**TABLE 4: TRANSFUSION ASSOCIATED CIRCULATORY OVERLOAD & TRANSFUSION RELATED ACUTE LUNG INJURY**

All patients should receive information on potential transfusion reactions and how to report a suspected transfusion reaction.

<table>
<thead>
<tr>
<th>Signs &amp; Symptoms (S&amp;S)</th>
<th>Usual Timing</th>
<th>Possible Etiology</th>
<th>Suggested Treatment &amp; Actions</th>
<th>Suggested Laboratory Investigations</th>
</tr>
</thead>
</table>
| Shortness of Breath OR Hypoxemia | May also present with: hypertension cyanosis, orthopnea, increased venous pressure | Within several hours of transfusion | Transfusion Associated Circulatory Overload (TACO) | Do not restart the transfusion; refer to Quick Reference Guide for immediate actions:  
  - Continue to monitor patient for:  
    - emerging S&S  
    - deterioration in patient’s condition  
    - response to interventions  
  - Comfort measures as applicable |  
  ▪ Patient history clinical & transfusion  
  ▪ Send 1 EDTA tube to TML for  
    - Clerical CHECK  
    - DAT  
    - Inspection of patient plasma for hemolysis  
  ▪ First voided post-reaction urine sample to Chemistry for urinalysis  
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    - Clerical CHECK  
    - DAT  
    - Inspection of patient plasma for hemolysis  
  ▪ First voided post-reaction urine sample to Chemistry for urinalysis |
| May also present with: fever, hypotension | Within 6 hours of transfusion | Transfusion Related Acute Lung Injury (TRALI) | Mechanism presently not fully defined. Two postulated mechanisms:  
  1. Passive transfer of HLA or granulocyte antibodies from donor to patient  
  2. Biologic response modifiers such as biologically active lipids in the transfused component may induce TRALI in a susceptible patient.  
  TRALI may occur with any blood product, but occurs more commonly with products containing large volumes of donor plasma such as platelets or plasma. | Additional measures if TACO is suspected:  
  - Administer oxygen  
  - Administer diuretics and monitor effect  
  For future transfusions:  
  - Pre-transfusion assessment to identify risk factors & consider  
    - Slower transfusion rate  
    - Splitting units into aliquots  
    - Pre-emptive diuretics |  
  ▪ Additional measures if TRALI is suspected:  
    - Provide rigorous respiratory support  
    - May require mechanical ventilation  
    - Assess chest X-Ray for bilateral pulmonary infiltrates  
    - May require vaspressors  
    - During acute TRALI, diuretics are contraindicated due to decreased intravascular volume  
    - Strategies to reduce TRALI include:  
      - Plasma for transfusion predominantly from male donors.  
      - Buffy coat platelet pools suspended in male plasma.  
      - Apheresis platelets collected from male donors or never pregnant females.  
      - Deferral of donors confirmed to be implicated in an episode of TRALI  
  Additional investigations if TRALI is suspected:  
  - Chest X Ray  
  - Blood gases  
  - TML will complete a CBS TRALI Report Form  
  - CBS requires all 3 of the following factors to be present before a TRALI investigation will be performed:  
    1. Hypoxemia  
      - SpO2 < 90% on room air, or  
      - PaO2 < 60 mm Hg on room air, or  
      - PaO2/FIO2 < 300  
    2. Transfusion within 6 hours of TRALI  
    3. New Chest X-Ray findings of bilateral infiltrates |  
  ▪ Additional investigations if TRALI is suspected:  
    - Blood gases  
    - TML will complete a CBS TRALI Report Form  
    - CBS requires all 3 of the following factors to be present before a TRALI investigation will be performed:  
      1. Hypoxemia  
        - SpO2 < 90% on room air, or  
        - PaO2 < 60 mm Hg on room air, or  
        - PaO2/FIO2 < 300  
      2. Transfusion within 6 hours of TRALI  
      3. New Chest X-Ray findings of bilateral infiltrates |
| Usually within first 15 minutes but may be later | Bacterial contamination | If bacterial contamination is suspected: See table 3 |  
  ▪ Acute hemolytic reactions  
  ▪ Anaphylaxis  
  ▪ Transfusion Associated Dyspnea |  
  ▪ Acute hemolytic reactions  
  ▪ Anaphylaxis  
  ▪ Transfusion Associated Dyspnea |  
  ▪ Acute hemolytic reactions  
  ▪ Anaphylaxis  
  ▪ Transfusion Associated Dyspnea |

*All suspected transfusion reactions should be reported to Transfusion Medicine Laboratory using a Transfusion Reaction Report Form 00055606 Rev. Sept 2012*