

## Directed Donations

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## Directed Donations

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### 1. Introduction

From time to time requests are received for directed donations of blood or tissues for an individual patient, the most frequent scenario being that of a parent or close relative wishing to donate for a child.

There are limited appropriate indications for directed donations from related donors, including

- i) Provision of matched platelets if an unrelated donor cannot be found for a patient refractory to random donor platelets.
- ii) Provision of red cells of very rare phenotype for a patient with multiple antibodies or antibodies to high-incidence antigens.
- iii) Transfusion of lymphocytes from a bone marrow or PBSC donor to the recipient of their stem cells post-transplant.
- iv) Provision of granulocytes if a suitable unrelated donor is not available for a patient with severe neutropenia who fulfils the criteria for granulocyte transfusions.
- v) Provision of maternal platelets in the very unlikely situation that platelets from a suitable unrelated donor cannot be provided for an infant with Neonatal Alloimmune Thrombocytopenia

This paper sets out the reasons why directed donations are not recommended in any other circumstances, outlines recommended procedures for directed donations and provides information to assist clinicians in discussion with patients, parents and colleagues.

It is not a policy document, but is a position statement based on available literature and will be reviewed in the light of changing circumstances.

### 2. Background

The concept of directed donations dates from the earliest days of transfusion practice, prior to the establishment of volunteer donor panels, when recruitment of family members or friends as donors was the only option for patients requiring transfusion.

In the USA, public confidence in the blood supply was seriously undermined by the AIDS epidemic of the mid-1980's. Directed donation programmes were set up by several blood services, in many cases running alongside autologous predeposit programmes.

Arguments put forward in the 1980's in defence of directed donations acknowledged the lack of evidence of their safety, the logistical difficulties and the increased resource required. Justification for the practice was on the grounds of patient choice and autonomy, the only possible clinical benefit being the potential for limiting donor exposure by allowing a directed donor to donate with increased frequency than is allowed for volunteers <sup>1</sup>.

The UK blood services have always discouraged directed donations, on the grounds that there are no proven benefits and there may be some disadvantages. The increased cost of collecting a directed donation and the increased risk of error inherent in a procedure, which falls outside of normal routine, must also be considered.

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### 3. Why do patients/relatives request directed donations?

Reasons for requests fall into 4 main areas

- i) Concerns regarding pathogen (usually viral) transmission
- ii) A sense of security about a 'known' rather than an 'unknown' donor
- iii) An emotional and psychological need on the part of the donor to help a loved patient
- iv) Family pressure to volunteer

It may also be argued that patients and relatives should be at liberty to make a choice between blood from a volunteer donor or from a relative or friend.

### 4. Why should directed donations not be undertaken?

#### 4.1 Suitability

The ideal blood donor for a given patient is ABO and D identical, and also K negative if the patient is a female of or below childbearing age.

Pregnant females should receive CMV safe components.

If the recipient is an infant or neonate, the UK blood services would provide a donation from a previously tested donor, CMV safe, with additional testing according to current guidelines and specifications.

#### 4.2 Viral safety

There is no evidence to support the perception that directed donations are safer than those from volunteers. As regards viral safety, directed donors have a similar rate of viral infection as volunteer donors, when demographics and repeat status are accounted for<sup>2</sup>. First time volunteer donors may have a higher rate. The overall rate of positive viral markers in first-time volunteer donors in the UK is over 100 times that of regular donors<sup>3</sup>. Further details are shown in Table 1

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**Table 1**

Frequency of markers detected per 100,000 donations made by new and repeat donors in the UK 2013 <sup>3</sup>		
	<b><u>New donors</u></b>	<b><u>Repeat donors</u></b>
<b>Confirmed positive HBsAg</b>	<u>33.6</u>	<u>0.2</u>
<b>Confirmed positive HCV</b>	<u>29.1</u>	<u>0.3</u>
<b>Confirmed positive HIV</b>	<u>4.0</u>	<u>0.4</u>
<b>Treponemal antibodies</b>	<u>41.0</u>	<u>0.8</u>
<b>HTLV</b>	<u>2.3</u>	<u>0.0</u>
<b><u>Total</u></b>	<b><u>109.9</u></b>	<b><u>1.8</u></b>

### 4.3 Security of 'known' donor

Patients or their parents requesting directed donations feel intuitively that blood from a relative or friend is preferable to that of a stranger, as they are re-assured by their knowledge of the prospective donor's health and lifestyle.

If however the chosen donor is deferred following interview, or if the donation is unavailable because of a reactive screening test, then inevitably donor confidentiality will be compromised. In the event of a transfusion reaction or other adverse outcome for the recipient there may be feelings of guilt and recrimination. Loss of anonymity between donor and recipient may thus be highly detrimental to both and may damage relationships at a time when a family is already under considerable strain.

### 4.4 Emotional and psychological need of donor

Donation of blood or tissue for a child, other relative or friend offers a means of satisfying the donor's need to 'do something to help' and potentially to contribute to the patient's recovery. It might be expected that concern for a known intended recipient would ensure disclosure by the donor of any adverse risk factors. There is however a risk that pressure, even amounting to coercion<sup>1</sup>, or the prospect of an emotional 'reward', may influence the donor to be less than fully truthful.

### 4.5 Additional risks

#### 4.5.1 Immunological risks

There are immunological reasons why transfusion between first degree relatives may be undesirable.

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- Maternal plasma may contain alloantibodies to paternal antigens also expressed in the infant, leading to an increased risk of haemolytic transfusion reactions, TRALI<sup>4</sup> and PTP. Alternatively, maternal IgG antibodies may cross the placenta and interact with transfused paternal blood.
- Transfusion Associated Graft-versus-Host Disease is a further potential complication of transfusion from HLA haploidentical first-degree relatives. The Serious Hazards of Transfusion report of 2012 included a case of death of an infant due to intrauterine transfusion of unirradiated maternal blood<sup>5</sup>
- Transfusion to a woman of child-bearing age from her husband or partner or from one of his relatives is contra-indicated because of the risk of sensitisation resulting in haemolytic disease of the newborn<sup>6</sup>.

### 4.5.2 Other risks

Other risks such as those of misidentification and bacterial contamination are no less for directed donations. Misidentification risks may be higher if the procedures used are less well controlled than those governing volunteer donations.

## **5. Policies of other blood services**

Although occasional directed donations do occur in some developed countries,<sup>2</sup> no national blood service endorses the practice of directed donation.

## **6. Handling of requests for directed blood donations**

If a request for directed blood donation is considered by the hospital clinician, the initial request should be made to the duty patient-facing consultant for the relevant region.

Donor acceptance, and collection, testing, processing and issue of the donation must be carried out according to the national procedures complying with the 2005 Blood Safety and Quality regulations<sup>7</sup>. Blood donations from first-or second-degree relatives should be irradiated to prevent transfusion-associated graft versus host disease from HLA haploidentical relatives.<sup>8</sup>

## **7. References**

1. Yalon V, Perkins HA, The Arguments for Directed Donations. *Transfusion Science* 1989, **10**: 131-137
2. Dorsey K, Moritz, E, Steele, W, Eder, And Stramer, S A comparison of human immunodeficiency virus, hepatitis C virus, hepatitis B virus and human T-lymphotrophic virus marker rates for directed versus volunteer blood donations to the American Red cross during 2005 to 2010 *Transfusion*, **53**, 1250-1256

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3. NHSBT/HPA Epidemiology unit annual report 2013. Safe Supplies: Reflecting on the population  
[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/372598/NHSBT\\_PHE\\_Epidemiology\\_Unit\\_Annual\\_Review\\_2013.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/372598/NHSBT_PHE_Epidemiology_Unit_Annual_Review_2013.pdf)
4. Dunbar N, Cooke, M, Diab, M, Toy, P: Transfusion related acute lung injury after transfusion of maternal blood: a case control study. *Spine*, 2010, **35**, E1322-E1327
5. Bolton-Maggs P (ed), Poles D, Watt A, Thomas D and Cohen Hon behalf of the Serious Hazards of Transfusion (SHOT) steering group. The annual 2012 SHOT report  
<http://www.shotuk.org/wp-content/uploads/2013/08/SHOT-Annual-Report-2012.pdf>
6. Pura LS, Smith LE, Goldfinger D in Garner RJ Silvergleid AJ eds. Autologous and Directed Blood Programmes. Arlington: American Association of Blood Banks 1987: 31-45.
7. BCSH Blood Transfusion Taskforce: Guidelines on Gamma-Irradiation of Blood Components for the Prevention of Transfusion Associated Graft-versus-Host Disease. *British Journal of Haematology* 2010 **152**, 35-51
8. Blood Safety and Quality Regulations 2005.  
<http://www.opsi.gov.uk/si/si2005/20050050.htm>