Improving the availability of phenotyped red cells for transfusion

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AIM STATEMENT
Within 6 months the Blood Service will increase filled phenotyped red cell orders to 88%.
• The Blood Service regularly phenotypes donors to maintain an inventory of antigen negative red cells to the more commonly found and clinically important antibodies.
• This inventory is used to support the transfusion needs of patients that have developed clinically significant red cell antibodies.
• The inability to provide antigen negative blood for these patients will impact clinical outcome either through delay or inability to transfuse the patient.
• It is critical that the Blood Service holds sufficient inventory with the appropriate phenotypes to support clinical demand.
• The Blood Service is not currently meeting demand for phenotyped red cells.
• In the majority of cases clinically appropriate blood group substitutions were available which ensured that the patient received safe and appropriate treatment.
• Since August 2017 between 85.3 and 87.7% of phenotype orders have been filled as requested by the hospital

GATHERING DATA: ROOT CAUSE ANALYSIS

Analysis of the process and reasons for failure to deliver exactly what the customer required demonstrated that the root cause was insufficient inventory particularly for specific ABO and Rh blood groups. Four change ideas were selected for investigation.

CHANGE IDEAS

<table>
<thead>
<tr>
<th>Change Idea</th>
<th>Name of Change Idea</th>
<th>Related to PDSA</th>
<th>ABM (able to measure)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retrospective testing of donors missing extended Rh &amp; K typing</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Increased number of donors who were not tested for Rh and K alleles</td>
</tr>
<tr>
<td>Cappederry strategy for Rh &amp; K donor</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Increased number of donors who were tested with Capkerry strategy</td>
</tr>
<tr>
<td>Kapping strategy for Rh &amp; K donor</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Increased number of donors who were tested with Kapping strategy</td>
</tr>
<tr>
<td>Marketing campaign to promote uptake</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Increased number of donors who were informed of the importance of testing</td>
</tr>
</tbody>
</table>

RESULTS

There are 79771 (approx. 14%) of regular whole blood donors that require typing. A proportion of donors are tested as they present for their next donation. To date, 18252 donors (22.9%) have been tested.

OUTCOME

This change appears to have not made a significant impact on DIFOT. Although this must be balanced against the increased demand observed since April 2018.

WHAT'S NEXT?

The retrospective extended Rh & K testing will continue until all donors have been tested. In February 2019 automated phenotyping will move from planning (Plan) to implementation (Do). Testing will be transferred to an automated testing platform which will enable a significant increase in testing capacity. This will be monitored (Study) to observe the impact on provision of phenotyped red cells. Adjustments to the testing numbers may be required to ensure we meet or exceed our target.