23 Transfusion-Transmitted Infections (TTI) n=0

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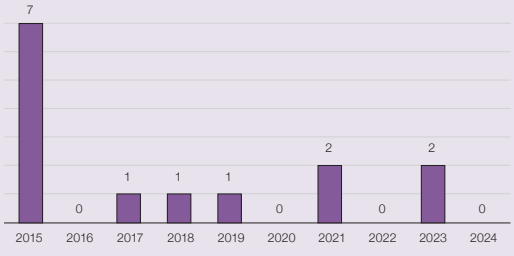
Headline data 2024

Number of reports n=0
Deaths n=0
Major morbidity n=0

Confirmed TTI recipients by year



Key findings:

- No confirmed TTI were reported in 2024
- Two bacterial near miss cases were reported in 2024

Gaps identified:

- Bacterial transfusion transmitted infections are rare due to the mitigations in place such as bacterial screening of platelets however, colleagues are encouraged to check for visually abnormal units and remain alert for transfusion reactions

Good practice:

- Visual inspection of blood component packs by vigilant staff at various steps in the transfusion pathway have helped to reduce TTI
- The United Kingdom (UK) Blood Services store a sample from every blood donation for at least 3 years, allowing testing of these samples if a TTI is suspected
- Use of SHOT data to inform policy and prompts necessary changes to improve safety
- The UK Blood Services continuously monitor infection rates in donors to maintain a safe supply of blood components

Next steps:

- All suspected TTI should be reported for investigation, even though confirmed or probable TTI are rare
- Hospitals are encouraged to report suspected TTI when there are no other obvious risks
- The consultant microbiologist, virologist, and/or other infectious disease experts should be consulted to confirm the diagnosis of a suspected TTI
- Once confirmed, the suspected TTI should be reported to the appropriate UK Blood Service for further investigation

For all abbreviations and references used, please see the **Glossary** and **Reference list** at the end of the full Annual SHOT Report. Please see the supplementary information on the SHOT website (https://www.shotuk.org/shot-reports/annual-shot-report-2024/).

Definition:

Included as a TTI if, following investigation, the recipient had evidence of infection post transfusion, 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 infection.

Or at least one component received by the infected recipient was shown to contain the agent of infection. These may be identified because of infection in the recipient where transfusion is the suspected source, and a post-transfusion infection reported to the Blood Services.

Alternatively, an infection in a recipient may be identified from lookback investigations which are initiated when a donation from a repeat donor is identified as having markers of infection. Archive samples are retrieved for retrospective testing, which may find a previous donation to also be positive but with markers of infection below the detection level of routine screening. In this case further work will be carried out to identify recipients.

Note that for the purposes of the European Union legislation, serious adverse reactions (SAR) are defined as any reactions in patients that are 'life-threatening, disabling or incapacitating, or which result in, or prolongs, hospitalisation or morbidity'. These must be reported to the Medicines and Healthcare products Regulatory Agency (a legal requirement). This includes all confirmed transfusion-transmitted infections.

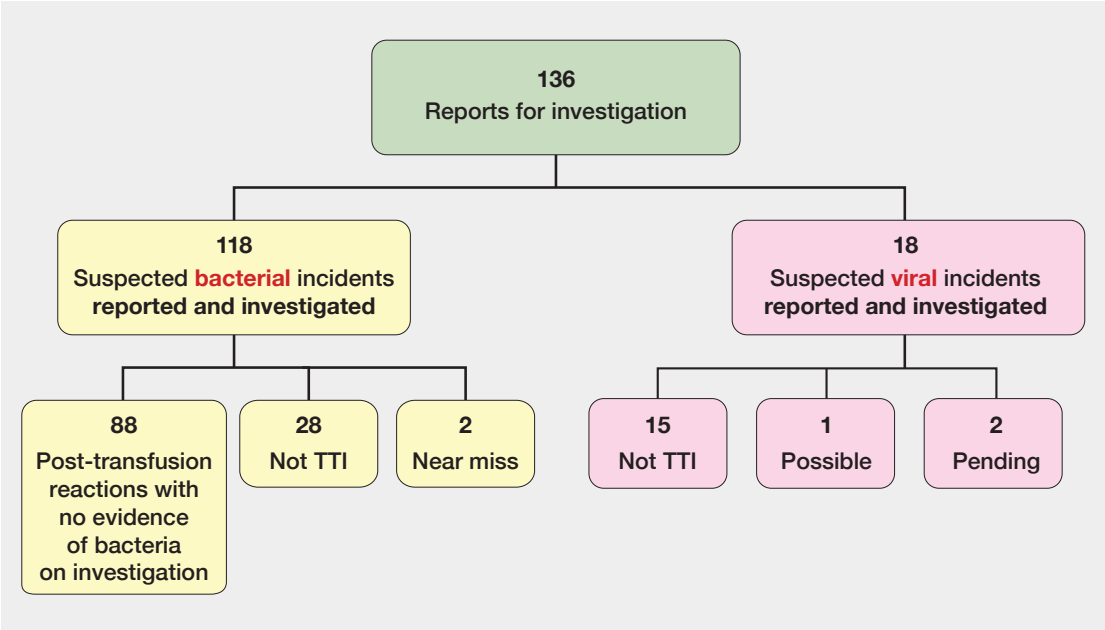
Introduction

This chapter describes suspected TTI incidents investigated by the UK Blood Services and reported to the UK Health Security Agency (UKHSA) and National Health Service Blood and Transplant (NHSBT) joint Epidemiology Unit's surveillance scheme in 2024. Additionally, investigations where the UK Blood Services newly identify infection in a repeat donor and lookback to their previous donation(s) for evidence to exclude transmissions to recipients are reported on.

Summary of investigations in 2024

During 2024, the UK Blood Services investigated 118 suspected bacterial incidents and 18 suspected viral incidents (Figure 23.1).

Figure 23.1: Outcomes of suspected TTI investigated in 2024 and reported to NHSBT/UKHSA Epidemiology Unit for England, Northern Ireland, Scotland, and Wales



Please note:

- *Hepatitis C virus (HCV), hepatitis E virus (HEV), human immunodeficiency virus (HIV) or human T-cell lymphotropic virus (HTLV) identified either before routine screening or through national lookbacks following the implementation of screening are recorded separately and do not form part of the main SHOT numbers*
- *A confirmed TTI is as per the definition with evidence that the virus/bacterium is indistinguishable on molecular typing between patient and donor/donation*
- *A probable TTI is as per the definition, but where molecular typing cannot be carried out to confirm this*
- *A possible TTI is as per the definition, but where prior infection or an alternative source could not be completely excluded*
- *Not a TTI is defined as an investigation that concluded the infection in the recipient was NOT caused by transfusion, either as all indicated donors were traced and none of them were shown to be infected; or there was no evidence of infection in the recipient; or they were shown to be infected already prior to transfusion*
- *A near miss is defined as either an infection that was identified in the unit due to be transfused however the unit was NOT transfused (e.g., bacterial growth seen in the unit and returned to the bacteriology laboratory prior to transfusion for investigation) or an infected donor calls post donation, and the unit is recalled, and infection found in the unit before it is transfused*
- *An undetermined conclusion is when the investigation has been completed as far as possible, however it is not possible to confirm or refute blood transfusion as the cause of infection in recipient*

Deaths and major morbidity related to transfusion n=0

There were no reported deaths or major morbidity cases associated with TTI in 2024.

Near miss n=2

There were two near miss reports in 2024.

Bacterial TTI reports in 2024

In 2024, no reported suspected bacterial TTI investigations were concluded to be confirmed, probable or possible. Two investigations were concluded to be near misses, with *Staphylococcus aureus* identified in both cases as described below.

Case 23.1: Near miss (*Staphylococcus aureus*)

A platelet pack was returned to the Blood Service following the hospital transfusion laboratory noticing a large clump in the pack. The affected pack was a day six apheresis pack, the associated pack was recalled but had already been transfused. Routine bacterial screening remained negative at day seven. Gram staining of the returned pack indicated Gram-positive cocci, organisms were cultured and were identified using matrix-assisted laser desorption/ionisation time-of-flight (MALDI-ToF) as S. aureus. The donor was followed up and no reason was identified that should have prevented them from donating, they volunteered to have nasal swabs taken. S. aureus was isolated from the nasal swabs which were indistinguishable from the pack isolate. Multi-locus sequence typing (MLST) and single nucleotide polymorphism (SNP) analysis using whole genome sequencing showed a single staphylococcus lineage (MLST 5) that is genetically closely related and belonged to the 10 SNP cluster.

The associated platelet pack had been transfused to a patient undergoing regular transfusion. The clinical team followed up the patient who had not experienced any transfusion reaction and remained well seven days post transfusion. The donor has been removed from the donor panel.

Case 23.2: Near miss (*Staphylococcus aureus*)

During quality checking prior to issue, the Blood Service hospital services department noticed a visible clump of approximately 1cm in a pooled platelet pack. This had not been detected by bacterial screening. A sample from the pack was inoculated and Staphylococcus aureus flagged as positive on the BacT/ALERT Virtuo within 5 hours of loading. The original day two sample remained negative on the BacT/ALERT at seven days and was terminally cultured with no growth observed. The four associated red cell units were cultured but there was no growth so the bacteria could not be linked to a single donor.

Since 2011, all four UK Blood Services have used the BacT/ALERT system for bacterial screening, in addition to diversion and arm cleansing. These have been successful in reducing the risk of bacterial TTI (McDonald, et al., 2017). The details are described in Table 23.1.

Table 23.1: Bacterial screening methods used by the UK Blood Services

Blood Service	Time of sampling (hour)	Volume sampled (mL)	Apheresis sample	Time at release (hour)	Length of screening
NHSBT	≥36	2 x 8	Post-split	6	Day 7
NIBTS	≥36	16	Pre-split	6	Day 7
SNBTS	≥36	2 x 8	Pre-split	6	Day 7
WBS	≥36	2 x 8	Post-split	12	Day 7

NHSBT=National Health Service Blood and Transplant; NIBTS=Northern Ireland Blood Transfusion Service; SNBTS=Scottish National Blood Transfusion Service; WBS=Welsh Blood Service

Bacterial TTI 1996-2024

The introduction of bacterial screening of platelets, most recently by England in 2011, has had a significant impact in the numbers of bacterial TTI. However, screening of platelet components cannot guarantee the absence of bacterial contamination. Packs are released for issue as 'negative-to-date' which on rare occasions can be before bacteria have multiplied sufficiently to trigger detection on screening, and growth is seen in the unit before transmission. There have been 19 such near misses, all but two in platelet components, reported between 2011 and 2024. Since reporting began in 1996 there have been 40 bacterial transfusion-transmissions to individual recipients. Of these, 33 were caused by the transfusion of platelets, and 7 by red cells. One red cell case in 1998 also involved fresh frozen plasma (FFP) (Table 23.6). The last confirmed case of bacterial TTI in the UK was in 2015.

Current British Society for Haematology guidance recommends that patients are advised to report any symptoms that occur within 24 hours of transfusion although patients with confirmed bacterial TTI generally become unwell very rapidly, often during transfusion (Soutar, et al., 2023). Clinical teams are reminded that any suspected bacterial TTI should be discussed with the relevant Blood Service so that, if appropriate, packs can be returned for culture and any other associated packs recalled.

Viral TTI reports in 2024

In 2024, there were 18 suspected viral TTI investigated. This included 4 incidents where blood that hadn't been tested for cytomegalovirus (CMV) was used in an emergency, when under ideal circumstances, CMV-negative blood components should have been requested. CMV testing was completed retrospectively in these instances. Such investigations are not further explored in this chapter as they do not fulfil the definition of a TTI. These are included in the figures described in Chapter 9, Incorrect Blood Component Transfused (IBCT), of this Annual SHOT Report.

One possible HCV transmission was identified from a transfusion in 1993; a window period donation could not be completely excluded since the donor tested negative for anti-HCV antibodies, but HCV nucleic acid testing (NAT) was not available at the time of testing. This donor has not donated since the implicated donation and the donor was not traceable in the UK to arrange further testing.

In addition, 2 HCV TTI were reported in recipients transfused before routine HCV screening by SNBTS. These related to HCV lookbacks and have therefore not been included in the data below or in the tables as they had been previously reported.

Revision to the data

In very recent years prior to this Annual SHOT Report, the total annual number of investigations reported in this chapter included some SNBTS cases involving recipients transfused many years in the past, most often before the introduction of screening. These were reported in the body of the Annual SHOT Reports alongside Figure 1, but since the transfusion date was prior to screening and none were confirmed TTI, they were not reported in the tables, as per the definition.

Confirmed viral TTI 1996-2024

The transfusion may have occurred several years before the suspected infection is investigated and/or reported to SHOT due to the chronic nature, and possible late recognition, of some viral infections. Since 1996, 33 confirmed transfusion-transmitted viral infections have been documented in the UK. Among these, HBV (n=11) and HEV (n=12) were the most reported proven viral TTI. For HBV, this is partly because the 'window period' is longer than for HCV or HIV, despite NAT screening of blood donations. A 'window period' is where an infectious donation from a recently infected donor cannot be detected by the screening tests. Since 2022, hepatitis B core antibody (anti-HBc) screening has been undertaken to reduce the risk of HBV transmission from donors with occult HBV.

All except 2 of the 12 HEV transmissions were reported before the HEV ribonucleic acid (RNA) testing was introduced in April 2017 in the UK (Harvala, et al., 2022). This has identified and removed 3344 HEV RNA positive blood donations from the UK blood supply to end of 2024. The rate of HEV RNA detected among donors is greater than other viral infections because it is generally acquired through food, and there is no specific donor selection criteria to minimise donations from those infected.

Lookback investigations

Lookback investigations are initiated by the Blood Service in England when repeat donors are found to be newly positive for a marker of infection. This can be either due to donor seroconversion, post-donation information or introduction of new test. These investigations may involve contacting hospital and primary care teams. Anti-HBc testing was rolled out for UK blood donations from April 2022. All anti-HBc repeat reactive donations are discarded and confirmatory HBV deoxyribonucleic acid (DNA) testing is done on individual donation samples. The implementation strategy varied by country: Scotland began screening all current donors from 05/04/2022, and subsequently tested donations from new and returning donors; Northern Ireland started screening all donations from 30/05/2022; Wales started screening all donations from 27/05/2022; England from 31/05/2022. England's capacity to screen all donations increased with time; donations with repeat reactive anti-HBc and anti-HBs over 100IU/L on screening were discarded without additional confirmatory testing; all screen anti-HBc reactives had confirmatory tests from March 2023; and functionality to allow screening of all donors once only rather than testing at every donation started from May 2023 in England.

During 2024, NHSBT initiated investigations prompted by 11 donors with newly detected markers of infection known to have previously donated (Table 23.2). Fourteen archive samples were available for testing from nine of these donors. Investigations involved 17 previous donations, with 22 of 29 components issued known to be transfused. Of the 22 recipients identified, seven were alive and tested, with four found to have no evidence of transmission, three recipient test results are pending. In lookback investigations, test results confirming negative recipient status include anti-HBc negativity six months post transfusion for HBV, no treponemal antibodies detected for syphilis or no RNA and IgG/IgM antibodies at six months post transfusion for HEV.

Table 23.2: Summary of lookback investigations in England, 2024

	B19	HAV	HCV	HEV	HIV	OBI	Syphilis	Total
Donors with a previous donation identified as positive in retrospective testing	1	1	1	1	1	4	2	11
Archive samples available for testing	1	1	0	0	1	8	3	14
Donations by these donors considered here	1	1	1	1	1	10	2	17
Total components from these donations	**1**	**1**	**2**	**3**	**2**	**16**	**4**	**29**
Cryoprecipitate	0	0	0	0	1	4	1	6
FFP	0	0	0	1	0	1	0	2
Plasma for medicine	0	0	0	2	0	0	1	3
Platelets	0	0	1	0	0	1	1	3
Red cells	0	1	1	0	1	10	1	14
Not known	1	0	0	0	0	0	0	1
Components reported as transfused (recipients transfused)	**0**	**1**	**2**	**3**	**1**	**14**	**1**	**22**
Recipient identified but deceased	0	0	1	2	1	10	1	15
Recipient identified and alive	0	1	1	1	0	4	0	7
Recipient status unknown	0	0	0	0	0	0	0	0
Recipients tested	**0**	**1**	**1**	**1**	**0**	**4**	**0**	**7**
Recipient tested positive	0	0	0	0	0	0	0	0
Recipients tested negative	0	1	0	0	0	3	0	4
Recipient test pending	0	0	1	1	0	1	0	3

Lookback investigations that were reported as pending in the 2023 Annual SHOT Report included two malaria and one HIV investigations (Narayan, et al., 2024), and have been since concluded with no transmisison.

Other reports

Not all reports proceed to a full investigation if transmission can be ruled out, as in some examples below.

- If a recipient tests positive for only antibodies to infection, it is possible that passive transfer of antibodies has occurred due to receipt of intravenous immunoglobulin. If passive transfer is suspected, repeat testing should be carried out 4-6 weeks after the transfusion date. If it is the passive transfer of antibodies, then reactivity should have resolved within this time, and the recipient will not have any evidence of infection
- In recipients where only IgM antibodies are detected, reactivity for RNA/DNA and seroconversion (e.g., IgG) would also need to be confirmed before TTI investigations commenced. This is because IgM assays are often cross-reactive and non-specific, so isolated IgM reactivity is not usually diagnostic
- In recipients with evidence of a chronic infection, previous negative results are desired. This is to evidence transfusion as being the most likely source of infection
- For older cases of possible TTI, year of transfusion should be provided for the implicated transfusions in addition to the unit numbers to enable effective investigation by the Blood Services

Residual risk of HBV, HCV, or HIV

The chance, or residual risk, of a potentially infectious HBV, HCV or HIV ‘window period’ donation not

being detected on testing in the UK are estimated to be very low at less than 1 per million donations tested (Table 23.3) (JPAC, 2024a). The 'window period' is the time very early in the course of infection when tests in use do not detect the virus but there may be a sufficient amount for transmission. The calculations are made annually, but for HBV only consider the risk of non-detection of acute infections and not the risk of non-detection of an occult hepatitis B virus infection (OBI). The residual risk of HEV is not routinely calculated but has been previously estimated to be considerably higher than for HBV, HCV, or HIV. However, while HEV is a blood borne virus, the main route of transmission is zoonotic with humans generally exposed through diet (Harvala, et al., 2022).

Table 23.3: The estimated residual risk that a donation entering the UK blood supply is a potentially infectious HBV, HCV, or HIV window period donation: 2021-2023

	HBV	HCV	HIV
Number per million donations	0.70	<0.01	0.05
95% confidence interval	*(0.48-2.50)*		*(0.01-0.08)*
At 1.8 million donations per year, testing will miss a potentially infectious window period donation every:	1 year	50 years	10 years

Far fewer TTI are observed in practice than the estimated risks in Table 23.3 indicate, partly because the estimates have wide uncertainty, and the model used to calculate risk is based on the risk in all donations tested. The model does not incorporate pack non-use, recipient susceptibility to infection, or under-ascertainment/under-reporting, for example due to recipients dying from an underlying medical condition before a chronic asymptomatic viral condition is identified, or, in the case of HBV, an asymptomatic acute infection.

Blood donation testing and surveillance

Every blood donation in the UK is tested for markers of HBV, HCV, HEV, HIV, and syphilis, with some donations also tested for malaria, *Trypanosoma cruzi* and West Nile virus, depending on donor history. HTLV testing is undertaken for new donors and non-leucodepleted blood components at NHSBT and SNBTS; and in all donors for NIBTS and WBS. Information about donations tested and donors found positive is carefully monitored to help assure safety for recipients (NHSBT and the UKHSA Epidemiology Unit, 2024).

Anti-HBc screening for blood donations was rolled out as part of routine screening across the UK in 2022 in response to a review carried out by the Advisory Committee on the Safety of Blood, Tissues and Organs (SaBTO) (Department of Health and Social Care, 2023). This increased detection of potentially transmissible HBV from donors with OBI, which have been removed from the blood supply.

HEV NAT screening of apheresis donations was changed from pooled to individual donations for WBS from November 2022, for SNBTS from April 2024 and NIBTS from November 2024. HEV testing at NHSBT is done on pooled donations.

Donations of plasma for medicine are tested for markers of hepatitis A virus (HAV) and parvovirus B19. In April 2024, screening began on frozen samples of donations collected in 2024 but will move to real-time screening in 2025. Screening started in Scotland from July 2024. The HEV screening process is currently under review by SaBTO, the report is expected to be published in 2025.

Emerging infections

Horizon scanning is performed by UK Blood Services to identify new and emerging pathogens which may threaten the safety of donated blood components, and to ensure that appropriate actions are taken to mitigate any risk identified (JPAC, 2024b).

The Emerging Infection Report produced by the NHSBT/UKHSA Epidemiology Unit is distributed monthly. This is reviewed by the Standing Advisory Committee on Transfusion-Transmitted Infection and may lead to further risk assessment and changes to the donor selection guidelines, or other blood safety measures, where necessary (JPAC, 2025).

Variant Creutzfeldt Jakob disease (vCJD) 2024

There were no vCJD investigations in 2024.

vCJD 1996-2024

Three vCJD incidents took place prior to the introduction of leucodepletion and other measures taken by the UK Blood Services to reduce the risk of vCJD transmission by blood, plasma, and tissue products. All these measures have been reviewed and endorsed by SaBTO (Department of Health and Social Care, 2013). Surveillance continues to look for any evidence that vCJD or CJD could still be transmitted via the blood supply with no case of vCJD being identified for investigation since 2016 and no evidence of sporadic CJD being transmitted by the blood supply (NCJDRSU, 2023). Several countries have removed their blood donor deferral for people who had spent time in the UK between 1980 and 1996, these include Australia, Canada, Republic of Ireland, and the US with the Food and Drug Administration (FDA) also removing the deferral for people who have received a transfusion in the UK since 1980 (FDA, 2022; Hoad, et al., 2023; AABB, 2023; IBTS, 2019).

Table 23.4: Number of confirmed TTI incidents, by infection, reported to NHSBT/UKHSA Epidemiology Unit for England, Northern Ireland, Scotland, and Wales, with transfusions between October 1996 and December 2024 (Scotland included from October 1998)

Year of transfusion	Bacteria	HAV	HBV	HCV	HEV	HIV	Malaria	Parvovirus (B19)	vCJD or prion	Total
1996	1	1	1	1	0	1(3)	0	0	1	6 (8)
1997	3	0	1	1	0	0	1	0	2	8
1998	3	0	1	0	0	0	0	0	0	4
1999	4	0	2 (3)	0	0	0	0	0	0 (1)	6 (8)
2000	6	1	1	0	0	0	0	0	0	8
2001	5	0	0	0	0	0	0	0	0	5
2002	1	0	1	0	0	1	0	0	0	3
2003	2	0	1	0	0	0	1	0	0	4
2004	0	0	0	0	1	0	0	0	0	1
2005	1	1	1	0	0	0	0	0	0	3
2006	2	0	0	0	0	0	0	0	0	2
2007	2	0	0	0	0	0	0	0	0	2
2008	4 (6)	0	0	0	0	0	0	0	0	4 (6)
2009	2 (3)	0	0	0	0	0	0	0	0	2 (3)
2010	0	0	0	0	0	0	0	0	0	0
2011	0	0	1 (2)	0	1 (2)	0	0	0	0	2 (4)
2012	0	0	0	0	2	0	0	1	0	3
2013	0	0	0	0	0	0	0	0	0	0
2014	0	0	0	0	1 (2)	0	0	0	0	1 (2)
2015	1	0	0	0	5 (6)	0	0	0	0	6 (7)
2016	0	0	0	0	0	0	0	0	0	0
2017	0	1	0	0	0	0	0	0	0	1
2018	0	0	0	0	1	0	0	0	0	1
2019	0	0	0	0	1	0	0	0	0	1
2020	0	0	0	0	0	0	0	0	0	0
2021	0	0	1 (2)	0	0	0	0	0	0	1 (2)
2022	0	0	0	0	0	0	0	0	0	0
2023	0	1	0	0	0	0	1	0	0	2
2024	0	0	0	0	0	0	0	0	0	0
Total number of incidents (recipients)	**37 (40)**	**5**	**11 (14)**	**2**	**12 (15)**	**2 (4)**	**3**	**1**	**3 (4)**	**76 (88)**

Table 23.5: Number and type of implicated components from confirmed TTI recipients, reported to NHSBT/UKHSA Epidemiology Unit for England, Northern Ireland, Scotland, and Wales, with transfusions between October 1996 and December 2024 (Scotland included from October 1998)

Year of transfusion	Cryoprecipitate	FFP	Platelet - apheresis	Platelets - pooled	Red blood cells	Total
1996	0	0	0	4	4	**8**
1997	0	0	1	1	6	**8**
1998	0	1	2	0	2	**5**
1999	0	0	1	2	5	**8**
2000	0	0	3	4	1	**8**
2001	0	0	1	4	0	**5**
2002	0	0	0	1	2	**3**
2003	0	0	1	2	1	**4**
2004	0	0	0	0	1	**1**
2005	0	0	0	2	1	**3**
2006	0	0	1	1	0	**2**
2007	0	0	0	0	2	**2**
2008	0	0	4	2	0	**6**
2009	0	0	2	0	1	**3**
2010	0	0	0	0	0	**0**
2011	0	4	0	0	0	**4**
2012	0	1	0	1	1	**3**
2013	0	0	0	0	0	**0**
2014	0	2	0	0	0	**2**
2015	1	3	0	2	1	**7**
2016	0	0	0	0	0	**0**
2017	0	0	1	0	0	**1**
2018	0	0	1	0	0	**1**
2019	0	0	1	0	0	**1**
2020	0	0	0	0	0	**0**
2021	0	2	0	0	0	**2**
2022	0	0	0	0	0	**0**
2023	0	0	0	0	2	**2**
2024	0	0	0	0	0	**0**
Total number of implicated components	**1**	**13**	**19**	**26**	**30**	**89**

Table 23.6: Outcome of confirmed TTI incidents and implicated components by infection, reported to NHSBT/UKHSA Epidemiology Unit for England, Northern Ireland, Scotland, and Wales, with transfusions between October 1996 and December 2024 (Scotland included from October 1998)

	Bacteria	HAV	HBV	HCV	HEV	HIV	Malaria	Parvovirus (B19)	vCJD or prion	Total number of incidents (total number of recipients)
Outcomes										
Death due to, or contributed to, by TTI	7 (8)	0	0	0	2	0	1	0	3 (4)	**13 (15)**
Major morbidity	5 (6)	2	5 (6)	0	8 (11)	2 (4)	2	1	0	**25 (32)**
Minor morbidity or not reported, or unkown	25 (26)	3	6 (8)	2	2	0	0	0	0	**38 (41)**
Implicated component types										
Cryoprecipitate	0	0	0	0	1	0	0	0	0	**1 (1)**
Fresh frozen plasma	0 (1)	0	2 (4)	0	5 (8)	0	0	0	0	**7 (13)**
Platelets	30 (33)	3	1 (2)	0	4	1 (3)	0	0	0	**39 (45)**
Red blood cells	7	2	8	2	2	1	3	1	3 (4)	**29 (30)**

Accompanying notes for Tables 23.4, 23.5 and 23.6

- *TTI of HCV, HEV, HIV or HTLV identified either before routine screening or through national lookbacks following the implementation of screening are recorded separately and do not form part of the main SHOT numbers*
- *Where applicable, number of recipients are included in brackets*
- *One recipient in 1998 received both red cells and FFP*
- *To the end of 2024, no routine blood donation screening has ever been in place for vCJD*
- *During 2024 HAV and parvovirus (B19) screening was implemented by UK Blood Services to facilitate collection of plasma for fractionation*
- *HTLV screening began in 2002*
- *HEV RNA screening began in April 2017 in the UK and was not in place at the time of the documented transmissions*
- *In the early malaria transmissions (1997, 2003), malaria antibody testing was not applicable at the time according to information supplied at donation*
- *HCV investigations where the transfusion was prior to screening are not included in the above table*
- *The year of transfusion may be prior to year of report to SHOT due to delay in recognition of chronic infection*
- *The two early HIV incidents (pre-1996 and in 1996) were associated with window period donations (anti-HIV negative/HIV RNA positive) before HIV NAT screening was in place. A third window period donation in 2002 was transfused to an elderly patient, who died soon after surgery. The recipient's HIV status was therefore not determined and not included*
- *In 2004 there was an 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. This case was classified as 'not transfusion-transmitted'*
- *The vCJD case in 1999 was found to have the same blood donor as one of the 1997 transmissions*

and has therefore been counted as the same incident. Please note this was counted as two separate incidents in previous reports

- *A further prion case died but transfusion was not implicated as the cause of death. The outcome was assigned to major morbidity instead because although there was post-mortem evidence of abnormal prion proteins in the spleen the patient had died of a condition unrelated to vCJD and had shown no symptoms of vCJD prior to death*

For further information or alternative breakdown of data please contact the National Coordinator for Transfusion Transmitted Infections via the NHSBT/UKHSA Epidemiology Unit at epidemiology@nhsbt.nhs.uk.

Conclusion

Investigations of 136 reports of possible TTI in 2024 resulted in no confirmed transmissions (bacterial, viral or parasite).

This provides assurance of the safety of the UK blood supply as a result of the effective measures and haemovigilance systems in place to reduce TTI. Policies and procedures are constantly reviewed to see if any other mitigations are required, most recently SaBTO have reviewed current testing for occult hepatitis B resulting in additional tests being introduced to further reduce the risk of transmission of hepatitis B (Department of Health and Social Care, 2023). During 2024, HAV and parvovirus (B19) screening was implemented by UK Blood Services to facilitate collection of plasma for medicines.

Continued vigilance is needed, as highlighted by the two near miss cases investigated in 2024, which contributes to the haemovigilance of the blood supply.

Transfusion safety relies on rigorous microbiological vigilance at every step, from donor selection to post-transfusion monitoring. Bacterial contamination, viral transmission and other infection risks, though rare, can have serious consequences. As highlighted in the Infected Blood Inquiry: *'To ensure the greatest possible safety, we need to avoid complacency. There is no basis for assuming that threats are all in the past: but watchfulness and learning the lessons of what happened in the infected blood disaster are critical to this'* (IBI, 2024). Ensuring microbiological safety is not a single step; it is a chain of shared responsibility.

Recommended resource

Number of recipients with confirmed/probable Transfusion-Transmitted Infections (TTI)
Number of recipients with confirmed/probable Transfusion-Transmitted Infections (TTI) - Serious Hazards of Transfusion