DIAGNOSTIC SERVICES

MANITOBA

YEAR IN REVIEW

JANUARY – DECEMBER 2015

Diagnostic Services “Year in Review” statistics are based on a January to December calendar year. The calendar year provides better correlation with Health Canada birth statistics.
### SENIOR STAFF AND CONTACT INFORMATION

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
<th>Phone #</th>
<th>Email</th>
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</thead>
<tbody>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Charge Technologists:</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Perinatal Laboratory</td>
<td>Dora Lopes-Carvalho, MLT</td>
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</tr>
</tbody>
</table>

| Perinatal Laboratory                 |                             |                 |                                |
| Phone #                              | 204-789-1088                |                 |                                |
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| Crossmatch / Accession Laboratory    |                             |                 |                                |
| Phone #                              | 204-789-1085                |                 |                                |
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| Platelet Immunology Laboratory       |                             |                 |                                |
| Phone #                              | 204-789-1152                |                 |                                |
| Fax #                                | 204-789-1186                |                 |                                |

| Diagnostic Services Websection       |                             |                 |                                |
|                                     | https://www.blood.ca/en/hospitals/DiagnosticServices-About |                 |                                |
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PERINATAL LABORATORY

The Perinatal Laboratory within Diagnostic Services at Canadian Blood Services provides diagnostic testing of pregnant women for blood type and red blood cell antibodies. Results from this screening assist physicians, midwives and nurse practitioners in ensuring the appropriate management of a pregnancy for both the mother and baby.

A. Testing Performed

Canadian Blood Services Perinatal Laboratory routinely performs the following tests:

- ABO/Rh blood type
- Screen for red blood cell antibodies
- Antibody Identification, if antibodies are detected
- Antibody Identification referrals
- Antibody Titre, if a clinically significant antibody is identified
- Phenotyping
- Fetal Bleed Screening Test
- Kleihauer-Betke Test for Quantitation of fetal-maternal hemorrhage
- Direct Antiglobulin Test for detection of HDFN (Hemolytic Disease of the Fetus/Newborn)
- Bedside testing during fetal cordocentesis

B. Testing Frequency

**Mothers – Initial Testing**  All women should be tested upon their first prenatal visit.

**Mothers – 26-28 Weeks Gestation**  All Rh negative women should be retested at 26-28 weeks gestation. Rh positive women should also be retested at 26-28 weeks gestation when there is only one blood group result available (usually first pregnancy) or if patient is at increased risk of allo-immunization (e.g. previous transfusion, fetal trauma or procedure, IV drug use).

**Mothers – Antibody Present**  If the antibody is known to cause HDFN, it is recommended that specimens be submitted every two to four weeks for the duration of the pregnancy dependant on the specificity of the antibody and the strength of the antibody titre. More frequent testing may be indicated if the antibody titre rises rapidly or if clinical monitoring mandates that additional sampling would provide helpful information.

**Mothers – Postnatal**  Following delivery, specimens from the mother and her baby should be tested if the Rh of the mother is unknown, the mother is Rh negative, the mother has a clinically significant antibody or if the baby shows signs of HDFN (i.e. anemia or jaundice). Midwives or hospitals that do not perform transfusion medicine testing should submit specimens to Canadian Blood Services. A fetal bleed screening test is performed if an Rh negative woman delivers an Rh positive baby. The Kleihauer-Betke assay is performed when the mother has a positive fetal bleed screening test.

**Newborns (Cords)**  Cord blood or neonate specimens must be submitted with the mother’s specimen as noted above. ABO/Rh testing is performed on cord or neonatal specimens submitted to Canadian Blood Services.
Services. The direct antiglobulin test is performed if the mother has a clinically significant antibody or on request if the baby shows signs of HDFN (i.e. anemia or jaundice).

**Partners** When a woman has an antibody capable of causing HDFN, specimens from the partner will be requested for ABO/Rh and antigen phenotyping. This will assist in assessing the probability of the baby being affected by the antibody. Partners’ specimens may also be tested to assess Rh Immune Globulin (RhIG) eligibility of Rh negative mothers.

C. **Specimens Tested**

The data includes all women tested, including referral patients from Ontario, Saskatchewan and Nunavut. The total number of specimens tested has decreased slightly from 2014 to 2015 as seen in Table 1 below.

**Table 1: Perinatal Specimens Tested**

<table>
<thead>
<tr>
<th>Specimen Type</th>
<th>Test Type</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maternal</td>
<td>Type and Screen</td>
<td>30,067</td>
<td>30,352</td>
<td>30,637</td>
<td>31,619</td>
<td>29,501</td>
</tr>
<tr>
<td>Paternal</td>
<td>ABO/Rh</td>
<td>456</td>
<td>414</td>
<td>476</td>
<td>458</td>
<td>407</td>
</tr>
<tr>
<td>Cord</td>
<td>ABO/Rh</td>
<td>1,584</td>
<td>1,583</td>
<td>1,685</td>
<td>1,772</td>
<td>1,847</td>
</tr>
<tr>
<td><strong>Total # of Specimens Tested</strong></td>
<td></td>
<td>32,107</td>
<td>32,349</td>
<td>32,798</td>
<td>33,849</td>
<td>31,755</td>
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<tr>
<td><strong>Total # of Patients Tested</strong></td>
<td></td>
<td>N/Av</td>
<td>23,357</td>
<td>23,481</td>
<td>24,179</td>
<td>24,005</td>
</tr>
</tbody>
</table>

**Figure 1: Total Perinatal Specimens Tested**

![Graph showing total perinatal specimens tested from 2011 to 2015]
D. Antibodies Identified

In 2015, a total of 246 antibodies were reported (see Table 2). This is slightly lower than 2014. Two hundred and thirty-six women had antibodies identified during their pregnancies (decreased from 269 women in 2014), of these; thirty women had multiple antibodies. Passive anti-D data has been excluded from the preceding numbers.

Antibodies identified were considered to be clinically significant if they have been reported to cause HDFN. The most common clinically significant antibodies identified were: anti-E, anti-K, anti-Jka, anti-C, anti-c and Anti-D (see Figure 3) which together represented 76% of the total antibodies identified.

Titres for 5 of the clinically significant antibodies increased from non-critical to critical levels during the pregnancy with a total of 67 antibody titres at critical levels (see Table 3). Recommendations were made for all patients with a critical titre level (current or previous pregnancy) and all Kell system antibodies to be referred to a High Risk Fetal Assessment Clinic for further follow-up and monitoring during pregnancy.

Table 2: Total Number of Perinatal Antibodies Detected

<table>
<thead>
<tr>
<th>Maternal Antibodies Identified (Including Passive D) – 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinically Significant Antibodies - Antibody</td>
</tr>
<tr>
<td>2011</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>Anti-D</td>
</tr>
<tr>
<td>Passive Anti-D</td>
</tr>
<tr>
<td>Anti-C</td>
</tr>
<tr>
<td>Anti-Cw</td>
</tr>
<tr>
<td>Anti-Ce</td>
</tr>
<tr>
<td>Anti-c</td>
</tr>
<tr>
<td>Anti-E</td>
</tr>
<tr>
<td>Anti-e</td>
</tr>
<tr>
<td>Anti-f</td>
</tr>
<tr>
<td>Anti-G</td>
</tr>
<tr>
<td>Anti-K</td>
</tr>
<tr>
<td>Anti-Kp(^a)</td>
</tr>
<tr>
<td>Anti-Kp(^b)</td>
</tr>
<tr>
<td>Anti-Lu(^a)</td>
</tr>
<tr>
<td>Anti-S</td>
</tr>
<tr>
<td>Anti-s</td>
</tr>
<tr>
<td>Anti-Fy(^a)</td>
</tr>
<tr>
<td>Anti-Fy(^b)</td>
</tr>
<tr>
<td>Anti-Jka</td>
</tr>
<tr>
<td>Anti-Jkb</td>
</tr>
<tr>
<td>Anti-Dia</td>
</tr>
<tr>
<td>Anti-Dib</td>
</tr>
<tr>
<td>Anti-V</td>
</tr>
<tr>
<td>Anti-Wr(^a)</td>
</tr>
<tr>
<td>Antibody</td>
</tr>
<tr>
<td>----------</td>
</tr>
<tr>
<td>Anti-D</td>
</tr>
<tr>
<td>Anti-C</td>
</tr>
<tr>
<td>Anti-E</td>
</tr>
<tr>
<td>Anti-c</td>
</tr>
<tr>
<td>Anti-e</td>
</tr>
<tr>
<td>Anti-DC</td>
</tr>
<tr>
<td>Anti-DE</td>
</tr>
<tr>
<td>Anti-Ec</td>
</tr>
<tr>
<td>Anti-Ce</td>
</tr>
<tr>
<td>Anti-G</td>
</tr>
<tr>
<td>Anti-K</td>
</tr>
<tr>
<td>Anti-Fy^a</td>
</tr>
<tr>
<td>Anti-Fy^b</td>
</tr>
<tr>
<td>Anti-Jk^a</td>
</tr>
<tr>
<td>Anti-Jk^b</td>
</tr>
<tr>
<td>Anti-M</td>
</tr>
<tr>
<td>Anti-S</td>
</tr>
<tr>
<td>Anti-s</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

**Note:** Anti-K is considered critical at any titre. Antibody titres for Kell system antibodies continue to be performed in Manitoba at the request of the High Risk Fetal Assessment obstetricians.
Figure 2: Total Number of Perinatal Antibodies

Figure 3: Frequency of Clinically Significant Antibodies
Table 4: Combination Antibodies

<table>
<thead>
<tr>
<th>Antibodies</th>
<th>Number in 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anti-C, Anti-e</td>
<td>1</td>
</tr>
<tr>
<td>Anti-C, Anti-K</td>
<td>2</td>
</tr>
<tr>
<td>Anti-C, Anti-G</td>
<td>3</td>
</tr>
<tr>
<td>Anti-c, Anti-Jk&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1</td>
</tr>
<tr>
<td>Anti-c, Anti-Jk&lt;sup&gt;b&lt;/sup&gt;</td>
<td>1</td>
</tr>
<tr>
<td>Anti-E, Anti-Jk&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1</td>
</tr>
<tr>
<td>Anti-E, Anti-Le&lt;sup&gt;a&lt;/sup&gt;</td>
<td>2</td>
</tr>
<tr>
<td>Anti-E, Anti-S</td>
<td>1</td>
</tr>
<tr>
<td>Anti-e, Anti-f</td>
<td>1</td>
</tr>
<tr>
<td>Anti-e, Anti-s</td>
<td>1</td>
</tr>
<tr>
<td>Anti-Fy&lt;sup&gt;a&lt;/sup&gt;, Anti-Jk&lt;sup&gt;a&lt;/sup&gt;</td>
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<td>Anti-Jk&lt;sup&gt;a&lt;/sup&gt;, Anti-K</td>
<td>1</td>
</tr>
<tr>
<td>Anti-K, Anti-Kp&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1</td>
</tr>
<tr>
<td>Anti-Le&lt;sup&gt;a&lt;/sup&gt;, Anti-Le&lt;sup&gt;b&lt;/sup&gt;</td>
<td>1</td>
</tr>
<tr>
<td>Anti-C, Anti-D, Anti-E</td>
<td>1</td>
</tr>
<tr>
<td>Anti-C, Anti-D, Anti-G</td>
<td>1</td>
</tr>
<tr>
<td>Anti-C, Anti-e, Anti-Fy&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1</td>
</tr>
<tr>
<td>Anti-C, Anti-Fy&lt;sup&gt;a&lt;/sup&gt;, Anti-G</td>
<td>1</td>
</tr>
<tr>
<td>Anti-c, Anti-E, Anti-Jk&lt;sup&gt;a&lt;/sup&gt;</td>
<td>2</td>
</tr>
<tr>
<td>Anti-c, Anti-E, Anti-S</td>
<td>1</td>
</tr>
<tr>
<td>Anti-c, Anti-E, Anti-Fy&lt;sup&gt;a&lt;/sup&gt;, Anti-K, Anti-Le&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1</td>
</tr>
</tbody>
</table>

CROSSMATCH / REFERENCE LABORATORY

The Crossmatch / Reference Laboratory within Diagnostic Services provides centralized transfusion medicine services and testing to 70 hospitals in Manitoba and eastern Nunavut that do not perform these tests. Reference services are provided for 5 rural hospitals with crossmatching laboratories in Manitoba and 12 hospitals in Northwest Ontario.

A. Testing Performed

The Crossmatch/Reference Laboratory routinely performs the following tests:

- ABO/Rh blood type
- Screen for red blood cell antibodies
- Antibody Identification, if antibodies are detected
- Crossmatch, electronic and serological
- Isohemagglutinin Titre
- Phenotyping (patient and donor units)
- Transfusion Reaction Investigation
Antibody Screening is routinely performed by automated solid phase testing. A combination of automated solid phase testing and indirect antiglobulin tube testing using PEG for enhancement is the primary antibody identification methods. PEG IAT is also the manual back-up method for antibody screening.

The Crossmatch Laboratory distributes both stock and crossmatched red cell and platelet components to hospitals that receive all of their transfusion medicine services from Canadian Blood Services. Component manipulation such as plasma reduced platelets and red cells for exchange transfusion and IVT are also prepared as necessary.

As a Reference Laboratory, the Crossmatch Laboratory performs complex antibody investigations and distributes crossmatch compatible (or least incompatible) red cell units.

B. Specimens Tested

The total number of crossmatch specimens tested has remained fairly steady over the past 2 years as illustrated in Table 5 below. The implementation of the Trace Line laboratory information system (LIS) was completed at 14 hospitals in Winnipeg and rural Manitoba in 2014. These hospitals now hold a stock inventory of red cell components and perform electronic crossmatch on demand; thus reducing the number of red cells issued and reserved for specific patients on hand in the hospital Blood Bank. The number of red cell components distributed has continued to decrease slightly in 2015 as hospitals adjust inventories to optimal levels.

Table 5: Crossmatch/Reference Specimens Tested

<table>
<thead>
<tr>
<th>Specimen Type</th>
<th>Test Type</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crossmatch/Reference</td>
<td>Type and Screen</td>
<td>45,286</td>
<td>46,725</td>
<td>46,911</td>
<td>49,171</td>
<td>48,648</td>
</tr>
<tr>
<td></td>
<td>Antibody Investigations</td>
<td>3,560</td>
<td>3,792</td>
<td>4,030</td>
<td>4,607</td>
<td>3,942</td>
</tr>
<tr>
<td></td>
<td>Transfusion Reaction Investigations</td>
<td>201</td>
<td>164</td>
<td>189</td>
<td>192</td>
<td>183</td>
</tr>
<tr>
<td></td>
<td>Blood Components Distributed</td>
<td>77,760</td>
<td>77,747</td>
<td>56,266</td>
<td>46,601</td>
<td>39,125</td>
</tr>
<tr>
<td></td>
<td>Product Transformation</td>
<td>38</td>
<td>26</td>
<td>15</td>
<td>23</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Diagnostic Titres (Cold agglutinin, Isohemagglutinins)</td>
<td>212</td>
<td>212</td>
<td>367*</td>
<td>491</td>
<td>492</td>
</tr>
<tr>
<td>Test Totals (excluding components distributed)</td>
<td>46,821</td>
<td>50,919</td>
<td>51,512</td>
<td>54,484</td>
<td>53,305</td>
<td></td>
</tr>
<tr>
<td>Number of Patients Tested</td>
<td>N/Av</td>
<td>28,085</td>
<td>28,498</td>
<td>29,751</td>
<td>29,219</td>
<td></td>
</tr>
</tbody>
</table>

*Note: Increase in diagnostic titres is due to a change in data collection method implemented in 2013.
C. Antibodies Identified

In 2015, a total of 401 antibodies were reported (see Table 6). The total number of antibodies detected is slightly increased from 2014, but the distribution of the most common antibodies remains consistent. Three hundred and thirty-one patients had antibodies identified, of these; fifty-seven patients had multiple antibodies.

Antibodies identified were considered to be clinically significant if they have been reported to cause acute or delayed hemolytic transfusion reactions. The most common clinically significant antibodies identified were: anti-K, anti-E, anti-D, anti-C, anti-Jk$^a$ and anti-Fy$^a$ and (see Figure 5) which together represented 78.3% of the total antibodies identified.
Table 6: Total Number of Crossmatch Antibodies Detected

<table>
<thead>
<tr>
<th>Antibody</th>
<th>Number Detected 2012</th>
<th>Number Detected 2013</th>
<th>Number Detected 2014</th>
<th>Number Detected 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anti-D</td>
<td>50</td>
<td>41</td>
<td>32</td>
<td>47</td>
</tr>
<tr>
<td>Anti-C</td>
<td>35</td>
<td>28</td>
<td>18</td>
<td>28</td>
</tr>
<tr>
<td>Anti-C(^w)</td>
<td>6</td>
<td>3</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Anti-c</td>
<td>20</td>
<td>22</td>
<td>13</td>
<td>19</td>
</tr>
<tr>
<td>Anti-E</td>
<td>114</td>
<td>110</td>
<td>108</td>
<td>91</td>
</tr>
<tr>
<td>Anti-e</td>
<td>14</td>
<td>10</td>
<td>9</td>
<td>16</td>
</tr>
<tr>
<td>Anti-f</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Anti-G</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Anti-K</td>
<td>96</td>
<td>100</td>
<td>74</td>
<td>93</td>
</tr>
<tr>
<td>Anti-k</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Anti-M</td>
<td>18</td>
<td>7</td>
<td>14</td>
<td>10</td>
</tr>
<tr>
<td>Anti-N</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Anti-S</td>
<td>9</td>
<td>14</td>
<td>12</td>
<td>7</td>
</tr>
<tr>
<td>Anti-s</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Anti-Fy(^a)</td>
<td>27</td>
<td>24</td>
<td>19</td>
<td>27</td>
</tr>
<tr>
<td>Anti-Fy(^b)</td>
<td>7</td>
<td>2</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Anti-Jk(^a)</td>
<td>48</td>
<td>52</td>
<td>36</td>
<td>28</td>
</tr>
<tr>
<td>Anti-Jk(^b)</td>
<td>10</td>
<td>7</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>Anti-Jk(^c)</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Anti-Le(^a)</td>
<td>10</td>
<td>10</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>Anti-Le(^b)</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Anti-Lu(^a)</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Anti-Lu(^b)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Anti-Di(^a)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Anti-Di(^b)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Anti-Kp(^a)</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Anti-Kp(^b)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Anti-P(_1)</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Anti-Wr(^a)</td>
<td>0</td>
<td>6</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Anti-A(_1)</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Anti-En(^a)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Anti-Co(^b)</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Anti-V</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Anti-Vw</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Anti-Jsa</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>481</strong></td>
<td><strong>455</strong></td>
<td><strong>385</strong></td>
<td><strong>401</strong></td>
</tr>
</tbody>
</table>
PLATELET IMMUNOLOGY LABORATORY

The Platelet Immunology Laboratory within Diagnostic Services at Canadian Blood Services provides human leukocyte (HLA) and platelet specific (HPA) antigen typing and antibody investigation testing to assist health care providers in the management of thrombocytopenic patients who have become refractory to vital platelet transfusions, patients affected by neonatal alloimmune thrombocytopenia and autoimmune disorders and patients suspected to be affected by platelet function disorders (PTP). The Laboratory also performs testing on patients and donors for the investigation of Transfusion Related Acute Lung Injury (TRALI). The Laboratory provides service to all Manitoba hospitals and is a national reference lab for any hospital in Canada requiring these testing services.

In addition, the Laboratory also performs HLA and HPA typing on blood donors prior to being placed onto a national platelet donor registry. The registry is used to conduct searches to identify suitably compatible donors who can be used for patients that show no benefit from conventional platelet components.

A. Testing Performed

The Platelet Immunology Laboratory routinely performs the following tests:

- HLA Genotyping
- HLA Antibody Screen
- HLA Antibody Identification, if antibodies are detected
- HLA Antigen Typing for disease association
- HPA Genotyping
- HPA Screening
- HPA Antibody Identification, if antibodies are detected
- Platelet Crossmatching
- Selection of HLA/HPA Compatible Donors for Platelet Transfusion

Figure 5: Total Number of Crossmatch Antibodies
HLA antibody screening and identification is performed using Luminex bead technology. Whereas HPA antibody screening, identification and crossmatching are performed using a solid phase platform for both the commercial ELISA kits and the MAIPA method.

A combination of Luminex bead technology and MicroSSP are the primary HLA and HPA genotyping methods utilized for typing both patients and donors.

Selection lists of HLA/HPA compatible donors for patients’ requiring platelet transfusion support are generated by the Platelet Immunology Lab using the national platelet donor database.

B. Specimens Tested

Table 7 below illustrates the total number of Platelet Immunology specimens tested.

In 2015 increasing the number of new HLA/HPA genotyped male apheresis platelet donors was made a high priority for Canadian Blood Services which is reflected in the significant increase in the total number of donor specimens tested. Having a sufficient number of new HLA/HPA donors tested and available for donation of HLA/HPA selected compatible platelets will increase CBS’ ability to provide this specialized product for high risk patients.

The total number of patient HLA antigen typing and antibody screen specimens has remained relatively stable over the past 5 years. However, the total number of requests for patient HPA antigen typing and HPA antibody screening/identification has increased significantly as a result of the transfer of this testing from Canadian Blood Services Toronto Diagnostic Services Laboratory to Winnipeg which occurred on December 15, 2014.

Table 7: Platelet Immunology Specimens Tested

<table>
<thead>
<tr>
<th>Specimen Type</th>
<th>Test Type</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Donor</td>
<td>HLA Antigen Typing</td>
<td>1,752</td>
<td>1,382</td>
<td>1,329</td>
<td>976</td>
<td>1,560</td>
</tr>
<tr>
<td></td>
<td>HLA Antibody Screen/Identification</td>
<td>130</td>
<td>81</td>
<td>72</td>
<td>30</td>
<td>58</td>
</tr>
<tr>
<td></td>
<td>HPA Antigen Typing</td>
<td>2,010</td>
<td>708</td>
<td>684</td>
<td>579</td>
<td>804</td>
</tr>
<tr>
<td></td>
<td>HPA Antibody Screen/Identification</td>
<td>26</td>
<td>17</td>
<td>6</td>
<td>13</td>
<td>19</td>
</tr>
<tr>
<td>Patient</td>
<td>HLA Antigen Typing</td>
<td>1,003</td>
<td>1,038</td>
<td>1,129</td>
<td>1,143</td>
<td>1,116</td>
</tr>
<tr>
<td></td>
<td>HLA Antibody Screen/Identification</td>
<td>94</td>
<td>97</td>
<td>89</td>
<td>99</td>
<td>108</td>
</tr>
<tr>
<td></td>
<td>HPA Antigen Typing</td>
<td>97</td>
<td>130</td>
<td>132</td>
<td>120</td>
<td>261</td>
</tr>
<tr>
<td></td>
<td>HPA Antibody Screen/Identification</td>
<td>184</td>
<td>178</td>
<td>165</td>
<td>200</td>
<td>321</td>
</tr>
<tr>
<td></td>
<td>Selection of HLA/HPA Matched Platelet Donors</td>
<td>241</td>
<td>271</td>
<td>323</td>
<td>369</td>
<td>307</td>
</tr>
<tr>
<td>Test Totals</td>
<td></td>
<td>5,537</td>
<td>3,902</td>
<td>3,929</td>
<td>3,529</td>
<td>4,354</td>
</tr>
</tbody>
</table>
Figure 6: Total Platelet Immunology Donor Specimens Tested

![Donor Specimens Diagram]

<table>
<thead>
<tr>
<th>Year</th>
<th>HLA Antigen Typing</th>
<th>HLA Antibody Screen/Identification</th>
<th>HPA Antigen Typing</th>
<th>HPA Antibody Screen/Identification</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>1,752</td>
<td>130</td>
<td>2,010</td>
<td>26</td>
</tr>
<tr>
<td>2012</td>
<td>1,382</td>
<td>81</td>
<td>708</td>
<td>17</td>
</tr>
<tr>
<td>2013</td>
<td>1,329</td>
<td>72</td>
<td>684</td>
<td>6</td>
</tr>
<tr>
<td>2014</td>
<td>976</td>
<td>30</td>
<td>579</td>
<td>13</td>
</tr>
<tr>
<td>2015</td>
<td>1,560</td>
<td>58</td>
<td>804</td>
<td>19</td>
</tr>
</tbody>
</table>

Figure 7: Total Platelet Immunology Patient Specimens Tested

![Patient Specimens Diagram]

<table>
<thead>
<tr>
<th>Year</th>
<th>HLA Antigen Typing</th>
<th>HLA Antibody Screen/Identification</th>
<th>HPA Antigen Typing</th>
<th>HPA Antibody Screen/Identification</th>
<th>Selection of HLA/HPA Selected Platelet Donors</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>1,003</td>
<td>94</td>
<td>97</td>
<td>184</td>
<td>241</td>
</tr>
<tr>
<td>2012</td>
<td>1,038</td>
<td>97</td>
<td>130</td>
<td>178</td>
<td>271</td>
</tr>
<tr>
<td>2013</td>
<td>1,129</td>
<td>89</td>
<td>132</td>
<td>165</td>
<td>323</td>
</tr>
<tr>
<td>2014</td>
<td>1,143</td>
<td>99</td>
<td>120</td>
<td>200</td>
<td>369</td>
</tr>
<tr>
<td>2015</td>
<td>1,116</td>
<td>108</td>
<td>261</td>
<td>321</td>
<td>307</td>
</tr>
</tbody>
</table>
RED CELL GENOTYPING

Canadian Blood Services is able to provide red cell antigen genotyping services through our National Immunohematology Reference Laboratory (NIRL) and Edmonton Diagnostic Services Laboratory. A process for the referral of perinatal specimens to Edmonton and pre-transfusion specimens to NIRL for genotyping was developed and implemented. This service is used to aid in resolving complex immunohematology cases. Molecular testing combined with hemagglutination testing can provide better resolution to serological problems and guide patient transfusion requirements in some circumstances, in particular for sickle cell patients and patients with frequent transfusion requirements.

Based on the following testing algorithm patients with a serologically variable Rh D typing results may have a genetic testing for the RHD gene.

Figure 8: Rh D Testing Algorithm
For 2015, the following results were obtained in patients using one of the two red cell antigen genotyping platforms available at CBS:

**Table 8: RHD Genotyping Results**

<table>
<thead>
<tr>
<th>Patient</th>
<th>RHD Genotype</th>
<th>Predicted Phenotype</th>
<th>RHD Sequencing</th>
<th>Rh Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Weak D type 2</td>
<td>Weak D</td>
<td>Not performed</td>
<td>Positive</td>
</tr>
<tr>
<td>2</td>
<td>Weak D type 5</td>
<td>Weak D</td>
<td>Not performed</td>
<td>Negative</td>
</tr>
<tr>
<td>3</td>
<td>Weak D type 2</td>
<td>Weak D</td>
<td>Not performed</td>
<td>Positive</td>
</tr>
<tr>
<td>4</td>
<td>Weak D type 1</td>
<td>Weak D</td>
<td>Not performed</td>
<td>Positive</td>
</tr>
<tr>
<td>5</td>
<td>Weak D type 4.0 or 4.3</td>
<td>Weak D</td>
<td>Not performed</td>
<td>Negative</td>
</tr>
<tr>
<td>6</td>
<td>RHD* Weak D type 31</td>
<td>Weak D</td>
<td>Not performed</td>
<td>Negative</td>
</tr>
<tr>
<td>7</td>
<td>Weak D type 1</td>
<td>Weak D</td>
<td>Not performed</td>
<td>Positive</td>
</tr>
<tr>
<td>8</td>
<td>Weak D type 1</td>
<td>Weak D</td>
<td>Not performed</td>
<td>Positive</td>
</tr>
<tr>
<td>9</td>
<td>Sample does not contain any of the RHD polymorphisms interrogated by the kit</td>
<td>Possible D Variant</td>
<td>Not performed</td>
<td>Negative</td>
</tr>
<tr>
<td>10</td>
<td>Weak D type 1</td>
<td>Weak D</td>
<td>Not performed</td>
<td>Positive</td>
</tr>
<tr>
<td>11</td>
<td>Weak D type 2</td>
<td>Weak D</td>
<td>Not performed</td>
<td>Positive</td>
</tr>
</tbody>
</table>

**QUALITY INDICATORS**

The laboratories monitor many quality indicators and the two which are most relevant to this document are turnaround times and rejected specimens which are presented below.

A. **Turnaround Times**

To ensure timely reporting of patient test results, Canadian Blood Services monitors turnaround time (TAT) from when the specimen is received at Canadian Blood Services in Winnipeg to the time when the results are available. Since monitoring of this quality indicator began in 2008, the percentage of specimens has consistently exceeded the predefined TAT threshold. Samples whose testing exceeds the expected TAT are usually those where clinically significant antibodies are detected or where difficulty in finding compatible blood is encountered.
Table 9: Turnaround Time – Routine Criteria by Specimen Type

<table>
<thead>
<tr>
<th>Specimen Type</th>
<th>Expected Turnaround Time</th>
<th>Expected % of Specimens Which Meet or Exceed Expected TAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Routine Perinatal Specimens</td>
<td>72 hours</td>
<td>85%</td>
</tr>
<tr>
<td>Perinatal Specimens with Antibodies</td>
<td>72 hours</td>
<td>85%</td>
</tr>
<tr>
<td>Routine Crossmatch Specimens</td>
<td>24 hours</td>
<td>85%</td>
</tr>
<tr>
<td>Reference Specimens</td>
<td>72 hours</td>
<td>75%</td>
</tr>
<tr>
<td>Routine Platelet Immunology Specimens (NAIT, PTP, Platelet alloimmunization, HLA B*5701)</td>
<td>14 days</td>
<td>90%</td>
</tr>
<tr>
<td>HLA Disease Association Specimens</td>
<td>28 days</td>
<td>90%</td>
</tr>
<tr>
<td>Donor HLA/HPA Typing Specimens</td>
<td>60 days</td>
<td>90%</td>
</tr>
</tbody>
</table>

Table 10: Turnaround Time – Routine Perinatal Specimens

<table>
<thead>
<tr>
<th>Turnaround Time (TAT)</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of Specimens Tested within 72 hours</td>
<td>88.9%</td>
<td>88.3%</td>
<td>89.3%</td>
<td>92.3%</td>
</tr>
<tr>
<td>% of Specimens Tested &gt; 72 hours</td>
<td>11.1%</td>
<td>11.7%</td>
<td>10.7%</td>
<td>7.7%</td>
</tr>
</tbody>
</table>

Figure 9: Perinatal Routine TAT
Table 11: Turnaround Time – Routine Crossmatch Specimens

<table>
<thead>
<tr>
<th>Turnaround Time (TAT)</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of Specimens Tested within 24 hours</td>
<td>98.6%</td>
<td>99.4%</td>
<td>99.6%</td>
<td>99.8%</td>
</tr>
<tr>
<td>% of Specimens Tested &gt; 24 hours</td>
<td>1.4%</td>
<td>0.6%</td>
<td>0.4%</td>
<td>0.2%</td>
</tr>
</tbody>
</table>

Figure 10: Crossmatch Routine TAT

![Crossmatch Routine TAT](chart)

Table 12: Turnaround Time – Reference Specimens

<table>
<thead>
<tr>
<th>Turnaround Time (TAT)</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of Specimens Tested within 24 hours</td>
<td>96.5%</td>
<td>93.3%</td>
<td>96.8%</td>
<td>98.8%</td>
</tr>
<tr>
<td>% of Specimens Tested &gt; 24 hours</td>
<td>3.5%</td>
<td>6.7%</td>
<td>3.2%</td>
<td>1.2%</td>
</tr>
</tbody>
</table>
Figure 11: Reference TAT

![Reference TAT Graph]

Table 13: Turnaround Time – Platelet Immunology Specimens

<table>
<thead>
<tr>
<th>Turnaround Time (TAT)</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of Specimens Tested within 14 days N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>91.8%</td>
<td>94.5%</td>
</tr>
<tr>
<td>% of Specimens Tested within 28 days N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>98.9%</td>
<td>96.8%</td>
</tr>
<tr>
<td>% of Specimens Tested within 60 days N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Figure 12: Platelet Immunology TAT

![Platelet Immunology TAT Graph]
B. Rejected Specimens

Each time a specimen is rejected, a reason for rejection is entered into our laboratory information system (LIS). This data is then retrieved and analyzed on a quarterly basis.

As described in Table 14, the reasons for rejecting specimens in the Perinatal Laboratory are primarily problems with requisitions and discrepancies between the requisition and the specimen. Average rejection rates have continued to decrease from a high of 4.4% in 2012 to 3.3% in 2015 which correlates with increased efforts to contact customers and educate them on acceptable labelling criteria.

Table 15 describes the reasons for rejecting specimens in the Crossmatch Laboratory; the majority of which involve problems with specimens. Problems with specimen labelling and discrepancies between the requisition and the specimen tube label constitute the main reasons for specimen rejection. Missing or incorrect information on the label and discrepancies in the name or PHN are the most common specimen labelling errors seen. Specimens are also rejected if the sample is a duplicate. The rejection rate for crossmatch specimens continued to decrease throughout 2015 which correlates with the implementation of the Trace Line® LIS at two additional facilities in rural Manitoba. With each implementation the hospital blood bank/laboratory staff became responsible for the accessioning of patient samples into the LIS and a more rigorous scrutiny of specimens to ensure they meet acceptance criteria is now taking place. As a result, the average rejection rates have decreased from a high of 2.9% in 2012 to 1.1% in 2015.

The rejection rates for perinatal specimens are higher than for crossmatch (pre-transfusion) specimens. The collection process for crossmatch specimens is controlled with stringent best practices and standards that must be followed. As noted above, crossmatch specimens are usually collected in hospitals and are sent to Canadian Blood Services via the hospital blood banks where the samples are pre-screened to determine if there are discrepancies between the sample and requisition. Perinatal specimens are most often collected in clinics and community collection sites where the identification and labelling process may be more variable. Although there may be differences in the collection process all specimens are scrutinized using the same stringent acceptance criteria prior to testing at Canadian Blood Services.

As previously mentioned, many specimens for crossmatch have already been rejected by the referring hospital laboratory and total numbers of these rejected specimens are not included in our data.

Table 16 describes the reasons for rejecting specimens in the Platelet Immunology Laboratory; the majority of which involve specimens. Eighty-seven percent of the specimens in this category were rejected because they were duplicate specimens that would not be tested; missing date of collection on the specimen was the next most common reason. Efforts to educate hospital customers continued throughout 2015. Average rejection rates remained stable from 11.5% in 2014 to 11.8% in 2015.
Table 14: Quarterly Rejection Rates – Perinatal Specimens

<table>
<thead>
<tr>
<th>Rejection Category</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requisition</td>
<td>127</td>
<td>125</td>
<td>100</td>
<td>110</td>
</tr>
<tr>
<td>Specimen</td>
<td>61</td>
<td>53</td>
<td>65</td>
<td>82</td>
</tr>
<tr>
<td>Discrepancies Between Requisition &amp; Specimen</td>
<td>79</td>
<td>94</td>
<td>77</td>
<td>57</td>
</tr>
<tr>
<td>Discrepancies Between Current Requisition &amp; Historical Records</td>
<td>22</td>
<td>44</td>
<td>34</td>
<td>30</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Total # specimens rejected</td>
<td>290</td>
<td>318</td>
<td>280</td>
<td>285</td>
</tr>
<tr>
<td>Total # specimens received</td>
<td>9,762</td>
<td>8,354</td>
<td>8,610</td>
<td>9,081</td>
</tr>
<tr>
<td>Rejections as a % of total</td>
<td>3.0%</td>
<td>3.8%</td>
<td>3.3%</td>
<td>3.1%</td>
</tr>
</tbody>
</table>

Figure 13: Perinatal Rejection Reasons

![Pie chart showing rejection reasons as a percentage of total rejects](chart.png)
Table 15: Quarterly Rejection Rates – Crossmatch Specimens

<table>
<thead>
<tr>
<th>Rejection Category</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requisition</td>
<td>25</td>
<td>15</td>
<td>14</td>
<td>15</td>
</tr>
<tr>
<td>Specimen</td>
<td>71</td>
<td>65</td>
<td>66</td>
<td>71</td>
</tr>
<tr>
<td>Discrepancies Between Requisition &amp; Specimen</td>
<td>73</td>
<td>57</td>
<td>56</td>
<td>64</td>
</tr>
<tr>
<td>Discrepancies Between Current Requisition &amp; Historical Records</td>
<td>6</td>
<td>4</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>1</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Total # specimens rejected</td>
<td>180</td>
<td>142</td>
<td>141</td>
<td>151</td>
</tr>
<tr>
<td>Total # specimens received</td>
<td>13,057</td>
<td>12,460</td>
<td>13,129</td>
<td>14,120</td>
</tr>
<tr>
<td>Rejections as a % of total</td>
<td>1.4%</td>
<td>1.1%</td>
<td>1.1%</td>
<td>1.1%</td>
</tr>
</tbody>
</table>

Figure 14: Crossmatch Rejection Reasons

![Pie chart showing rejection reasons](chart.png)
**Table 16: Quarterly Rejection Rates – Platelet Immunology Specimens**

<table>
<thead>
<tr>
<th>Rejection Category</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requisition</td>
<td>6</td>
<td>6</td>
<td>20</td>
<td>8</td>
</tr>
<tr>
<td>Specimen</td>
<td>57</td>
<td>60</td>
<td>50</td>
<td>44</td>
</tr>
<tr>
<td>Discrepancies Between Requisition &amp; Specimen</td>
<td>10</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Discrepancies Between Current Requisition &amp; Historical Records</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Unable to Enter Results in PROGESA</td>
<td>26</td>
<td>17</td>
<td>17</td>
<td>9</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>6</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Total # specimens rejected</td>
<td>101</td>
<td>93</td>
<td>90</td>
<td>68</td>
</tr>
<tr>
<td>Total # specimens received</td>
<td>779</td>
<td>775</td>
<td>691</td>
<td>722</td>
</tr>
<tr>
<td>Rejections as a % of total</td>
<td>13.0%</td>
<td>12.0%</td>
<td>13.0%</td>
<td>9.4%</td>
</tr>
</tbody>
</table>

**Figure 15: Platelet Immunology Rejection Reasons**

![Rejection Reasons - % of Total Rejects](image)

- Requisition
- Specimen
- Discrepancies Between Requisition & Specimen
- Discrepancies Between Current Requisition & Historical Records
- Unable to Enter Results in PROGESA
- Other
ACCOMPLISHMENTS IN 2015

A. Automated Antibody Screen Investigation Algorithm
   In 2015 all Diagnostic Services sites (Vancouver, Edmonton, Regina and Winnipeg) participated in the post implementation review of the common algorithm for the investigation of positive antibody screens obtained on the Galileo Neo.

B. Automated Testing Instrument Upgrade
   The Platelet Immunology Laboratory completed the validation of the QIAxcel automated photo documentation system at the end of 2015 and will implement this new technology in February 2016.

C. College of American Pathologists (CAP) Laboratory Accreditation
   The laboratories are accredited by the College of American Pathologists Laboratory Accreditation Program (LAP). The Red Cell Serology (Crossmatch and Perinatal) Laboratories have met the requirements of the LAP Standards for Accreditation and accreditation is granted for the 2 year period ending in July 2016. An on-site inspection of the Platelet Immunology Laboratory took place in March 2015 and the laboratory was successful in meeting the requirements of the LAP Standards for Accreditation and accreditation was granted for the 2 year period ending in March 2017.

D. Massive Transfusion Protocol Development
   Canadian Blood Services Crossmatch Laboratory collaborated with clinical and laboratory staff from the St. Boniface Hospital and Diagnostic Services Manitoba in the development of a massive transfusion protocol which was successfully implemented in December 2015.

E. Mis-Transfusion Risk Reduction Strategy
   In order to remain an accredited facility with the College of American Pathologists (CAP) the Red Cell Serology laboratories are required to implement a system to reduce the risk of mis-transfusion of ABO incompatible red cell components due to misidentification of the intended recipient. The laboratories collaborated with Diagnostic Services Manitoba to develop the appropriate strategy and gained the support of the Transfusion Practices Committees and Chief Medical and Nursing Officers from all Manitoba Regional Health Authorities. Completion of the project is expected to occur in April 2016.

F. Perinatal Advisory Committee
   The annual Perinatal Advisory Committee meeting for 2016 is planned for June 13 and 14 2016 in Winnipeg MB. The PNAC meeting will be followed by an Educational Event sponsored by Grifols. Attendees will include Laboratory Directors, Associate Directors and Managers as well as perinatal supervisory staff and laboratory physicians who oversee perinatal testing. We will also welcome some hospital colleagues, both technologists and physicians, who are involved with perinatal testing laboratories. Ongoing work on standardization among our laboratories is a theme for this year. Our meeting plan and ongoing work plan for the remainder of 2016 will include:
   • Discussion and consensus on appropriate follow up for perinatal patients with inconclusive antibodies.
   • Planning for investigation of patients with possible antibodies to low prevalence antigens in the perinatal setting. We will discuss the development of a standard “low prevalence” panel of cells
that will allow for investigation of antibodies to low prevalence antigens which may be clinically significant in pregnancy.

- Discussion and consensus on the timing of repeat samples for patients with clinically significant or potentially significant antibodies in the perinatal setting.
- We will discuss the functionality of our standardized antibody investigation algorithm, including any necessary changes following one year of use.
- We will optimize and standardize the use of our algorithm used for RHD genotyping in perinatal patients with weak or variable Rh D serological typing.
- We will discuss the optimal serological evaluation for anti G, especially in the presence of passive anti D.
- We will discuss the results of an audit of Kell negative donor unit availability in transfusion of Kell negative (or Kell unknown) females of child bearing potential.
- We will have some updates and final discussions on completed projects including a study of anti Mia antisera in the BC perinatal testing lab as well as an update of testing and labeling strategies for platelet products in fetal/neonatal alloimmune thrombocytopenia.

G. Pooling Products for Exchange Transfusion
Under the new Blood Regulations which came into effect on October 23, 2014, facilities (including hospital blood banks) that prepare pooled products (other than cryoprecipitate) are required to register with Health Canada by 2015-01-23. The Crossmatch Laboratory falls under this regulation for the production of pooled red cell/plasma components for exchange transfusion. Section 97 of the Blood Regulations requires documented evidence that demonstrates that the operating procedures used in processing and transforming blood will consistently lead to expected results. Although the procedure has been in place in Winnipeg for many years, to comply with Section 97, the process was validated and documented evidence is now available that demonstrates that the process used to transform blood is consistent and meets acceptance criteria. The project was completed on June 22, 2015.

H. Trace Line® Laboratory Information System (LIS)
Phase II of the Trace Line® project concluded in February 2015 with implementations at the last two hospital sites; Flin Flon General Hospital and Thompson General Hospital. The laboratories continued to provide support for the implementation at these sites and collaborated with Diagnostic Services Manitoba to ensure policies and procedures between all of the sites were aligned. Collaboration with the DSM facilities continues at regularly scheduled meetings. The Manitoba Rh Clinical Program, based out of the Winnipeg Health Sciences Centre, implemented Trace Line® with read-only access to review the complete pregnancy history, testing results, etc. for their perinatal patients on June 22, 2015.

I. Transfer of HPA Testing from BC&Y Diagnostic Services to Platelet Immunology Laboratory
On December 31, 2015 all HPA antibody screen testing for Neonatal Alloimmune Thrombocytopenia (NAIT), Post Transfusion Purpura (PTP) and Platelet Refractory patients from British Columbia that was being performed at BC&Y Diagnostic Services was transferred to the Platelet Immunology Laboratory.
GOALS FOR 2016

A. Automated Testing Instrument Upgrade
The Platelet Immunology Laboratory is anticipated to acquire LABScan3D which is a high throughput instrument that can process 500 bead regions simultaneously and allows the user to make assignments of HLA antibodies and HLA typing.

B. Health Canada Licensure of Platelet Immunology Laboratory
The Platelet Immunology Laboratory provides HLA/HPA antigen testing and HPA antibody screening for new apheresis platelet donors. CBS’ license with Health Canada does not currently extend to donor HLA or HPA testing for the selection of matched platelets. A project team will be assembled to assess the preparation required for a Health Canada submission.

C. Mis-transfusion Risk Reduction Strategy
Implementation of the mis-transfusion risk reduction strategy is planned for April 2016.

D. New Requisition for Neonatal Patients
Development and implementation of a new requisition specifically for requesting pre-transfusion testing for neonate patients is planned. This requisition will facilitate the provision of irradiated components to those patients requiring them based on birth weight and other clinical criteria.

E. Splitting Red Cells and Platelets for Pediatric Patients
Investigation into the process for producing split red cell and platelet aliquots for pediatric patients will commence in 2016.