

## > National Blood Transfusion Committee

A National Blood Transfusion Committee (NBTC) has been established with the following objectives:

1. to promote high-quality, safe and appropriate transfusion practices;
2. to provide a forum whereby the clinical views on key transfusion issues can be voiced;
3. to inform decision-making within the blood sector as required; and
4. to provide feedback and recommendations in relation to ARCBS service delivery.

The inaugural meeting of the Committee was held in Sydney on 8th March 2005. Membership includes a clinical representative from each state and territory, a representative from the Australian and New Zealand Society of Blood Transfusion (ANZSBT) and the Australian Red Cross Blood Service (ARCBS). The Committee has met twice since March 8, on May 23 and August 22, 2005. The next meeting is proposed to take place in early November.

Clear and timely communication of the outcomes of Committee meetings is considered to be paramount, and for this reason an Executive Summary of each meeting is to be made widely available to Hospital Transfusion Committees, Blood Product User Groups and government. Committee Membership, Executive Summaries and Terms of Reference are available at: [www.transfusion.com.au/news/nbtc.asp](http://www.transfusion.com.au/news/nbtc.asp)

Should you require further information on any of the issues discussed, or wish to forward an issue to the Committee for consideration, please contact your local state or territory representative or a member of the ARCBS Transfusion Medicine Services team in your local jurisdiction.

## > Boosting transfusion education

Trainee Medical Officers in South Australia have asked for simple memory joggers to assist in making transfusion decisions. Transfusion Pocket Guides are available on our web site for clinical and healthcare professionals: [www.transfusion.com.au](http://www.transfusion.com.au), but as a more portable resource, some of the key messages featured in the Pocket Guides have been distilled into bookmarks.

The first two bookmark designs being trialled in South Australia highlight responses to two basic questions: 'When should I start a red cell transfusion?' and 'How much blood should I give?'

The bookmarks are being distributed either attached to bags of blood or by direct mail. The ARCBS South Australian Transfusion Medicine Service shall then assess the effect of the bookmark messages and the most appropriate ways to distribute them. If the trial is successful, ARCBS will roll out a series of these simple but effective educational tools across the country.

## > Risk of transfusion-transmitted infection

ARCBS estimates of residual risk of transfusion-transmitted infection are based on the median value of three published models<sup>1</sup>. The values in the table below detail the estimated risk for the period July 2000 to June 2003. The figures for HIV and HCV antibody testing only are included to allow for risk comparison in the rare event that products are released without Nucleic Acid Testing (NAT).

Virus and Testing Standard	Window period (days)	Point estimate of residual risk 'per unit'
HIV 1 & 2 antibody only	22	1 in 2,404,000
HIV antibody + NAT	9	1 in 7,299,000
HCV antibody only	66	1 in 330,000
HCV antibody + NAT	7	1 in 3,663,000
HBV	45	1 in 1,339,000
HTLV I & II	51	Considerably less than 1 in 1,000,000
vCJD		Possible. Not yet reported in Australia <sup>2</sup>

1. Assessing the accuracy of three viral risk models in predicting the outcome of implementing HIV & HCV NAT donor screening in Australia and the implications for future HBV NAT. Seed C.R. et al., *Transfusion* 2002; 42:1365-72.
2. vCJD: To date no Australian has been identified with vCJD. In the UK there have been two reported cases of probable transfusion transmission of vCJD in 2003/04. In Australia, as a precaution, people who have spent a cumulative period of 6 months in the UK between 1/1/80 and 31/12/96 and/or had a transfusion in the UK between 1/1/80 and the present time are not accepted as blood donors.

## > Reducing bacterial contamination risk

A 12 month pilot of the MacoPharma blood collection set began in Queensland on June 1, 2005 aiming to:

1. Investigate the potential to reduce bacterial contamination by using a diversion pouch during the blood collection process.
2. Assess overall ARCBS and clinical satisfaction with the logistics and supply of the bags.
3. Evaluate an alternative blood bag supplier.

Prior to implementation, a concerted effort was made to provide training to both ARCBS and hospital nursing staff on the MacoPharma product. Although it is still early in the assessment process, we perceive the pilot is progressing very well. Internal feedback to date is positive. ARCBS is keen to hear comments from hospital staff. A formal survey will be conducted after six months, but preliminary feedback is most welcome if you wish to provide it. Please contact the Queensland Transfusion Medicine Scientist via [www.transfusion.com.au](http://www.transfusion.com.au) or email: [clinicalinfo@arcbs.redcross.org.au](mailto:clinicalinfo@arcbs.redcross.org.au) with your comments.

## > Malaria antibody testing increases red cell stock availability

From July 2005, ARCBS is progressively implementing a screening test for malaria antibody in donors with an exposure risk. This initiative will exclude donors with current infection with malaria and allow for safe manufacture of red cells from the donations of donors who test negative for malarial antibodies. Where testing is available it may only be applied if at least four months have elapsed since the donor's last potential exposure.

Although rare, transfusion-transmitted Malaria (TTM) continues to pose a risk to the Australian blood supply. The last documented TTM case in Australia occurred in 1991 leading to a fatal outcome.<sup>1</sup> Since approximately one million donations are collected by ARCBS each year the current Australian TTM risk is judged to be less than one in 10 million.

Owing to the lack of a suitably sensitive, high-throughput laboratory test, screening for malaria in ARCBS donors has depended on collection of a comprehensive medical and travel history as part of the donor assessment process, and exclusion of cellular blood components from those with potential malarial exposure.

The observed low TTM incidence in Australia is testimony to the safety of this approach. However the strategy results in up to 40,000 red cells per annum being unavailable for transfusion, virtually all of which are free from malaria parasites. In light of increasing pressure to maintain sufficiency and increasingly restrictive donor selection criteria, the need intensified for an efficient and reliable laboratory screening test for malaria.

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## > Strategic Blood Forum tackles hot issues

The second Strategic Blood Forum was held on July 28, in Sydney. The purpose of the forum was to provide key stakeholders in the Australian blood sector with an opportunity to discuss relevant emerging issues, expecting that different players have different perspectives.

As well as staff from the Australian Red Cross Blood Service, delegates attended from medical, scientific and nursing professional colleges and societies, government health departments, the Therapeutic Goods Administration and the National Blood Authority.

The main agenda items addressed pertinent issues, including:

- > Serious Issues for Transfusion;
- > Donor and Product Safety;
- > Sufficiency and Management of the Blood Supply; and
- > ARCBS Research Program Update.

### Serious issues for transfusion

As ARCBS is the national supplier of blood components in Australia, it is critical we

undertake continuous benchmarking against comparative international blood services in order to ensure high-quality products and services are being provided for Australian patients. ARCBS has intensified its collaborative relationships with blood services in the United States, Canada, the United Kingdom and also works closely with the New Zealand Blood Service. Medical, donor loyalty and organisational efficiency subgroups have been established with the former three strategic partners to identify and share best practice and develop strategic approaches to manage emerging global transfusion issues. An international research group is also being established.

### Donor & product safety

Updates were presented on a range of emerging infectious threats, specifically covering nucleic acid testing for Hepatitis B, vCJD (variant Creutzfeldt-Jakob Disease), strategies to minimise bacterial contamination, the introduction of malarial antibody testing, pandemic influenza, Dengue Fever and West Nile Virus.

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## ➤ Malaria antibody testing increases red cell stock availability

In response to this need, with funding support from the National Australia Bank and the National Blood Authority, ARCBS conducted a research project to assess candidate tests, the results of which have been published.<sup>2</sup> One test in particular, the Newmarket malaria EIA (enzyme immunoassay), demonstrated high sensitivity and specificity. This test is already implemented at the UK National Blood Service to screen donors with potential malarial exposure after their return from an endemic country. Conditional on a negative result, the cellular components from such donors may be released for transfusion and the donor re-instated for full component manufacture at their subsequent donation.<sup>3</sup>

In consultation with the Therapeutic Goods Administration, and after a full risk assessment, ARCBS is progressively introducing a similar testing strategy based on the Newmarket malaria EIA. Donors may be screened on condition at least four months have elapsed since full recovery and cessation of treatment, or, for those donors with potential malaria exposure, at least four months have elapsed after their return to Australia from an endemic country. A negative result will allow red cells to be manufactured.

Because testing will support a reduction in the length of time these donors are restricted to donating 'plasma only', ARCBS will improve its efficiency by making the most of each valuable blood donation. Due to operational restrictions, testing will be introduced initially in New South Wales, ACT, Victoria, Tasmania and South Australia. It is planned to introduce testing in Western Australia, the Northern Territory and Queensland in the near future. Once available nationally, it is predicted this initiative could re-instate up to 25,000 red cells for transfusion per annum.

The testing protocol includes ARCBS performing supplemental testing on all screening test-reactive samples to determine if the donor is presumptively antibody positive (since the screening assay is antibody based), or has evidence of parasitaemia. Only donors with evidence of parasitaemia (Plasmodial DNA and/or malarial antigen positive) will be referred externally by ARCBS for clinical assessment. It is envisaged that such referrals will be rare with the vast majority of screening test reactive donors being determined as 'screen reactive/non-parasitaemic'.

In accordance with standard ARCBS notification procedures, these donors will be notified of their test result by letter with the option to contact an ARCBS medical officer if they are concerned. They will not be deferred from donation but will be tested at subsequent donations and restricted to 'plasma for fractionation' until they are non-reactive on the screening EIA.

The notification letter for 'screen reactive/non-parasitaemic donors' alerts the donor to the possibility that they have malarial antibodies and will suggest the letter be provided to their treating physician to ensure malaria is considered as a potential diagnosis if the donor presents with an unexplained febrile illness.

### References

1. Whyte GS. Therapeutic goods and malaria. Medical Journal of Australia 1992;157(439-40).
2. Seed CR, Cheng A, Davis TM, Bolton WV, Keller AJ, Kitchen A, Cobain, TJ. The efficacy of a malarial antibody enzyme immunoassay for establishing the reinstatement status of blood donors potentially exposed to malaria. Vox Sang 2005;88:98-106.
3. Kitchen AD, Lowe PH, Lalloo K, Chiodini PL. Evaluation of a malarial antibody assay for use in the screening of blood and tissue products for clinical use. Vox Sang 2004;87(3):150-5.

## ➤ Strategic Blood Forum tackles hot issues

### Sufficiency of the blood supply

ARCBS is preparing to launch a structured traffic-light system to provide a framework of actions for blood product users during times of shortage. The strategy for management of low inventory includes interstate transfers to ensure equity of access and a reduction in hospital stocks, so product can be allocated to cover emergency requirements.

Blood forum participants identified a lack of transparency of hospital inventory levels as a hindrance to decision-making during times of shortage. It was noted that comparisons of inventory levels must be made between hospitals of similar size and complexity, otherwise the data is meaningless. Criteria such as geography and case-mix should also be considered. It was agreed the issue of determining blood inventory levels needed focused attention and an expert subgroup of the National Blood Transfusion Committee would be established.

It was agreed that national and state emergency blood management plans are needed and should be linked to disaster plans; planning needs to be national and implementation local.

### ARCBS Research Program update

Australia, like many other developed countries is finding it increasingly difficult to maintain adequate supplies of red cells. Consequently, the appropriate use of donor blood and research into effective alternatives are becoming increasingly important public health and clinical governance issues.

Dr Erica Wood, Transfusion Medicine Specialist, ARCBS VIC, presented an overview on ARCBS' research program and its importance, emphasising the aim to improve outcomes for donors and patients. Some of the ARCBS research topics presented were:

- Red blood cell storage lesion
- Red cell and white cell farming
- Transfusion-related acute lung injury (TRALI)
- Apheresis platelets in additive solution
- Hospital wastage reporting
- Intravenous immunoglobulin dosing and indications
- Mannose binding lectin
- Skin grafts
- State-funded collaboratives to improve transfusion practice.

### How can you help?

World Blood Donor Day in June highlighted the vital role blood donors play in providing a life saving gift that is used in many forms of medical therapy.

It is estimated one in three Australians will require blood or blood products at some stage in their lives, yet only one in 30 Australians give blood each year.

If you are not already a donor and are able to do so, become a blood donor. Additionally you can encourage family and friends to also become donors. The community is our only source of this vital life saving commodity. There is an old saying of 'many hands make light work'. This could translate to 'many donors make life better'.

## ➤ Q&As from transfusion.com.au

The ARCBS's web site for clinical and healthcare professionals includes a page where people can post questions regarding any aspect of transfusion. Our team of experts then strive to provide an answer within a month.

We have had many questions from doctors, nurses and laboratory workers as well as from non-health professionals. The topics so far have included transfusion reactions, use of filters, product usage, storage of products, blood groups and parentage. We plan to feature one or two of these questions and answers in *Medilink* issues from now on:

- Q1:** Do you provide guidelines as to when it is reasonable to repeat haemoglobin estimation after a transfusion? We realise this is dependant on many variables but we have clinicians ask us occasionally and it would be nice to point them to something authoritative.
- A1:** Investigations by Mollison and others suggest that fluid redistribution is usually complete 24 hours after a red blood cell transfusion or whole blood donation. Your question is also an opportunity to suggest that in many cases, iatrogenic blood loss can be minimised by performing lab tests only when they are likely to meaningfully inform clinical decision-making.
- Q2:** Does the Anti-D product you supply to hospitals for pregnant women with Rh negative and Rh positive babies contain mercury (Thimerosal)? I know you can get a mercury-free product. Which one do you supply in Adelaide?
- A2:** The Anti-D (Rh (D) Immunoglobulin) issued in Australia contains no mercury in any form. This includes the Rh (D) Immunoglobulin produced by CSL Limited from plasma collected by ARCBS, and the WinRho™ SDF product distributed by ARCBS/CSL Limited.

To see these and other questions online, or post a question of your own, visit: [www.transfusion.com.au/QA/QA.asp](http://www.transfusion.com.au/QA/QA.asp)



## ➤ Refrigeration failures & blood wastage

Blood and blood products must be stored appropriately to ensure their safety and efficacy. However, every year in Australia, significant quantities of precious blood products are wasted because refrigeration facilities break down and appropriate action is not taken.

Examples of recent losses include instances where alarms were absent, turned off or ignored, and alarm set points altered. Compressor failure due to lack of preventative maintenance is all too common.

Refrigerators and freezers used to store blood must meet the *Australian Standard Medical refrigeration equipment - For the storage of blood and blood products* (AS 3864). Both NATA (National Association of Testing Authorities) and ACHS (Australian Council on Healthcare Standards) EQulP, cite this document as the minimum requirement. The main features of AS 3864 are the need for temperature recorders and alarm systems that are independent of the refrigeration control system, and controls that should not be accessible to unauthorised personnel.

Organisations storing and transfusing blood should commission refrigeration equipment that meets AS 3864, and develop protocols and train staff in the use of procedures to be followed when out of temperature events occur. In addition, regular preventative maintenance, including calibration and testing of refrigerators and associated monitoring equipment, must be performed.

These simple actions will avoid losses of blood components and products through refrigeration failures – losses which are completely preventable.

## ➤ Blood Component Information 2005

ARCBS Transfusion Medicine Services has published a new pocket sized guide to *Blood Component Information* for 2005. It replaces the previously published *Circular of Information*.

The guide includes a description of all the fresh blood components produced by ARCBS, as well as the collection process, method of manufacture, critical manufacturing steps, clinical indications for use and administration methods. It is considered an extension of blood and component labels as the space on these labels is very limited.

The *Blood Component Information* guide for 2005 is downloadable online via the quick link at [www.transfusion.com.au](http://www.transfusion.com.au) or by navigating to our Resource Library, then the ARCBS Laboratory Folder. If you require a printed copy, contact the ARCBS Transfusion Medicine Service in your capital city (contact details are on the web site) or e-mail your request to [clinicalinfo@arcbs.redcross.org.au](mailto:clinicalinfo@arcbs.redcross.org.au).