

# Chapter 7

## Future supply of plasma in Australia

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The primary focus of this Review is the arrangements for the fractionation of plasma collected in Australia. These arrangements are predicated upon the Australian Red Cross Blood Service (ARCBS) collecting plasma from Australian voluntary, non-remunerated donors.

This chapter outlines the progress made to date by the ARCBS in increasing the overall amount of plasma collected. Also considered are the future challenges to be addressed by the ARCBS and by all Australian governments in order to respond to the continued growth in demand for plasma derived products.

This analysis of plasma supply in Australia must necessarily highlight the altruistic motivation of donors in contributing life-giving blood in order to provide an essential component of the treatment of thousands of Australians under medical care. The Australian blood system rests on this spirit as expressed by thousands of voluntary donors.

### Domestic plasma collection

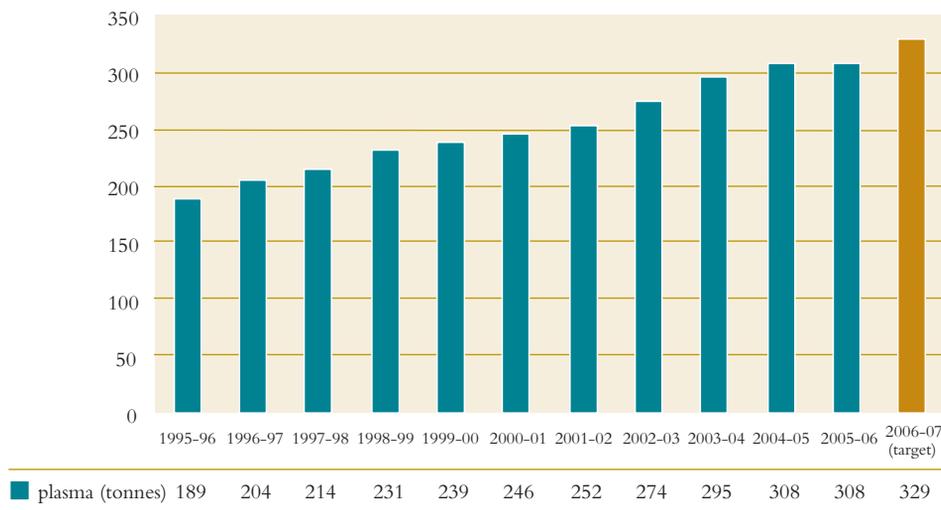
Plasma can be described either as source plasma (plasma obtained through plasmapheresis) or recovered plasma (plasma procured via whole blood donations). Most of the plasma collected in Australia is used for the manufacture of plasma derived blood products, while a small percentage, as noted in previous chapters, is retained by the Australian Red Cross Blood Service for clinical purposes.

The ARCBS is responsible for ensuring that collections overall are sufficient to provide an adequate supply of fresh blood products for hospitals and adequate starting plasma for the manufacture of plasma products, as stipulated in the annual National Supply Plan and Budget (or as revised and agreed during the year). Each year, all Australian governments, the ARCBS and the National Blood Authority (NBA) work together to negotiate plasma collection targets to meet demand for plasma products during the following 12 months. The targets generated by this supply planning process are then approved by the Australian Health Ministers' Conference (AHMC).

Growth in the total amounts of plasma collected by the ARCBS each year is illustrated in figure 7.1. Between 2000–01 and 2005–06, collections have increased at an average rate of 4.6% per annum.

The ARCBS has noted that it has achieved all annual targets for the collection of plasma for fractionation, with the exception of those for 2005–06. The ARCBS attributes the shortfall in 2005–06 to budget approval and funds flow, resulting in a sub-optimal performance during the first half of the 12-month period. The ARCBS contrasts this with performance in the second half of the year, when collections were running at an annualised rate of 329 tonnes, the target for 2006–07.

**Fig. 7.1** Total plasma collected by ARCBS



Source: Derived from data in: Australian Red Cross Blood Service, *Annual Report 2004/05*, Australian Red Cross Blood Service, Sydney, 2005, p. 23, also available online at <[http://www.arcbs.redcross.org.au/donor/aboutus/documents/annual%20report%2004\\_05.pdf](http://www.arcbs.redcross.org.au/donor/aboutus/documents/annual%20report%2004_05.pdf)>; and from data held by the Department of Health and Ageing.

**Donor numbers**

The total number of actual donors in Australia for 2005–06 (512 989) equates to approximately 2.5% of the population. This figure underestimates the true situation, however, since people under 16 may not donate blood, and people over 70 rarely donate. The proportion of donors in the population aged 16 to 70 is 3.5%.

Donor numbers, and numbers of total blood collections, for 2004–05 and 2005–06 are provided in table 7.1. The number of donations decreased slightly over this period but the total number of donors increased slightly. The total number of apheresis donors increased significantly without a corresponding decline in whole blood donor numbers, suggesting minimal transfer from the whole blood donor cohort to the apheresis donor pool.

**Table 7.1** Donors and blood collections, 2004–05 and 2005–06

	2004-05	2005-06
Whole blood donors	481 118	479 251
Apheresis donors	25 218	33 738
Total number of donors	506 336	512 989
Total blood collections	1 116 636	1 111 154

Source: Derived from data in: ARCBS, *Annual Report 2004/05*, and from data supplied by ARCBS, 2006.

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The total number of donors in 2005–06 (512 989) is 17% higher than the total number of donors in 1996–97 (439 000). Over this period Australia's population has increased by approximately 11%.

Of the total 1 111 154 blood and blood component donations for 2005–06, about 95% are homologous donations (donations made for the benefit of an unknown recipient). The remainder of the donations are autologous donations (whereby blood is taken for the donor's own use during a medical procedure), directed donations (whereby blood is donated for use by a particular patient), or therapeutic donations (whereby individuals with specific haematological conditions reduce their blood volume through donation).

### Collection facilities

The distribution of collection facilities varies widely across Australia. In all states and territories, blood and plasma donations are made via both collection centres (83 centres) and mobile donation services (36 mobile units). In 2004–05 the Australian Red Cross Blood Service reported that approximately 74% of its donors were drawn from metropolitan areas, with the remaining 26% drawn from regional areas. The ARCBS classification of metropolitan and regional areas is not particularly detailed. It is important to note that, while the number of regional collection centres has declined over the last decade, the volume of blood and plasma collected in regional collection centres is significant, with 24 of Australia's top 25 collection centres (by area of residence of the donor population) being located in regional areas.



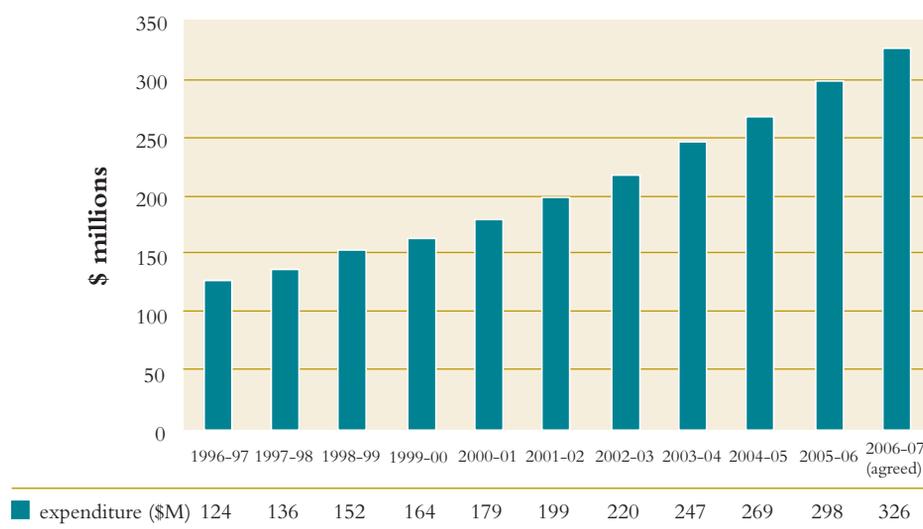
*Visiting the ARCBS collection centre in Clarence Street, Sydney, in May 2006, Review Committee members Associate Professor Kevin A. Rickard AM, Mr Philip Flood AO and Sir Peter Lawler OBE.*

## Expenditure

The collection of starting pool plasma has been regulated in part by the funding provided through the supply planning process under Australia's national blood arrangements.

Total expenditure by Commonwealth, state and territory governments on Australian Red Cross Blood Service collections and supply of blood and blood products is set out in figure 7.2. Expenditure between 2000–01 and 2005–06 increased by 66%, from \$179 million in 2000–01 to \$297.7 million in 2005–06. In this period, plasma collections increased by 25%. This expenditure growth, however, reflected several factors in addition to plasma collection requirements; these factors include increased supply of other fresh blood components, and quality improvements in the collection process. Estimates indicate that expenditure will increase by a further 10%, to \$326 million, in 2006–07.

**Fig. 7.2** Expenditure by government on ARCBS collections and supply of blood and blood products



Source: Derived from data in: National Blood Authority, *Annual Report 2004–05*, National Blood Authority, Canberra, 2005, also available online at <<http://www.nba.gov.au/PDF/NBA%20AR%2004-05.pdf>>; and from data held by the Department of Health and Ageing.

In 2005–06 the cost to Australian governments of providing patients with fresh blood products, plasma products and recombinant alternatives was \$565.4 million. This figure incorporates \$297.7 million to the ARCBS to provide fresh blood products, to collect plasma for fractionation, and to manage distribution and support services; \$136.8 million to CSL Limited for plasma product production and for imported products; and \$130 million to other suppliers (Baxter Healthcare \$68.5 million; Novo Nordisk \$23.6 million; Octapharma \$22 million; and Wyeth Australia \$15.9 million).

Expenditure on the ARCBS thus represents the largest component of the total budget for the supply of blood and blood products in Australia. Payments to CSL Limited for plasma product production, and payments for imported products, are the other major components.

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The National Supply Plan and Budget for 2006–07, approved by the Australian Health Ministers' Conference, was for \$650.7 million, including contributions of \$10.6 million for the operations of the National Blood Authority. The proposed expenditure for the supply of blood and blood products in 2006–07 is \$626.01 million, an increase of 10.6% on total expenditure in 2005–06.

Since its inception in 2003, one of the key objectives of the NBA has been to work in a collaborative manner with all governments and with other parties to ensure that Australia's blood supply is adequate, safe, secure and affordable. The NBA has worked closely with the ARCBS in improving management and accountability within the blood service.

Future funding requirements for the plasma collection sector are influenced by a number of competing factors. All Australian governments, the NBA and the ARCBS are continuing to explore mechanisms for gaining efficiencies, in order to achieve the best outcomes from the available resources.

The ARCBS has advised the present Review that it believes that, given additional funding from governments, and in view of other changes it is making, it could deliver Australia self-sufficiency in plasma by 2010–11. This advice is based on an ARCBS estimate that the total volume of plasma required in 2010–11 will be 507 tonnes; in order to reach 507 tonnes in 2010–11, collections would need to increase by 10% per annum from 2005–06.

The ARCBS estimates that the amount of additional funding it will require for the four years commencing in 2007–08, in order to reach collections of 507 tonnes by 2010–11, will be in the vicinity of \$5.9–\$9.9 million per annum. These figures represent approximately \$4.1–\$6.9 million in recurrent costs per annum and \$1.8–\$3.0 million in capital costs per annum.<sup>1</sup>

In the light of demand estimates discussed in Chapter 6, if Australia is to achieve self-sufficiency by 2015–16, plasma collections would need to increase by 123%: from 308 tonnes in 2005–06 to 686 tonnes in 2015–16 (an annual increase of 8%).

### International comparisons

International comparisons indicate that the Australian Red Cross Blood Service is performing well with respect to achieving high plasma collection levels. Currently the ARCBS collects 15.3 litres of plasma per 1000 head of population, a collection level that compares favourably with those in other, similarly industrialised countries. The per capita plasma collection rates shown in table 7.2 illustrate the difference between countries that adopt a policy of non-remunerated blood donation (including those, such as Germany, that provide reimbursement of direct costs associated with donation) and countries that permit payment for donation (such as the United States).

The ratio of whole blood donations to source plasma donations in various countries, including Australia, is set out in table 7.3. Areas of positive comparison include Australia's above-average number of collections per donor, and the fact that plasma collections by apheresis are also above the international average.

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<sup>1</sup> Figures supplied by Australian Red Cross Blood Service, May 2006.

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**Table 7.2** Plasma collection rates in selected developed countries, 2004–05

Country	Plasma collected (litres)	Population (millions)	Litres per 1000 population
United States	15 500 000	296.4	52.3
Belgium	230 000	10.4	22.2
Germany	1 719 000	82.4	20.9
Netherlands	300 000	16.4	18.3
Sweden	140 000	9.0	15.5
Australia	308 000	20.2	15.3
Denmark	80 000	5.4	14.7
Finland	66 000	5.2	12.6
Norway	50 000	4.6	10.8
France	576 000	60.8	9.5
New Zealand	38 000	4.1	9.3
Austria	50 000	8.2	6.1
Canada	200 000	32.9	6.1

Source: National Blood Authority, *The Supply and Use of Plasma Products in Australia*, National Blood Authority, Canberra, 2006, p. 10; also available online at <http://www.nba.gov.au/pubs.htm>. Source of data for United States: Figure 4.1 in Chapter 4 of this report, and <http://www.census.gov>. Data for Germany: B. Haschberger, A. Waterkamp, J. Hesse, M. Heiden & R. Seitz, *Meldungen an das PEI gemäß § 21 Transfusionsgesetz*, Paul-Ehrlich-Institut, Langen, 2006, [http://www.pei.de/cln\\_042/nn\\_431538/SharedDocs/Downloads/21tfg/2006-poster-dgti,templateId=raw,property=publicationFile.pdf/2006-poster-dgti.pdf](http://www.pei.de/cln_042/nn_431538/SharedDocs/Downloads/21tfg/2006-poster-dgti,templateId=raw,property=publicationFile.pdf/2006-poster-dgti.pdf) and <http://www.destatis.de>.

**Table 7.3** International comparison: Whole blood and apheresis donations, 2004–05

Country/province	2004–05	
	Whole blood %	Apheresis %
Netherlands	68	32
United States	71	29
Australia	86	14
Canada	94	6
New Zealand	94	6
Quebec	95	5
Switzerland	95	5
Ireland	96	4
England	98	2
Finland	99	1
Average	90	10

Source: National Blood Authority, *The Supply and Use of Plasma Products in Australia*, p. 11, and data held by NBA.

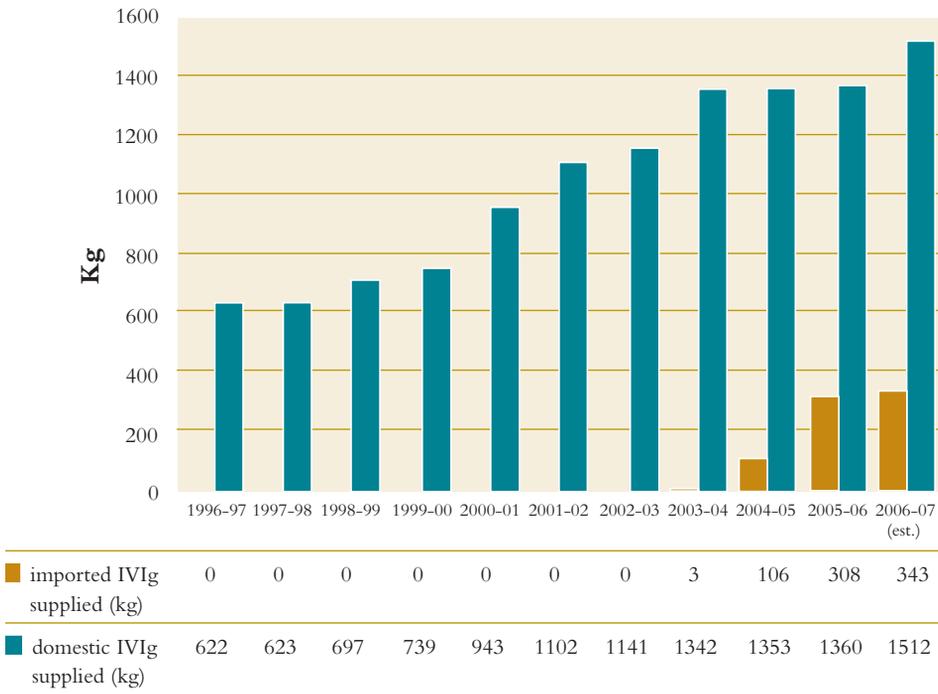
It is important to note that, despite Australia’s high collection rates, a significant percentage of collections are sourced from new donors, as opposed to existing donors. Currently 28% of Australia’s active donors are new donors, while the average across other selected countries is 15%. Reasons for this difference are not clear but the figures suggest a need for greater emphasis on retention of existing donors.

The ARCBS submission to the present Review notes that: ‘Increases in plasma productivity over the last ten years have been supported through initiatives such as expansion of plasmapheresis programs, re-suspending whole blood derived pooled platelets in platelet additive solution rather than plasma ... and a greater move towards production of platelets via apheresis’.<sup>2</sup> Use of the techniques referred to here allows for a greater volume of plasma to be available for clinical usage.

**Imported intravenous immunoglobulin (IVIg)**

Despite the good record of the Australian Red Cross Blood Service in collecting high volumes of plasma relative to collections in other countries, and the impressive increases in yields achieved by CSL Bioplasma, domestic production of IVIg has been unable to keep up with demand. Accordingly, in the last three years domestic IVIg has been supplemented with imported IVIg products. The volumes of IVIg supplied under the national blood arrangements for clinical use in Australia are set out in figure 7.3.

**Fig. 7.3** Domestic and imported IVIg supplied



Source: Data for domestic IVIg derived from data in: ARCBS, responses to questions from Plasma Fractionation Review Committee, June 2006, p. 28; and from data held by the Department of Health and Ageing. Data for imported IVIg: NBA distribution reports.

2 Australian Red Cross Blood Service, submission to Plasma Fractionation Review, 2006, p. 29.

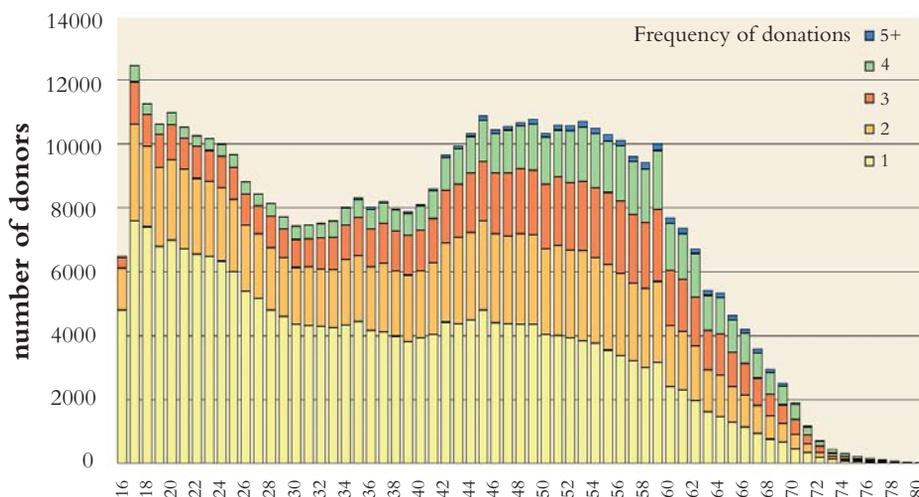
For 2006–07, Commonwealth and state and territory health ministers have planned on a possible need by the National Blood Authority to import 343 kilograms of IVIg, or up to 18% of the estimated requirements. In the event that CSL yields are higher than projected by the NBA, or if the ARCBS collects more than its target 329 tonnes of plasma, then the NBA would purchase proportionately less overseas IVIg, provided that clinical demand is in line with estimated volumes included in the 2006–07 National Supply Plan and Budget.

## Donor profiles

### General demographic characteristics of donors

Blood donors in Australia are currently drawn from a volunteer population aged between 16 and 70 years. The greatest amount of whole blood is collected from donors aged 40 to 60, as indicated in figure 7.4.

**Fig. 7.4** Frequency of whole blood donations, by age, 2005–06

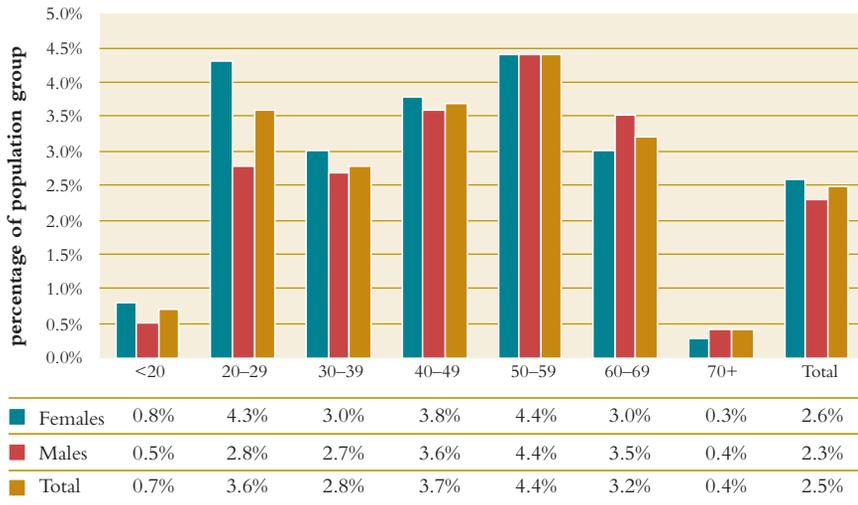


Source: Data supplied by ARCBS, 2006.

Figure 7.5 shows the percentages of male and female donors for each age cohort within the population. As noted previously, currently some 2.5% of the total Australian population donate blood. Within the donor population there are slightly more women (2.6%) than men (2.3%), and people aged 50 to 59 represent the highest proportion of donors. Overall, the 30–39 age group provides the lowest share relative to its share of the Australian population (this calculation excludes those younger than 20 years and over 70 years).

The Australian Red Cross Blood Service emphasises the importance of recruiting new donors for their lifetime. Donor participation tends to peak prior to, and after, the child-bearing and child-raising phase of life (i.e. roughly 30–45 years). The ARCBS states: ‘Even if we lose a youth/student donor for, say, the ages of 25–45, a previous youth donor tends to return once they have fewer demands on their leisure time’.<sup>3</sup> A donor who is now 16 may not donate as frequently as his or her middle-

**Fig. 7.5** Percentage of donors by age cohort

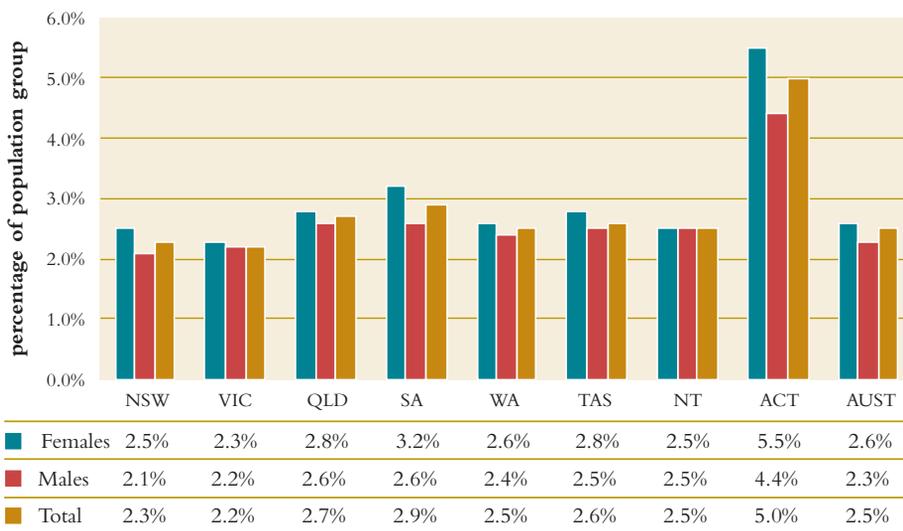


Source: Derived from data held by the Department of Health and Ageing.

aged counterparts. The number of his or her potential donations over a lifetime, however, exceeds that for a 40-year-old new donor. In the past 10 years in Australia, there has been a reduction in the participation rates of donors in the early twenties to mid thirties age group.

There are significant differences in the donor participation rates of Australia’s states and territories, as reflected in figure 7.6. New South Wales and Victoria are

**Fig. 7.6** Percentage of donors by state/territory population



Source: Derived from data held by the Department of Health and Ageing.

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represented by proportionately fewer donors than are South Australia, Queensland, Tasmania and Western Australia. The impressively high proportion of donors in the Australian Capital Territory seems to reflect the relatively small geographical size and concentrated population of Canberra, and the relatively high numbers of people employed in the public sector and thus having access to paid donation leave.

There are also differences between the states and territories in terms of the frequency of apheresis donations. ARCBS guidelines provide that whole blood donors may donate every 12 weeks, while apheresis donors may donate plasma every three weeks. Overall plasma yield from each jurisdiction can be seen in table 7.4.

**Table 7.4** Plasma yields, and apheresis donations by individual donors, by state and territory, 2004–05

	NSW	Vic.	Qld	WA	SA	Tas.	ACT	NT	Total
Pop. ('000)	6 768	5 023	3 967	2 014	1 539	488	325	203	20 327
CSL plasma (kg)	82 238	71 132	63 553	37 940	32 516	7 833	9 393	3 157	307 762
Kg per '000 population	12	14	16	19	21	16	29	16	15
Average no. apheresis visits per year	6.99	7.06	7.52	5.15	5.56	6.62	5.39	N/A	

Source: Data supplied by ARCBS, 2006.

The minimum age at which an individual may give blood also differs among jurisdictions, an issue raised by the ARCBS with the Review Committee. There is currently no national consistency in this area (table 7.5).

South Australia, the ACT, and recently the Northern Territory, are the only jurisdictions where 16-year-olds can donate blood without parental consent. Overly prescriptive age-based requirements can present a disincentive to donation and can create barriers to donor commitment and retention in the key youth market.

The Review Committee’s position on this issue is that all states should be encouraged to follow current practice in South Australia. A decision to drive a car, which requires no formal legal consent, carries far greater risk for a 16-year-old than the decision to donate blood.

### Donor eligibility

Plasma collection is strongly impacted by regulations concerning eligibility of donors. The Australian Red Cross Blood Service, along with blood collection agencies in other developed countries, sets high standards for donor eligibility. Two of the fundamental tenets of national blood collection policies in developed countries are that donations must be sourced from individuals with a low risk of exposure to blood-borne pathogens, and that donors must not suffer adverse physical affects as a result of their choice to donate blood.

**Table 7.5** Minimum donor age, by jurisdiction

	Minimum donating age	Consent required	Relevant legislation
NSW	16	Until age 18 (by legal guardian, at time of first donation)	<i>Human Tissue Act 1983 (NSW)</i>
Vic.	16	Until age 18 (medical and parental consent required at time of each donation)	<i>Human Tissue Act 1982 (Vic.)</i>
Qld	16	Until age 18 (medical and parental consent required each time)	<i>Transplantation and Anatomy Act 1979 (Qld)</i>
WA	16	Until age 18 (medical and parental consent required each time)	<i>Human Tissue and Transplant Act 1982 (WA)</i>
SA	16	None	<i>Transplantation and Anatomy Act 1983 (SA)</i>
Tas.	16	Until age 18 (medical and parental consent required each time)	<i>Human Tissue Act 1985 (Tas.)</i>
ACT	16	None	<i>Human Tissue and Transplant Act 1974 (ACT)</i>
NT	16	None	<i>Human Tissue Transplant Act 1979 (NT)</i>

Source: ARCBS, responses to questions from Plasma Fractionation Review Committee, June 2006.

In Australia, donor deferral policies have been developed in conjunction with the Therapeutic Goods Administration. As a public health policy option, donor deferral must balance the risk of disease transmission, and the potential health impacts of donation, against a potential and actual loss of donors. Donor deferral thus has the potential to significantly impact on the pool of available donors.

The ARCBS adheres to strict criteria in relation to donor selection. A person wishing to donate must:

- be aged between 16 and 70
- have good general health
- have a body weight of between 45 and 120 kilograms
- have a haemoglobin level of 130 g/L for men and 120 g/L for women (in order to donate blood).

A donor will be deferred from donating if on the day of donation he or she:

- is pregnant or breastfeeding, or
- has a cold, flu, sore throat or diarrhoea, or
- has been taking antibiotics in the previous five days, or

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- has had dental work (fillings or cleanings in the previous 24 hours, or root canal in the previous week).

A donor will be deferred for a period of 12 months if he or she:

- has recently received a blood transfusion, or
- has recently had a tattoo, or
- has recently undergone any piercing with clean, single-use disposable equipment, or
- has recently been in prison or a lockup, or
- has recently had male-to-male sex, or
- has recently had sex with a prostitute, or
- has a partner with hepatitis B or C.

Individuals will be unable to donate if they have:

- tested positive for HIV, or hepatitis B or C, or
- a history of non-prescribed intravenous drug use, or
- had open-heart surgery, or
- lived in the United Kingdom between 1980 and 1996 for a cumulative period of six months or more.

In addition, the standards set down by the TGA, which are based on the guidelines established by the Council of Europe, specify that the maximum number of whole blood donations for any individual in any one year should be four, while plasmapheresis donations should not be made more often than once every three weeks.

The most recent addition to the national donor deferral policy, and a change that has had a significant impact with respect to the available donor pool, is deferral related to potential exposure to variant Creutzfeldt-Jakob disease (vCJD). Donors are permanently deferred if they have resided in the United Kingdom at any time between 1980 and 1996, for a cumulative period of six months or more.

A study undertaken to determine the impact on blood donor numbers of travel restrictions recommended by the US Food and Drug Administration (FDA) has estimated that approximately 3.5% of donors would be deferred as a result of this policy.<sup>4</sup> In Australia, a similar study undertaken in 2000, using data from 1998, estimated the exclusion of 5.3% of potential donors.<sup>5</sup> It is unclear, however, how accurate these estimates have been.

In some instances a potential donor will choose to defer donating, because he or she is aware of donor deferral policies. Educating individuals to self-defer during periods of temporary illness or after exposure to high-risk behaviour has been found to result in positive donation behaviour in the future. On the other hand, for existing donors, advice from a blood service that a temporary deferral is required has been found to

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4 See E. L. Murphy, J. D. Connor, P. McEvoy, N. Hirschler, M. P. Busch, P. Roberts, K.-A. Nguyen & P. Reich, 'Estimating Blood Donor Loss Due to the Variant CJD Travel Deferral', *Transfusion*, vol. 44, no. 5 (May 2004), pp. 645–50.

5 P. K. Correll, M. G. Law, C. R. Seed, A. Gust, M. Buring, E. M. Dax, A. J. Keller & J. M. Kaldor, 'Variant Creutzfeldt-Jakob Disease in Australian Blood Donors: Estimation of Risk and the Impact of Deferral Strategies', *Vox Sanguinis*, vol. 81, no. 1 (July 2001), pp. 6–11.

have a negative impact with respect to donor return.<sup>6</sup> Measures to encourage donor return after a temporary deferral include immediate communication about the reasons for the deferral and, if appropriate, reassurance that the deferral may be temporary.<sup>7</sup>

The ARCBS has in place a number of strategies both for educating donors and potential donors about the need for self-deferral under certain circumstances, and for counselling donors when they are deferred at the point of donation. These strategies include brochures, information on the ARCBS website, and the recent media campaign 'It Takes Someone Special to Give Blood'. School programs on the fundamentals of blood donation are also an important means of raising general community awareness of blood donation requirements for younger donors.

Overall, while deferral policies have the potential to impact upon the number of eligible donors, minimising the risk of transmission of pathogens in the blood supply is of paramount importance. Ensuring the health and safety of donors by deferring donation during times of temporary illness is also important.

### How important is it to increase plasma supply?

Increasing the supply of plasma goes to the essence of Australia's policy of self-sufficiency in blood and blood products, and is of vital importance. The Australian Health Ministers' Conference issued the following policy statement on 7 April 2006:

The Australian Health Ministers' Conference (AHMC) has determined that a clear statement is needed on the governments' current position on self-sufficiency in the blood sector. Self-sufficiency means Australia striving to source blood components and plasma from within Australia to meet appropriate clinical demand.

This statement has been developed in response to a number of questions about whether recent government decisions to import certain blood products are consistent with the national policy aim relating to promoting national self-sufficiency in the blood supply.

All Australian, State and Territory Governments are signatories to the National Blood Agreement 2003, which sets out, among other things, the policy objectives and aims for Australia's national blood sector.

The primary policy objectives in the National Blood Agreement are to:

- provide an adequate, safe, secure and affordable supply of blood products, blood related products and blood related services; and
- promote safe, high quality management and use of blood products, blood related products and blood related services in Australia.

Underpinning these primary policy objectives are a number of secondary policy aims, including promoting national self-sufficiency. This policy aim has not changed. However, importation of blood products does occur in a narrow range

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6 See D. Halperin, J. Baetens & B. Newman, 'The Effect of Short-Term, Temporary Deferral on Future Blood Donation', *Transfusion*, vol. 38, no. 2 (February 1998), pp. 181-3.

7 See R. Beal, 'Deferred Blood Donors and Their Care', *Transfusion Medicine Reviews*, vol. 13, no. 2 (April 1999), pp. 89-94.

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of circumstances where there is an inability to meet clinical needs through the domestic supply, and where supply chain risks must be addressed. This happens within a framework that:

- ensures adequacy of supply to Australian patients in need;
- minimises the supply security and product safety risks to patients;
- ensures affordability of products to the Australian health sector; and
- recognises the practicalities of production and distribution.

Australia is self-sufficient in fresh blood components/products except for a few rare blood types, and is largely self-sufficient in plasma products. However, it is necessary to import products such as Intravenous Immunoglobulin (IVIg) where demand exceeds what is produced domestically and recombinant products, which are not produced in Australia.

The Australian Red Cross Blood Service is funded by all Governments to collect fresh blood and blood plasma for use in Australia. All blood and blood products are provided free of charge to patients.

Imported products are subject to the same safety and regulatory standards as domestic products prior to approval by the Therapeutic Goods Administration for release in Australia.

In highlighting self-sufficiency *in fresh blood components*, this statement reflects a policy similar to those of most developed countries. Transfusion components degrade rapidly. Whole blood cannot generally be stored longer than a few weeks and many components are unusable within hours or days (fractionated plasma products, by comparison, have shelf lives from one to two years). For this reason, virtually all developed countries are self-sufficient in transfusion components. In general, it is accepted that the safest transfusion is no transfusion, since there is always a level of risk.

The AHMC statement acknowledges that Australia is not totally self-sufficient in *plasma products*; indeed, Australia has never been totally self-sufficient in respect of these products. Nevertheless, the Review Committee believes that Australia should be as self-sufficient as possible and that self-sufficiency should remain an important goal. In the light of the projections presented in Chapter 6, meeting this objective will require a major, sustained increase in plasma collection by the ARCBS.

### **Recruitment and retention of donors**

One of the key objectives of the Australian Red Cross Blood Service is to increase the numbers of blood and plasma donors in Australia and to encourage repeat donations to meet increasing demand.

Growth in plasma collections must occur either through the recruiting of new whole blood or source plasma (apheresis) donors, or the recruiting of existing whole blood donors to become plasma donors. It is generally considered preferable to recruit new donors rather than to reduce the numbers of available whole blood donors.

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The report of the Review of the Australian Blood Banking and Plasma Product Sector (the Stephen Review) of 2001 noted that 'Australia's donors give their blood out of altruism, that is, for the general good of the community'.<sup>8</sup> This altruism may be influenced by:

- personal experience, in cases where the donor or a family member has received blood products
- encouragement to donate, by friends, workmates, family members, or community groups
- a supportive workplace (making it possible, for example, for a donor to make donations during working hours).

The Stephen Review also discussed donor recruitment strategies, noting that different approaches are used to appeal to the motivations of different groups within the population. These strategies tend to fall into three broad categories:

- volunteer recruitment strategies, which rely heavily on the internally generated motives of potential donors – their sense of altruism or community responsibility – and offer no material incentives or rewards for donating
- incentive-based strategies, which may also emphasise the positive feelings derived from donating blood but which introduce a variety of small rewards to serve as further incentives
- social persuasion-based strategies, which introduce the encouragement or pressure of peers and colleagues as a mechanism for persuading individuals to donate blood (mobile blood drives, for instance, at workplaces or schools, fit within this category).<sup>9</sup>

Current ARCBS public-awareness and recruitment campaigns include all of these strategies:

- volunteer recruitment: 'It Takes Someone Special to Give Blood' – media campaign motivates individuals by reinforcing the image of blood donors as a select group of worthy, community-minded people
- incentive-based: programs such as the 'Frequent Donors Club' (donors commit to donating on three occasions within a set period of time and if successful receive a small gift) or the 'Donate for Your State' donor recruitment drives in Queensland and NSW (which target Rugby League supporters and offer them the chance to win State of Origin tickets)
- social persuasion-based: 'Club Red' corporate blood donor program – provides team building for companies, or competition between companies.

Research into the motivation of donors has found that

the importance of social networks as a recruitment channel for blood donation is significant. The decision to begin and continue blood donation is likely to be influenced more by community links (co-workers, neighbours) than close relationships (spouse, or close friends). Therefore, active blood donors are probably the ones best suited to recruit and to motivate other people to become committed donors.<sup>10</sup>

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<sup>8</sup> *Review of the Australian Blood Banking and Plasma Product Sector*, Commonwealth of Australia, Canberra, 2001, p. 61; also available online at <<http://www.nba.gov.au/PDF/report.pdf>>, p. 63.

<sup>9</sup> *ibid.*

<sup>10</sup> A. H. Misje, V. Bosnes, O. Gásdal & H. E. Heier, 'Motivation, Recruitment and Retention of Voluntary Non-remunerated Blood Donors: A Survey-Based Questionnaire Study', *Vox Sanguinis*, vol. 89, no. 4 (November 2005), p. 243.

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In this context, recruitment campaigns are also an important means of reinforcing the influence of friends and family.

Retention of existing donors is another essential aspect of blood collection. Having a pool of committed blood donors provides the foundation for certainty of supply, and saves a collection agency the time, effort and money associated with the recruitment of new donors.<sup>11</sup>

The willingness of donors to make repeat donations is influenced by a number of factors. Intrinsic factors include a feeling of satisfaction for providing a worthwhile service or for having contributed to improving the health of another person, and increased self-esteem. Extrinsic factors include a positive donation experience, with limited discomfort, minimal side effects, and minimal delays.<sup>12</sup>

The ARCBS reports that as at 2004–05, on the basis of existing strategies, approximately 60% of new whole blood donors return after two years to make another donation, and approximately 40% of new plasma donors return after 180 days to make another donation.<sup>13</sup> The Review Committee considers that, given the current relatively low rate of return for new blood donors and the current relatively high volume of blood donated by existing donors, it will be a challenge to increase the total volume of blood donated. Donor retention remains a key issue. Independent research, undertaken to examine the reasons first-time donors do not return, would be very useful in identifying areas where the ARCBS could focus its marketing and customer service efforts.

### Current issues

Current strategies have not led to a decisive increase in donor numbers in recent years. The Australian community has been changing – in its age composition, in its access to free time, in its ethnic composition, and in its spiritual beliefs or lack of them – and these factors could be affecting the numbers coming forward to give blood.

It is important to note that Australians are generous in donating their leisure time to volunteering activities. A 2001 report by the Australian Bureau of Statistics indicates that an increasing proportion of the community is engaging in some form of voluntary work.<sup>14</sup> In 2000, 32% of the population, or a total of 4 395 600 people, were engaged in some form of voluntary work, compared with 3 189 400, or 24%, in 1995. There has been no comparable increase in the number of blood donors.

### Increased demands on leisure time

It has been suggested that some of the reasons for the difficulty in increasing the number of blood and plasma donors in Australia are: an increased participation in the workforce, a reduction in leisure time, and the increasing demands made on available leisure time by other volunteer and community activities.

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11 See J. H. Chamla, L. S. Leland & K. Walsh, 'Eliciting Repeat Blood Donations: Tell Early Career Donors Why Their Blood Type Is Special and More Will Give Again', *Vox Sanguinis*, vol. 90, no. 4 (May 2006), pp. 302–7.

12 See Misje et al., pp. 236–44.

13 Information supplied by ARCBS, June 2006.

14 Australian Bureau of Statistics, *4441.0: Voluntary Work, Australia, 2000*, Australian Bureau of Statistics, Canberra, 2001, <<http://www.abs.gov.au/ausstats/abs@.nsf/0/124E5675AD3AED8CCA256A71000019C5?Open&Highlight=0,volunteers>>.

Figures from the Australian Bureau of Statistics reflect the increasing demands of work: between 1985 and 2005, full-time working hours for men increased by 1.9 hours per week, to 43.2 hours, and for women by 1.7 hours, to 39.3 hours. Over the same period, part-time hours worked by men increased 0.7 hours, to 16.4 hours, and for women by 1.4 hours, to 16.9 hours per week.<sup>15</sup> In addition, changing social attitudes and smaller families have contributed to the increased participation of women in the workforce. The proportion of women in the workforce has increased, with 53% of women participating in the workplace in 2004 (4 314 000) compared to 40% in 1979 (2 178 300). However, women continue to carry the greater responsibility for caring and for other unpaid work, and are therefore placed under greater time pressures.<sup>16</sup> Commuting times for workers have also increased, adding to the reduction in leisure time.

The Australian Red Cross Blood Service has noted in its submission to this Review that employees might be more inclined to donate if they had access to paid blood donation leave. The ARCBS proposed to the Review that Australian governments should legislate to ensure the rights of employees to donate blood during the working day, without loss of earnings. The Review Committee does not believe that it would be feasible to legislate for paid blood donation leave.

Volunteering and making charitable donations are an important part of the Australian culture. Voluntary work provides an important contribution to the general community and to the public good, and helps to develop and reinforce social networks and cohesion.

Generally people are motivated to volunteer their time and skills so as to be of benefit to the community and to achieve personal satisfaction.<sup>17</sup> In addition, people generally choose a voluntary activity that relates to their paid work.<sup>18</sup> Donating blood, however, can be characterised as different from volunteering one's time and skills to charitable or community organisations, and also as different from making donations such as goods or money.

Blood donation, in contrast to other voluntary activities, involves an individual making a gift of his or her blood to (generally) unidentified recipients. The donor is required to undergo a minor but invasive procedure in order to donate, and the effects of the donation are in most cases not directly seen by the donor.

In summary, a number of different factors currently impact upon existing leisure time and, if blood donation is to actively compete for a share of this time, it must be available to potential donors as a time-effective and family-friendly option.

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15 Australian Bureau of Statistics, *4102.0: Australian Social Trends, 2006*, media release, 20 July 2006, Australian Bureau of Statistics, Canberra, <<http://www.abs.gov.au/ausstats/abs@.nsf/Latestproducts/4102.0Media%20Release12006?opendocument&tabname=Summary&prodno=4102.0&issue=2006&num=&view=>>>.

16 See Australian Bureau of Statistics, *4102.0: Australian Social Trends, 2006* <<http://www.abs.gov.au/ausstats/abs@.nsf/7d12b0f6763c78caca257061001cc588/858BADAD39AFB98DCA2571B000153D73?opendocument>>.

17 See Volunteering Australia, *Volunteering Fast Facts*, Volunteering Australia, Melbourne, 2006, <[http://www.volunteeringaustralia.org/html/s02\\_article/article\\_view.asp?id=502&nav\\_cat\\_id=222&nav\\_top\\_id=50&dsa=2931](http://www.volunteeringaustralia.org/html/s02_article/article_view.asp?id=502&nav_cat_id=222&nav_top_id=50&dsa=2931)>.

18 See Australian Bureau of Statistics, *4441.0 Voluntary Work, Australia, 2000*, <<http://www.abs.gov.au/ausstats/abs@.nsf/0/124E5675AD3AED8CCA256A71000019C5?Open&Highlight=0,volunteering>>.

### **Donor recruitment within specific cultural communities**

One option for enhancing blood donor recruitment and retention levels in Australia is to target recruitment to specific parts of the population, including people from non-English-speaking backgrounds.

In response to questions from the Review Committee, the Australian Red Cross Blood Service noted that:

Unfortunately, we have not had the funding available to undertake marketing and communications to Australia's diverse culture and linguistic communities appropriately. For example, we have only provided our literature, other promotional material and signage in English (including the donor questionnaire form) and our staff have not had cross-cultural awareness and communication training. If provided with sufficient funding, we would be delighted to do this.<sup>19</sup>

The ARCBS does not currently collect place of birth data from blood or plasma donors (other than those donors who are deferred due to the United Kingdom-related restriction), or data on first language or ethnicity. (Information on ethnicity and/or country of origin is collected by the ARCBS only in the case of specific tissue donors, such as bone marrow donors, where the data is necessary for the matching of donor and recipient.) Anecdotal evidence suggests that blood donors are predominantly Australians of Anglo-Celtic origin.

It is possible that recruiting donors from specific ethnic groups could result in an increased donor pool. Certainly the recruitment of a number of donors from one ethnic group could offset the costs involved in delivering services to that group (e.g. translation of forms, provision of interpreters, and provision of culturally specific collections services). Offering a positive donation experience to donors from a specific ethnic group could also reinforce the donation intention of individuals and/or increase the level of repeat donations from members of that cultural group.

In response to questions from the Review Committee concerning recruitment of donors, the ARCBS has noted that it is aware of anecdotal reports of differences in attitude towards blood donation among Australians from a range of culturally and linguistically diverse backgrounds, and particularly in those communities where thalassemia major/minor is endemic (including the Greek, Italian and Serbian communities).<sup>20</sup>

Some community groups have indicated a willingness to give blood but require the provision of specific culturally sensitive donation conditions. For example, some women in the Muslim community will donate only if there are no other donors in the room and only if the staff present are female.<sup>21</sup>

There are indications, however, that community groups are willing to work towards overcoming cultural barriers to donation. The NSW Muslim community recently organised a campaign to encourage people of the Muslim faith to donate blood.<sup>22</sup> While this campaign has operated within the standard donation environment, there

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<sup>19</sup> ARCBS, responses to questions from Plasma Fractionation Review Committee, May 2006.

<sup>20</sup> Thalassemias are hereditary disorders characterised by defective production of globin, the protein component of haemoglobin; this deficiency leads to low production, and excessive destruction, of red blood cells, and to anaemia. There are two forms of thalassemia: thalassemia major (alpha), which is severe and is treated with regular blood transfusions, and thalassemia minor (beta), which does not usually require active treatment.

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<sup>21</sup> ARCBS, responses to questions from Plasma Fractionation Review Committee, May 2006.

<sup>22</sup> See NSW Muslim Blood Drive Campaign, Sydney, 2006, <<http://www.muslimblooddrive.org.au/>>.

is, given demand, potential to tailor donation opportunities to meet the needs of specific communities.

More research could be undertaken to determine whether targeting specific ethnic groups in Australia is likely to result in an increase in the overall donor population.

As a first step, the ARCBS could undertake research and liaison with community organisations in order to gain an understanding of perceptions among cultural groups with regard to blood donations, and of any obstacles that may be holding back donation rates. Some cost–benefit analysis, of the costs of improving collection centre facilities and information provision so as to better target, and address existing concerns of, specific cultural groups in the Australian community – against likely returns in the form of increased numbers of donors – could also be undertaken.

### **Reimbursement of expenses**

The question of some form of taxation concession or reimbursement for expenses (essentially, transport costs) incurred by donors has been raised by many stakeholders in the course of the Review. While observing the National Blood Agreement policy aim of maintaining reliance on voluntary, non-remunerated donations of whole blood and plasma, the Review Committee has given consideration to this issue.

The Committee would not recommend that Australia introduce a system such as that in the United States, where donors are paid directly, but the issue here is that of reimbursement or compensation for direct expenses related to blood donation.

The Council of Europe has determined that small tokens, refreshments and the reimbursement of direct travel costs are compatible with the principle of voluntary, non-remunerated donation.<sup>23</sup> The Council of the European Union has included a similar provision in its definition of voluntary, non-remunerated donations.<sup>24</sup>

While health care policy, including blood donation, is an area of EU competence, European countries differ in their individual arrangements. Most rely on small tokens or small gifts. In Germany, people donating through the German Red Cross may receive up to Euro 25 (A\$42) for lost time and for travel expenses; university and community blood services usually provide their donors with an expense allowance ranging from Euro 25 to Euro 45–55 (A\$75–\$92) for cytopheresis donors, and Euro 12–15 (A\$20–\$25) for plasmapheresis donors. In Australia, the Australian Red Cross Blood Service has non-financial incentive schemes in place, and small tokens are sometimes given to donors. The Review Committee appreciates that a scheme to reimburse expenses may pose a considerable administrative burden on the ARCBS.

One suggestion proposed to the Committee as a possible means of increasing blood and plasma donations in Australia involves the provision of a tax benefit to donors. Depending on the nature of such a benefit, it could be compared to an income tax deduction offered to those making charitable donations, or to tax relief granted as an offset to those taking out private health insurance.

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<sup>23</sup> See Council of Europe, *Guide to the Preparation, Use and Quality Assurance of Blood Components*, 11th edn, Council of Europe Publishing, Strasbourg, 2005, p. 33. The Council of Europe is an international organisation that aims to reflect an overriding human rights position when developing guidelines on social and legal practices in member countries. The Council of Europe is separate from the European Union and does not have a legislative function.

<sup>24</sup> See Council of the European Union, *98/463/EC: Council Recommendation of 29 June 1998 on the Suitability of Blood and Plasma Donors and the Screening of Donated Blood in the European Community*, Council of the European Union, 1998, <<http://eur-lex.europa.eu/Notice.do?val=229757:cs&lang=en&list=229757:cs,&pos=1&page=1&nbl=1&pgs=10&hwords=blood%20and%20plasma-&checktexte=checkbox&visu=#texte>>.

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Providing an incentive through the tax system, by making donation-related expenses an allowable tax deduction from income, may be inequitable, however, because of the way that the tax system is structured. In addition, an allowable deduction from income is attractive only to those people who are required to submit a tax return. Individuals not required to do so, such as those people with an income under the tax-free threshold, would gain little benefit from this approach. (The ARCBS has advised that 19.6% of the donor base are not in paid employment and identify themselves as students, retired or undertaking home duties.) Blood donors are not currently entitled to an income tax deduction for expenses incurred as a direct consequence of donating blood, because donors do not earn income from this activity.

Another possible mechanism would be to provide a tax offset to donors. A tax offset is defined by the Australian Taxation Office as a mechanism for directly reducing the amount of tax that must be paid. Tax offsets are not the same as deductions, which are subtracted from income before tax is calculated. With a tax offset, taxation payable is reduced by the total amount of the offset. Tax offsets can be framed so as to provide a tax benefit for a particular purpose or to a particular age group. Current examples include the tax offset for mature age workers and the private health insurance rebate.

If the tax offset framework were to be implemented for blood and plasma donors, it would be necessary to calculate a standard amount for the inconvenience and expense associated with donation. Estimating the level of reimbursement required is hard to quantify – a token offset of A\$100 per annum may be more appropriate than estimating a 'true value'. Research would be needed in order to establish the merit or otherwise of such a tax offset and, especially, to ascertain the attitudes of current members of the donor community. A tax offset for blood donation would be a major statement by government of the importance attached to donating.

### **Improved business planning**

One issue identified by the Australian Red Cross Blood Service as an impediment to enhancing donor recruitment levels is the lack of multi-year funding. This issue is directly related to the supply planning process under the national blood arrangements, as funding is set annually so as to allow response to changes in demand and to facilitate management of blood sector expenditure through government budget processes.

The importance for the ARCBS of planning multi-year recruitment and retention strategies should not be underestimated, and long-term planning is a key factor of successful business planning for any organisation. The Review Committee believes that current funding arrangements for all governments, through the Jurisdictional Blood Committee, should be re-examined in order to give the ARCBS greater capacity to plan ahead.

The Review Committee notes the recent decision by the Australian Health Ministers' Conference to arrange an independent business study of the ARCBS, with this study to be managed by the National Blood Authority. This study will, inter alia, identify cost options for improving the national efficiency and effectiveness of the ARCBS and will assess current governance arrangements, and financial and accounting principles and practices.

### Conclusion

The Australian Red Cross Blood Service faces the major challenge of having to collect substantially increased quantities of plasma for use in fractionation. In recent years, demand for plasma products, specifically IVIg, has reached the point where Australia is reliant on a small but potentially increasing proportion of imported product to supplement domestically sourced IVIg. If the ARCBS is to continue to meet increasing target volumes for starting plasma, it is important that options for improving strategies for the recruitment and retention of donors be considered. Current ARCBS strategies to attract donors address the key motivational factors associated with potential donors, and ARCBS collection volumes compare well with those of other developed countries. However, there is room for much further work to be done, especially around donor retention strategies.

The effects of social, economic and demographic changes in the last 20 years in Australia must be recognised, and the ways in which the ARCBS recruits and retains donors must reflect these changes. While to an extent this is happening already, the Review Committee believes that the ARCBS, on the condition that adequate funding is secured from governments, could do much more to make the activity of donating blood accessible to a higher proportion of the Australian community – whether by operating collection centres at weekends or evenings, increasing collections in outer metropolitan and regional areas, or providing facilities and information tailored to people from a range of culturally and linguistically diverse backgrounds.

Maximising workplace and organisational donations is an important part of increasing the blood donor population. Given the strong motivational factors associated with sporting club, place of worship, and workplace-based donation, and the cost benefits of targeting large organisations, new strategies to increase organisational donation programs should be encouraged.

In acknowledging the debt the nation owes to blood donors, the Review Committee believes that there is much work that could be done in surveying donor attitudes, and attitudes of the broader community, in order to determine how donations might best be increased. Surveys would need to be independent of the ARCBS (and would possibly be commissioned by the National Blood Authority), with input from stakeholders across the blood sector.

The Review Committee notes that funding implications for any new initiatives would need to be considered by governments as an issue separate from future arrangements for fractionation services.