In 2014, reported non-hemolytic adverse transfusion reactions totaled 1,451 cases; this accounted for 93.4% of the total of 1,554 case reports of adverse transfusion reactions and suspected transfusion transmitted infection.

In 705 (48.6%) of the 1,451 cases, the symptoms of the non-hemolytic adverse reactions were evaluated to be severe.

The number of patients with any non-hemolytic adverse transfusion reactions was 777 for males and 674 for females. The median of age distribution was 68 years (range: 0 to 99 years).

**Notes**
[Anaphylaxis] A condition characterized by generalized flushing, urticaria, angioedema (e.g., face edema and laryngeal edema), dyspnea, and other multiple systemic symptoms.
[Hypotension] Hypotension with no other clinical signs such as skin symptoms or dyspnea.
[Transfusion associated circulatory overload (TACO)] TACO is defined as cardiac failure due to transfusion associated circulatory overload accompanied with dyspnea, tachycardia, hypertension, etc. There may be findings of cardiac pulmonary edema in chest radiography such as pulmonary infiltration. TACO is occurring within six hours of completion of transfusion.

The number of reports of suspected adverse reactions and/or infections associated with transfusion (reports from medical institutions; cases later evaluated to be unrelated to transfusion included)

The breakdown of cases by symptoms

Non-hemolytic adverse reactions reported to JRC Blood Centers (2014)

The median of age distribution was 68 years (range: 0 to 99 years).

Non-hemolytic adverse reactions in total: 1,451 cases

- Anaphylaxis: 277 cases (16.9%)
- Anaphylactic shock: 74 cases (5.1%)
- Hypotension: 49 cases (3.4%)
- Dyspnea: 44 cases (3.1%)
- Urticaria: 136 cases (9.4%)
- Febrile reaction: 277 cases (19.1%)
- Washed red cells: 4 cases (0.3%)
- Plasma: 162 cases (11.2%)
- Red cells: 535 cases (36.9%)
- Platelets: 545 cases (37.6%)

Note: All blood components mentioned above include irradiated components before supply or irradiated at medical institutions.

Breakdown of cases by symptoms

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anaphylaxis</td>
<td>277</td>
</tr>
<tr>
<td>Anaphylactic shock</td>
<td>74</td>
</tr>
<tr>
<td>Hypotension</td>
<td>49</td>
</tr>
<tr>
<td>Dyspnea</td>
<td>44</td>
</tr>
<tr>
<td>Urticaria</td>
<td>136</td>
</tr>
<tr>
<td>Febrile reaction</td>
<td>277</td>
</tr>
<tr>
<td>Washed red cells</td>
<td>4</td>
</tr>
<tr>
<td>Plasma</td>
<td>162</td>
</tr>
<tr>
<td>Red cells</td>
<td>535</td>
</tr>
<tr>
<td>Platelets</td>
<td>545</td>
</tr>
</tbody>
</table>

Most of the non-hemolytic adverse reactions were caused by platelets or red cells.
The number of TRALI and p-TRALI cases by year

This chart describes the number of TRALI and possible p-TRALI cases that were reported by medical institutions and were diagnosed based on relevant diagnostic criteria.

In 2014, 2 TRALI cases and 7 p-TRALI cases were confirmed. During the past ten years (2005 to 2014), 14 cases were considered to be fatal TRALI.

In case any of adverse reactions and/or infections related to transfusion of blood components, please notify the medical representatives of your local JRC blood center immediately. Please provide the residual products, the recipient’s pre- and post-transfusion samples, and any other related materials; it is helpful to investigate and/or identify the cause. For storage of residual products and the recipient’s samples, refer to the "Guidelines for lookback studies of blood products."

Issued by:
Medical Information Division, Blood Service Headquarters, Japanese Red Cross Society
1-1-3, Shiba Daimon, Minato-ku, Tokyo 105-8521, Japan

*For more information, please contact the medical representatives of your local JRC blood center.

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### Number of reported cases and frequency by component and symptom (2014)

<table>
<thead>
<tr>
<th>Component</th>
<th>Platelets</th>
<th>Red cells*</th>
<th>Plasma</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of bags supplied</td>
<td>832,179</td>
<td>3,370,853</td>
<td>957,318</td>
</tr>
<tr>
<td>Urticaria</td>
<td>199 cases (1/4,200)</td>
<td>118 cases (1/29,000)</td>
<td>92 cases (1/10,000)</td>
</tr>
<tr>
<td>Febrile reaction</td>
<td>25 cases (1/33,000)</td>
<td>111 cases (1/30,000)</td>
<td>6 cases (1/160,000)</td>
</tr>
<tr>
<td>Hypotension</td>
<td>23 cases (1/36,000)</td>
<td>32 cases (1/105,000)</td>
<td>15 cases (1/64,000)</td>
</tr>
<tr>
<td>Anaphylaxis</td>
<td>133 cases (1/6,300)</td>
<td>75 cases (1/45,000)</td>
<td>21 cases (1/46,000)</td>
</tr>
<tr>
<td>Anaphylactic shock</td>
<td>108 cases (1/7,700)</td>
<td>73 cases (1/46,000)</td>
<td>54 cases (1/18,000)</td>
</tr>
<tr>
<td>Dyspnea</td>
<td>41 cases (1/20,000)</td>
<td>86 cases (1/54,000)</td>
<td>6 cases (1/96,000)</td>
</tr>
<tr>
<td>TRALI</td>
<td>1 case (1/832,000)</td>
<td>2 cases (1/1,685,000)</td>
<td>1 case (1/957,000)</td>
</tr>
<tr>
<td>TACO*</td>
<td>3 cases (1/277,000)</td>
<td>32 cases (1/105,000)</td>
<td>1 case (1/191,000)</td>
</tr>
<tr>
<td>Others</td>
<td>12 cases (1/69,000)</td>
<td>29 cases (1/116,000)</td>
<td>5 cases (1/191,000)</td>
</tr>
<tr>
<td>Total</td>
<td>545 cases (1/1,500)</td>
<td>535 cases (1/6,300)</td>
<td>205 cases (1/4,700)</td>
</tr>
</tbody>
</table>

(Parentheses represent the frequency based on the total number of bags supplied)

* Excluded washed red cells, frozen-thawed red cells, and blood for exchange transfusion.

The blood components in the table include components irradiated before supply and components irradiated at medical institutions.

Cases given two or more types of blood components in combination were excluded.

Regarding the type of blood component, the frequency of adverse reactions based on the total number of bags supplied was the highest with platelets, one case per approximately 1,500 bags.

Taking symptoms into account, the category with the highest frequency was urticaria, which was caused by platelets, and the frequency was one event per approximately 4,200 bags.

### Time of onset (cases with unknown time of onset excluded) (2014)

#### Time of onset from the start of transfusion for non-hemolytic adverse reactions

These graphs indicate the time of onset from the start of transfusion by type of non-hemolytic adverse reaction. Adverse reactions occur not only immediately following the start of transfusion, but also during and after the transfusion. Thus, recipients should be appropriately monitored throughout immediately following the start of transfusion, during transfusion and following the completion of transfusion.

#### Urticaria: 460 cases

#### Febrile reaction: 149 cases

#### Hypotension: 74 cases

#### Anaphylaxis: 242 cases

#### Anaphylactic shock: 273 cases

#### Dyspnea: 136 cases

#### TRALI: 9 cases

#### TACO*: 44 cases

These graphs indicate the time of onset from the start of transfusion by type of non-hemolytic adverse reaction. Adverse reactions occur not only immediately following the start of transfusion, but also during and after the transfusion. Thus, recipients should be appropriately monitored throughout immediately following the start of transfusion, during transfusion and following the completion of transfusion.

### The number of TRALI and p-TRALI cases by year

In 2014, 2 TRALI cases and 7 p-TRALI cases were confirmed. During the past ten years (2005 to 2014), 14 cases were considered to be fatal TRALI.

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