ont eu des comportements à risque qui auraient pu être identifiés avant de faire don s’ils avaient répondu honnêtement aux questions. La plupart des donneurs infectés par le VIH étaient célibataires (77,62%) et aussi des Africains noirs (90.13). En ce qui concerne les qualifications 51,37% ont indiqué avoir été à l’école et 34,46% ont fait des études supérieures. Un total de 502 (63,71%) étaient donneurs pour la première fois, 78 (9,9%) sont des ancien donateurs et 203 (25%) étaient les donneurs réguliers et l’état de 5 donateurs était inconnu.

DISCUSSION
L’analyse statistique a montré que le sexe (p <0,001), l’éducation (p = 0,018), la race (p = 0,035) et le statut de donneur (p = 0,037) étaient associés à des comportements à risque identifiables. Plus précisément, 50,78% des hommes n’ont pas révélé la vérité qui aurait conduit à les exclure du don de sang. Les de sang n’ayant pas suivi d’enseignement supérieur ont également plus de risques identifiables (43,88%) par rapport à ceux qui sont d’un niveau supérieur (34,70%). En ce qui concerne la race, les donateurs indiens ont des facteurs de risque plus identifiables (78,57%) par rapport aux autres races. Les donneurs pour la première fois et les anciens donateurs ont des facteurs de risque plus identifiables, 43,43% et 42,31% respectivement, par rapport au donneurs réguliers (33%). Même si, statistiquement, il n’y avait pas d’association entre l’état matrimonial et la présence de facteurs de risque (p = 0,25). Les résultats ont montré que les donneurs séparés et divorcées avaient des facteurs de risque plus identifiables par rapport aux autres états matrimoniaux. Les facteurs de risque qui ont été manqués par l’évaluation pré-don comprennent:
1. Partenaires sexuels infectés par le VIH
2. Naissance avec le VIH
3. Donneurs de sang ayant partenaires multiples et simultanés
4. Donneurs de sang exerçant le commerce sexuel

CONCLUSION
Il ressort de cette analyse qu’il y aurait très peu de donneurs de sang dont le test VIH est positif s’ils étaient honnêtes au moment de remplir le questionnaire ou bien si le questionnaire du donneur d’auto-exclusion et l’autre sur les entrevues ont été plus sensibles. Il est recommandé que l’évaluation pré-don doit être revue sur une base continue afin d’améliorer sa sensibilité.
SURVIVAL AND RISK FACTORS FOR MORTALITY AMONG HIV/TUBERCULOSIS CO-INFECTED PATIENTS ON ANTIRETROVIRAL THERAPY in a resource limited setting

BACKGROUND
Tuberculosis is the most common opportunistic infection and most frequent cause of mortality among HIV-infected persons in resource constrained settings and the number of patients with co-infection continues to grow rapidly.

OBJECTIVE
To determine the survival and predictors of mortality among HIV/ Tuberculosis co-infected patients on antiretroviral therapy at Wilkins Infectious Disease Hospital (WIDH), Harare.

METHODS
A retrospective study in a cohort of 207 HIV/TB co-infected patients who presented to WIDH and started ART between 1 December 2004 and 1 March 2010 was carried out. A retrospective review of patient medical records was done. Kaplan-Meier method was used to construct survival functions, the log rank test was used to test equality of survivor functions across strata; we performed univariate and multivariate analysis and constructed a Cox proportional hazards model to determine factors that determine survival in HIV/TB co-infected patients on ART.

RESULTS
There were 45 (21.74%) deaths at the end of the study among whom 18 (40%) died in those who had extra-pulmonary tuberculosis and 27 (60%) in patients with pulmonary tuberculosis. The mortality rate was 9.8 deaths/100 person years of follow-up. The cumulative mortality at 3, 6 and 12 months was 1%, 5% and 15% respectively. Independent predictors of mortality were CD4 count <50 cells/ul adjusted Hazard Ratio [AHR] 2.37, 95% CI (1.158-4.856), WHO stage four at baseline [AHR, 2.69 95% CI (1.35-5.34)], cotrimoxazole use [AHR, 0.29 95% CI (0.86-0.89)]. Haemoglobin was not found to be a risk factor.

CONCLUSION
Mortality was high in the first year relative to subsequent years. There was increased risk of death in patients co-infected with HIV and TB who presented to the clinic with late stage disease as indicated by the WHO clinical stage criterion and low CD4 count at baseline and these were strong predictors of mortality.

CONTEXTE
La tuberculose est l’infection opportuniste la plus courante et la cause la plus fréquente de mortalité chez les personnes infectées par le VIH en situation de ressources limitées et le nombre de patients avec co-infection continue de croître rapidement.

OBJECTIF
Déterminer la survie et les facteurs prédictifs de mortalité chez les patients co-infectés VIH /tuberculose et ayant un traitement antirétroviral à l’hôpital Wilkins des maladies infectieuses (WIDH), Harare.

MÉTHODES
Une étude rétrospective sur une cohorte de 207 patients co-infectés VIH /TB qui se sont présentés à WIDH et commencé un traitement antirétroviral a été réalisée et couvrant la période le 1er Décembre 2004 et le 1er Mars 2010. Une étude rétrospective des dossiers médicaux des patients a été faite. La Méthode de Kaplan-Meier a été utilisée pour construire les fonctions de survie, le test du log-par rang a été utilisé pour tester l’égalité des fonctions de survie à travers les niveaux; nous avons effectué une analyse univariée et multivariée et construit un modèle Cox de risques proportionnels pour déterminer les facteurs qui sont à l’origine de la survie des patients co-infectés VIH /TB sous TAR.

RÉSULTATS
Il y avait 45 (21,74%) décès à la fin de l’étude, parmi lesquels 18 (40%) sont décédés et parmi eux ceux qui ont eu la tuberculose extra-pulmonaire et 27 (60%) des patients atteints de tuberculose pulmonaire. Le taux de mortalité était de 9,8 décès /100 personnes suivies. La mortalité cumulée à 3, 6 et 12 mois était respectivement de 1%, 5% et15% de. Les facteurs prédictifs indépendants de mortalité étaient une numération de CD4 <50 cells/ul, ajusté Hazard ratio [AHR 2,37, IC à 95% (1,158 à 4,856)], le stade quatre OMS au départ[AHR, 2,69 IC à 95% (1,35 à 5,34)], l’utilisation du cotrimoxazole [AH R, 0,29 IC à 95% (0,86 à 0,89)]. L’hémoglobine n’a pas été trouvée pour être un facteur de risque.
Collaboration of HIV/TB activities should be reemphasized and scale up of patients to access ART or effective treatment and control of TB among co-infected patients. Increasing access of cotrimoxazole by patients on ART and interventions to identify patients before they develop these clinical markers will improve survival and increase benefits of therapy.

REFERENCE

CONCLUSION
La mortalité a été élevée dans la première année par rapport aux années ultérieures. Il y avait un risque accru de décès chez les patients co infectés par le VIH et la tuberculose, qui se sont présentés à la clinique à un stade avancé de la maladie comme indiqué parle critère de stade clinique OMS et la faible numération des CD4 au départ ets ont prédictons de mortalité. La collaboration des activités liées au VIH / TB doit être soulignée à nouveau. Les patients doivent pouvoir accéder aux ARV ou un traitement efficace et au contrôle de la tuberculose chez les patients co-infectés. Améliorer l’accès du cotrimoxazole chez les patients sous ARV et intervenir pour identifier les patients avant qu’ils ne développent les marqueurs cliniques pour permettre d’améliorer la survie et accroître les avantages de la thérapie.

EVALUATION of Various Rh (Anti-D) Typing Reagents


INTRODUCTION
The South African National Blood Services (SANBS), National Reagents laboratory, purchases commercial anti-D reagents in bulk. These reagents undergo a series of quality control tests to ensure conformance to the specifications outlined in the UK Guidelines for reagent manufacture. All quality approved reagents are then distributed to blood-banks and supporting laboratories in SANBS and external laboratories.

AIMS AND OBJECTIVES
To determine if the commercial reagents meet the criteria of acceptance for all Rh typing tests performed. The availability of bulk supply will be considered when choosing Anti-D Reagents.

STUDY DESIGN AND METHODS
The reagents were tested as per internal procedural documents and reagent package inserts.

THE TESTS PERFORMED INCLUDED
- Rh Antibody Identification
- Antibody Titrations
- One-Tube tests
- Avidity tests

CRITERIA FOR ACCEPTANCE
All Rh reagents tested against the SANBS red cell antibody identification panel using the Immediate Spin technique and/or IAT (Indirect Antiglobulin Test) must produce an anti-D positive reaction pattern to be valid.
- All Rh reagents must produce a titre equal to or greater than the titre produced by the known reference standard indicating good potency levels.

RESULTS
Annexure 1
Table 1: Antibody Identification
- 15 of 15 reagents tested met the minimum criteria of acceptance.

Annexure 2
Table 2: Titration 2A, B (IS) and 2C, D (IAT)
- 15 of 15 reagents produced a titre greater than or equal to the titre of the known reference standard using SANBS methods.

Annexure 3
Table 3: One tube (IS) and Table 4: One Tube (IAT):
- 11 of 15 reagents tested met the minimum criteria of acceptance.
- 4 reagents failed to identify the Weak D.
- 3 of the 4 missed the Partial D phenotype/s.

Annexure 4
Table 5: Avidity Test
- 9 of 15 reagents did not achieve a better time to agglutination but was as avid as the current Rh reagent.

DISCUSSION AND CONCLUSIONS
4 Anti-D reagents did not meet the minimum criteria of acceptance fortitration as it did not detect the known Weak D, Partial D, category DFR/ D category VI by Immediate Spin or IAT. 1 of the reagents that did not detect the D category VI had a limitation as per the package insert. 9 of the 15 reagents tested for avidity did not show improvement when compared to the current reagent. Only 4 Anti-D reagents meet all minimum criteria of acceptance when compared to the current reagent. The following additional factors to results obtained were considered at SANBS, (i) Length of expiry date of reagents, (ii) Ability of supplier to supply in bulk, preferably locally, (iii) Most economical supplier with efficient delivery times.
OBSTETRIC TRANSFUSION PRACTICES in the Eastern Cape Province of South Africa

BACKGROUND
Obstetric hemorrhage (OH) remains one of the leading causes of maternal deaths in South Africa. Blood transfusion is critical to the management of OH, yet there is a paucity of data on obstetric blood utilization and transfusion practices, particularly in relation to HIV status. We sought to evaluate obstetric blood utilization and transfusion practice in a sample of obstetric patients in the Eastern Cape Province (EC) of South Africa, a high HIV prevalence setting.

METHODS
We conducted a cross-sectional review of the medical records on all peripartum women who delivered at three major hospitals in the EC: Dora Nginza Hospital (DNH) [Port Elizabeth], Frere Hospital (FH) and Cecilia Makiwane Hospital (CMH) [East London] over a four-month study period (February to May 2013). Limited demographic and clinical data were collected on all patients admitted during this period. For the subset of patients who sustained OH (WHO definition) and/or were transfused, we collected detailed information on the antecedent risk factors for OH, obstetric management, HIV disease, blood transfusion, and maternal and infant outcomes.

RESULTS
We surveyed 7,242 women over the study period of whom 95.1% had received at least some antenatal care; 55.1% had normal vaginal deliveries, 42.3% had Caesarean sections and 1.7% delivered before arrival at hospital. Most of the patients (81.5%) were aged between 19 and 35; 13.8% were younger than 19. The HIV prevalence was 27.5% (25.9-30.9%) and 55.5% had CD4 counts below 350 cells/mm³. Of those who were HIV positive, 57.6% were on ART, 30.8% received prevention of mother to child transmission of HIV (PMTCT), 2.5% received no treatment and data were missing for 9.1% of cases. The HIV prevalence is the highest at CMH (30.9%) where 16.5% had CD4 counts below 200 cells/mm³. At DNH the incidence of OH was 4.7%; unfortunately estimated blood loss is not routinely recorded at FH and CMH, precluding evaluation of OH incidence. The overall transfusion rate was 3.2%, but differed significantly by hospital as follows: 1.5% at FH, 3.8% at DNH and 4.5% at CMH (p-value <0.0001). Mean antenatal Hb ranged from 10.87 g/dl (DNH) to 11.05 g/dl (FH); mean pre-transfusion Hb ranged from 7.13 g/dl (CMH) to 7.63 g/dl (DNH) and post-transfusion Hgb from 8.67 g/dl (DNH) to 9.09 (CMH).

CONTEXTE
L’hémorragie obstétricale (OH) reste l’une des principales causes de décès maternels en Afrique du Sud. La transfusion sanguine est essentielle à la gestion des OH, mais il y a un manque de données pratiques sur l’utilisation de sang et les transfusions en milieu obstétrical, notamment en matière de statut VIH. Nous avons cherché à évaluer l’utilisation du sang en obstétrique et la pratique de la transfusion sur un échantillon de patientes admises en services d’obstétriques dans la province du Cap oriental (CE) de l’Afrique du Sud, une zone où la prévalence du VIH est élevée.

MÉTHODES
Nous avons effectué un examen transversal des dossiers médicaux sur l’ensemble des femmes ayant accouché à peripartum dans les trois principaux hôpitaux de la CE: Hôpital Dora Nginza (DNH) [Port Elizabeth], Hôpital Frere (FH) et de l’Hôpital Makiwane Cecilia (CMH) [East London] sur une période d’étude de quatre mois (Février à May 2013). Les données démographiques et cliniques limitées ont été recueillies sur toutes les patientes admises au cours de cette période. Pour le sous-ensemble de patients qui ont subi une OH (définition de l’OMS) et/ou ont été transfusés, nous avons recueilli des informations détaillées sur les facteurs de risque antérieurs pour les résultats OH, la gestion obstétricale, les maladies du VIH, transfusion sanguine, et maternelle et infantile.

RÉSULTATS
Nous avons inclus 7242 femmes sur la période d’étude, dont 95.1% avaient reçu au moins une partie des soins prénataux ; 55.1% ont eu un accouchement vaginal normal, 42.3% ont eu une césarienne et 1,7% une délivrance avant d’arriver à l’hôpital. La plupart des patientes (81,5%) étaient âgées entre 19 et 35 ans; 13,8% avaient moins de 19 ans. La prévalence du VIH était de 27,5% (de 25,9 à 30,9%) et 55,5% avaient un taux de CD4 inférieur à 350 cellules/mm³. Parmi ceux qui étaient séropositifs, 57,6% étaient sous traitement antirétroviral, 30,8% ont reçu la prévention de la transmission mère-enfant du VIH (PTME), 2,5% n’ont reçu aucun traitement et les données manquaient pour 9,1% des cas. La prévalence du VIH est la plus élevée au CMH (30,9%), où 16,5% avaient un taux de CD4 inférieur à 200 cellules/mm³.
Delta Hgb (difference between post- and pre-transfusion Hgb) ranged from 1.01 g/dl (DNH) to 1.97 g/dl (CMH). Mean number of RBC units transfused was 1.68 (DNH), 2.25 (FH) and 2.27 (CMH).

**CONCLUSIONS**

The incidence of blood transfusion in the EC is about tenfold higher than in the United States (0.24-o.46%: Kuklina et al Obstet Gynecol 2009), which is consistent with findings from a recent study by our group in South Africa. While the lack of obstetric blood loss data at CM Hand FH hindered analysis, the incidence of OH at DN H was significantly higher than that reported in our previous study and double that of the United States (2.3-2.9%: Callaghan et al. Am J Obstet Gynecol 2010). Reasons for the high transfusion rates likely include anemia, coagulopathy, variable transfusion practices and perhaps high prevalence of HIV infection.

**DEVELOPMENT OF ANTIBODY SCREEN CELLS FOR USE BY THE NATIONAL BLOOD SERVICE, AND HOSPITAL BLOOD BANKS IN ZIMBABWE:** Challenges and Achievements

**INTRODUCTION**

Antibody Screen Cells are used to detect unexpected antibodies. In most cases these are alloantibodies, which formed to foreign antigens on cells from other individuals within the same species. The Food and Drug Administration (FDA), USA, requires that, for approval, the screen cells must contain the following eighteen (18) antigens: D, C, E, c, e, M, N, S, s, P1, Lea, Leb, K, k, Fya, Fyb, Jka and Jkb.

**CONCLUSIONS**

L’incidence de la transfusion sanguine dans la province EC est d’environ dix fois plus élevée qu’aux États-Unis (de 0,24 à 0,46%: Kuklina et al Obstet Gynecol 2009), ce qui est cohérent avec les résultats d’une étude récente menée par notre groupe en Afrique du Sud. Bien que le manque de données de pertes de sang obstétricales au CMH et FH entrave l’analyse, l’incidence de OH au DNH était significativement plus élevée que celle rapportée dans notre étude précédente et le double de celle aux États-Unis (2.3 à 2.9%. Callaghan et al Am J Obstet Gynecol 2010). Les raisons expliquant des taux de transfusion élevés sont : l’anémie, la coagulopathie, les pratiques de transfusion variables et peut-être la forte prévalence de l’infection à VIH.
The National Blood Service, Zimbabwe (NBSZ) discontinued production of antibody screen cells, nearly a decade ago, due to the harsh economic environment, which resulted in the failure to procure required antisera to screen blood donors, who could be selected for harvesting the required antigens. Migration and retirement, of many suitable blood donors atthattime, also contributed to challenges facedin antibody screening of cell donors. At the present time NBSZ imports Screen Cells on a two weekly standing order from South Africa. This arrangement is not only costly, but is associated with complex logistical difficulties involving transport and customs clearance requirements, resulting in delays and the blood service having to work with Screen Cells with verylimited shelf life. The local production will be more cost-effective and will provide screen cells, and ensure a sustainable and accessible supply for the needs of NBSZ and all hospital blood banks in Zimbabwe.

AIMS AND OBJECTIVES
1. To produce antibody Screen Cells for the needs of NBSZ and hospital blood banks in Zimbabwe.
2. To improve access of Antibody Screen Cells in Zimbabwe.
3. To detect as many clinically significant antibodies as possible.

STUDY DESIGN AND METHODS
A cross-sectional study was employed to develop antibody Screen Cells for the Zimbabwean population. Twelve (12) blood donors were selected for screening.

Selection of Donors: Blood group 0 Rhesus positive donors who have the antigens as prescribed by FDA were selected. A database of internationally recommended antigens.

Selection of allergens:
- D, C, E, c, e, M, N, s, P1, Lea, Leb, K, k, Jka and Jkb.

The cross-sectional study was employed to develop antibody Screen Cells for the Zimbabwean population. Twelve (12) blood donors were selected for screening.

RESULTS
Three (25%) of the blood donors qualified for use in preparing the Screen Cells. When two of the donors’ antigenic profiling are combined, the following sixteen (89%) antigens were found to be present: D, C, E, c, e, M, N, s, P1, Lea, Leb, K, k, Jka and Jkb. The screen cells are effective in detecting all the clinically significant antibodies except for the Duffy (a) and Duffy (b) antibodies.

DISCUSSION AND CONCLUSIONS
It is feasible and essential to produce screen cells for use by NBSZ and all hospital blood banks for antibody screening and detection. Local manufacture of the screen cells will not only substantially reduce the cost of importing the Screen Cells by more than US$500 (>90%), but will ensure a sustainable and affordable supply of screen cells for NBSZ and all hospital blood banks, in Zimbabwe. NBSZ will continue to screen blood donors in search for Duffy antigens, in order to complete the screen cell panel with the full complement of internationally recommended antigens.
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GLOBAL BLOOD FUND extracted from website

Global Blood Fund is a not-for-profit charity established in 2008. It is run by practicing professionals working in blood donation management in the US and Europe. The aim is simple; to save lives by improving the availability and safety of blood in some of the world’s poorest nations. GBF focuses particularly on enabling blood services in developing countries to nurture that most precious of resources — their blood donors.

GBF has provided money, equipment and other forms of support to countries in Africa, Asia, the Caribbean and South America.

GBF recognized that blood centres in North America and Europe routinely dispose of usable equipment. These items, which are in good condition, can however be used to advantage by blood services in Africa. GBF recognises that the donors of equipment may not know which African blood services could benefit from this equipment. Also, potential recipients do not know what equipment is available. To facilitate the communication between donors and recipients of equipment GBF has created EqXchange.

EqXchange is a free-to-use, online portal that makes it possible for:

- Donors to register equipment or services they would like to donate to in-need blood services.
- Registered users to view what is available and request that the equipment be donated to their blood transfusion service.
- Blood collectors in Africa to post their needs for review by better-resourced services. This can be equipment, but requests for technical expertise can also be made. It is a way for developing blood services to get support from blood banking experts across all disciplines.

The link takes you through to the EqXchange portal where there is further information and the opportunity to register. If you do have any queries, please contact info@globalbloodfund.org

AFRICA SOCIETY FOR BLOOD TRANSFUSION
GENERAL INFORMATION

OBITUARY

It is with heavy heart that we announce the demise of Professor Jean Jacques Lefrere, on 16 April 2015, after a prolonged illness. Prof. Lefrere was a valued member of our Editorial Board since 2010. He was the General Manager of the French Institute of Blood Transfusion in Paris. He created and coordinated for 8 years the Francophone Africa Blood Transfusion Research Network, supervised several multicentre studies, and published more than 300 papers in Haematological and blood transfusion journals. He has contributed significantly to the promotion of blood safety particularly in Francophone Africa.

May his soul rest in perfect peace.

Editorial Board of Africa Sanguine

NÉCROLOGIE


Que son âme repose en parfaite paix.

Le Comité de rédaction de l’Afrique Sanguine
AFRICA SOCIETY FOR BLOOD TRANSFUSION

GENERAL INFORMATION

AABB INFORMATION extracted from AABB website

AABB Membership
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Programs & Services content encompasses the major program areas within AABB. Included within this section is information on transfusion, cellular therapies and patient blood management; a section devoted to the why, where and how of blood donation; consulting services, a division of AABB that provides managerial and technical assistance to facilities worldwide; disaster response, which provides background on activities and resources intended to help facilities be better prepared in the event of a disaster or pandemic affecting the blood supply; AABB publications such as newsletters and the official journal; and the National Blood Exchange, a resource-sharing program.

AABB publications
This section provides access to all AABB publications, including Association Bulletins as well as the association’s journal, Transfusion; monthly magazine, AABB News; weekly e-newsletter, AABB Weekly Report; daily e-newsletter, AABB SmartBrief; and several quarterly e-newsletters on specific topics or initiatives related to transfusion medicine and cellular therapies.
http://www.aabb.org/programs/publications/Pages/default.aspx

AABB SmartBrief link (free sign up)
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Submissions for consideration may include original scientific articles (which will be peer reviewed), short reports, letters to the Editor, reviews, congress proceedings, and reprints of published articles (with permission).

ORIGINAL SCIENTIFIC WORK MUST MEET THE FOLLOWING REQUIREMENTS:

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2. Be written in English or French

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4. The Title page must show the names of all Authors, followed by Institutional affiliations in lower font, with superscript Arab numerals to identify Authors. The main or corresponding Author must be indicated, and contact details including e-mail, and telephone number provided where applicable. A short running Title, and 3-5 Keywords should be provided on the Title page.

5. A structured ABSTRACT of not more than 250 words must be provided under the following subheadings:
   a. Background/Introduction
   b. Aims and Objectives
   c. Study design / Materials and Methods
   d. Results
   e. Conclusion.

Letters to the Editor and Brief Reports do not require Abstracts, and will be published at the discretion of the Editor.

6. The Manuscript should not exceed 10,000 words, including Tables and Figures. The formatting requirements of the text are: Font Arial, size 10. Abbreviations in the text must be preceded by full expression of the term(s) the first time of appearance, followed by the abbreviation in parenthesis. Standard abbreviations and units of measurement must be used wherever applicable. Tables and Figures must be kept simple, with Titles above and Legends below. The same data should be represented by either a Table or a Figure as preferred by the Author, not both.

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8. Report of research on human subjects must comply with the principles of the Declaration of Helsinki (1964), and must include evidence of ethical approval by the Authorities of the Institution or Country. Evidence or statement must also be shown of informed consent of the Subjects. The Editors reserve the right to reject any submission with questionable ethical justification. Views expressed in a published article belong to the Authors, and the Journal will not be held responsible.

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11. Manuscripts should be submitted to the Editor-in-Chief, and/or the Production Editor as an attachment to email.
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Les soumissions de manuscrits pour publication peuvent être des travaux scientifiques originaux (qui seront relu par les pairs), des courtes notes, des lettres à l’éditeur, des revues, des présentations de congrès, des rééditions d’articles publiés (avec permission).

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4. La page Titre doit montrer le nom de tous les Auteurs, suivie par les affiliations institutionnelles en petits caractères, avec des chiffres arabes en exposant pour identifier les Auteurs. L’Auteur principal ou correspondant doit être indiqué, et les détails de son contact dont l’email, le numéro de téléphone fournis lorsquelles disponibles. Un court Titre et 3-5 Mots clés devraient figurer sur la page Titre.

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   b. But et objectifs
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   d. Résultats
   e. Conclusions.

   Les lettres à l’éditeur et des courtes notes ne requièrent pas d’abstracts, et seront publiées à la discrétion de l’éditeur.


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Les manuscrits doivent être produits au format Microsoft Word. Le texte de base doit être utilisé, et la mise en forme complexe doit être évitée, en particulier dans les tableaux et figures. Les manuscrits doivent être faciles à mettre à jour, à modifier pour se conformer à la mise en forme de la Revue. Les Auteurs doivent fournir l’ensemble du manuscrit en un seul envoi.

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Africa Society for Blood Transfusion
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Dr Daniel Burussa (Ethiopia)
Dr Paula Bolton-Maggs (UK)
Dr Greg Bellairs (South Africa)
Mr Paul Ashford (UK/USA)
Mr Oliver Hassall (UK)
Dr Swaibu Gatare (Rwanda)
Dr Quentin Eichbaum (USA)
Mr Fatem Moffah (Egypt)
Dr Ed Murphy (USA)
Dr Elijah Songok (Japan)
Dr Magdy El Ekiaby (Egypt)
Dr Assad Haffar (Tunisia)
Mr David Mvere (Zimbabwe)

NCTB/CNTS
Sustainability of blood services
Testing for group and TTIs
Compatibility testing
Sustainability of blood services
Testing for group and TTIs
Compatibility testing
Pathogen inactivation
Haemovigilance
Voluntary blood donors
Blood cold chain
Recent developments in the field

International Scientific Committee: Rob Wilkinson; robwilkinson795@gmail.com
Registration queries, letters of invitation: Molly Gondwe; nyags18@gmail.com

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International Scientific Committee: Rob Wilkinson; robwilkinson795@gmail.com
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31 May – 3 June 2016
Serena Hotel Conference Centre
Kigali, Rwanda

Safe and Sustainable Blood Services - where do we stand?
Scientific programme including ISBT Academy Day and lunchtime symposia:

Sustainability of blood services
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Unlocking the Potential of Blood
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- New individual members
- Associate members (non-profit organizations, e.g. blood services)
- Renewals (individual members)

After completion, scan this form & send by email to AFSBT Admin Office: info@afsb.org

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First name (calling name) ...................................................... Job Title .................................................................

Nationality ........................................................................ Year of birth □ □ □ □ Gender: Male □ Female □

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Duration of active work in field of blood transfusion / transfusion medicine ..................................................

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<thead>
<tr>
<th>Membership Type</th>
<th>Payment Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual Membership</td>
<td>US$ 40 for one year, US$ 80 for two years</td>
</tr>
<tr>
<td>Associate Membership</td>
<td>US$ 250 for one year, US$ 500 for two years</td>
</tr>
</tbody>
</table>

The undersigned declares to pay the total amount in US$ or equivalent South African Rand (ZAR) by bank transfer, and to scan and email proof of deposit to AFSBT Admin Office: info@afsb.org

Signature ................................................................. Date ...................................(dd / mm / yyyy)

Banking Details:

**Only for payments made IN South Africa**
- Account Name: The Africa Society for Blood Transfusion
- Branch Name: Pinetown, South Africa
- Branch Code: 221626

- Bankers: First National Bank
- Account Number: 62021117917
- Swift Code: FIRNZAJJ

**Account to be used by members OUTSIDE of South Africa**
- Bankers: First National Bank
- Swift Code: FIRNZAJJ

- Account Number: 0275069  $ US
- Account Number: 0275050  € EURO
SOCIETE AFRICAINE DE TRANSFUSION SANGUINE
DEMANDE D’ADHESION

- Nouveau membre individuel
- Membre associé (organisme à but non lucratif, ex : service de transfusion)
- Renouvellement (membre individuel)

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Noms: .................................................. Initials.............. M. / Mlle / Mme / Prof
Prénoms: .......................................................... Titre professionnel :
Nationalité : ........................................... Année de naissance ☐☐☐☐ ☒ Sexe: M ☐ ☒
Organisation :
Adresse :
Code postal : ........... Ville : ......................... Pays :
Teléphone + code téléphonique : ........................................ Fax:
Email : .............................................................. Numéro d’adhésion à la SATS : ............
Contacts (si différent de ceux qui sont au dessus) :
Qualifications académiques et professionnelles:
Domaines d’intérêt et d’expertise:
Durée de travail actif dans le domaine de la transfusion sanguine/médecine transfusionnelle :
La SATS pourrait envoyer vos contacts aux parties tiers (sinon, cocher la case) ☐

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Nom de la branche: Pinetown, South Africa
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Banquiers: First National Bank
Numéro du compte: 62021117917
Code Swift: FIRNZAJJ

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