The Costing of Blood Products and Services

Western Province Blood Transfusion Service

March 2014
Introduction:

The Western Province Blood Transfusion Service (WPBTS) has been in existence since 1938, and is a non-profit company incorporated in terms of the Companies Act, 71 of 2008. The main activity of the Service is the collection, testing, processing and distribution of blood products within the greater Western Cape region (an arc approximately bordered by Plettenberg Bay, Springbok, and Beaufort West), as reflected in the mission statement:

“Western Province Blood Transfusion Service is a community based regional health organization formed by an association of voluntary blood donors, dedicated to providing the safest blood products and efficient service to the community, while operating at the highest professional and ethical standards and remaining a viable organization.”

Noting the safety and service commitments implicit in the mission statement above, continued viability of the Service requires financial stability, which allows self-funding of expansion of capacity and adoption of appropriate new technologies.

The following report is intended to summarise all issues related to the pricing of blood products and related services, and should be read in conjunction with our Annual Report of 2012/13, which details the Service’s financial performance from 1 April 2012 to 31 March 2013.

The Strategic Planning and Budget process

Strategic planning meetings are based on the balanced scorecard approach from the various perspectives of internal and external stakeholders. In general, strategic objectives are set to deal with capacity issues, and improvements or upgrades to technologies. In addition, optimum staffing levels are decided, noting that ongoing challenges are experienced in filling all posts with appropriately qualified and experienced staff.

The budget process follows from the strategic planning objectives, and follows a defined process. Firstly, expected sales are based on past sales trends, and estimates on the new years’ demands. Expenses are then budgeted, based on strategic objectives, and adjusted to account for anticipated inflationary and exchange rate pressures. Price increases to both the private sector and state sector are then set to ensure an acceptable match between income and expenditure with due regard for cash and capital equipment requirements. Cash surplus is required to fund capital purchases, maintenance and expansion of existing facilities, and to implement appropriate new technologies. On occasion, the adoption of new technologies may demand interim additional funding - for example the introduction of nucleic acid testing for infectious markers in 2005 required approximately R 6.5mil of additional capital
expenditure during 2005, and resulted in increased testing costs of approximately R 1mil per month immediately thereafter.

**The recovery and allocation of blood product and service costs**

The World Health Organization document entitled “Developing a National Blood System” (accessible at http://www.who.int/bloodsafety/publications/am_developing_a_national_blood_system.pdf) states that “the Minister of Health should ensure that adequate, sustainable financing for the national blood system is integrated within the financial structure of the health system, through mechanisms such as a specific budget, cost-recovery and health insurance or a combination of these”.

Section 6 of the draft National Blood Policy for South Africa (August 2010) agrees with the principles above. Clause 6.1.1 states that “to ensure sustainability and appropriate development of the national blood programme, fees will be levied for all blood, blood components and blood products provided by the licence holders in the National Blood Programme on a cost recovery basis. Fee for service will be the main source of funding and will provide for recurrent expenditure and ongoing, sustainable development.” In South Africa most patients treated within the State sector are funded by the State (via Provincial Departments of Health annual budgets), while those treated in the Private sector are funded by medical insurance or their own funds.

The costing of blood products has received some attention in the blood transfusion literature. There is some consensus that the cost of blood is increasing (often in excess of inflation), and that the main drivers of increased costs are those associated with improving blood safety, recruitment of donors, and improved collection and processing technologies. There is however little indication of the “ideal” allocation of costs in blood transfusion services. A leaflet issued by the Natal Blood Transfusion Service in 2000 suggests the following proportions:

- Recruitment - 7%
- Collection - 25% (including a 9% allocation for the collection bag)
- Processing - 5%
- Testing - 16%
- Distribution - 17%
- Support - 30%

A study by Mo Amin on “The societal unit cost of allogeneic red blood cells and red cell transfusion in Canada” (published in Transfusion, Volume 44, October 2004, pages 1479-1486) reinforced the view that leukoreduction, NAT testing, look back and deferral policies, and increased donor screening have
driven costs upwards - in addition to rising costs of labour, regulatory compliance, administration and overhead. The societal cost includes the costs of blood collection, production, distribution, delivery (hospital transfusion service processing and patient administration), transfusion reaction management, and the opportunity cost of the donors’ time. The societal unit cost of RBC transfusion almost doubled between 1994/1995 and 2001/2002 - with the mean cost of collection, production and distribution in 2002 being US$ 202.74. By removing the influence of the costs that are not borne by the Blood Services in South Africa, an estimate can be derived of the percentage allocation of blood transfusion service costs as follows:

- Collection - 39%
- Production - 17%
- Distribution - 5%
- Other (overheads, R&D) - 31%
- Hospital transfusion service (equivalent to blood banking) - 8%

It is however difficult to directly translate the results above to those for WPBTS as it is not entirely clear whether the correct variables are being compared. Also, the costs incurred in SA would almost certainly not directly mirror those being incurred in the USA, Canada, the UK, or Australia.

The above allocations of expense categories could serve as a reasonable baseline of expense allocation for WPBTS, which can serve as a guide for future expense allocation. It will be important to regard this as simply a guide, as deviations will be an inevitable result of structural changes to the way we work, the staff we employ, and the local and international milieu in which we operate.

WPBTS has an array of approximately 60 products and 45 services with annual price increases implemented across the full product range (except for those products subject to single exit pricing). Over 80% of income is contributed by red cell concentrate, fresh frozen plasma, platelets, and fractionated products.

Because individual product input costs are not computed, the cost per unit of blood needs to be viewed by dividing total expenses into various categories. This allows a reasonable allocation of costs to the “generic” blood product. Although the percentage allocations of costs have remained consistent over the last two reported years, significant change may occur in the future - for example, if a new testing methodology becomes available, and is deemed strategically appropriate, or if the exchange rate changes substantially, then the financial effect on imports could upweight or downweight testing and product costs. Currently, the adoption of pathogen reduction technology (PRT) is the most likely incremental improvement to blood product safety in the near future. Implementing PRT will certainly increase the “product costs” expense allocation.
Recent allocations of expenses, as well as budgeted amounts for 2014/15 are summarized in the following table (amounts in R 000's):

<table>
<thead>
<tr>
<th>Expense</th>
<th>2014/15</th>
<th>%</th>
<th>2013/14</th>
<th>%</th>
<th>2012/13</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel</td>
<td>149 310</td>
<td>48</td>
<td>135 991</td>
<td>50</td>
<td>127 805</td>
<td>50</td>
</tr>
<tr>
<td>Collection</td>
<td>31 046</td>
<td>10</td>
<td>28 355</td>
<td>10</td>
<td>22 480</td>
<td>9</td>
</tr>
<tr>
<td>Testing</td>
<td>50 783</td>
<td>16</td>
<td>42 079</td>
<td>15</td>
<td>33 634</td>
<td>13</td>
</tr>
<tr>
<td>Product costs</td>
<td>40 472</td>
<td>13</td>
<td>32 729</td>
<td>12</td>
<td>31 432</td>
<td>12</td>
</tr>
<tr>
<td>Administration</td>
<td>21 068</td>
<td>7</td>
<td>18 006</td>
<td>7</td>
<td>20 808</td>
<td>8</td>
</tr>
<tr>
<td>Repairs/maintenance</td>
<td>7 977</td>
<td>3</td>
<td>6 514</td>
<td>2</td>
<td>6 937</td>
<td>3</td>
</tr>
<tr>
<td>Depreciation</td>
<td>10 128</td>
<td>3</td>
<td>9 707</td>
<td>4</td>
<td>8 274</td>
<td>3</td>
</tr>
<tr>
<td>Other</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1 727</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>310 783</td>
<td>100</td>
<td>273 380</td>
<td>100</td>
<td>253 097</td>
<td>100</td>
</tr>
</tbody>
</table>

The year-on-year increase in total expenses between 2012/13 and 2013/14 is 8%. The increase in total expenses for the budget year versus the current year is 13.7%. There was relative consistency between the expense percentage allocations over the 3-year period - with the exception of testing costs which have risen significantly largely due to the effect of the Rand/USD exchange rate.

A question often asked of Blood Services is “why do blood products cost what they do, if blood is given free-of-charge by blood donors?” The expense categories in the above table indicate the proportion of expenses incurred to convert the “free” raw material into a safe end-product suitable for transfusion - and the overall expenses dictate the income required to cover these expenses, to ensure the long-term viability of WPBTS.

Furthermore, Blood Service provision in South Africa is on par with that of most first-world countries - with the result that most of the processing and testing technologies used are imported, and thus subject to global pricing and exchange rate fluctuations. In spite of this, red cell products cost significantly less in South Africa than they do in the USA and UK - possibly due to certain locally incurred costs such as staff salaries being lower, or operational efficiencies in the South African Blood Services, or different degrees of beneficiation, or a combination of these and other factors.

**Control of costs**

One of the Service’s priorities is to keep prices under control wherever possible - with the vitally important proviso that any reduction of the quality and safety of products and associated services can not be allowed. Blood products are lifesaving and there is no substitute for them in many clinical
situations. In addition, consumers (clinicians and patients) have no alternative suppliers within South Africa other than WPBTS and the South African National Blood Service. It is thus incumbent on both Services to control costs as far as possible, as well as for the National Department of Health to allocate sufficient funds for the provision of a safe sustainable blood service within the broader context of competing health priorities and budget allocations.

Approximately half of the Service’s expenses are comprised of salaries. These expenses have increased in excess of CPI in recent years - largely due to supply and demand imbalances as well as the current power of organized labour in demanding and attaining salary increases in excess of CPI. Consequently, the Service has limited control over annual salary increases other than robust mutually constructive relationships with the labour union, and the ability to resolve salary increase disputes at the CCMA with regard to National and Provincial precedents.

Collection, testing and product costs comprise 34% of total expenses and are almost all directly or indirectly subject to the Rand’s exchange rate with the US Dollar which has worsened by at least 20% since the beginning of the Service’s 2013/14 financial year. Macroeconomic factors do not clearly indicate significant space for improvement in the Rand/Dollar exchange rate off the current base of around R11/USD. Most forecasts for the 2014/15 year range from R 11 to R 12. Although many locally supplied products and services are usually expected to be subject to CPI, almost all of our suppliers have implemented price increases significantly in excess of CPI in the past year. Other significant expenses subject to increases in excess of CPI include the costs of energy - electricity and fuel. For the 2014/15 financial year, WPBTS’s suppliers have applied increases ranging from 12-17.5%.

It must be noted that in recent years the Service has absorbed additional costs associated with improving education and service levels including: education of clinicians, nursing staff, medical students, and a structured registrar training programme; routine transport logistics to several state hospitals at a direct cost of at least R4 million annually; implementation of a wastage reduction campaign; funding of maintenance and repairs to all blood banks including correcting water damage to the blood bank in Groote Schuur Hospital; and the costs of extended crossmatching of multi-transfused patients.

The Western Province Blood Transfusion Service continues to seek improvements to all operations to save costs and reduce wastage. Considerable gains have already been made in the area of reducing blood discard rates. The areas of patient blood management and better clinical transfusion practices have the potential to reduce blood usage and wastage further, but both will require the extensive cooperation of users and funders. Educational initiatives have already progressed with the production of an educational film entitled “Ordering and Administration of Blood” as well as the 2014 edition of the
“Clinical Guidelines for the use of Blood Products in South Africa” - both collaborative efforts of WPBTS and SANBS. These initiatives should be followed by a structured audit of blood usage to identify deviations from recommended practice and potential further areas for improvement.

We hope that the above information is of assistance in explaining many of the factors influencing blood product and service pricing. If any further information is required, we are available to meet and discuss this at your convenience.

Dr Greg Bellairs
CEO & Medical Director
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CFO/Corporate Services Director