Preoperative Autologous Blood Donation (PABD)
Shan Yuan, MD
Last Updated 6/8/2011

I. Comparisons between autologous and allogenic donations
   a. Donor eligibility criteria

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Allogeneic</th>
<th>Autologous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Donation interval</td>
<td>56d (WB)</td>
<td>Must collect &gt;72h pre surgery, minimum interval</td>
</tr>
<tr>
<td></td>
<td></td>
<td>of 3 days between donations</td>
</tr>
<tr>
<td>Minimum Hbg/Hct</td>
<td>12.5g/dl, 38%</td>
<td>11g/dL, 33%</td>
</tr>
<tr>
<td>Minimum Wt</td>
<td>110lbs(50kg)</td>
<td>None</td>
</tr>
<tr>
<td>Minimum Age</td>
<td>17</td>
<td>None</td>
</tr>
<tr>
<td>Questionnaire</td>
<td>Full-length</td>
<td>Abbreviated</td>
</tr>
<tr>
<td>Viral Testing</td>
<td>Required</td>
<td>Required only if ship to another facility*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>performed at least once every 30 days</td>
</tr>
<tr>
<td>H/o positive disease/ marker</td>
<td>Never acceptable</td>
<td>May be acceptable</td>
</tr>
</tbody>
</table>

*Performed by many facilities due to logistic convenience.

b. Questionnaire
   i. Autologous are subjected to a much shorter questionnaire
   ii. Questions are geared to identify donors who may have contraindications or are unsuitable for PABD, not for identifying risk factors for transfusion transmissible disease.

Hence, autologous units are NEVER crossed over into the general inventory!
In contrast, directed donors must meet the same criteria and be screened in the same way as “regular” allogeneic donors, hence directed donor units are frequently released to the general inventory when transfusion for the intended recipient is deemed unlikely, or when the unit is nearing its expiration date.

II. Contraindications for PABD
   a. Patient has a condition predisposing to bacteremia, a suggested list:
      i. Oral temperature >37.5C
      ii. Recent (<24h) invasive procedures: dental work, minor surgery, biopsies
      iii. Recent episodes of diarrhea
      iv. Open wound, large open decubitas ulcer
      v. In-dwelling devices: some orthopedic devices, urinary catheter etc.
      vi. Patient receiving antibiotics for active infection or prophylaxis

b. Patient has a severe cardiovascular condition, thus hemodynamically unstable. For example:
   i. Unstable angina
   ii. High-grade left main CAD
iii. Aortic stenosis, symptomatic  
iv. Significant AV block  
v. Cyanotic heart disease  
vi. Recent MI (within 6 mo)  
c. Not yet medically cleared for surgery  
d. Active grand-mal seizure disorder  
e. Severe occlusive illness at time of donation  
f. Acute viral illness at the time of donation  
g. Need further evaluation: irregular heart rhythm, HR <50 or >100 per minute  

III. Benefits of PABD  
a. Theoretically, by donating autologous blood, patient’s marrow can replace the donated cells through increased productions, thus net gain in RBC mass can be achieved  
b. Patient’s hematocrit will be slightly lower at the time of surgery, hence similar to normovolemic hemodilation, RBC loss will be lower with blood loss  
c. Removes the risks of transfusion transmitted infections (which is currently very low even with allogeneic units)  

IV. Risks of PABD  
a. Donor reactions (vasovagal, hypovolemia, hyperventilation etc): rate may be 12x as high as in healthy, volunteer allogeneic donors according to one study by the American Red Cross.  
b. Mistransfusion: Rates of clerical and administrative errors comparable to allogeneic units according to CAP ‘92 studies (1% error rate)  
c. Bacterial contamination  
d. Questionable cost-effectiveness in many settings: e.g, elective hip surgery  
   1. National wastage rate around 50%  
   2. PABDs can not be crossed into the general inventory  
   3. Added costs of special labeling and handling  
c. Iatrogenic anemia: modeling shows that allogeneic units are not avoided in many cases – but simply given after PABD units, which negates the purpose of PABD  

V. Handling of PABD units  
Required Tests  
a. ABO, Rh typing  
b. Infectious disease markers: Required only if shipping to another facility. Most centers test for all markers on PABD units anyway.  
c. If marker positive: notify receiving facility, the patient/donor, the requesting physician, and apply biohazard label for confirmed positives or repeat reactives when confirmatory testing (e.g. anti-HBc) not available  
d. Pre-transfusion (performed by transfusing facility)  
   i. ABO/Rh on unit – if not collected by transfusing facility  
   ii. Crossmatch and antibody screen is optional, however an immediate spin is a reasonable test to confirm ABO compatibility  
   iii. ABO/Rh on patient/recipient
Required Labeling

a. “Autologous Donor” and “For Autologous Use Only” (NO “crossover” !)
b. Patient/donor name, ID number, transfusion facility if known
c. A segregated space in a refrigerator should be used separate autologous units from general inventory
   i. If multiple autologous units donated, should be labeled in a way to identify sequence of transfusion. (Oldest unit transfused first)
   ii. Autologous units used before allogeneic units
