

The changing pattern of transfusion-transmitted infection

**Serious Hazards of Transfusion
7th Annual Progress Meeting
6th July 2004**



Definition of a transfusion-transmitted infection (1)

- recipient has evidence of infection post-transfusion
- no evidence of infection prior to transfusion
- no evidence of an alternative source of infection



Definition of transfusion-transmitted infection (2)

- at least one component originated from a donor who had evidence of the same infection

OR

- at least one component was contaminated with the agent of infection



Inclusion criteria for reporting

- **infection confirmed in recipient by detection of antibody, antigen, RNA/DNA, culture etc (and no evidence of infection pre-transfusion)**

OR

- **acute clinical hepatitis of unknown cause**

What cases are reported?

- recipient has evidence of infection post transfusion
- no evidence of infection pre-transfusion
- acute clinical hepatitis
- no evidence of an alternative source of infection
- USUALLY, BUT NOT ALWAYS
- NOT OFTEN
- VERY RARE
- VIRTUALLY NEVER



Problem

- **many cases are reported at time of initial test report , but before confirmation of infection in recipient**
- **thorough evaluation may not take place**
- **Blood Services may struggle to obtain relevant information**



Solution (!)

- **Blood Service investigates the case to avoid any inappropriate “labelling”/ complaint / future litigation**



What is different now?

Blood Services have more resources to complete investigations

- **archive samples**
- **availability of genomic testing**
- **agreed national protocols based on “best practice”**



Result

**we can be more confident than
ever before of the conclusions of
our investigations**

**less incomplete/ inconclusive
investigations**



proportion of reported cases NOT due to transfusion

- **1996/7** **28%**
- **1999/0** **47%**
- **2002** **75%**

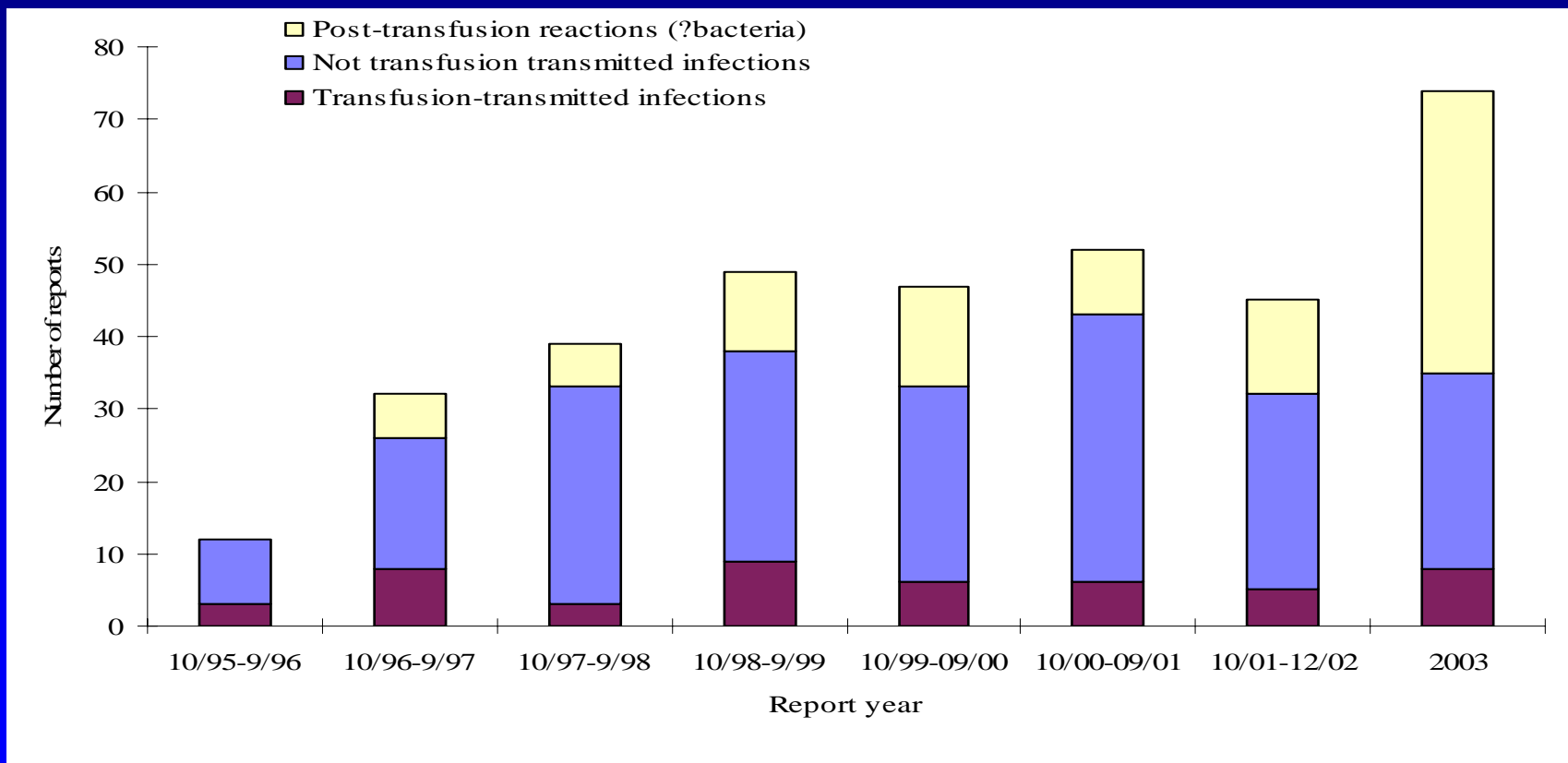


What changes has SHOT seen?

- more reports
- more negative investigations
- more completed investigations



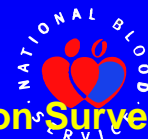
Reports of possible transfusion-transmitted infection in the UK and post-transfusion reactions in England and Wales by year of report, 1995 to 2003 (Scotland from 1998)



Source: NBS/HPA Transfusion Transmitted Infection Surveillance

Cumulative total of reports of transfusion-transmitted infections in UK by year of transfusion, 1995 to 2003 (Scotland from 1998)

Year of transfusion	Pre 1996	1996	1997	1998	1999	2000	2001	2002	2003	Total	Deaths
Infection											
HAV	-	1(1)	-	-	-	1(1)	-	-	-	2	-
HBV	2(2)	1(1)	1(1)	1(1)	2(3)	1(1)	-	1(1)	1(1)	10	-
HCV	-	1(1)	1(1)	-	-	-	-	-	-	2	-
HIV	-	1(3)	-	-	-	-	-	1(1)	-	2	-
Bacteria	1(1)	1(1)	3(3)	4(4)	4(4)	7(7)	5(5)	1(1)	3(3)	29	7
Malaria	-	-	1(1)	-	-	-	-	-	1(1)	2	1
HTLV-1	2(2)	-	-	-	-	-	-	-	-	2	-
<i>Possible vCJD</i>		1(1)								1	1
Total	5(5)	6(8)	6(6)	5(5)	6(7)	9(9)	5(5)	3(3)	5(5)	50	9



Transfusion-transmitted infection 1995-2004 (1)

- **HBV:** av. 1 case per year
- **HIV:** occasional, “sporadic” cases
- **HCV:** transmission has disappeared
- **HTLV:** (lookback)



HBV transmissions

- **prior to 1995, cases due to late chronic (tail end) infections (as far as we can tell)**
- **since 1995, cases due to early acute (window period) infections**



HIV transmissions

- rare, sporadic
- latest case detected following seroconversion in donor
- no apparent failure of donor selection or testing



HCV transmissions

- **disappeared; no cases since 1977**
- **DoH ex gratia payment scheme may result in apparent reappearance of cases**

Transfusion-transmitted infection 1995-2004 (2)

- **occasional cases of malaria and HAV reinforce need for continued vigilance and attention to donor selection, reporting of post-donation illness and traceability of blood components**



Transfusion-transmitted infection 1995-2004 (3)

- **bacterial contamination remains the most significant concern**
- **increased number of reports does not reflect an increasing problem**
- **too early to determine whether diversion will have an impact on number of clinical cases**



Reports of transfusion-transmitted bacterial contaminations in UK by species and component type and age, 1995 to 2003 (Scotland from 1998)

	Platelets							Red cells
	Age (in days) at use							
	1	2	3	4	5	NK	All	
<i>All species</i>	0	2	3	6	10	4	25	4
<i>Bacillus cereus</i>				3 ^a		1	4	
<i>Coagulase negative Staphylococci</i>					1		1	1 (23 days)
<i>Enterobacter aerogenes</i>			1 ^a				1	
<i>Escherichia coli</i>		1 ^a	1 ^a			1	3	
<i>group B Streptococcus</i>			1	1		1	3	
<i>Morganella morganii</i>					1		1	
<i>Serratia liquifaciens</i>								1
<i>Staphylococcus aureus</i>					2	1 ^a	3	
<i>Staphylococcus epidermidis</i>		1 ^a		2	6		9	1 (32 days)
<i>Yersinia enterocolitica</i>								1 ^a (33 days)

^a Infection was implicated in the death of a recipient.

Source: NBS/HPA Transfusion Transmitted Infection Surveillance



BLOOD PROBE

Inquiry ordered after top cop dies in hospital



TREATMENT: Graeme had been a patient at Ninewells.

A CONTAMINATED blood probe has been ordered after a top Scots policeman died in hospital.

It will come on treatment given to leukemia victim Graeme Todd in the final days before he died.

The prosecutor fiscal will focus on any blood or blood products he was given by transfusion.

The 61-year-old father of three, a former chief inspector with Tayside Police, died in Glasgow Royal Infirmary last week and will be buried today.

He had been a patient at Ninewells Hospital in Dundee before being sent to Glasgow for a bone marrow transplant and to receive further treatment.

Initially, DCI Todd appeared to recover well from his condition.

But his family and police colleagues were devastated when they learned of his death last Thursday after blood transfusions.

Hospital chiefs reported his death to the fiscal, who ordered an inquiry.

Last night Dr Myrtle Peterkin, acting clinical director of the West of Scotland Blood Transfusion Service, said other patients are not at risk.

Received

The consultant haematologist said: "From the point of view of other patients who have received transfusions, we can reassure them that they are not at risk."

"We have been notified he was being transfused at the time his condition deteriorated."

"In situations like this, we mount an investigation to try and determine what part, if any, the transfusion may have played in his final illness."

She added: "This patient had undergone a bone marrow transplant about three weeks earlier."

"He was recovering from the transplant although he was not out of the woods. It was still early."

She estimated it would take another week before the results of their own probe were known.

Last night, a spokesman for the prosecutor fiscal in Glasgow confirmed an investigation into the death was underway.

He added: "A post-mortem has been carried out and a report is expected within four to six weeks."

DCI Todd's funeral will be held in the parish church of Warrist, in lower trees in north Fife. His wife

EXCLUSIVE By BRIAN MCCARTNEY

Marion, a classroom assistant, and their children, Alison, Kean and Aida, will lead the mourners.

Afterswords, he will be buried in Balmorhea Cemetery.

Mrs Todd said that she was aware that the cause of her husband's death was multi-organ failure caused by septicemia and of the investigation into his death.

A close colleague said: "We knew he'd been very low and on oxygen so one stage but he was improving and had even been out for a meal with his family."

"We were devastated when it was announced he had died."

Positive

A spokeswoman for Glasgow Royal Infirmary said: "We are fully co-operating with the investigation of the fiscal. We would like to extend our condolences to the family at this time."

DCI Todd, who grew up in Dundee, began his police career in 1978. Ten years later, he was promoted to sergeant and in 1990 he took a three-year sabbatical and graduated with a law degree from Dundee University.

He was made an inspector on his return. He was one of Tayside's top teenage inspectors.

In July, he was promoted to DCI and about that time his leukemia was diagnosed.

A spokesman for Tayside Police said: "Even when gravely ill, Graeme always sought to see the positive side."

"He'll be missed tremendously by everyone who knew him."



VICTIM: Graeme died after receiving blood transfusions during treatment.

BACTERIA DANGER

- Donated blood is usually broken down into individual components, so most patients will just need one element of it.
- It is divided into red blood cells, white blood cells, platelets and plasma.
- Transfusions of platelets are mainly used to help save people with cancer and leukemia or bleeding problems.
- They are the most likely blood components to be contaminated by bacteria as they have to be stored at room temperature to retain blood-clotting functions.
- With screening for viruses such as HIV, bacterial contamination now is seen as the top threat in blood transfusion medicine.
- It can cause septic reaction leading to illness and death, but cases are still rare.
- From 1996 to 2001 in the UK, there were 21 cases of bacterial contamination from transfusions, causing seven people to die.

Man sues over 'botched' laser eye op



AGONY: Laser surgery

A BUSINESSMAN who has blurred vision after laser eye surgery is set to sue Boots for compensation.

Gerald Brown, 52, wanted the corrective surgery to help him with his hobby of clay pigeon shooting.

His daughter paid £2000 for the surgery on a birthday present.

He had the LASIK treatment in September and woke up blurred the next day. He said: "I assumed the treatment had worked and everything would be fine."

By ANNIE BROWN

But he later discovered he had severe blurring in his left eye.

He called the Boots clinic and was told to wait until the next day for an appointment. By then his left eye had fogged over.

A local consultant said he probably had a bacterial infection.

Gerald claims the examination was anaesthetised and painful. He said: "I reached the conclusion the

doctor did not know what he was doing."

The next day his right eye fogged over and the clinic said Gerald to go to hospital. He was told he had a bacterial infection, via abscesses in the left eye and those in the right.

He spent a total of 14 days in hospital, Gerald has permanent blurring in his left eye and always has to wear sunglasses because his eyes are hypersensitive to light.

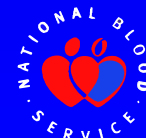
His focus changes constantly so

even glasses won't help. He said: "All I wanted from Boots was an apology. So now the lawyers are dead with it."

Consumer magazine Health Watch said people often assumed all retinalve surgeons are experts but doctors can operate after a course of just a few days.

Boots' website states "there are no known long-term side effects or complications with LASIK."

A spokesman said its clinics operated to the highest standards.



**The number of cases
may be small, but the
quality of investigation is
crucial**



Careful surveillance, reporting and investigation aids in decision making and risk assessment



**Changes in donor selection,
donation testing, and source
of donations have all
followed from examination of
reports**



**2003 saw the first report
of possible transfusion-
transmitted vCJD**





***“You can’t bite me -
I’m British”***

