

## THREE YEAR TRENDS IN TRANSFUSION ASSOCIATED ADVERSE EVENTS IN CANADA, 2002-2004

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**Background:** The Transfusion Transmitted Injuries Surveillance System (TTISS) is maintained by the Public Health Agency of Canada (PHAC) to collect data on adverse transfusion events (ATEs), both infectious and non infectious, resulting from the therapeutic use of blood, blood components, plasma derivatives and recombinant products across the country.

**Aims:** To describe the ATEs reported to the Public Health Agency of Canada from Jan 1 2002 to Dec 31 2004.

**Methods:** Standardized collection forms, reporting protocols, and data element definitions were developed. After validation at the provincial level, moderate and severe adverse events were transferred to the PHAC for further validation and analysis. Descriptive analyses of the data reported were conducted using SPSS software. Only adverse events definitely, probably or possibly related to transfusion were considered. Incidence of ATEs was calculated using actual number of units transfused in participating hospitals.

**Results:** For the period 2002-4, a total of 570 adverse transfusion events were reported by ten provinces/territories representing more than two-thirds of the transfusion activity in Canada. Of these, 474 were related to blood components and 92 to plasma derivatives. ATEs reported to the TTISS included: major allergic/anaphylactic reaction (36%); circulatory overload (15%); TRALI (11%); acute hemolytic reaction (9%); bacterial contamination (6%) ; hypotensive reaction (6%); and ABO incompatibility (4%). Incidence of bacterial contamination decreased from 1:26,772 to 1:79,758 as did ABO incompatibility from 1:65,018 to 1:79,758 and acute hemolytic transfusion reaction from 1:45,512 to 1:50,755. Incidence of TRALI, TACO and HR increased over the same period (see table).

**Conclusions/Summary:** Major allergic reaction was the most frequent ATE reported to TTISS representing more than a third of cases. The decrease in incidence of bacterial contamination could be explained in part by the introduction of preventive measures such as diversion pouches at blood collection and bacterial detection of apheresis platelets. Data like those collected by TTISS are useful for planning and evaluating preventive measures.

Adverse transfusion event	2002	2003	2004
Major Allergic/Anaphylactic Reaction	1:9,288	1:11,117	1:8,589
TRALI	1:30,341	1:31,960	1:23,263
Circulatory Overload	1:23,954	1:34,091	1:12,137
Acute Hemolytic Transfusion Reaction	1:45,512	1:26,913	1:50,755
Bacterial Contamination	1:26,772	1:51,136	1:79,758
ABO Incompatibility	1:65,018	1:85,227	1:79,758
Hypotensive Reaction	1:75,854	1:102,273	1:32,842
Post Transfusion Purpura	1:455,126	1:85,227	1:558,308

Data based on three provinces/territories.  
\* Includes ATEs related to plasma, cryoprecipitate, cryoprecipitate supernatant, granulocyte, whole blood and multiple blood components.