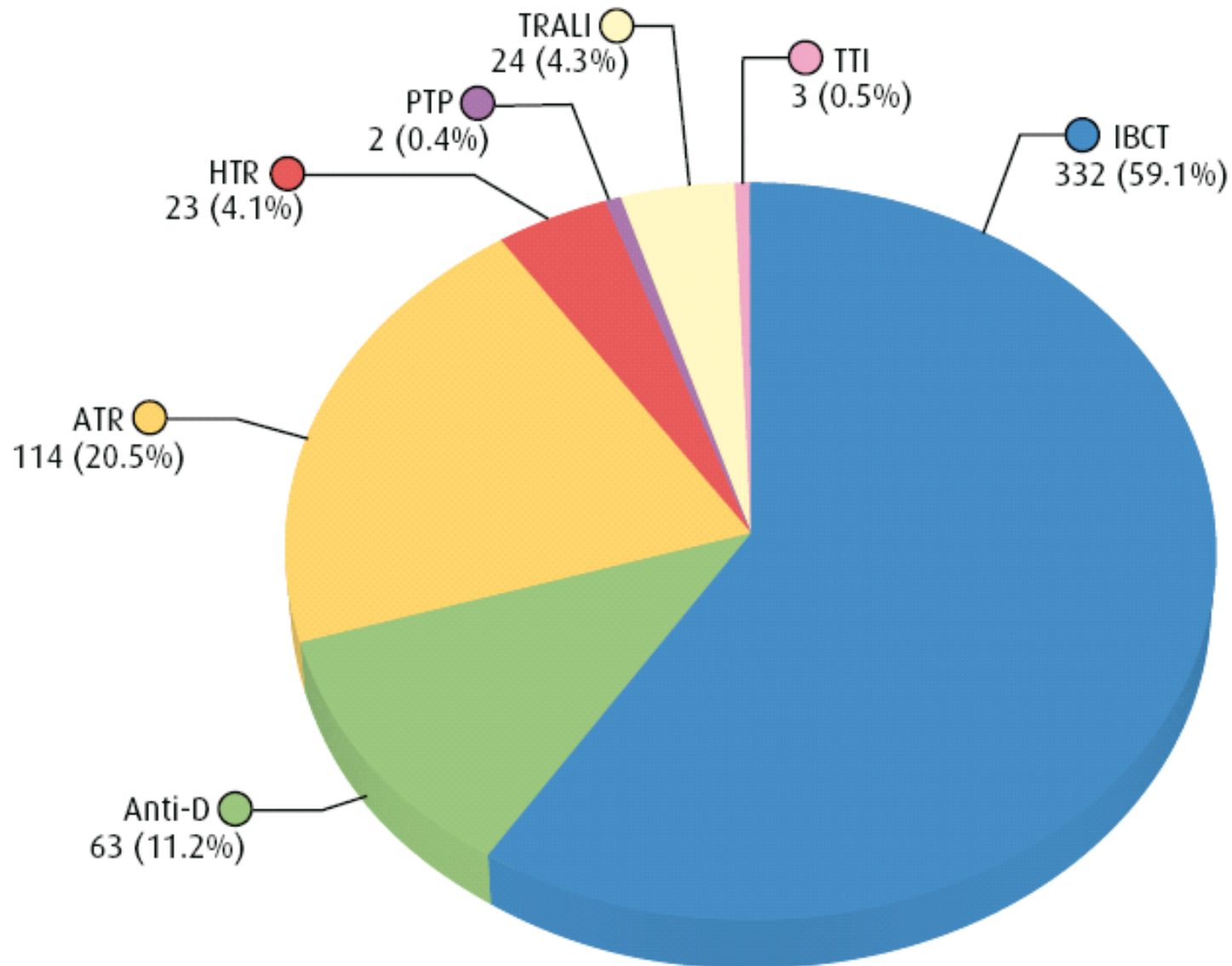


RESULTS FROM THE

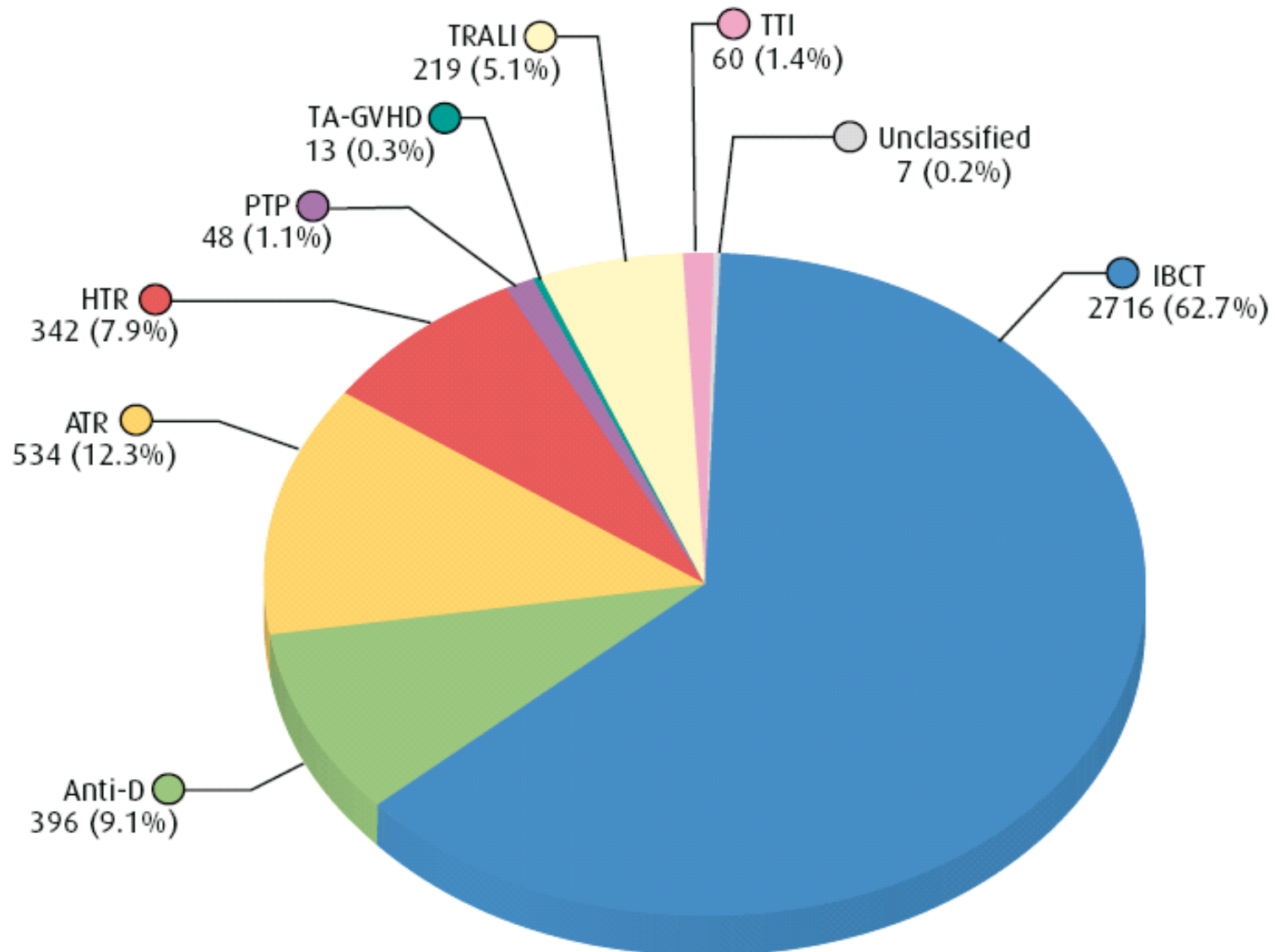
2007

SHOT REPORT

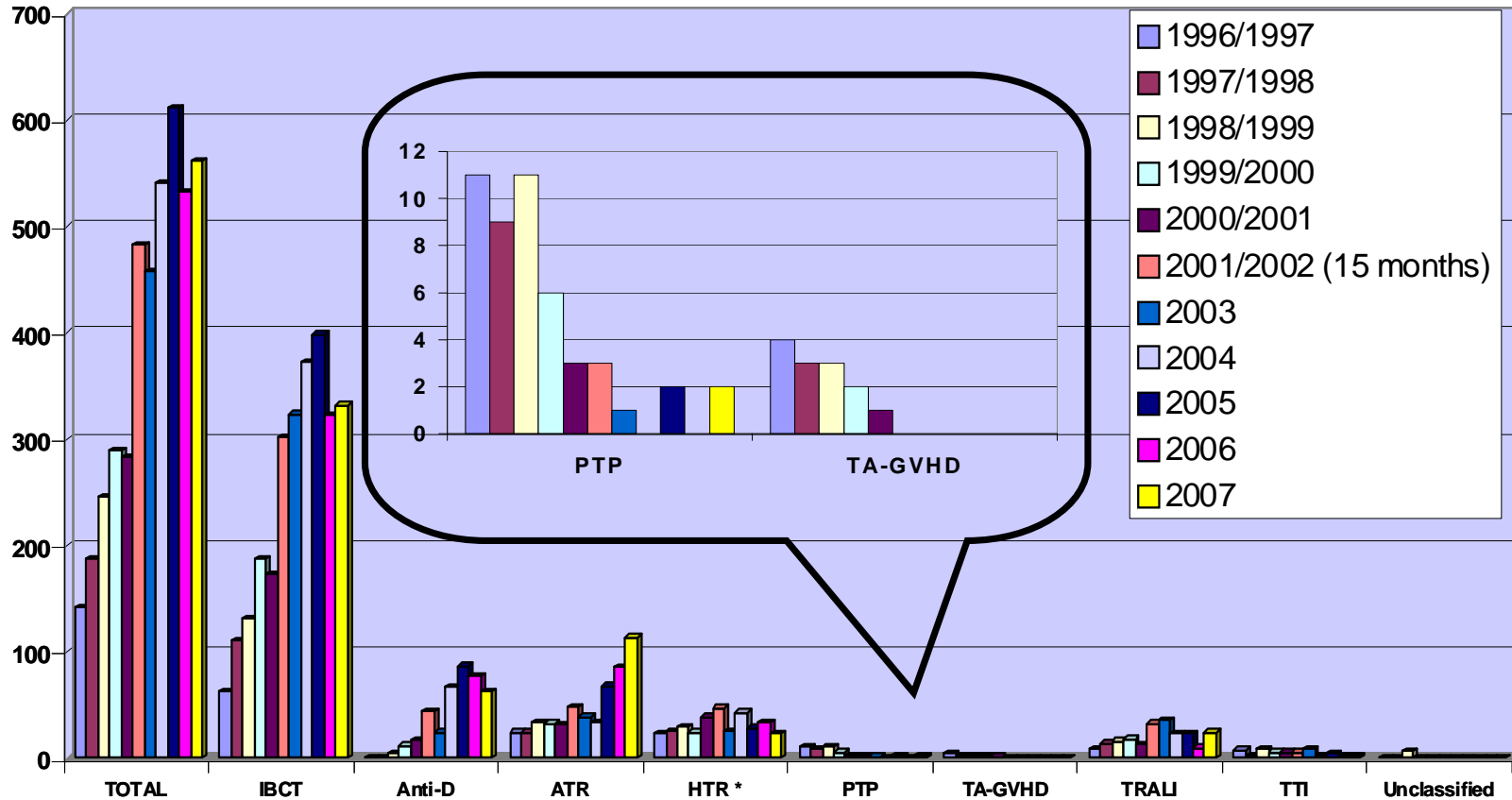
SHOT report 2007 (561 cases)



Cumulative data 1996 – 2007 (4335 cases)



Comparison of Report Types 1996 – 2007



* Before 2006, the category was Delayed Transfusion Reactions

Mortality & morbidity 1996 – 2007

	Total	IBCT	Anti-D	ATR	HTR*	PTP	TA-GvHD	TRALI	TTI
Death in which transfusion reaction was causal or contributory	115	24	0	14	10	2	13	40	12
Major morbidity probably or definitely attributed to transfusion reaction (imputability 2/3)	376	107	24	22	34	13	0	133	43
Minor or no morbidity as a result of transfusion reaction	3821	2907	39	495	296	33	0	46	5
Outcome unknown	15	11	0	3	1	0	0	0	0
TOTAL **	4327	3049	63	534	341	48	13	219	60

* The HTR category was Delayed transfusion reaction (DTR) until 2006 and did not include acute reactions.

** Excludes 7 cases from 1998/99 that were not classified.

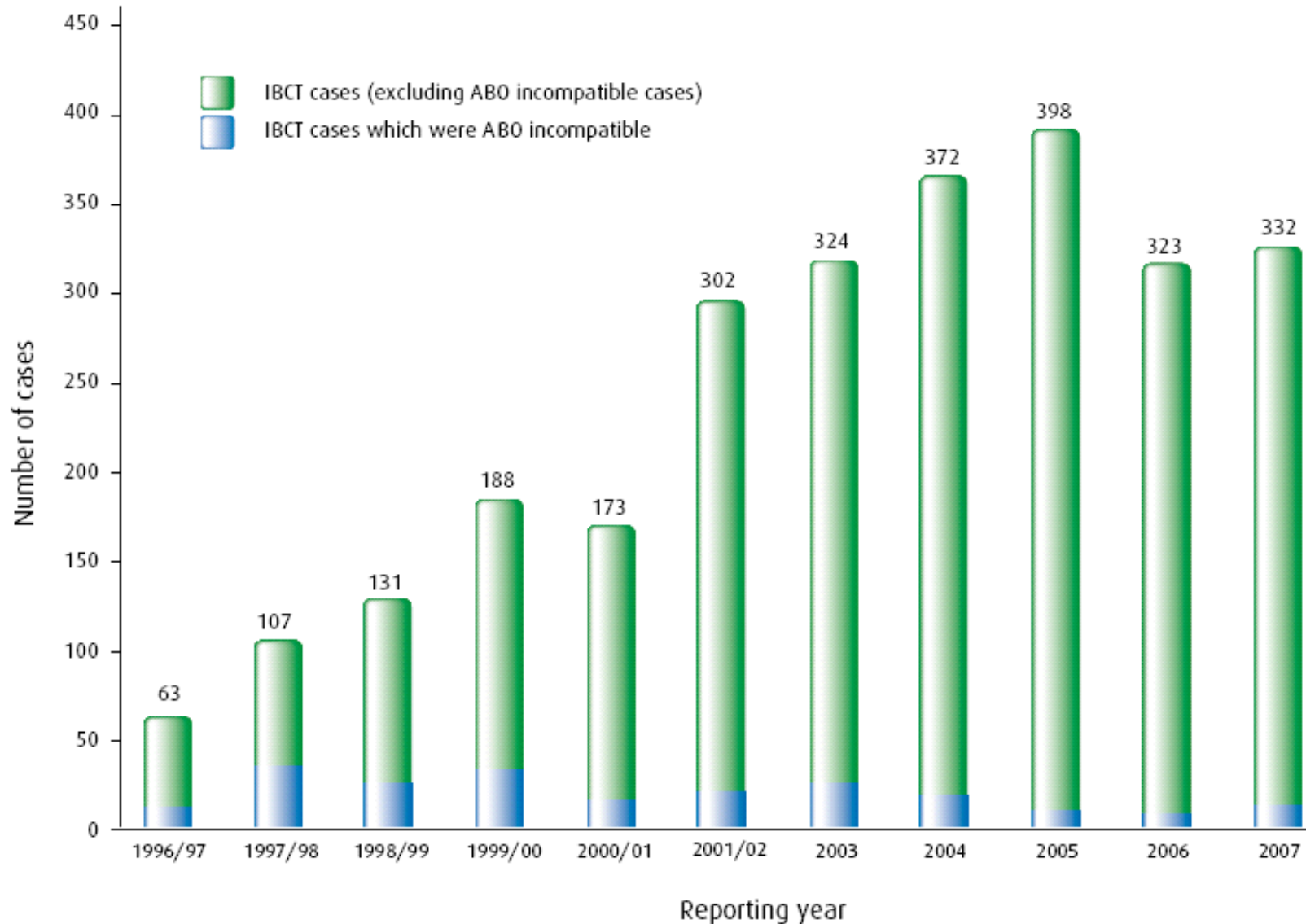
Major morbidity was defined as the presence of one or more of the following;

- **Intensive care admission and / or ventilation**
- **Dialysis and / or renal impairment**
- **Major haemorrhage from transfusion-induced coagulopathy**
- **Evidence of Intravascular haemolysis**
- **Potential risk of anti-D sensitisation in a female of childbearing potential**
- **Persistent viral infection**
- **Acute symptomatic confirmed infection**
- **Reaction resulting in a low or high haemoglobin level of a degree sufficient to cause risk to life without immediate medical intervention**

Incorrect blood component transfused (IBCT)

All reported episodes where a patient was transfused with a blood component or plasma product which did not meet the appropriate requirements or that was intended for another patient

ABO incompatible red cell transfusions



Analysis of 332 IBCT cases in 2007

Type of IBCT Event (2007 Report)	Number
Administration of wrong blood	24
“Wrong blood in tube”	7
Inappropriate or unnecessary transfusion	50
Handling and storage errors	118
Special requirements not met (cmv / irradiated)	76
Special requirements not met (other)	17
Additional Laboratory errors	40
Total	332

Errors associated with Anti-D in 2007

Type of event	Cases	Primary (All) Errors		
		Midwife / Nurse	Laboratory	Doctor
Omission or late administration of anti-D Ig	24	22 (24)	2	-
Anti-D Ig given to D positive patient	17	3 (5)	11	3
Anti-D Ig given to patient with immune anti-D <i>(In 4 reported cases, there was no actual error involved)</i>	6	(1)	2	-
Anti-D Ig given to mother of D negative infant	6	-	6	-
Anti-D given to wrong patient	6	5 (5)	-	1
Wrong dose of anti-D given	2	(2)	2	-
Anti-D Ig expired or out of temperature control	1	(1)	1	-
Other <i>(anti-D Ig administered instead of anti-tetanus globulin)</i>	1	-	-	1
Total cases	63	30 (38)	24 (24)	5 (5)
Total errors: Primary / (All)		59 (67)		

Summary of Blood Transfusion Laboratory Errors

121 adverse events altogether

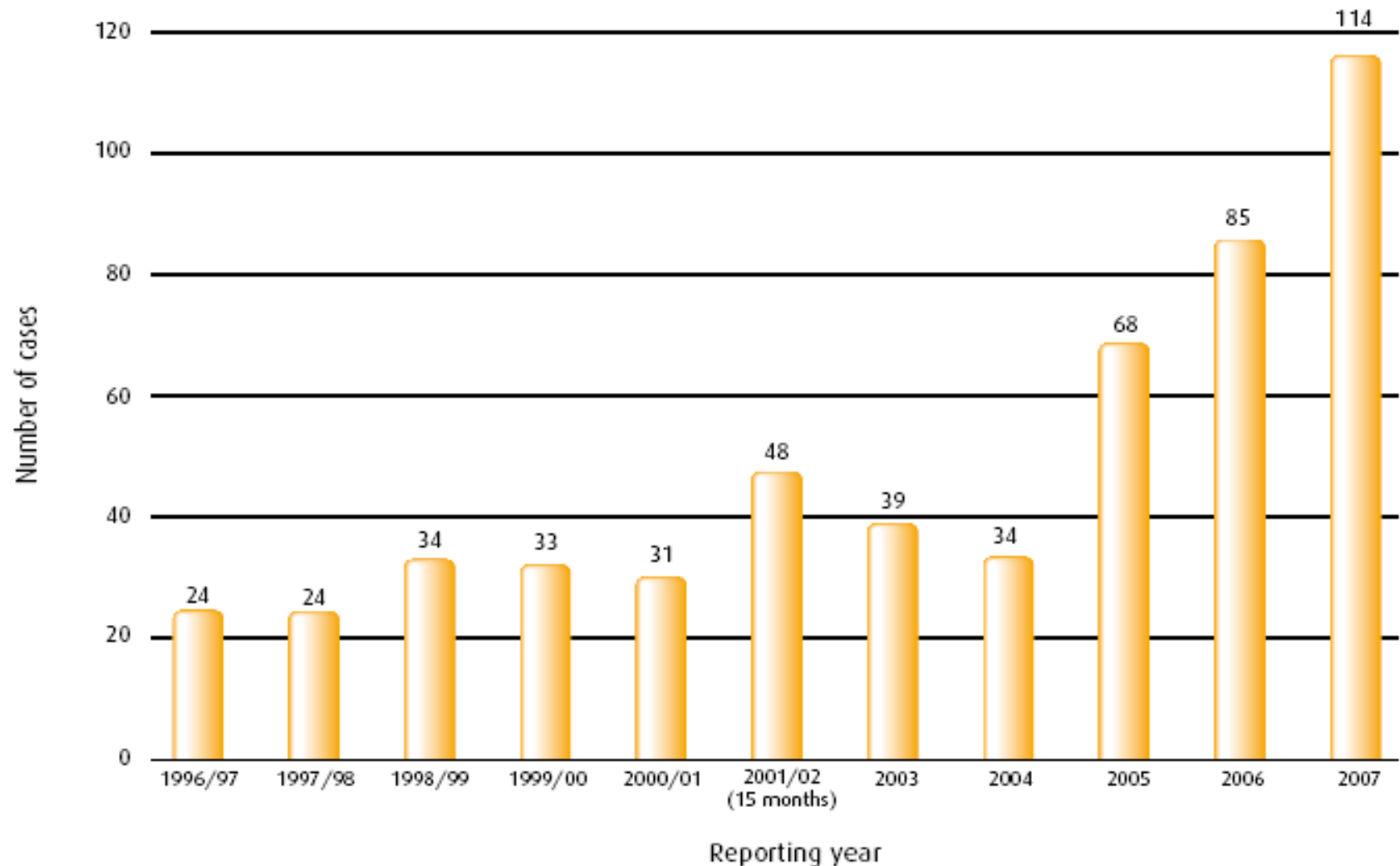
• IBCT	96
- Wrong blood	15
- Wrong group selected for SCT patient	5
- Other pre-transfusion testing errors	20
- Special requirements not met	36
- Handling and storage errors	20
• Anti D	24
• HTR	1

Acute transfusion reactions

Acute transfusion reactions are defined in this report as those occurring at any time up to 24 hours following a transfusion of blood or components, excluding cases of acute reactions due to incorrect component being transfused, haemolytic reactions, transfusion-related acute lung injury (TRALI) or those due to bacterial contamination of the component.

Acute Transfusion Reactions - 2007

[Totals include cases of Acute Haemolytic Transfusion Reaction (AHTR) to 2006]



Acute Transfusion Reactions - 2007

Components implicated

Reaction	RBC n = 51	Salvaged RBC n = 2	Platelets apheresis n = 19	Platelets buffy coats n = 21	FFP [*] n = 20	Cryo ^{**} n = 1	Total n = 114
Isolated febrile	12	1	3				16
Minor allergic	14		4	12	7		37
Severe allergic	2		4	1	5		12
Anaphylactoid	6		6	7	7	1	27
Hypotension	1	1					2
Febrile with other symptoms / signs	16		2	1	1		20
Total	51	2	19	21	20	1	114

^{*} All FFP cases related to standard FFP

^{**} Two pools of cryoprecipitate were transfused

Acute transfusion reaction: relative risks from different components

	<i>RBCs</i>	<i>Plts</i>	<i>FFP/cryo</i>
ATR cases*	25	21	14
Components issued	2.2m	0.26m	0.42m
Risk/component issued	1:88,000**	1:12,381	1:30,000
Relative risk compared to red cells	-----	7.12	2.93

*Excluding isolated febrile and minor allergic

**1:138,888 in 2005

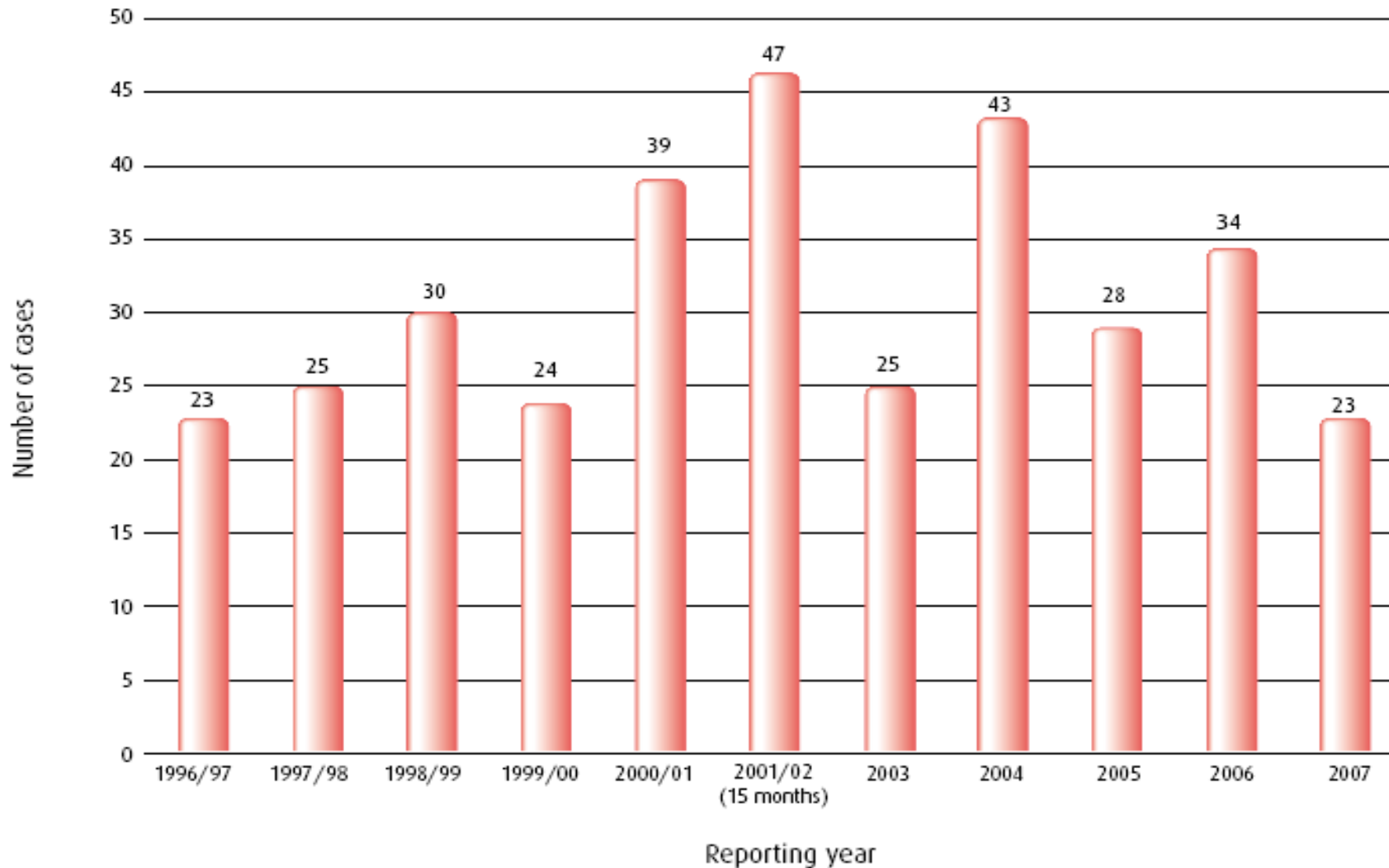
Haemolytic Transfusion Reactions

Haemolytic transfusion reactions are split into two categories: acute and delayed. Acute reactions are defined as fever and other symptoms/signs of haemolysis within 24 hours of transfusion, confirmed by a fall in Hb, rise in LDH, positive DAT and positive crossmatch. Delayed reactions are defined as fever and other symptoms/signs of haemolysis more than 24 hours after transfusion, confirmed by one or more of: a fall in Hb or failure of increment, rise in bilirubin, positive DAT and positive crossmatch not detectable pre-transfusion. Simple serological reactions (development of antibody without pos DAT or evidence of haemolysis) are excluded.

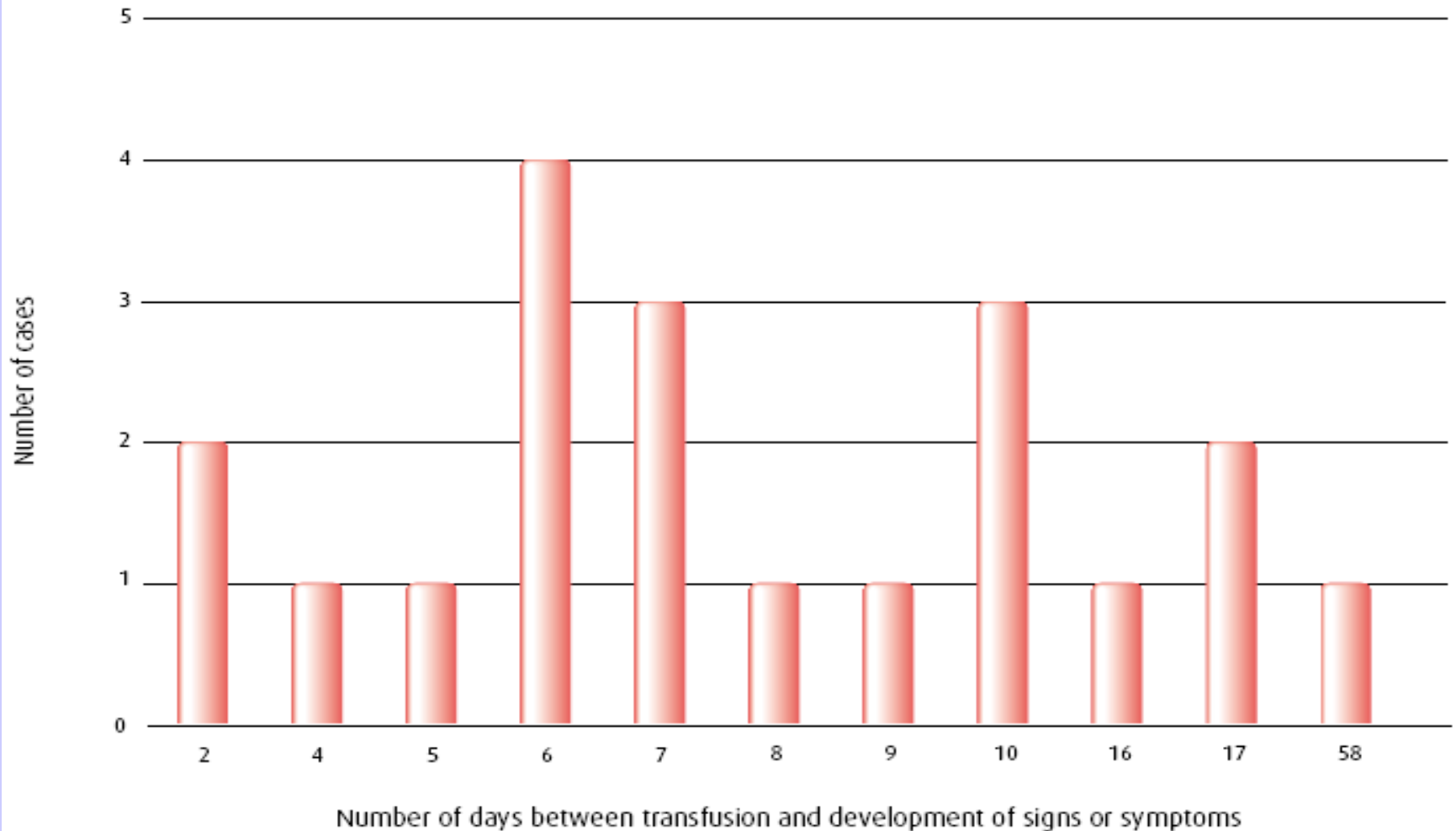
Haemolytic Transfusion Reactions

Number of cases of HTR analysed since 1996

[Cases in this section were referred to as delayed transfusion reactions until 2006]



Time Interval between transfusion and HTR



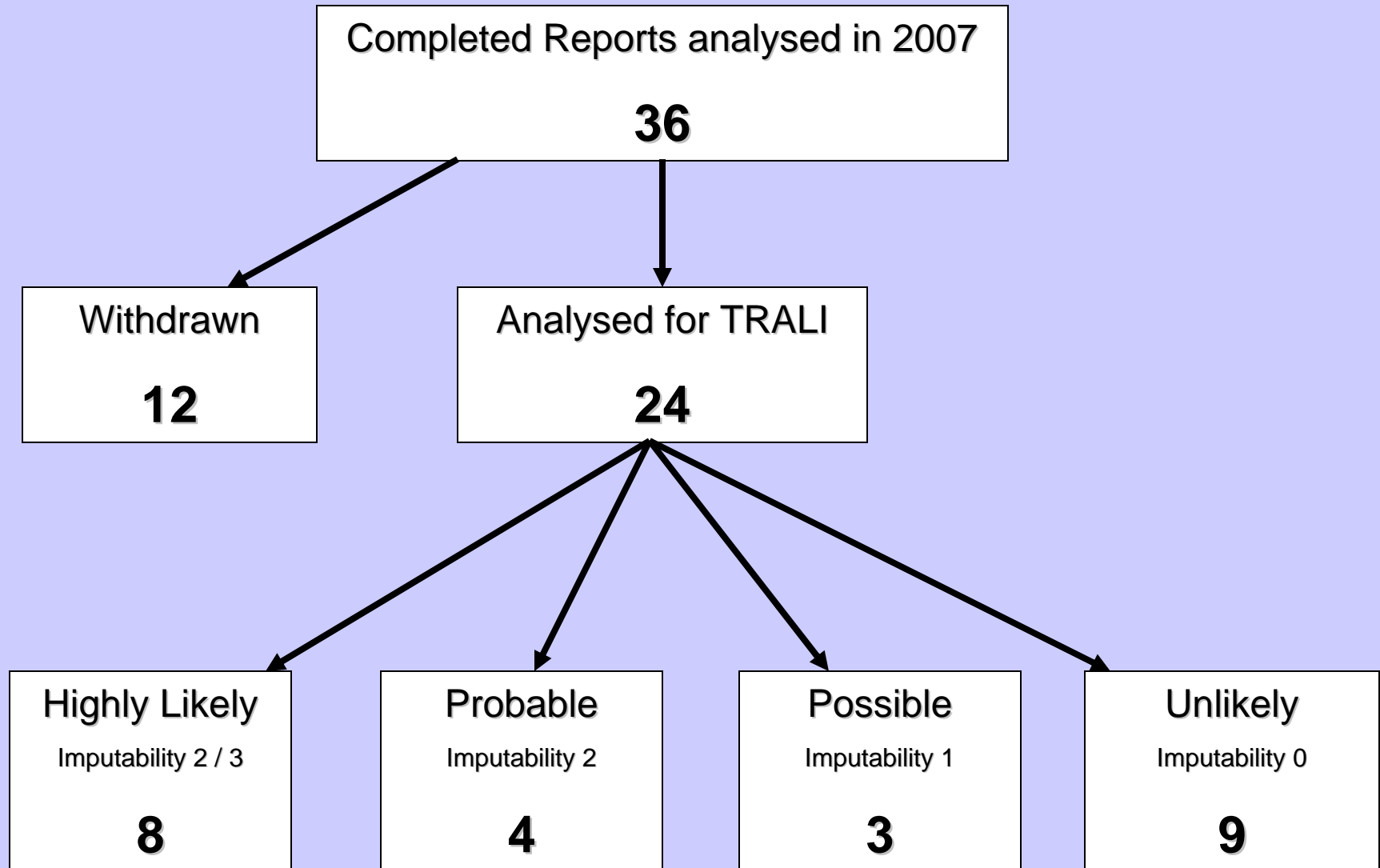
Median = 7 days

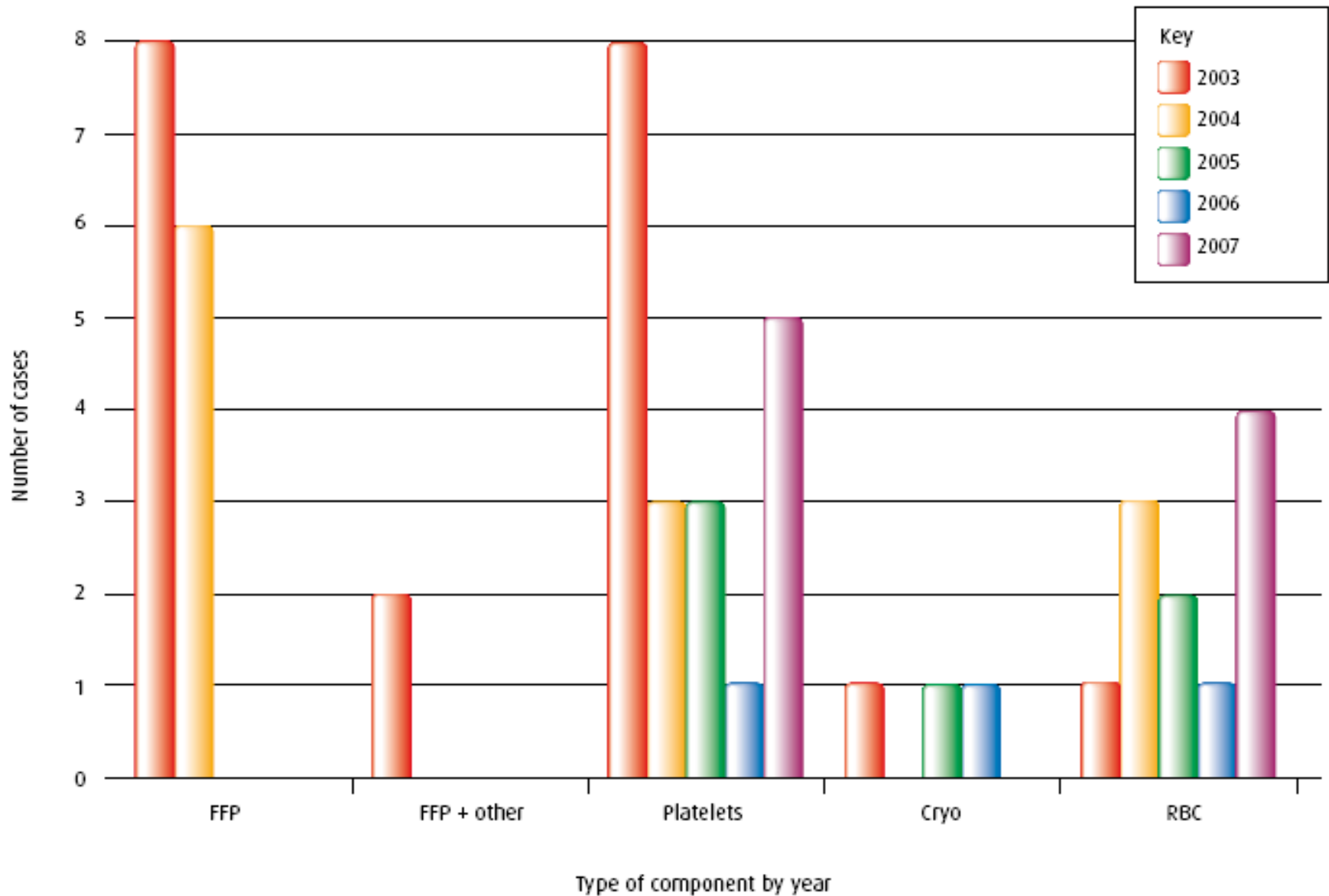
Range = 2 to 58 days

Transfusion Related Acute Lung Injury (TRALI)

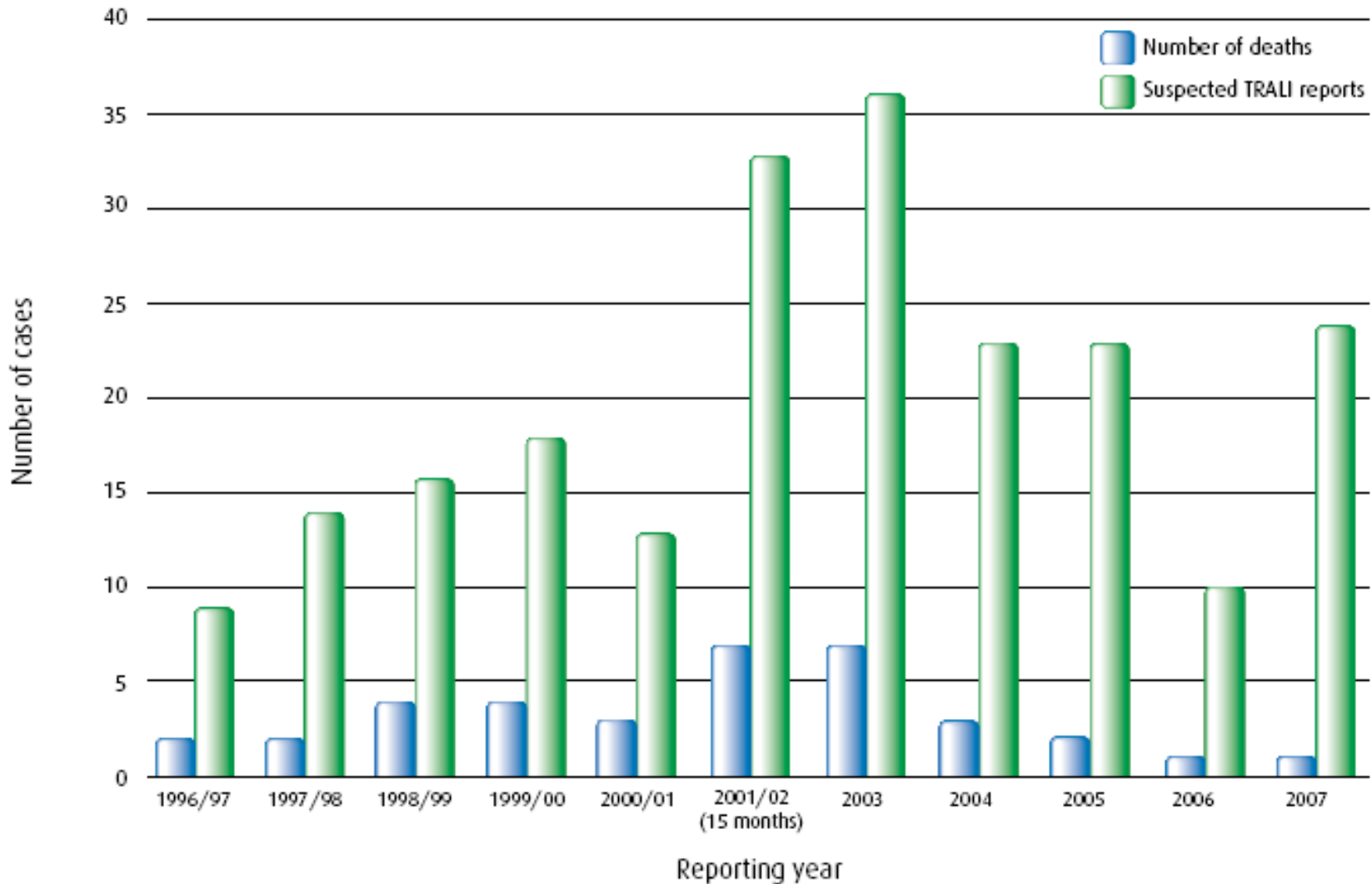
Transfusion Related Acute Lung Injury was defined in this report as acute dyspnoea with hypoxia & bilateral pulmonary infiltrates during or within 6 hours of transfusion, not due to circulatory overload or other likely cause.

Summary of TRALI cases reported



Cases of TRALI with concordant donor antibody analysed by implicated component and by year 2003–2007

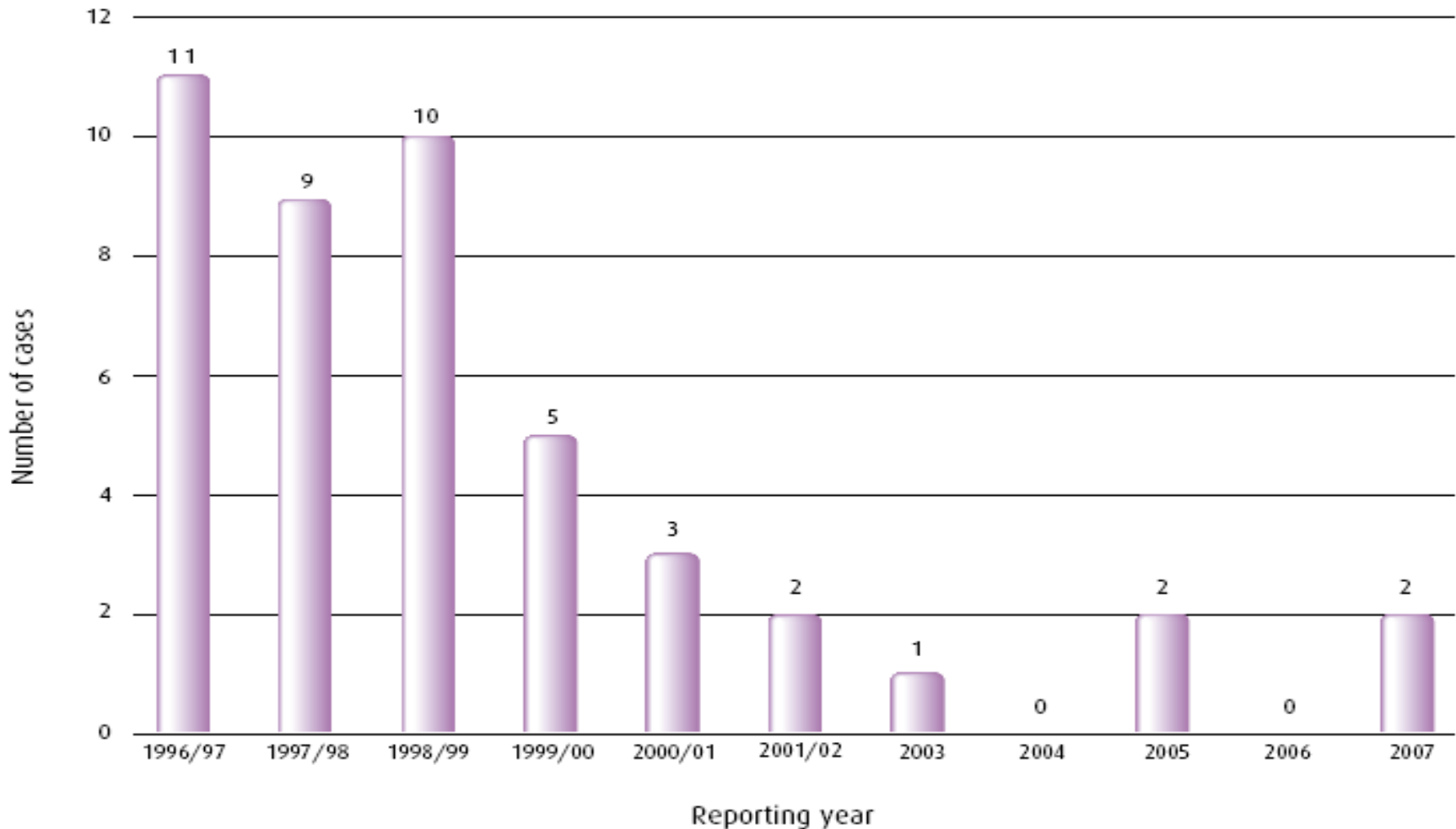
Deaths at least possibly due to TRALI and number of suspected TRALI cases by year 2003-2007



Post-Transfusion Purpura

Post-transfusion purpura was defined as thrombocytopenia arising 5 - 12 days following transfusion of red cells associated with the presence in the patient of antibodies directed against the HPA (Human Platelet Antigen) systems

Number of cases of confirmed PTP reported to SHOT 1996 - 2007

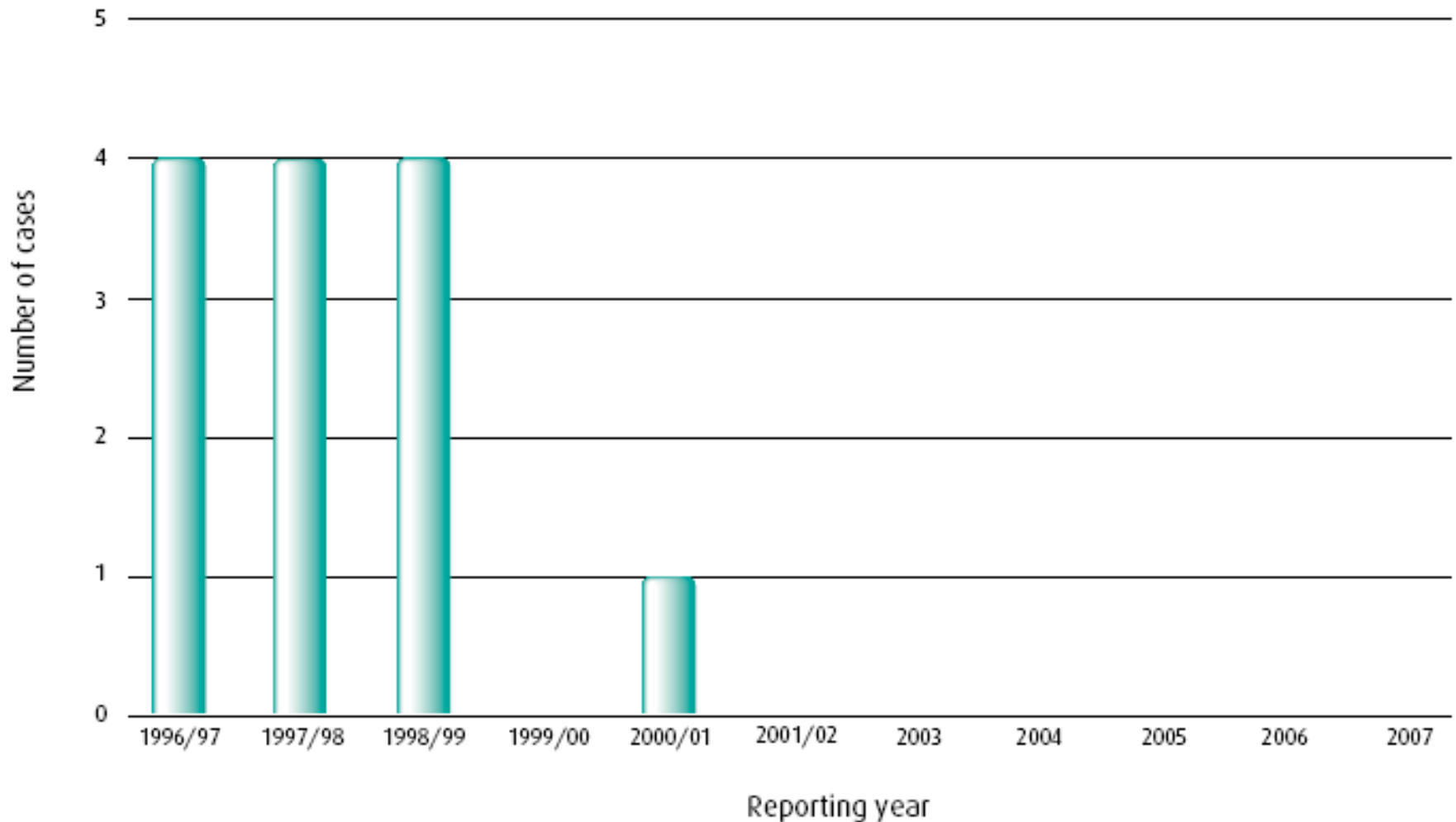


Transfusion Associated-Graft versus Host Disease

Transfusion associated-graft versus host disease is a generally fatal immunological complication of transfusion practice, involving the engraftment and clonal expansion of viable donor lymphocytes, contained in blood components in a susceptible host.

TA-GvHD is characterised by fever, rash, liver dysfunction, diarrhoea, pancytopenia and bone marrow hypoplasia occurring less than 30 days following transfusion. The diagnosis is usually supported by skin/bone marrow biopsy appearance and/or the identification of donor-derived cells, chromosomes or DNA in the patient's blood and/or affected tissues.

Number of cases of TA-GvHD reported to SHOT 1996 - 2007



Transfusion transmitted infections

A report was classified as a TTI if, following investigation:

- **The recipient had evidence of infection post-transfusion, and there was no evidence of infection prior to transfusion and no evidence of an alternative source of infection;**

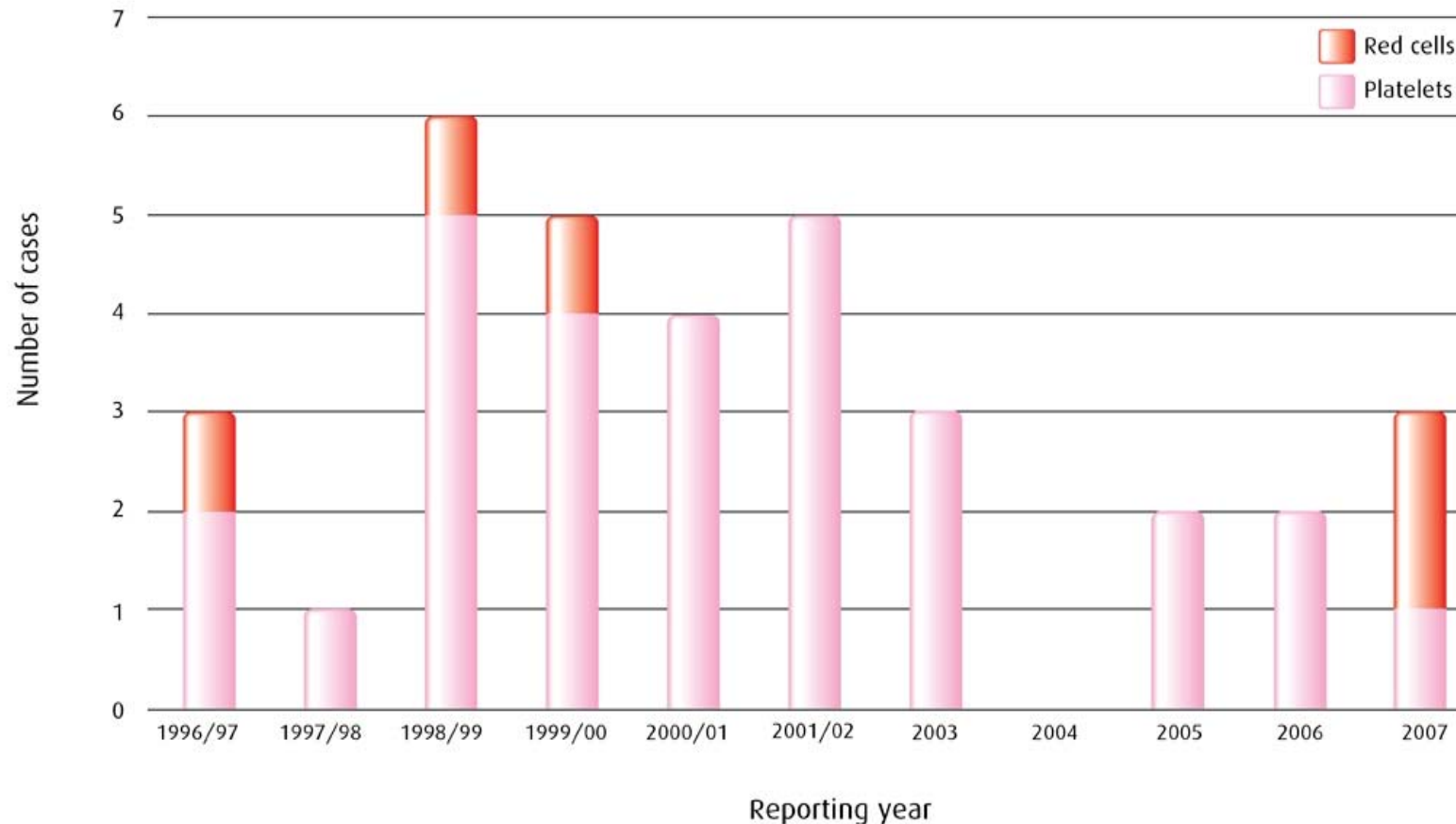
and, either

- **At least one component received by the infected recipient was donated by a donor who had evidence of the same transmissible infection,**

or

- **At least one component received by the infected recipient was shown to contain the agent of infection.**

Confirmed bacterial infections, by year of transfusion and type of unit transfused (Scotland included from 10/98)



* In 2004 there was a further incident involving contamination of a pooled platelet pack with *Staphylococcus epidermidis*, which did not meet the TTI definition because transmission to the recipient was not confirmed, but it would seem likely

Cumulative TTI data shown by SHOT report year (Scotland included from 1998/99 report)

	1996-1997	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002	2003	2004	2005	2006	2007	Total	Death (due to infection)	Major morbidity	Minor morbidity
Bacteria	3	1	6	5	4	5	3	0	2	2	3	34	8	23	3
HAV	1	0	0	0	0	0	1	0	1	0	0	3	0	2	1
HBV	1	2	2	1	1	0	2	0	1	0	0	10	0	10	0
HCV	1	0	1	0	0	0	0	0	0	0	0	2	0	2	0
HEV	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1
HIV	1	0	0	0	0	0	1	0	0	0	0	2	0	2	0
HTLV	0	0	0	0	1	1	0	0	0	0	0	2	0	2	0
Malaria	1	0	0	0	0	0	1	0	0	0	0	2	1	1	0
Prion	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0
vCJD	0	0	0	0	0	0	1	0	1	1	0	3	3	0	0
Total	8	3	9	6	6	6	9	2	5	3	3	60	12	43	5

Further cumulative data are available at http://www.hpa.org.uk/infections/topics_az/BIBD/menu.htm.