LIFE BLOOD
Issue 29
March 2018

Dear Life Blood Reader,

Welcome back from the holidays! We hope that you have had a productive year thus far.

This year we can truly be proud of our remarkable heritage as WPBTS will celebrate its 80th anniversary. We continue to inform you of our latest news and information in this edition of Life Blood.

If you are going to participate in this year's Cape Town Cycle tour, have an enjoyable ride and please visit us at our Refreshment Station at the end of the M3. We look forward to seeing you there.

Please feel free to contact us with your comments, queries and suggestions.

Regards,

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Contents

Discontinuation of the WPBTS Autologous Donation Service

The WPBTS has been experiencing a significant decline in autologous blood usage that could be attributed to the public's reassurance in the increasing safety of our blood supply and echoes international blood usage trends. It has thus become no longer feasible for WPBTS to maintain this service and after many years in operation, it will be discontinued with effect from the 31st of March 2018.

We continue to provide the designated donation service as an alternative to patients undergoing elective procedures who may have concerns about receiving blood from the general blood supply. The designated donation service allows them to recruit family and friends with compatible blood groups to donate blood for them.

For designated donation queries, please feel free to contact our Specialised Donations Staff.

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We would like to thank clinicians for having supported the autologous donation service in the past and apologise for any inconvenience caused as a result of its discontinuation.

Obtain the Clinical Guidelines for the Use of Blood Products in SA, 5th Edition (2014)

The Clinical Guidelines for the Use of Blood Products in South Africa booklet is published by WPBTS in collaboration with the South African National Blood Service (SANBS). The 5th edition considers evidence-based guidelines, WHO principles, and recent research and development in blood transfusion practice. The booklet aims to assist clinicians with implementing effective patient blood management (PBM).

The Fifth Edition (2014) includes the following topics i.e. legal aspects of transfusion, ordering and administration of blood, red cell components, platelet transfusion, plasma components and derivatives, transfusion-related immunomodulation and leucocyte depletion of blood components, gamma-irradiation of blood components, management of massive blood loss, paediatric blood transfusion, alternatives to allogeneic blood transfusion, HIV/AIDS and blood transfusion, and haemovigilance, risks and adverse effects of blood transfusion.

The booklet is distributed widely to hospitals and clinicians, free of charge. We advise that at least one hardcopy should be kept at the nurse's station in wards using blood and blood products.

Click here to read the e-book version of the Guidelines.
Click here to download the PDF version of the Guidelines.

To obtain a hardcopy, please feel free to contact our Marketing Department Staff.

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WPBTS Introduces Shock Freezing For Plasma Products

As of January 2018 the WPBTS Component Processing Laboratory has successfully implemented shock freezing for the production of fresh frozen plasma and cryoprecipitate for transfusion purposes, and plasma supplied to the National Bioproducts Institute (NBI) for fractionation. The shock freezing process easily meets the requirements for the preservation of coagulation factors i.e. the packs are frozen to a core temperature of minus thirty degrees Celsius within forty-five minutes to preserve the quality of the coagulation factors that otherwise may rapidly degenerate. It also results in flatter frozen packs allowing for conformity when packaging for NBI. Compared to the previous method (i.e. freezing in the ethanol/dry ice bath), the shock freezing process is less cumbersome, less messy, less physically demanding, and is expected to reduce production costs.

Importance of Obtaining Informed Consent for a Blood Transfusion

In South Africa, informed patient consent is mandatory by law. Blood transfusions may give rise to criminal liability for the common law crime of culpable homicide and even assault. Assault may be deemed to have been committed if a blood transfusion is administered to a patient without the necessary consent.

It is generally accepted that the doctor and the blood transfusion service owe a 'duty of care' to the patient by obtaining informed consent and providing the safest blood possible, respectively. The following pointers are intended to assist clinicians with obtaining informed consent for a blood product transfusion.

Fundamental steps when deciding to transfuse

I. Transfuse blood only when it is medically indicated.
II. The risk of not receiving the transfusion should outweigh the potential risk of the recipient suffering a serious transfusion reaction.
III. A blood transfusion is the best calculated outcome compared to alternative options.

Blood safety

The WPBTS adopts a multi-layered approach to blood safety through donor education, donor selection criteria, pre-donation screening, a donor self-exclusion hotline, donation testing and leucocyte filtration, that collectively lower the risk of transfusion-transmitted infections.

Blood is collected on a voluntary non-remunerated basis to ensure the donation is made for altruistic reasons. The self-exclusion questionnaire (SEQ) aims to defer high-risk donors for transfusion-transmitted infections, which include (but are not limited to) HIV/AIDS, herpes, syphilis, gonorrhea, human papilloma virus, hepatitis A, B and C, malaria and Variant Creutzfeld-Jakob Disease.

Each individual donation is tested for HIV-1/2, hepatitis B, hepatitis C, syphilis, the ABO group and Rh type by nucleic acid testing and/or serological testing technique. All results must be negative in order for the unit of blood to be labelled and issued. The realistic case residual risk for HIV-1/2 in the WPBTS repeat donor population for 2016 is 0.14 in 1 million transfusions. The realistic case residual risk for hepatitis B in the WPBTS repeat donor population for 2016 is 7.18 in 1 million transfusions, and 1.44 in 1 million transfusions in the new donor population.

Furthermore, the risk of cytomegalovirus (CMV) transfusion transmission can be reduced through the use of leucocyte filtered blood and blood products as the filter inadvertently traps CMV contained in the white blood cells.

Benefits

There is no substitute for human blood, it can be life-saving and improve morbidity.

Red cell components help to increase haemoglobin levels and oxygen carrying capacity in a wide variety of conditions, including chronic anaemia, acute blood loss, obstetric haemorrhage, cardiac and general surgery, and massive transfusion.

Platelets help to prevent and stop bleeding in bone marrow failure, prophylaxis for surgery, massive transfusion, disseminated intravascular coagulation (DIC), cardiopulmonary bypass (CPB), liver transplantation and other causes of thrombocytopenia.

Fresh frozen plasma can help to replace inherited single factor deficiencies (where a specific factor concentrate is not available), multiple coagulation factor deficiencies (DIC, massive blood transfusion, liver disease) with active bleeding and abnormal coagulation screening tests, thrombotic thrombocytopenic purpura (where the use of cryo-poor plasma is preferred), reversal of Warfarin overdose if a prothrombin complex concentrate is not available, vitamin K deficiency associated with active bleeding (eg. haemorrhagic disease of the newborn), and suxamethonium apnoea.

Cryoprecipitate can help to treat congenital or acquired hypofibrinogenaemia or dysfibrinogenaemia.

For information about plasma-derived medicinal products, please feel free to contact the National Bioproducts Institute (Fractionator) Marketing Department Staff.

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Risks

The potential risks for blood transfusions include adverse transfusion reactions, misdirected transfusions, and incorrect blood components transfused. The SANBS and WPBTS Haemovigilance Report 2016 indicates that out of a reported 986 suspected transfusion reactions, 93% were due to acute transfusion reactions, of which febrile non-haemolytic reactions were the most common followed by allergic reactions. Of the adverse reactions, 3.8% of cases were due to incorrect blood components transfused, of which 81.6% were attributable to hospital staff errors in 2016. The hospitals reported 14 cases of transfusion-related patient deaths, although only 3 cases were accompanied by sufficient documentation required to conduct post-transfusion investigations. Seven of the cases were classified as probably unrelated to transfusion, as the treating doctors reported that the deaths were more likely a consequence of the patient's underlying illness. One case was associated with delayed issuing of fresh frozen plasma. A total of 11 recipient-triggered look-back cases were reported and six had been resolved at the time of the report. Four of these cases remain unresolved due to absent records and donors being untraceable.

Adverse transfusion reactions can be minimised by leucocyte filtration of blood and blood products and the use of platelet additive solution (PAS). Leucocyte reduction involves the physical filtration of blood products, resulting in the removal of white blood cells that are often responsible for immune-mediate reactions in the recipient and can harbour infection. The use of PAS significantly decreases allergic reactions in patients due to the reduction in plasma volume, as plasma cytokines and proteins are largely responsible for these reactions. There has also been a suggested decline in Transfusion Related Acute Lung Injury (TRALI) and acute haemolytic transfusion reactions with PAS-containing platelet products. Earlier bacterial identification in contaminated platelet products has been demonstrated with the use of PAS.

Costs

The costs for blood products and services can be accessed on our website from the applicable WPBTS pricelist for the private sector or state sector.

To request quotations, please contact the WPBTS Marketing Department Staff.

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Alternatives
The WPBTS provides the designated donation service as an alternative to receiving blood from the general allogeneic blood supply. Designated donors are nominated by the prospective patient and must undergo the same screening procedures and testing as a regular blood donor. It is important for patients to understand that only people with compatible blood groups can be designated donors for them. There is no evidence that blood from a designated donor is any safer than from the allogeneic blood supply.

The autologous donation service will be discontinued as of 31st March 2018.

For medical support or advice regarding blood safety and informed consent, please contact the WPBTS Medical Staff.

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Useful Reading:
1. Clinical Guidelines for the Use of Blood Products in South Africa, Fifth Edition (2014)
2. SANBS and WPBTS Haemovigilance Report 2016

WPBTS 2017 Customer Satisfaction Survey Feedback

The WPBTS 2017 customer satisfaction survey results indicate that overall blood users are satisfied with the quality of products and service provided. The survey, which was conducted in November and December last year, elicited a total of 1 376 responses from 31 participant hospitals/facilities.

It is advisable for blood users to become acquainted with the Blood Bank processing times to alleviate any unrealistic expectations about product delivery. The Blood Bank prioritises testing according to the urgency of the cross-match request and patient diagnosis. Group and screen testing is processed within approximately forty-five minutes, 'STAT' requests are processed within approximately twenty minutes, 'ASAP' requests are processed within approximately two hours, and routine requests are completed by the requested time. These processing times are applicable if there are no testing complications and are also dependant on the workload of the Blood Bank. In the event that there are complications, the Blood Bank will contact the clinician to request additional patient samples (eg. in the event of antibody identification) or offer alternative solutions for the patient (eg. provision of 'least' incompatible or non-phenotyped units).

Logistical issues must also be taken into consideration. For example, samples that have been drawn at 08h00 may only be collected by the porters by 08h30, sent with the Hospital driver by 09h30, and arrive in the Blood Bank by 10h00. It would take two hours for the completed compatibility testing and one hour for a return trip to the hospital, resulting in up to five hours before the blood is delivered to the hospital.

We would like to thank every survey participant for their invaluable feedback.

For more survey information, please feel free to contact the WPBTS Marketing Department Staff.

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Pre-transfusion Bedside Checks

Regarding the findings in the SANBS and WPBTS Haemovigilance Report 2016, we encourage ward staff to exercise caution when they order and administer blood products. The Report indicates a total of one ABO incompatible transfusion, three misdirected transfusions and eight 'near misses' pertaining to blood and blood products issued by WPBTS. These events are typically related to human error when administrating blood products and are avoidable with meticulous care to pre-transfusion checks.

The following steps are necessary when performing pre-transfusion bedside checks.

- All information must be read aloud and verified by two healthcare professionals.
- Cross-check the patient identification i.e. name, surname, D.O.B./identity number, and hospital number against: the patient, the patient's wristband, the patient's hospital folder, the issue document, and the unit.
- Cross-check the donor's blood group with the patient's blood group and verify compatibility against: the patient transfusion history, the issue document and the blood pack.
- Cross-check the blood pack i.e. type of blood/blood product ordered, and expiry date/time against: the information on the blood pack and the issue document.
- Inspect the blood pack for: leaks, haemolysis, bacterial contamination, clots and missing port covers.

Should you wish to book an educational session about the ordering and administration of blood and blood products, please contact the WPBTS Medical Division Staff. An educational DVD is also available for staff viewing.

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Resource material:

1. Clinical Guidelines for the Use of Blood Products, Fifth Edition (2014), Chapter Two.
2. Educational video titled Ordering and Administering Blood

WPBTS Partners with FNB Varsity Cup

By Michelle Vermeulen, WPBTS Corporate Public Relations Officer

The WPBTS and SANBS are excited to partner with the FNB Varsity Cup and FNB Varsity Shield for the next three years. The partnership will encourage all South Africans to #maketheteam. Every donor (even those who don't or didn't attend the participating universities) will be able to participate by donating their blood on behalf of their favourite team.

The most prestigious university rugby tournament in South Africa will run between 29 January and 16 April and consist of 9 teams in the Varsity Cup and 7 teams in the Varsity Shield. In the Western Cape we have two teams in the Varsity Cup namely FNB Maties and FNB UCT (Ikeys) and in the Varsity Shield we have FNB UWC and FNB CPUT. We will distribute voting papers to all WPBTS clinic teams and donors will have the opportunity to vote for their team of choice (1 donation = 1 vote).

The university that brings in the most blood will be awarded the inaugural Gaz'Lam Trophy at the show-stopping final on 16 April 2018. You will be able to follow your favourite team's progress on the rugby field and in blood donations, during every televised match on SuperSport as well as on 5FM and social media. So make sure that you #maketheteam!

For more information, please feel free to contact the WPBTS Public Relations Department Staff.

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Your Questions Answered

Question:
Please send me information about when and how to use emergency blood.

Answer:
The WPBTS maintains 101 emergency blood fridges with the freshest units available of group O low titre buffy coat poor red cell concentrates, pre-storage leucocyte reduced red cell concentrates and whole blood. The group O emergency blood is provided for use in life-threatening emergencies when there is no time to wait for blood to be cross-matched.

Ideally, not more than four units of group O emergency blood should be transfused per patient at one time. The clinician should request cross-matched blood and have the patient transferred to a hospital that has easier access to a staffed blood bank for the massive transfusion protocol to be initiated. This will prevent unnecessary wastage of group O emergency blood.

A total of 9 629 units of group O emergency blood was issued during 2016/2017, of which 7 005 were group O Positive (Pos) and 2 624 were group O Negative (Neg). Group O Neg in particular is a scarce resource given that it is also strictly used for neonatal transfusion and O Neg recipients.

In emergencies when it is not possible to obtain informed consent prior to the blood transfusion, it is acceptable to proceed without consent, but such action must be documented in the patient's medical record.

Although it is always preferable to use ABO identical and cross-matched red cell concentrates, the use of group O is acceptable. Group O blood contains anti-A and anti-B within the plasma, but these antibodies are rapidly diluted out when infused and would need to be present at a high titre to cause problems. Red cell products also contain only a very small amount of plasma.

The transfusion of Rh-D Positive blood to a Rh-D Negative patient may result in antibody formation from exposure to the Rh-D antigen. Subsequent exposure by the sensitised patient to Rh Positive blood (eg. from a blood transfusion or pregnancy where the baby is Rh Positive) can result in an immunogenic response of variable magnitude with up to 15% showing no response. The immune status of the patient is also contributory - it has been shown that immunosuppressed patients have either a muted or absent response. The Rh-D positivity rate is ±95% in the South African population, so the chance of giving Rh-D Positive blood to Rh-D Negative patients is relatively low.

The following steps should be followed prior to the administration of group O emergency blood.

1. Perform the Rh Slide test on every patient to determine their Rh type, if unknown.
2. Use Rh-D Pos blood for Rh-D Pos patients. Use Rh-D Neg blood for Rh-D Neg patients. When it is not possible to perform the Rh Slide test, use Rh-D Neg blood for female patients of child bearing age. It is acceptable to use group O Rh-D Pos red cells for males and post-menopausal women.
3. Remove the blood pack from the fridge and cut the cable tie only when it is about to be transfused. In the event that the cable tie has been cut and the blood pack unused, the blood is deemed not suitable for transfusion purposes and will be discarded and billed to the hospital.
4. Record the patient's particulars (i.e. patient name, folder number and date of transfusion) in the WPBTS charge advice for audit trail purposes. The requesting clinician must sign the charge advice to indicate that the urgency of the clinical situation was sufficient to justify the use of emergency blood before the completion of compatibility testing. This is a medico-legal requirement.

5. Reseal the used blood bag with the green stopper that is provided.
6. Request emergency blood stock replenishments from the Blood Bank immediately after the blood has been used.

Answer the following question:
A 45 year old male is standing at a corner shop on a Friday night and is caught in gang-related gunfire. As a result he is shot in the chest and experiences significant blood loss, so is rushed to the nearest community health centre. On arrival, the clinician assesses that the patient has life threatening haemorrhage and decides to administer group O emergency blood before transferring him to the nearest tertiary training hospital. There is no time to perform the Slide D test and he grabs the first three units he lays his hands on. All three units happen to be group O Neg.

What could the clinician have done better?

For emergency blood queries, please feel free to contact the WPBTS Emergency Bank Staff.

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