THE RARE DONOR PROGRAM AT SANBS: ACHIEVEMENTS AND FUTURE PLANS

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The South African Rare Donor Program (SARDP)

- A collaborative program between the South African National Blood Service (SANBS) and the Western Cape Blood Service (WCBS).

- Identifies rare donors and obtains their donations for storage and issue when required both nationally and internationally.

- The SANBS Reference Laboratory is the custodian of the SARDP.

- SANBS collects +/- 3300 units of blood every day from different race and ethnic groups in 8 of the 9 provinces in South Africa.

- Within South Africa, less than 1% of the country’s total population donates blood. These donors make it possible for the SANBS to receive some 850 000 blood donations annually.
Donors are considered rare if:
- They lack antigens present in 99% of the population OR
- If they are negative for high frequency antigens.

Natural attrition of donors has led to a decline of the active rare donor database.

A manual system for the tracking of incoming and outgoing rare donations made assessment of the status of the rare donor program difficult.

In order to re-establish a younger, active donor pool and ensure continuity of access by South African patients to rare donations, an urgent donor screening program was implemented.
INTRODUCTION

- The objectives of this review was to analyse the outcome of the rare donor screening program implemented by SANBS in January 2016 through to October 2018.

- To describe the number and type of new rare donors identified, and to list the rare types most frequently issued.
METHODS

- A retrospective review using frequency analysis of laboratory data was performed.

- Batch screening of random donor samples was performed to identify rare types using extended phenotyping by:
  - Manual tube Indirect Antiglobulin Technique (IAT)
  - Manual tube Enzyme Techniques

- Results were captured on Meditech, the SANBS operating platform, and extracted to the SANBS Power Business Intelligence (BI) Report Server.
### RESULTS

January 2016 – October 2018

11712 samples screened, 11 tests per sample with a total of 128832 tests

<table>
<thead>
<tr>
<th>Rare types</th>
<th>No. of rare donors identified from screening</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>hrB-</td>
<td>40</td>
<td>44%</td>
</tr>
<tr>
<td>U-</td>
<td>17</td>
<td>19%</td>
</tr>
<tr>
<td>Js(b-)</td>
<td>14</td>
<td>16%</td>
</tr>
<tr>
<td>hrS-</td>
<td>9</td>
<td>10%</td>
</tr>
<tr>
<td>U variant</td>
<td>7</td>
<td>8%</td>
</tr>
<tr>
<td>Lan -</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>kk-</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>Do(b-)</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td></td>
<td>* 90</td>
<td>100%</td>
</tr>
</tbody>
</table>

* 0.8% increase
Can SANBS meet the demand?

January 2016 – October 2018

<table>
<thead>
<tr>
<th>Rare Type</th>
<th>No. of Active Rare Donors</th>
<th>No. of rare units received</th>
<th>No. of rare units issued</th>
<th>Meet the demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>hrB-</td>
<td>58</td>
<td>80</td>
<td>65</td>
<td>√</td>
</tr>
<tr>
<td>hrS -</td>
<td>27</td>
<td>52</td>
<td>18</td>
<td>√</td>
</tr>
<tr>
<td>U-</td>
<td>13</td>
<td>25</td>
<td>23</td>
<td>√</td>
</tr>
<tr>
<td>Js (b-)</td>
<td>13</td>
<td>17</td>
<td>6</td>
<td>√</td>
</tr>
<tr>
<td>Do (b-)</td>
<td>10</td>
<td>33</td>
<td>0</td>
<td>√</td>
</tr>
<tr>
<td>Bombay Oh</td>
<td>6</td>
<td>19</td>
<td>4</td>
<td>√</td>
</tr>
<tr>
<td>Kn (a-)</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>√</td>
</tr>
<tr>
<td>ln (a+b-)</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>√</td>
</tr>
<tr>
<td>Ge -</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>√</td>
</tr>
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</table>
Can SANBS meet the demand?

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<tr>
<td>k-</td>
<td>20</td>
<td>56</td>
<td>6</td>
<td>√</td>
</tr>
<tr>
<td>U variant</td>
<td>14</td>
<td>23</td>
<td>0</td>
<td>√</td>
</tr>
<tr>
<td>Lu (b-)</td>
<td>2</td>
<td>8</td>
<td>7</td>
<td>√</td>
</tr>
<tr>
<td>Yt (a-)</td>
<td>1</td>
<td>4</td>
<td>3</td>
<td>√</td>
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<tr>
<td>Rh null</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>√</td>
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<tr>
<td>Vel -</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>√</td>
</tr>
<tr>
<td>Kp (a+b-)</td>
<td>1</td>
<td>5</td>
<td>2</td>
<td>√</td>
</tr>
<tr>
<td>p Phenotype</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>*</td>
</tr>
<tr>
<td>Lan -</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>*</td>
</tr>
<tr>
<td></td>
<td><strong>172</strong></td>
<td><strong>325</strong></td>
<td><strong>140</strong></td>
<td></td>
</tr>
</tbody>
</table>
DISCUSSION/CONCLUSION

- 90 rare donors were identified with a success rate of 0.8%, increasing the SARDP by 38%.

- The most frequently issued rare types were hrB-, hrS- and U-.

- There are currently 129 SANBS rare donors and 56 WCBS rare donors contributing to the SARDP.
The SARDP has successfully identified donors with rare types, however long-term screening is unsustainable due to limited availability of the rare reagents required.

Future plans for the SARDP include:
- Sourcing of alternate supplies of rare reagents.
- Validation of different screening methods.
- Introduction of a family studies programme, for the identification of rare blood types within the families of rare patients and donors.
Automated Cell Processor (ACP 215)

The inside of the Ultra Low Freezer
ACKNOWLEDGEMENTS

- The staff of the South African National Blood Services Immunohaematology Reference Laboratory
- Western Cape Blood Service (WCBS)
- Specialised Processing Department
- Inventory Department
- Specialised Donor Services
- Donation Testing Department
- Quality Control Department
- SLS management
REFERENCES

- SANBS Power Business Intelligence (BI) Report Server
- SANBS Five-Year Strategy: 2019-2024
I thank you