



THE SOUTH AFRICAN HAEMOVIGILANCE REPORT

2025



NHVC

NATIONAL
HAEMOVIGILANCE
COMMITTEE

Haemovigilance Report 2025

The 26th South African Haemovigilance Report

Privacy Statement

Every reasonable effort has been made to not identify individual patients, clinicians or healthcare institutions in this report.

Disclaimer

This document is a general report only. Reporting of haemovigilance data to the national Haemovigilance Programme is voluntary and data validation is not performed in all instances. The report's data, analysis and conclusions are intended to provide healthcare professionals and the public with general information regarding haemovigilance surveillance in South Africa. This report is an overview of currently available data that has been obtained from limited sources from all provinces in South Africa.

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We encourage a higher level of reporting, which leads to proactive development of a system that identifies transfusion risks, so that appropriate measures can be taken to improve transfusion safety.

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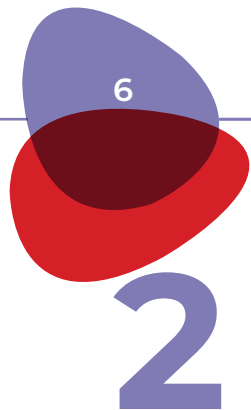
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Abbreviations

AHTR	acute haemolytic transfusion reaction	ISBT	International Society of Blood Transfusion
API	alternate products issued	IVI	intravenous infusion
ARV	antiretroviral drug	NHVC	National Haemovigilance Committee
BTS	blood transfusion services	NICD	National Institute of Communicable Diseases
COVID	coronavirus disease 2019 (COVID-19)	NM	near miss
CT	computed tomography	PM	post mortem
DAE	donor adverse event	RBC	red blood cell
DAT	direct antiglobulin test	RCC	red cell concentrate (the type of red cell product, linked to how the unit is processed)
DTLB	donor-triggered lookback	SAE	serious adverse event
EWSB	emergency ward stock blood	SDAE	serious donor adverse event
FAHR	febrile, allergic, hypotensive reaction	SANBS	South African National Blood Service
FFP	fresh frozen plasma	SHOT	<i>Serious Hazards of Transfusion</i> (UK Annual Report)
FNHTR	febrile non-haemolytic transfusion reaction	SOP	standard operating procedure
GMP	good manufacturing practice	SSCP	Second Sample Crossmatch Policy
GP	general practitioner	TACO	transfusion-associated circulatory overload
Hb	haemoglobin	TAD	transfusion-associated dyspnoea
HBV	hepatitis B virus	TRAE	transfusion-related adverse event
HCV	hepatitis C virus	TRALI	transfusion-related acute lung injury
HIV	human immunodeficiency virus	TTI	transfusion-transmitted infection
HLA	human leukocyte antigen	WBIT	wrong blood in the tube
HNA	human neutrophil antigen	WCBS	Western Cape Blood Service
IAT	indirect antiglobulin test		
IBCT	incorrect blood component transfusion		
ICU	intensive care unit		
ID-NAT	individual donation nucleic acid amplification test		
ID-NAT yield	a donation which tests ID-NAT repeat reactive but serology (anti-HIV, HCV & HBsAg) negative		



Definitions

Definitions Pertaining to the Haemovigilance System

The definitions aim to standardise the reporting of all haemovigilance events to improve blood safety. Definitions have been obtained from the *International Society of Blood Transfusion (ISBT) Working Party on Haemovigilance – Proposed Standard Definitions for Surveillance of Non-Infectious Adverse Transfusion Reactions¹ (2011)*, as amended (available at www.isbt.org).

Haemovigilance comprises surveillance procedures covering the whole transfusion chain, from collection of blood (components) to follow-up of its recipients. It assesses information on undesirable transfusion effects, to prevent their occurrence. These include local venepuncture accidents, iron depletion, graft-versus-host disease and mild to severe transfusion reactions.

Donor haemovigilance is the systematic monitoring of adverse reactions and incidents in the whole chain of blood donor care, with a view to improving quality and safety for blood donors.

An **adverse event** is an undesirable and unintended occurrence before, during or after transfusion of blood or a blood component, which may be related to the administration of the blood or component. It may be the result of an error or an incident and it may or may not result in a reaction in a recipient.

An **incident** is a case where the patient is transfused with a blood component which did not meet all the requirements for a suitable transfusion for that patient, or that was intended for another patient. An incident is thus comprised of transfusion errors and deviations from standard operating procedures (SOPs) or hospital policies, leading to an incorrect blood component transfusion. An incident may or may not lead to an adverse reaction.

A **near miss (NM) event** refers to any error which, if undetected, could have resulted in the determination of a wrong blood group or in transfusion of an incorrect component, but which was recognised *before* the transfusion took place.

An **adverse reaction** is an undesirable response or effect in a patient, temporally associated with the administration of blood or blood components. It may, but need not, be the result of an incident.

A **serious adverse reaction** refers to an unintended response in a donor or in a patient associated with the collection or transfusion of blood or blood components that is fatal, life threatening, disabling or incapacitating, or which results in, or prolongs, hospitalisation or morbidity.

Category of Adverse Reaction	Definition
Acute transfusion reaction	Transfusion-related reaction that occurs at any time during or up to 24 hours following transfusion of blood or components. The most frequent reactions are fever, chills, pruritus or urticaria, which typically resolve promptly without specific treatment or complications.
Haemolytic transfusion reaction	Reaction where there are symptoms and clinical or laboratory signs of increased destruction of transfused red blood cells. Haemolysis can occur intravascularly or extravascularly and can be immediate (acute) or delayed.
Acute haemolytic transfusion reaction	Rapid destruction of red blood cells immediately after or within 24 hours of a transfusion. Clinical or laboratory signs of haemolysis are present. No single criterion exists to definitively diagnose this rare disorder. It is commonly associated with fever, chills/rigors and other symptoms/signs of haemolysis, and confirmed by a fall in haemoglobin, a rise in lactate dehydrogenase, a positive direct antiglobulin test (DAT) and incompatible crossmatch.
Allergic transfusion reaction	The result of an interaction of an allergen with preformed antibodies. In some instances, infusion of antibodies from an atopic donor may also be involved. It may present with only muco-cutaneous signs and symptoms. Minor allergic reaction: Reaction limited to the skin, with or without a rash. Severe allergic reaction: Reaction with risk to life occurring within 24 hours of transfusion, characterised by bronchospasm causing hypoxia or angioedema causing respiratory distress.
Transfusion-associated dyspnoea	Respiratory distress within 24 hours of transfusion that does not meet the criteria of transfusion-related acute lung injury, transfusion-related circulatory overload or severe allergic reaction, and cannot be explained by the patient's underlying condition.
Hypotensive transfusion reaction	Hypotension manifesting as a drop in systolic blood pressure of ≥ 30 mmHg occurring during or within one hour of completing transfusion AND a systolic blood pressure of ≤ 80 mmHg, provided all other adverse reactions with underlying conditions that could explain hypotension have been excluded. May be accompanied by facial flushing and gastrointestinal symptoms.
Transfusion-associated circulatory overload	The presence of acute or worsening respiratory compromise and/or evidence of pulmonary oedema during or up to 12 hours after transfusion, and a total of THREE OR MORE of the following: - Acute or worsening respiratory compromise - Evidence of acute or worsening pulmonary oedema - Evidence for cardiovascular changes not explained by the patient's underlying medical condition - Evidence of fluid overload - Supportive result of a relevant biomarker

Category of Adverse Reaction	Definition
Transfusion-related acute lung injury	Acute hypoxemia with PaO₂ fraction of inspired oxygen (FiO₂) ratio of 300 mmHg or less combined with chest x-ray showing bilateral infiltrates in the absence of left atrial hypertension (i.e. circulatory overload). There is abrupt onset in association with transfusion. The patient must have no evidence of acute lung injury prior to transfusion. Criteria for diagnosis include ALL the following: i. Acute onset ii. Hypoxaemia iii. Bilateral infiltrates on chest x-ray iv. No evidence of circulatory overload v. No temporal relationship to an alternative risk factor for acute lung injury during or within six hours of the completion of transfusion The diagnosis does not require the presence/evidence of anti-HLA (human leukocyte antigen) or anti-HNA (human neutrophil antigen) antibodies in donor(s) nor the confirmation of cognate antigens in the recipient.
Anaphylactic transfusion reaction	Presentation is usually during or shortly after transfusion, and in addition to the muco-cutaneous features such as urticaria and rash, there is airway compromise or severe hypotension requiring vasopressor treatment. The respiratory signs and symptoms may be laryngeal (stridor, hoarseness, tightness in the throat) or pulmonary (dyspnoea, cough, wheeze, hypoxaemia). Circulatory compromise may present as syncope or hypotonia.
Febrile non-haemolytic transfusion reaction	Criteria for mild febrile non-haemolytic transfusion reaction: i. Fever $\geq 38^{\circ}\text{C}$ oral or equivalent AND ii. A change of $\geq 1^{\circ}\text{C}$ from pre-transfusion value Reaction occurs during or within four hours following transfusion, and without evidence of haemolysis or bacterial contamination. May be accompanied by rigors, headache and nausea. Criteria for severe febrile non-haemolytic transfusion reaction: i. Fever $\geq 39^{\circ}\text{C}$ AND a change of $\geq 2^{\circ}\text{C}$ from pre-transfusion value ii. The increase in temperature may or may not be associated with chills/rigors
Mixed febrile/allergic reaction	Features of both allergic and febrile reactions, at least one of which is in the severe category.
Delayed haemolytic transfusion reaction	The recipient develops antibodies to red blood cell antigens. This usually manifests between 24 hours and 28 days following a transfusion, and clinical or biological signs of haemolysis are present. In practice, these are usually delayed haemolytic reactions due to the development of red cell antibodies. Simple serological reactions, such as antibody development without a positive direct antiglobulin test or evidence of haemolysis, are excluded.

Category of Adverse Reaction	Definition
Delayed serologic transfusion reaction	Demonstration of new clinically significant alloantibodies against red blood cells between 24 hours and 28 days following transfusion, despite an adequate haemoglobin response to transfusion that is maintained (i.e. no clinical or laboratory features of haemolysis).
Post-transfusion purpura	Thrombocytopenia arising five to 12 days following transfusion of cellular blood components, associated with the presence in the patient of alloantibodies directed against the human platelet antigen system.
Transfusion-associated graft-versus-host disease	The introduction of immunocompetent lymphocytes into a susceptible host. The allogeneic lymphocytes engraft, proliferate and destroy host cells. Symptoms develop within 30 days of transfusion, presenting with fever, rash, liver function abnormalities, diarrhoea, pancytopenia and bone marrow hypoplasia.
Transfusion-transmitted infection	The recipient has evidence of infection following a transfusion, but no clinical or laboratory evidence of infection prior to transfusion. Either at least one component received by the infected recipient was from a donor with evidence of the same infection or at least one component received by the infected recipient was shown to have been contaminated with the same organism.
Transfusion-transmitted viral infection	As per the definition for a transfusion-transmitted infection, but specifically related to a virus. The most common viruses associated with transfusion-transmitted viral infections are human immunodeficiency virus, hepatitis B and hepatitis C.
Transfusion-transmitted bacterial infection	Detection by approved techniques of the same bacterial strain in the recipient's blood and in the transfused blood product. Probable cases of transfusion-transmitted bacterial infection include evidence of infection in the recipient following a transfusion when there was no evidence of infection before transfusion and no evidence of an alternative source of infection.
Transfusion-transmitted parasitic infection	Detection of the parasite of infection in the recipient's blood and the same parasite or specific antibodies in the donor blood.
Incorrect blood component transfusion	All reported episodes where a patient was transfused with a blood component or plasma product that did not meet the requirements or that was intended for another patient.
Misdirected transfusion	Classified as an incorrect blood component transfused (IBCT). The error occurs when a patient receives blood intended for someone else. This usually happens during bedside administration if healthcare staff skip mandatory patient identification and verification checks.

Definitions Used Within This Report

Donor: A person who attends a blood donation collection site, completes a donor questionnaire and is assigned a serial number. This includes whole blood and apheresis donors.

All whole blood donations: Includes all whole blood donations (also called 'needle-in-arm events') excluding therapeutic dry pack donors and donors who present for testing purposes only (e.g. cross-reactive donors). This excludes apheresis donations as this number is used for assessing red blood cell collection and usage.

All donations: The total number of donations including whole blood, apheresis and therapeutics donations, but excludes donors presenting for test purposes. This number is used for calculating the rate of donor adverse events and serious donor adverse events per 100 000 donations.

Red blood cell collections: The total number of 'valid' whole blood units available to blood banks (i.e. all donations minus insufficient units, transfusion-transmitted infection-positive units and units compromised during processing).

Red blood cell usage: The total red cell products issued (excluding reserved products).

Buffer stock: The number of units available to mitigate any shortfall between red blood cell collections and issues, thus protecting security of supply.

Cutbacks (also called restrictive issues): A mechanism used to manage limited blood supplies. The process entails issuing fewer units than have been requested and is mainly applied to group O patients and never to paediatric patients or emergency patients.

Transfusion rate: The total number of red blood cell units issued as a function of the size of the reference population and expressed per thousand members of said population. Thus, the national transfusion ratio is calculated as: $\text{total number of units issued} \times (1/\text{population size}) \times 1\,000$. The same formula is used for determining the provincial blood transfusion ratio.

Alternate product issued: When the product requested is not available in the blood bank, an alternate product is issued instead and this is done in consultation with the clinician. Typical examples include standard red blood cells instead of leucodepleted red blood cells; pooled platelets instead of apheresis platelets; adult red blood cell unit for use in paediatrics.

Donor-triggered lookback investigation: A process whereby the recipient(s) of the previously negative units are identified and their treating doctors are notified that the donor has donated recently and tested positive for a viral marker. As far as possible, the patient(s) are recalled, counselled and tested for the relevant viral marker and the results are reported to the blood transfusion services.

Recipient-triggered lookback investigation: Initiated when the blood transfusion services are informed that a blood recipient has tested positive for a transfusion-transmitted infection and that the infection may have been the result of a blood transfusion. The implicated donor(s) are identified and their donation history reviewed. Where subsequent donations do not prove that the donor was not in a window period for the infection, the implicated donor(s) are recalled for further testing.

Window period: Time between contracting a particular infection and it becoming detectable by a particular test method.

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Foreword

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The
Haemovigilance
Programme has
truly become
a national
programme!

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The big questions are, have we improved over the past five years and how do we judge this in an evolving haemovigilance programme? In reflecting on these questions, it is worth considering Kaplan et al.'s view that “the best indicator of acceptance of a no fault, no fear form of reporting by people is an increase in the number of incidences reported”².

There has been a gradual increase in the number of incident reports in all categories – mild, severe and near miss (NM) events. It is pleasing to note an increase in NM events, especially those that are reported by hospital staff. We interpret this as the beginning of a trust relationship as the healthcare professionals realise the importance of identifying errors or potential errors, without fear of action being taken against them. The incorrect blood component transfusion (IBCT) continues to be a concern, but the increase of reporting of compatible units transfused in error is another indication that there is trust in the process of voluntary no fault, no fear reporting.

Credit for the increased awareness of the Haemovigilance Programme in South Africa, the improvement in application of definitions and much-improved data collection must be given to the blood transfusion staff working in the blood banks and the trainers going out to educate healthcare workers and blood transfusion services (BTS) staff. A similar momentum is being observed on the donor side of the blood service, with donor lookback staff providing vital follow-up statistics and collection staff fine-tuning a system to report severe donor reactions which require care over and above that provided by the BTS. These people have made an impact in an environment where the challenges of a resource-strained healthcare system are increasing year on year.

We appreciate all the staff who have investigated cases, provided information and tirelessly answered our queries. Without identifying the risks and errors we cannot educate and forewarn our colleagues of the current risks of transfusion. Education is paramount to improve patient safety.

None of this would be possible without the work of Haemovigilance Officers and the members of the National Haemovigilance Committee (NHVC) who, over the years, have reviewed the definitions, procedures and strategies of two blood services operating in different circumstances but focused on the same goal – to provide safe blood for patients in South Africa. The Haemovigilance Programme has truly become a national programme!

Executive Summary

In this 26th edition of the *South African Haemovigilance Report*, we provide an overview of blood product usage and serious adverse events (SAEs) related to transfusion and blood donation in the country during the 2025 calendar year.

A notable change from the previous reporting period is an improvement, albeit slight, in red blood cell (RBC) usage and blood transfusion rate. This improvement arrests a steady decline that started in 2022, and may well represent growing recovery of the clinical platforms, especially those in the public sector. The transfusion rate for the period being reviewed was calculated at 16.48/1 000 population, marginally up from the 16.34/1 000 reported in 2024. This transfusion rate should, however, be viewed against a total population that also grew by an estimated 1.23% from the previous year, and is perhaps therefore not meaningful in real terms. In contrast, the provincial transfusion rate shows declines in most provinces, with only three provinces showing slight to marked increases in blood usage. A five-year review of transfusion patterns in the provinces confirms these findings as not being an outlier because it reveals a worrying picture of chronic under-utilisation to varying degrees depending on the province.

In a first for this report, the authors conducted a sub-analysis of usage patterns by sector, and this included public vs private sector and tertiary vs non-tertiary service platforms in the public sector. Through this exercise, separate transfusion rates were determined for the public and private sectors and the result confirms that using only a consolidated national transfusion ratio overstates blood usage in the public sector. For increased usage to be realised in the public sector, a sector-specific transfusion rate should be utilised. That notwithstanding, the analysis confirmed that transfusion practices in the private sector closely mirror those in European countries.

The *2025 Haemovigilance Report* also shows that the blood transfusion services (BTS) did not have any challenges with stock availability during the year under review. There was a small net surplus of over 11 000 units over the period and supply cutbacks were limited to a few weeks in a single month in a single area. Similarly, alternative blood products were issued infrequently and well below the set targets.

Transfusion-related adverse events (TRAEs) unfortunately increased from the previous year, with an overall 7% cumulative increase year on year. What is of particular concern is the observed increase in the occurrence rate of SAEs to 19.9/100 000 from 13.3/100 000 in 2024. Notable in this regard is an equally high incidence of incorrect blood component transfusions (IBCTs), signalling a need for intensive education to realise strict adherence to transfusion protocols. An observed increase in reports of Rh-incompatible transfusions may be the trigger that was required to focus attention on transfusion practices at the bedside.

Mortalities related to transfusion increased in absolute numbers to 50, up from the 34 reported in 2024. Of these, none had a certain causal association with blood or blood product transfusion, but five were assessed as possibly related. A large majority was, disappointingly, classified as “not assessable” due to poor or insufficient information.

Transfusion rate
16.48/
1 000 population

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... BTS have maintained a period of six years free of any bacterial infections and more than 10 years without any reports of viral infections.

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Small net surplus of
blood units for 2025

11 000+

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A finding of concern is that patients in the public sector are probably being under-transfused.

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In a repeat of previous findings, there were no reports of bacterial or viral transfusion-transmitted infections (TTIs), a commendable feat indeed. With this result, the BTS have maintained a period of six years free of any bacterial infections and more than 10 years without any reports of viral infections. The latter is even more remarkable given the marginal increase, year on year, of South Africa blood donors human immunodeficiency virus (HIV) prevalence, over the past two years. This could only have been achieved through the combined effect of robust donor screening and testing, and meticulous bacterial surveillance.

While donor adverse events (DAEs) are comparable to the previous reporting period, with donor faints and arm haematomas the most common complications, there were fewer serious donor adverse events (SDAEs). This probably reflects the successes of ongoing training of donor staff as well as effective donor education.

The report also notes the innovative measures introduced by the BTS to preserve blood supply, assure the availability of blood products, protect donors and prevent harm to patients. Encouragingly, some of these measures already appear to be achieving their desired outcomes.

Overall, the *2025 Haemovigilance Report* provides some assurance that the BTS can meet demand for blood and blood products, but the margin of safety is very small. A finding of concern is that patients in the public sector are probably being under-transfused, and this requires a detailed analysis to establish the causes thereof. What is comforting is the finding that blood supply remains largely safe and donor wellbeing shows improvement.

Serious transfusion-
related adverse events

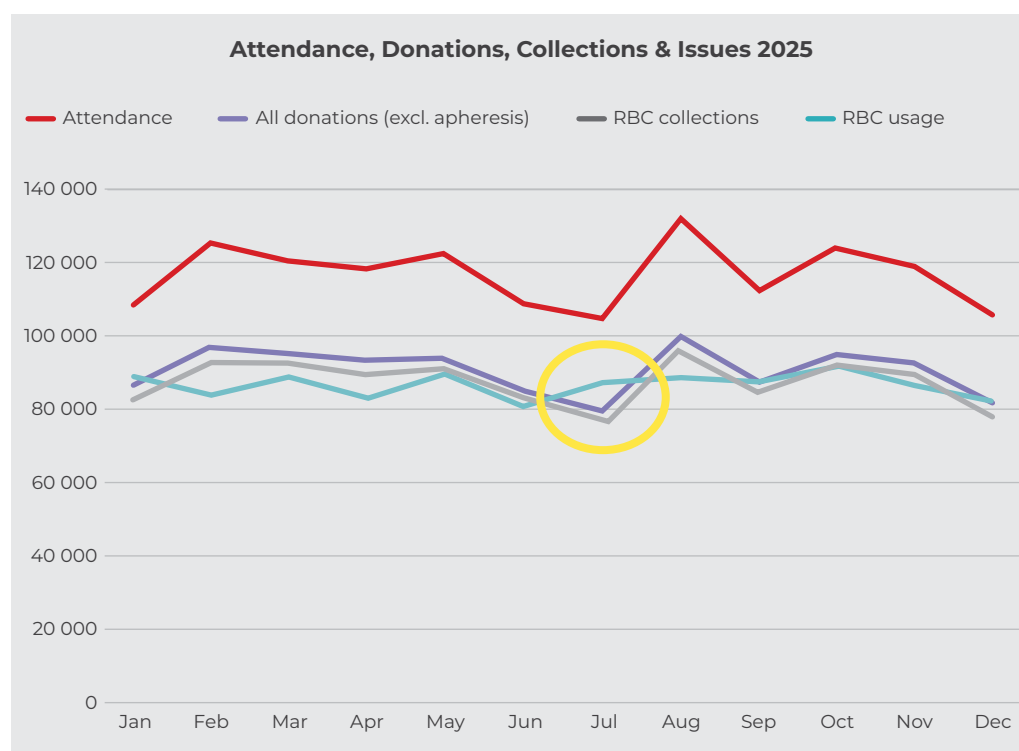
19.9/
100 000

↑ 7%



Blood Collections, Issues & Sufficiency

The data show an increase in both collections and issues for the year under review. Red blood cell (RBC) issues were up 0.8% on the previous year, reversing a steady decline trend that started in 2022. This change could be an indication of the gradual recovery of the clinical platform, however the total amount of blood issued remains 0.1% below the figures for 2022.



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... one fifth of attendees were screened out of donating through the application of the screening tool.

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Blood donations and collections followed a similar pattern to the previous year, with pronounced yield losses in the value chain from attendance at the donor clinic to supplying a blood bank with a unit of blood available for issue. Attendance at donor clinics totalled 1 402 891 potential donors and these resulted in 1 087 452 whole blood donations, of which only 1 052 416 resulted in units for issue to patients. The decrease of 22.5% means at least one fifth of attendees were screened out of donating through the application of the screening tool. However, compared to 2024 at 24%, there were 1.5% fewer deferrals in the year under review. This is a welcome development as the availability of blood must keep pace with the annual population increase.

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... 1.1% of all completed donations were subsequently determined to be unsuitable for use, and this is consequent upon further processing of the blood revealing test abnormalities, infection risk or processing errors.

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The data also show a 3.2% loss of product between all donation events (needle-in-arm events) and usable donations. This is mainly due to incomplete donations (inadequate volumes collected).

Lastly, 1.1% of all completed donations were subsequently determined to be unsuitable for use, and this is consequent upon further processing of the blood revealing test abnormalities, infection risk or processing errors.

A total of 1 040 848 units were issued to patients in 2025. This is 0.8% better than the previous reporting period and is to be welcomed, especially in view of the estimated annual population growth rate of 1.23%³. Whereas blood collections generally kept pace with usage, a major inflection was seen in about July, when blood issues outstripped both donations and collections. However, this did not result in supply cutbacks as there were sufficient stocks on hand.

Blood Products Issued in South Africa

Blood product usage continued the upward trend observed with RBC issues. The increase is rather modest at 0.3%, but overall product usage shows a 0.7% improvement on the previous year even though it still remains 1.07% below the figures recorded in 2022.

Plasma product issues show a modest increase of 0.8% compared to the previous year. This is, however, still 2.6% and 1.7% below 2023 and 2022 respectively. These figures require careful interpretation because, with the increasing availability of freeze-dried plasma, some centres are reporting changes in prescribing patterns.

Platelet product usage decreased by 0.6% and was 2.3% below the issues for 2022. More apheresis platelets were issued compared to 2024 (1.5% increase), with usage generally trending upward from 2022. Pooled platelets, on the other hand, not only show a 2.8% decrease from 2024 but also a sustained decline from 2022. Intensified efforts will be required to catalyse a change in prescribing patterns towards greater use of filtered pooled platelets in line with the blood transfusion services' (BTS's) platelet strategy.

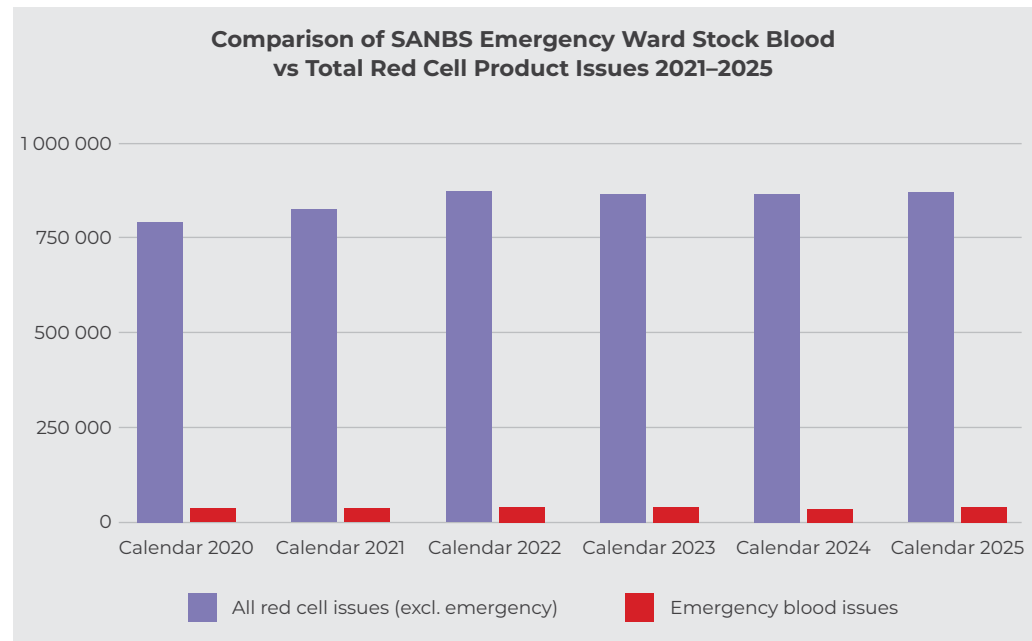


Blood Products Issued in South Africa 2021–2025

Product	Category	2021	2022	2023	2024	2025
Plasma products	Fresh frozen plasma (adult, paediatric and infant products included)	142 392	153 957	152 244	140 541	121 816
	Cryoprecipitate/Cryo wet (100 iu units)	46 776	54 804	58 456	57 999	62 778
	Cryo-poor plasma	Excl.	Excl.	Excl.	5 001	20 612
	Total plasma products	189 168	208 761	210 700	203 541	205 206
Platelet products	Pooled platelet units	41 943	43 909	43 689	42 380	41 190
	Apheresis platelet products (infact products counted individually)	41 113	43 289	44 243	44 038	44 723
	Total platelet products	83 056	87 198	87 932	86 418	85 913
Red cell products	Adult red cell concentrates		790 087	780 127	775 324	776 947
	Leucocyte reduced (filtered) adult red cell concentrates		169 056	171 100	170 993	173 907
	Infant or paediatric red cell concentrates		45 355	45 606	43 205	39 342
	Emergency blood units (ward stock)		44 492	48 810	38 948	49 013
	Autologous red cell products		0	1	0	0
	Designated red cell products (infant products counted individually)		107	409	2 785	117
	Whole blood units (incl. emergency whole blood)		1 812	1 704	1 375	1 522
	Total red cell products	993 498	1 050 909	1 047 757	1 032 630	1 040 848
Total products		1 265 722	1 346 868	1 346 389	1 322 589	1 331 967

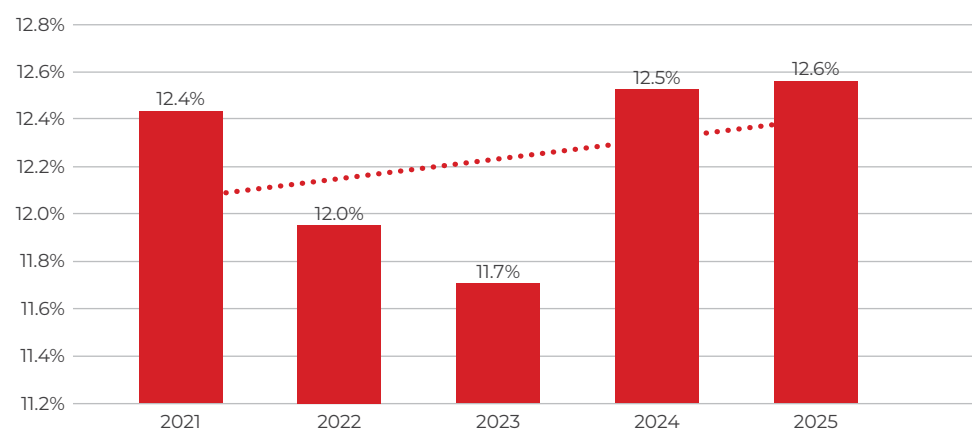
Emergency blood issues

An investigation into emergency blood usage patterns paints different pictures for the country's two BTS. For the South African National Blood Service (SANBS), over a period spanning 2020–2025, emergency ward stock blood (EWSB) issues represented an average 4.49% (4.68%–4.20%) of all RBC issues.



In contrast, for the Western Cape Blood Service (WCBS), emergency blood issues – EWSB and emergency crossmatched blood – averaged 12.24% (11.7%–12.6%) of all issues over the period 2021–2025, with a general upward trend except for significant dips in 2022/3 which were probably the result of subdued activity due to COVID.

Emergency Blood as a Percentage of Total Red Cell Product Issues 2021–2025

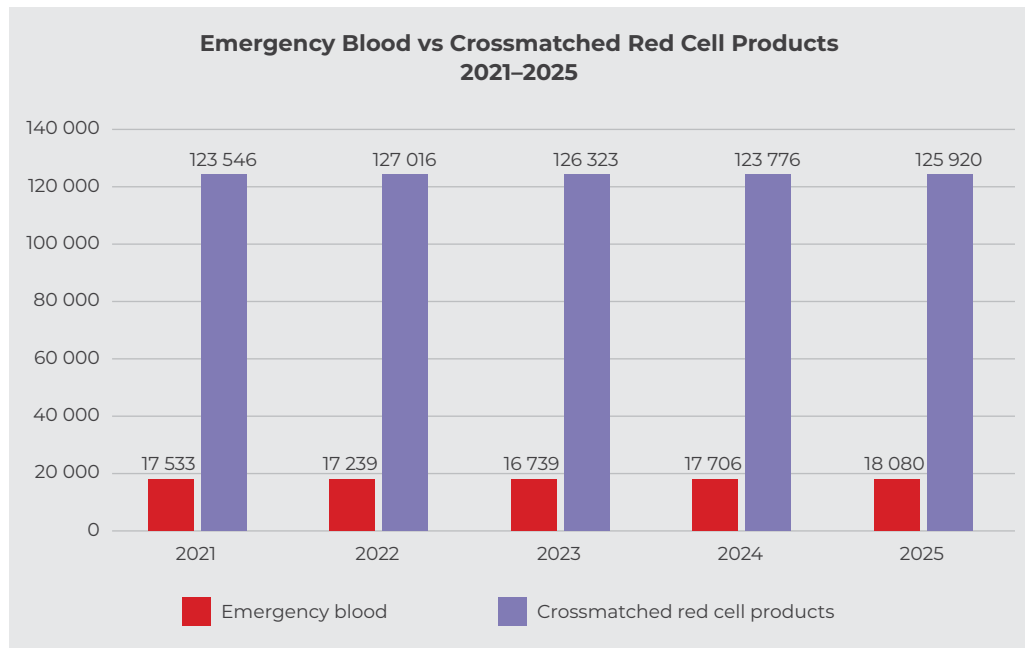


A comparison of blood transfused from emergency ward fridges with total RBC issued showed that EWSB comprised an average 8.1% (7.3%–9.1%) of total usage. This is just 4% less than the total emergency blood issued by the blood banks over the period and may warrant closer monitoring of transfusion practice to enhance patient safety.

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... a total 1 040 848 units of blood were issued, resulting in a national transfusion rate of 16.5/1 000 population. This is marginally higher than the figure reported in the previous year ...

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Increased vigilance is required because EWSB is not crossmatched for any specific patient and is kept in the ward for emergency transfusion in patients being resuscitated for acute blood loss. The often-rushed nature of the process of transfusion during emergencies can result in failure to comply with transfusion protocols.

Red Cell Transfusion

What is noteworthy is the observation of a slight increase in utilisation rates. The midyear population estimates for 2025 determined the population size to be 63.1 million. Against this, a total 1 040 848 units of blood were issued, resulting in a national transfusion rate of 16.5/1 000 population. This is marginally higher than the figure reported in the previous year considering the population would have increased by an estimated 776 000 individuals (1.23%)³. This is a welcome development nonetheless as it may be pointing to increasing access to blood. The upward change also aligns with the marginal increase in RBC issues, again perhaps signalling steady recovery of the clinical platform.

Provincial transfusion rates

Transfusion rates have largely mirrored what was reported in 2024. Gauteng, being the most populous province and hosting a quarter of the nation's population, leads with a transfusion rate of 23.1/1 000 population. This is down from the 23.8/1 000 population reported in the previous year and is in spite of the 0.8% growth in the population of the province. The decreased transfusion rate continues the decline recorded since the peak of 2023.

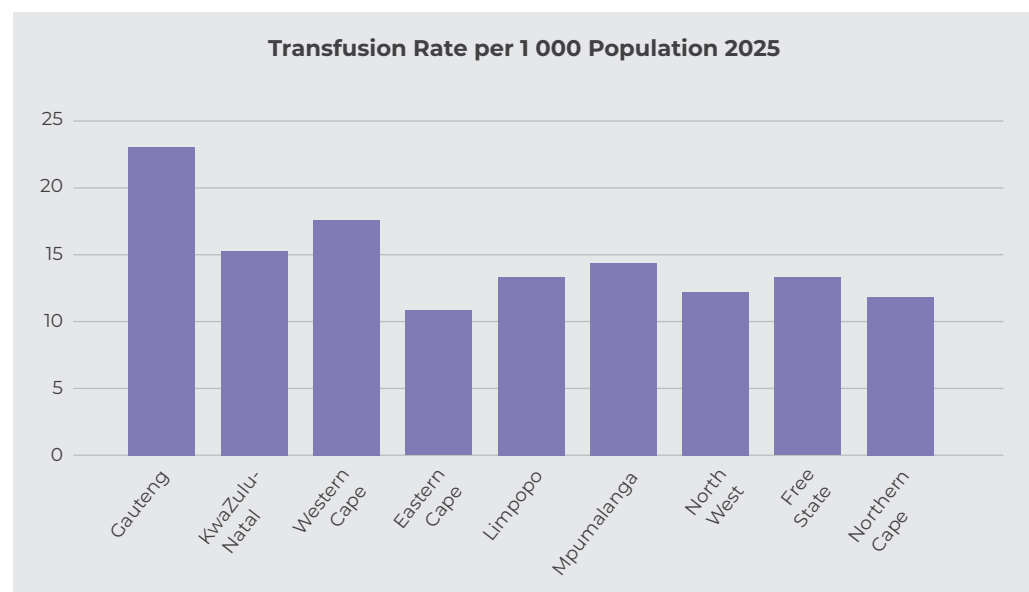
The Western Cape shows the next highest transfusion rate, at 17.7/1 000 population. This is a marked increase of 1.2% from the previous year and equal to the five-year 2020–2025 average. It is also the biggest upward change of any province.

The rest of the provinces show little change up or down, but are mostly down from the previous reporting period.

The Eastern Cape and Limpopo show continuous improvement, with both marginal improvement on the previous year and transfusion rates above the five-year average for the period 2020–2025.

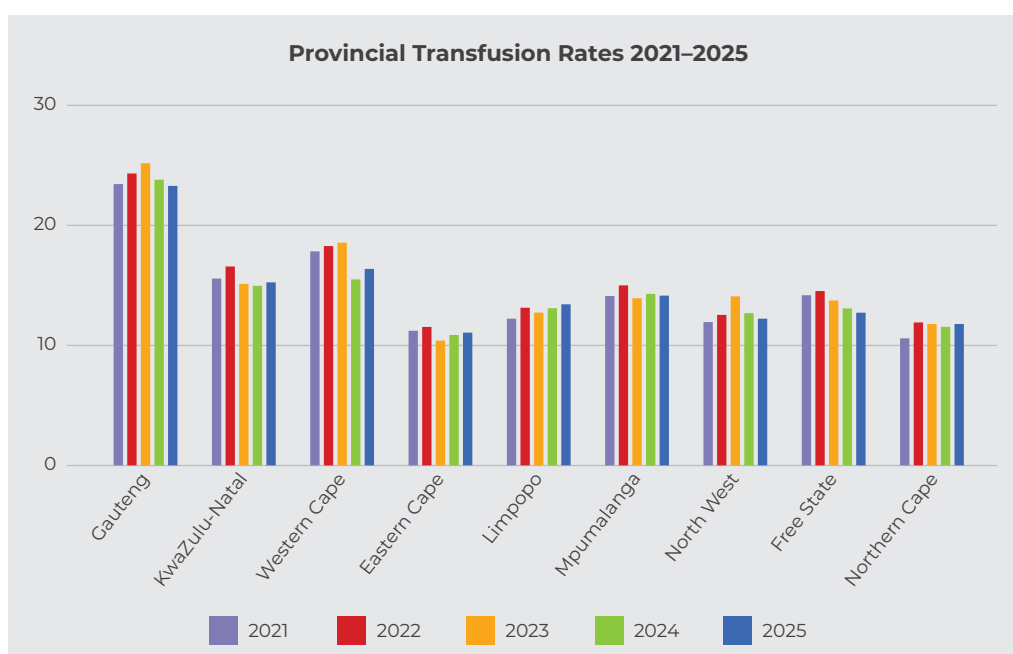
Mpumalanga, with a transfusion rate of 14.4/1 000, is 0.1% down on the previous year, but still above the 14.2/1 000 five-year average. Northern Cape shows a 1.7% improvement on 2024, and is also above the five-year average for that province. Free State and North West show marginal declines from the previous year, and both remain below the five-year average for their respective provinces. The former also shows a downward trend over time.

KwaZulu-Natal, the second most populous province, recorded a 2% improvement on the previous year, with its transfusion rate equalling the five-year average for the province. This rate is, however, still below the peak recorded in 2022.



Provincial Red Cell Transfusion Rates: Comparison Over a Five-Year Period 2021–2025

Transfusion Rate per 1 000 Population	2021	2022	2023	2024	2025
Gauteng	23.4	24.2	25.4	23.8	23.1
KwaZulu-Natal	15.6	16.5	15.1	15.0	15.3
Western Cape	17.8	18.1	18.3	16.5	17.7
Eastern Cape	11.1	11.2	10.3	10.5	10.8
Limpopo	12.2	13.4	12.7	12.9	13.3
Mpumalanga	14.1	15.0	14	14.5	14.4
North West	11.7	12.6	13.9	12.8	12.3
Free State	14.1	14.4	13.7	13.4	13.2
Northern Cape	10.6	11.9	11.8	11.6	11.8



Overall, this is a mixed set of results, with five of the nine provinces recording decreases in transfusion rates and with Gauteng showing the largest decrease (3%) in transfusion rate as well as remaining below the average for the preceding five-year period (23.1/1 000 vs 23.9/1 000 average).

Red blood cell transfusion in public and private sector

The 2025 data show a slight change in usage patterns, reversing the trend observed over the previous five-year period, with a public:private split of 59.1% to 40.9%. This is an encouraging development as it probably indicates increasing clinical activity compared to previous years.

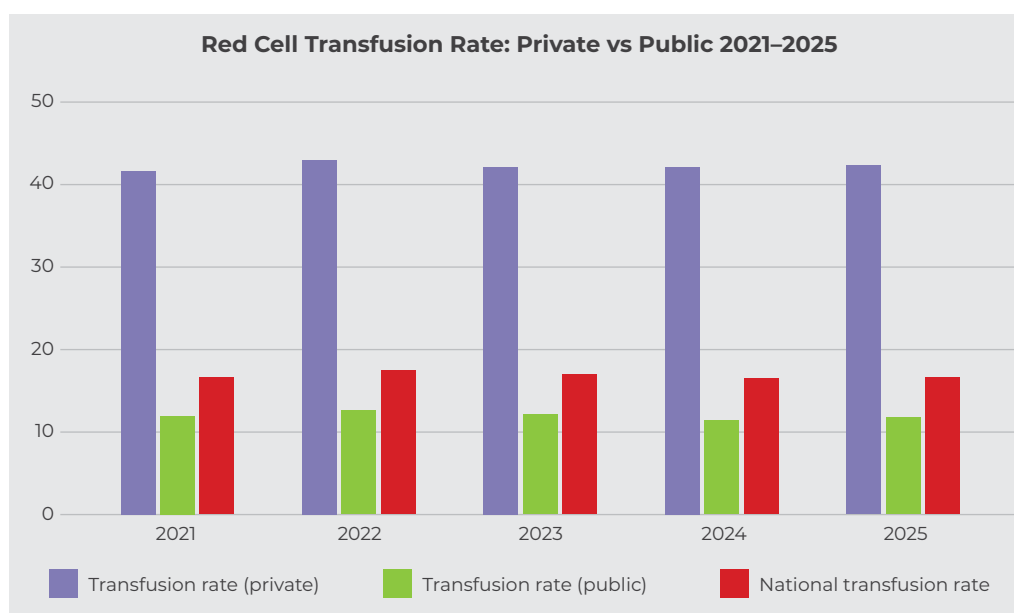
These figures do not tell the whole story though, as the relative proportions of public and private users is another important consideration. It is therefore important to segregate the two clinical sectors to obtain a truer picture of blood usage and access in the two environments.

Red Cell Usage: Private vs Public 2021–2025

Red Cell Usage (No. of Units)	2021	2022	2023	2024	2025
National private	400 088	414 530	417 988	423 155	425 487
National public	592 824	632 437	628 906	606 303	614 269

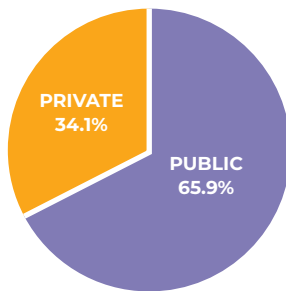
The *Council for Medical Schemes Annual Report 2024/2025*⁴ puts the number of insured beneficiaries at 9.3 million, which is 14% of the total population estimates for 2025. It is, however, a known fact that not all private healthcare is funded by medical insurance and that some of it is self-funded (out-of-pocket expenses). Accordingly, a determination of transfusion rates in the private or public sector must adjust for this.

For purposes of this report, after correcting for those funding care themselves, the total private population is estimated to be 16%. The transfusion rate in the private sector is therefore calculated to be 42.1/1 000 population. Similarly, the transfusion rate for the public sector is determined to be 11.8/1 000 population.



The graph above shows a comparison of transfusion rates between the combined national, private and public sectors for the five-year period spanning 2021–2025. It is apparent that RBC transfusion in the private sector remains consistently higher than in the public sector, with an average transfusion rate of 42.1/1 000 (range: 41.58–42.75) vs 11.8/1 000 population in the public sector (range: 11.45–12.42). Also, the marginal increase in the national transfusion rate from 16.34 in 2024 to 16.48 in 2025 is associated with concurrent increases in transfusion rates in both the public and private sectors. In other words, this upward change does not represent an increase in the public sector at the expense of, or in exchange for, a decrease in the private sector.

Disaggregating the data is important insofar as it exposes the true, low rate of blood transfusion for the 84% of the population relying on the public sector for care. It also reveals that the much higher transfusion rate in the private sector compares favourably with that of European countries. These usage patterns have remained fairly consistent over the past five years, but the 2025 figures represent a welcome improvement compared to the five-year period ending in 2019.



In their review of RBC utilisation patterns at SANBS, Bolton et al.⁵ showed that over the period 2014–2019, 65.9% of RBC issues were to the public sector vs only 34.1% in the private sector. Although their analysis only covered the population supplied by SANBS, the large footprint of this blood service means that reasonable inferences can be made about national usage patterns.

Usage Patterns by Level & Type of Facility: Tertiary Academic vs Non-Tertiary Hospitals

The depressed provincial usage patterns are a worry, especially as they have been consistent for long periods of time. To understand the reasons for this, and armed with a hypothesis that decreased use may be a consequence of funding cuts in the public health sector (especially with regards to tertiary hospital care), the authors conducted a comparison of usage between tertiary academic and non-tertiary sectors by province, for the four-year period 2022–2025. The ‘tertiary academic sector’ consisted of the eight central hospitals designated as such by the National Department of Health, and these were compared to the rest of the service-delivery platform, comprising regional and district hospitals in the various provinces, and referred to in this report as the ‘non-tertiary sector’.

Unsurprisingly, average and cumulative usage is higher in the non-tertiary sector because of the sheer number of facilities compared to the central hospitals. Also, use was – on average – three times higher in non-tertiary vs tertiary platforms, and this increased to about seven or eight times in provinces without academic teaching complexes, such as Mpumalanga and North West.

KwaZulu-Natal showed an unusual pattern, with a very large trend variation between tertiary and non-tertiary platforms. This is probably due to the mismatch between its large population size (second largest in the country) and its single academic teaching complex.

Overall, an increase in usage in one sector is associated with a decrease in the other, suggesting changing practice patterns, with the non-tertiary sector probably taking on more higher-level services than are provided for in their basket of services.

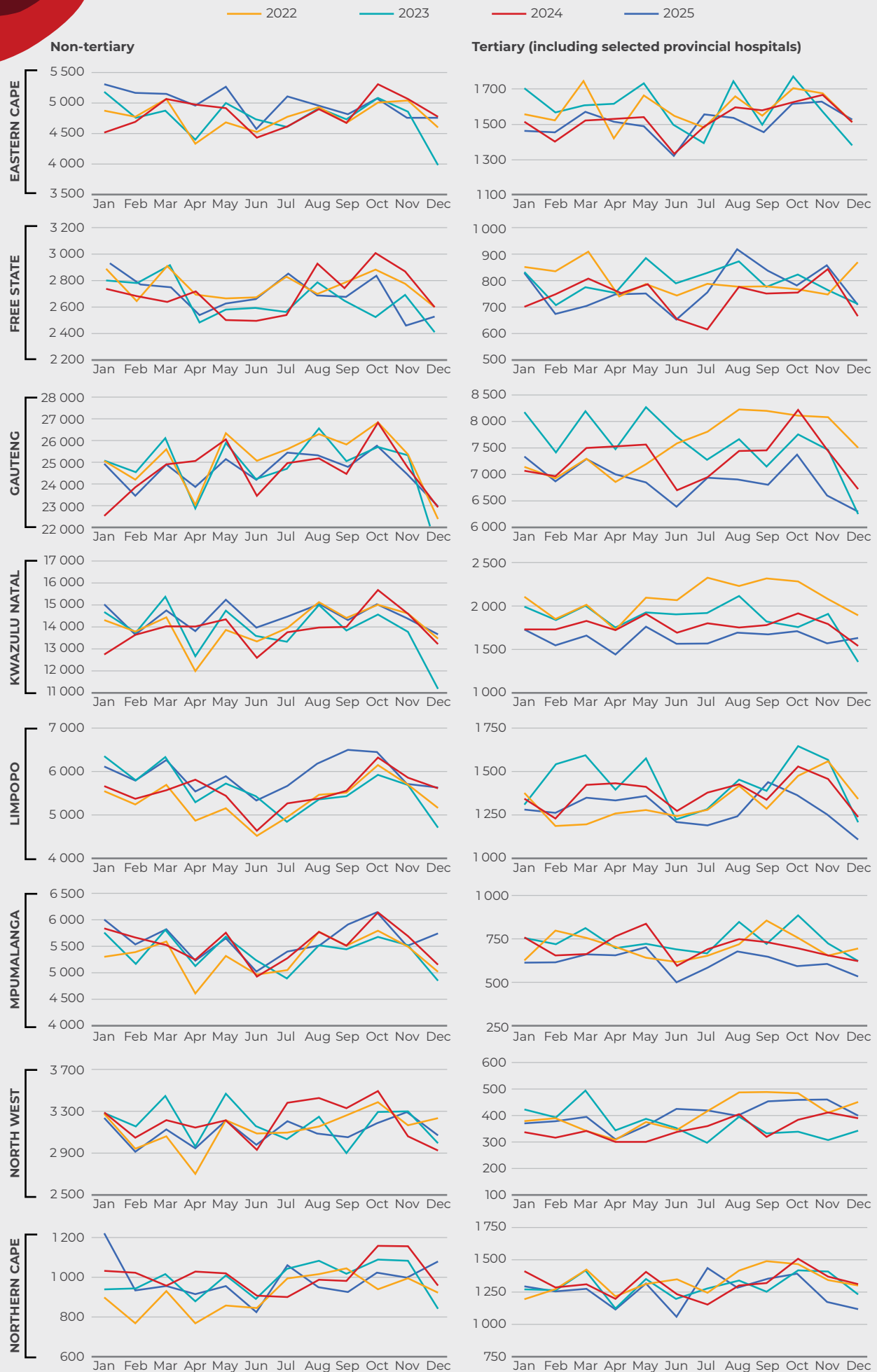
Summary statistics show the following blood usage patterns:

- Gauteng's tertiary public sector usage trends well below the average for the preceding three years, with usage of about one third of the province's non-tertiary platform. Of concern is that the latter platform also shows a pattern that is lower than the three-year average, albeit significantly higher than for the tertiary sector. This observation raises a new question about where the patients were receiving services if both public sector platforms had this limited demand.
- For KwaZulu-Natal, the picture is even more stark, with non-tertiary public sector usage outstripping the tertiary sector by a factor of seven to eight times. However, as previously suggested, this may simply be a function of the mismatch between population size and tertiary academic capacity.
- Whereas the Western Cape reveals a much narrower gap between the sectors, the rest of the provinces generally show increased (and increasing) usage in the non-tertiary platform compared to the academic centres.

A more detailed analysis is required to help understand the reasons for the poor transfusion rates in the public sector. This is essential because haemovigilance is also concerned with limiting patient harm by assuring access to blood for those who are in need. A simple comparison of usage in the private vs public sectors suggests that public sector patients are being under-transfused, but this needs confirmation in order for appropriate interventions to be considered.



Blood Usage Patterns in Central Hospitals vs Regional Facilities 2022–2025



Sufficiency of Blood

From a total 1 052 416 units collected for distribution, 1 040 848 units were issued. This leaves a surplus of 11 568 units cumulatively over the period. A month-to-month comparison shows a negative correlation between collections and issues in the months of January, July, September and December and this ranged from a low of 3 100 units to a high of 10 926 units. However, for the other eight months of the year, collections exceeded issues.

No supply restrictions were imposed in the SANBS environment, confirming adequate levels of stock on hand during the four months which had relatively poor collections.

In contrast to SANBS, WCBS imposed supply cutbacks during November and these lasted a few weeks. The restrictions typically involved the supply of group O-negative blood, although group O-positive and group B-positive were also implicated to a much lesser extent. These supply cutbacks only affected 16 units, translating to 0.01% of all RBCs issued during the course of the year.

The overall picture is one of a system that met the demand being faced, albeit with a very small margin of safety (1% of all collections). An uptick in the transfusion rate in the public sector would likely expose the vulnerability of the system when faced with increased demand. That being said, anecdotal evidence suggests that changes in clinical practice, especially in the tertiary sector, may lead to decreasing demand for blood over time. This is a result of stricter protocols, including prescribing rights for junior doctors in respect of blood and blood products, greater use of antifibrinolytics in scenarios ordinarily associated with excessive bleeding, implementation of patient blood management (PBM) guidelines and establishment of blood transfusion committees.

Collaboration and sharing of information between these platforms and the national BTS are invaluable in the quest to ensure security of supply because sharing of information will improve the BTS's ability to predict and manage demand.

Alternate Products Issued

There were a few instances where both BTS issued alternate products due to the unavailability of specific products.

The WCBS data show that non-leucocyte reduced blood was issued seven times (0.02% of all RBC issues) and non-irradiated product issued once only, when supply could not be met.

SANBS also issued alternate products when supply could not meet demand. Alternate products issued (API) included pooled platelets being supplied instead of apheresis platelets. In most cases, there were sufficient apheresis platelets in the system but they were not immediately available where they were required. The occurrence rate for API was 0.79%, which is well below the target rate of <2%.

Transfusion-Related Adverse Events

A transfusion-related adverse event (TRAЕ) is an undesirable and unintended occurrence before, during or after transfusion of blood or a blood component, which may be related to the administration of the blood or component. It may be the result of an error or an incident and it may or may not result in a reaction in the recipient.

In 2025, a total of 1 405 adverse event cases – involving 1 427 units – were reported to blood bank staff in hospitals throughout the country, compared to 1 319 in 2024. This includes mild, moderate and severe reactions and translates to a transfusion reaction rate of 107.1 per 100 000 transfusions compared to 99.7 per 100 000 transfusions in 2024. In keeping with international practice, such as described in the UK's *Annual SHOT (Serious Hazards of Transfusion) Report*⁶, the National Haemovigilance Committee (NHVC) does not report mild transfusion reactions.

During the 12-month period under review, 265 serious adverse events (SAEs) of transfusion were reported, representing 18.8% of total adverse events associated with transfusion recipients.

In 2025, with a 0.7% increase in total blood products transfused (1 331 967) and 265 SAEs reported, the SAE rate is 19.9/100 000 transfusions. This increase is more in line with previous years, with 2024 being an outlier, as seen in the table below. It is hoped that, with the determination of what is included in this transfusion rate equation as well as the new computer system at the South African National Blood Service (SANBS) bedded down, we will be better placed to monitor trends.

The increase in incorrect blood component transfusion (IBCT) is the main contributor to the increase in SAEs so, while this is a signal to be taken seriously, time will tell if the evolving Haemovigilance Programme may be the reason for the sudden increase. The increased awareness of the need to report errors involving ABO-compatible units and Rh-incompatible units even when the patient appears unharmed, may have led to an increase in reporting of SAEs.

SAEs reported
265
SAE rate
19.9/
100 000
transfusions



The increase in incorrect blood component transfusion (IBCT) is the main contributor to the increase in SAEs ...



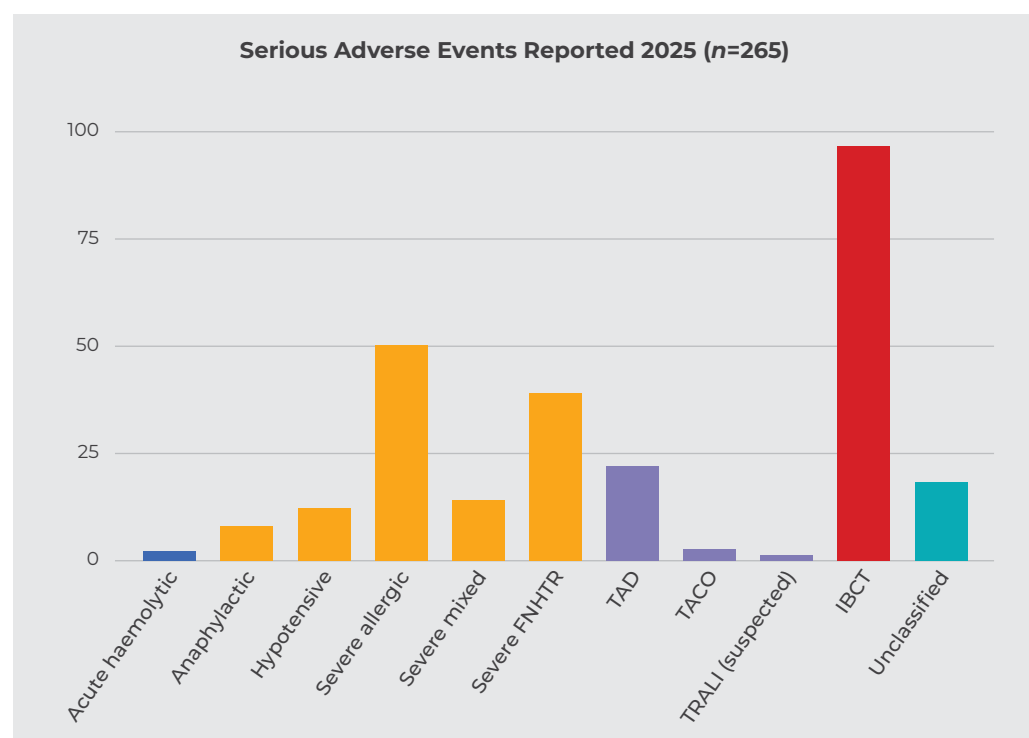
Serious Adverse Events in Transfusion Rate 2022–2025

Year	SAE Rate per 100 000 Transfusions
2022	15.2
2023	24.8
2024	13.1
2025	19.9

Serious Adverse Events in Patients

It is regarded as best practice to – whenever possible – transfuse during the day, when there are more staff to monitor patients and it is easier to visibly detect when a patient is experiencing a reaction. Some SAEs may be averted or the severity of the reaction reduced if patients are monitored, especially during the first 15 minutes of a transfusion. It is of interest to note that, out of the 265 adverse reactions, at least 36.3% occurred during night shift (60.3% occurred during day shift and the timing is unknown for the remaining 3.4%). Avoiding night transfusion should be a clinical goal.

- All severe febrile non-haemolytic transfusion reactions (FNHTRs) were linked to red blood cell (RBC) products, except one where a leucodepleted platelet product was transfused.
- 11.7% (31/265) of SAEs were related to fresh frozen plasma (FFP) or platelet product transfusions. All of these adverse reactions were allergic-type reactions, with the exception of one case where multiple products were transfused.
- 62.5% (5/8) of anaphylactic reactions were due to platelets, FFP or cryoprecipitate transfusions.



Febrile, allergic & hypotensive reactions (n=123)

The febrile, allergic and hypotensive reactions (FAHR) group includes FNHTRs, allergic reactions including anaphylactic and mixed reactions, and hypotensive reactions. This group of adverse reactions are an unavoidable and unpredictable risk of transfusion. Patients who are frequently or chronically transfused, such as sickle cell anaemia patients, may be at risk of more allergic or febrile reactions. This at-risk group may benefit from prophylactic premedications, however in standard transfusions premedication is not advised.



... FAHRs total 50.8% of severe reactions in 2025, compared to 47.7% in 2024.



The allergic type of reactions (anaphylaxis, severe allergic and mixed allergic/FNHTRs) account for 34.7% and severe FNHTRs account for a further 16.1% of reactions – meaning that FAHRs total 50.8% of severe reactions in 2025, compared to 47.7% in 2024. There has been a slight improvement in targeted management of adverse reactions, rather than just prescribing a cocktail of analgesics, antihistamines and steroids, but antipyrexial drugs are still seldom used alone for FNHTR.

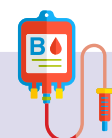
The South African criteria for the reporting of severe febrile- and allergic-type reaction categories have been aligned to international practice for the past three years, and the trends in the table below suggest a system which has settled. The transfusion reaction rate for this group is 9.2/100 000 transfusions.

Febrile, Allergic, Mixed, Anaphylactic & Hypotensive Reactions 2023–2025

Category of Reaction	No. of Reactions Reported in 2023 (% of SAE)	No. of Reactions Reported in 2024 (% of SAE)	No. of Reactions Reported in 2025 (% of SAE)
Severe FNHTRs	42 (16.1%)	31 (16.4%)	39 (14.7%)
Moderate & severe allergic reactions	69 (26.4%)	31 (16.4%)	50 (18.8%)
Moderate & severe mixed allergic/febrile reactions	6 (2.3%)	10 (5.3%)	14 (5.2%)
Anaphylactic reactions	7 (2.7%)	8 (4.2%)	8 (3.0%)
Hypotensive reactions	16 (6.1%)	10 (5.3%)	12 (4.5%)

KEY LEARNINGS The majority of patients with febrile reactions were treated inappropriately with antihistamine and/or steroid. Use the patient's symptoms and signs to distinguish febrile from allergic reactions and to tailor treatment appropriately.

GOOD PRACTICE GOAL Reduce the inappropriate use of antihistamine and/or steroid for febrile reactions.



Pulmonary adverse reactions 2025 (n=26)

Pulmonary complications form a significant proportion (9.8%) of the serious adverse reactions reported in South Africa. Unfortunately, this continues to be the poorly performing area of reporting. The paucity of information, lack of investigations and often multiple comorbidities in these patients makes it challenging to accurately classify transfusion-associated circulatory overload (TACO) cases, with the result that most end up in the broader category of transfusion-associated dyspnoea (TAD). In 2024, 18/20 (90%) pulmonary reactions were categorised as TAD, with marginal improvement in 2025 to 22/25 (84.5%).

Of concern is the 5/26 (19.2%) pulmonary adverse reactions which occurred in neonates (<1 month old). Unlike the UK's *Annual SHOT (Serious Hazards of Transfusion) Report*⁶, which also reports an increase in pulmonary reaction cases but generally in an elderly population, we see an average patient age of 44 years (range 1 year to 83 years, excluding the neonates). The younger age group may, however, be due to the younger population in South Africa and the burden of disease.

The *SHOT Report*⁶ pays particular attention to cardiorespiratory complications and records that the TACO pre-transfusion risk assessment was implemented due to increasing mortality in this category. In South Africa in 2025, we acknowledge the dismal follow-up of the final outcome of patients, however two TACO cases and four TAD cases were reported to be transfusion-associated mortalities.

The transfusion reaction rate for this group of pulmonary adverse reactions is 1.95/100 000 transfusions.

Transfusion-related acute lung injury 2025 (n=1)

There was one case of suspected transfusion-related acute lung injury (TRALI) in a neonate who was transfused with 12 ml of paediatric red cell concentrate (RCC). The patient was on a ventilator for an underlying condition and became acutely respiratory distressed during transfusion. It was difficult to ventilate the neonate due to stiff lungs, and the chest x-ray showed bilateral white-outs, but there were no documented oxygen saturation levels.

Transfusion-associated circulatory overload (n=3)

Three cases which met the criteria of TACO were reported. One case was a 27-week-old premature baby with sepsis, who developed fluid overload and died four days post transfusion. The other two cases were both adults who, prior to transfusion, were already cardiorespiratory compromised: a) 53-year-old with a history of a previous cardiovascular accident and a right middle lobe consolidation, and b) 80-year-old with cardiac failure and pulmonary oedema, which increased in severity during the transfusion and possibly contributed to his demise. These patients would have benefited from a pre-transfusion assessment and body weight dosing.

Transfusion-associated dyspnoea (n=22)

By default, respiratory deterioration within 24 hours of transfusion that does not meet the criteria of TRALI, TACO or allergic reaction, and cannot be explained by the patient's underlying condition, ends up in the TAD category. Fluid overload is still suspected as a contributory factor in many cases which do not meet strict TACO criteria and are thus classified as TAD.

Very few patients with potential TACO/TAD were treated with diuretics. Every effort must be made to improve reporting and follow-up of these adverse reactions in these patients as this is an area in transfusion where patient outcome may be improved.

“

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Pulmonary Adverse Reactions 2022–2025

Category	No. of Cases 2022 (% of Total)	No. of Cases 2023 (% of Total)	No. of Cases 2024 (% of Total)	No. of Cases 2025 (% of Total)
TRALI	0	2 (0.8%)	0	1 (0.3%)
TACO	4 (2.0%)	5 (1.9%)	2 (1.1%)	3 (1.1%)
TAD	26 (12.6%)	22 (8.4%)	18 (9.6%)	22 (8.3%)

From the table above it can be seen that there has been little positive change in pulmonary adverse reactions over the past four years. This is a concern as patients at risk of TACO should be identified pre-transfusion, using the *SHOT*⁶ risk assessment which is based on real-life haemovigilance data rather than on traditional research studies. Including this assessment tool in clinician training will offer powerful insights into risk patterns and patient vulnerabilities.

KEY LEARNINGS There is an urgent need to adapt the *SHOT*⁶ TACO Risk Assessment to assist clinicians in preventing fluid overload in patients at risk. We acknowledge, however, that this requires additional time in a system which is resource restrained.

GOOD PRACTICE GOAL The blood transfusion services (BTS) to do targeted training to adapt the clinical assessment of anaemia in the non-bleeding patient to the South African medical setting, refine risk assessments and implement preventive strategies to improve patient safety.



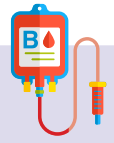
Acute haemolytic transfusion reactions (n=2)

There were two cases with acute haemolysis within 24 hours. In both cases, IBCT was excluded. One patient, treated for liver failure by a split cadaveric procedure, required multiple leucodepleted blood products and was noted to have haematuria within one hour of transfusion of an ABO-compatible RCC unit. Additional blood tests provided evidence of haemolysis. The patient was already ventilated post operatively and the reaction was managed with steroids and inotropic agents. The Red Cell Serology laboratory could find no irregular antibodies. Graft rejection may have been a consideration, but there was no further follow-up.

The second patient was admitted with an Hb of 4 g/dL and required multiple blood products. On crossmatch, the pre-transfusion specimen indicated possible cold auto-antibodies and clinicians were advised that the blood be warmed before transfusion. This patient also received group O, Rh-negative emergency ward stock blood (EWSB), platelets, FFP and cryoprecipitate. Within eight hours of starting the transfusion, the patient developed hypertension, rigors, fever, dark urine, and severe haemolysis as the haemoglobin never went up significantly and nor did the platelet count. The patient demised, but a full serological investigation could not be done as no blood bags or post-transfusion specimen were provided.

KEY LEARNINGS Acute haemolytic reactions without IBCT are rarely reported in South Africa. A pre-transfusion sample, a post-transfusion sample and blood product bags (empty or not) are necessary for a full investigation.

GOOD PRACTICE GOAL Lifesaving transfusions may need to be provided even in the absence of suitable antigen-negative blood. In urgent clinical situations where suitable components are not available, it may be necessary to transfuse red cell units which are positive for a confirmed antibody. Where this occurs, the doctor will be consulted and the patient must be closely monitored for signs of an acute haemolytic transfusion reaction (AHTR).



Unclassified adverse events 2024 (n=18)

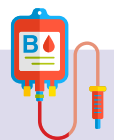
We were unable to classify 6.7% of the adverse reactions into the International Society of Blood Transfusion (ISBT) Working Party¹ categories. There were various reasons for this, the most common being lack of information – particularly lack of vital signs post transfusion and lack of details about patient management and outcomes.

Two cases of hypothermia in neonates due to blood not being warmed before transfusion were included in this category as the ISBT definitions do not provide for such an entity. Tragically, both these patients demised.

Although the quality of reporting has improved, the quantum of this category remains the same.

KEY LEARNINGS Poor vital-sign monitoring of patients receiving transfusions, and lack of documentation, delay both detection of adverse events and their appropriate management.

GOOD PRACTICE GOAL Documenting each transfusion and vital signs is important. Monitoring vital signs pre transfusion, during transfusion and post transfusion is essential for patient safety.



Eleven patients who did not require blood products were unnecessarily exposed to a red cell or platelet transfusion.



Incorrect Blood Component Transfusion (n=96)

A total of 73 patients were exposed to one or more IBCTs, involving 95 incorrect RCC units, including one unit with both ABO and Rh incompatibility. This equates to 36.2% of all SAEs reported to the NHVC in 2025. The adverse event rate for IBCT is 7.2/100 000 transfusions. Eleven patients who did not require blood products were unnecessarily exposed to a red cell or platelet transfusion. Six of these patients received ABO-compatible red cells, but unfortunately four received ABO-incompatible red cells and one patient received two units of platelets.

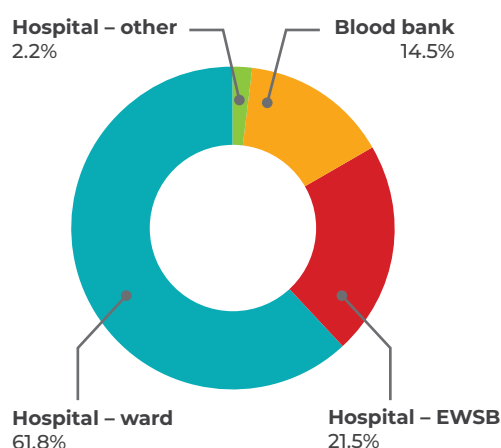
As in 2023 and 2024, the higher error reporting in 2025 aligns fairly well with the clinical areas where there is high blood usage, e.g. Obstetrics and Medical departments. Surprisingly, errors were made by hospital staff in high-care ward areas, where the patient-to-staff ratio is better. Failure to do patient identification checks resulted in three cases in adult intensive care units (ICUs), one in a high-care unit and two in neonatal ICUs.

A major concern is the number of adverse events due to hospital staff not carrying out patient identification checks, resulting in misdirected transfusions. As can be seen in the graph below, hospital ward staff account for 61.8% of IBCTs due to failure to do patient identification checks, resulting in wrong blood in tube (WBIT) and misdirected transfusions, with a further 2.2% due to a courier delivering to the incorrect hospital and nursing staff failing to do an identification check. Similarly, a porter delivered to an incorrect ward and nursing staff there failed to do a patient

identification check. Blood bank staff account for 14.5% of IBCTs (details of the errors can be seen in the table below). The remaining 21.5% are regarded as hospital errors, although they were taken from the emergency ward fridge under the supervision of a medical practitioner in emergency situations. They were regarded as IBCT due to Rh incompatibility or – in two cases – inappropriate blood products for specific patients.

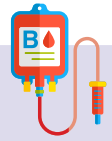
As can be seen in the table below, there were four cases in which more than one healthcare professional failed to carry out a patient identification check, and two cases where a double error occurred in the blood bank. Since the 12/14 single-error rate in blood banks was recorded in 2024, the BTS have made a concerted effort to revise procedures and improve training. Sadly, this resulted in a single-error rate of 11/13 in 2025, with an improvement in transcription errors but more crossmatch errors.

Percentage of Service Provider Errors 2025



Service Provider Errors 2025

Service Provider Responsible for Errors 2025	Description of Error	Units
Single blood bank error	Sample labelling (2); transcription error (3); crossmatch error (3)	11
Double blood bank error	Transcription & crossmatch (1); Transcription & linking (1)	2
Single hospital error	WBIT (12); Misdirected (27); IBCT from emergency ward fridge (20)	78
Double hospital error	Courier delivery + misdirected (1); Porter + misdirected (1); expired blood in emergency fridge (1); incorrect labelling + blood administration error (1)	4
Total	73	95

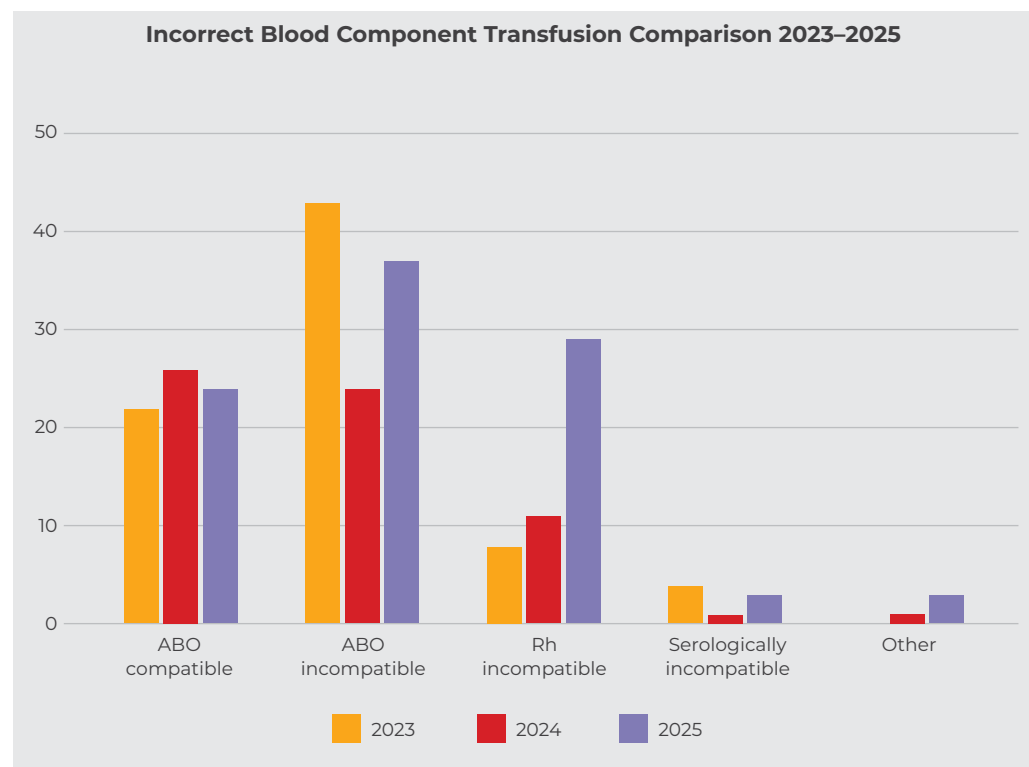


KEY LEARNINGS Patient identification errors occur at all stages of the transfusion process, particularly during sample taking, blood collection and administration. At each of these stages it is essential that staff focus on the accuracy of patient identifiers (name, date of birth, ID number, gender, etc.) and – where possible – actively engage with the patient. Staff need to be extra vigilant during an emergency.

GOOD PRACTICE GOAL Make patient identification a transfusion focus for the year ahead. Pre-transfusion patient identification checks are the last chance to detect an upstream error.

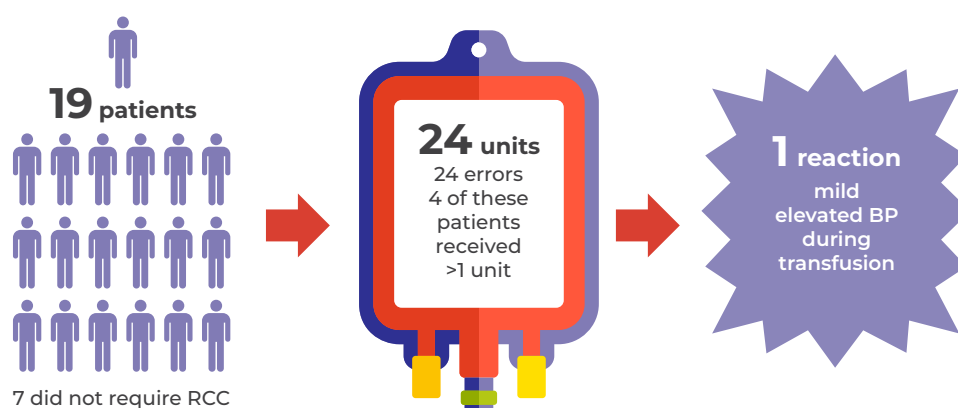
Hospital error, blood bank error or both have resulted in the following IBCTs during the past three years:

-  ABO-compatible transfusion
-  ABO-incompatible transfusion
-  Rh-incompatible transfusion
-  Serologically incompatible transfusion
-  Other (non-conforming blood products)



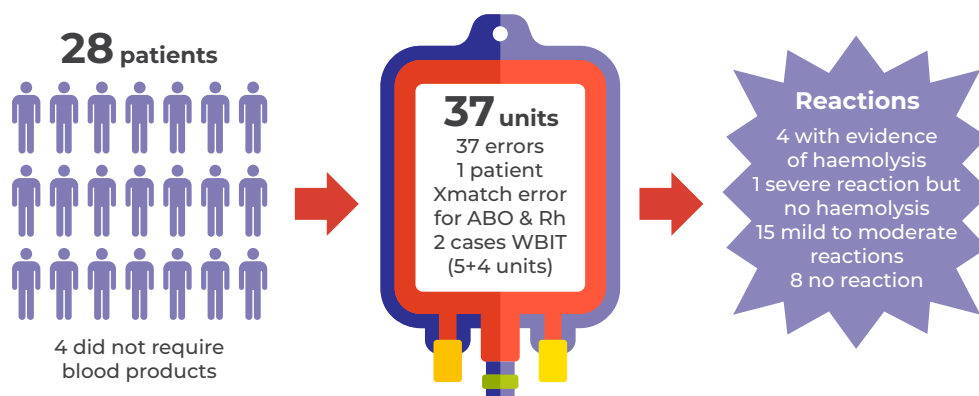
ABO-compatible incorrect blood component transfusion (n=24 units)

It is pleasing to note that notification of adverse events in ABO-compatible IBCT has remained relatively stable over the past three years, with only two doctors refusing to complete the Adverse Event Report form on the grounds that there was no adverse reaction. One hopes this is an indication that most medical personnel have come to understand the purpose of haemovigilance is to detect failure in the system and improve safety for the patient. Concerning are the four patients who were unnecessarily exposed to RCC and the one patient unnecessarily exposed to two units of platelets, when no blood products were required.



ABO-incompatible incorrect blood component transfusion (n=37 units)

An ABO-incompatible transfusion has the potential to cause serious morbidity and death. The most severe reactions occur due to transfusion of incompatible blood groups, which has the potential to cause an acute haemolytic reaction, as was the case when a patient received five incompatible units due to a blood sample error (WBIT). There was no recorded mortality in this group, although five patients had severe reactions (four patients had evidence of haemolysis and one patient had severe cardiorespiratory symptoms).



Rh-incompatible incorrect blood component transfusion (n=29 units)

South Africa is a large country with many rural areas where it is difficult to provide crossmatched blood for patients in an emergency. To mitigate the risk of poor patient outcome, the BTS provide EWSB (group O blood in emergency ward fridges) to be used un-crossmatched in cases of acute blood loss. In 2025, the South African National Blood Service (SANBS) issued approximately 4.5% of all issued RCC as EWSB, and the Western Cape Blood Service (WCBS) approximately 8.1%. There is insufficient group O-negative blood to supply all the emergency fridges throughout the country, so group O-positive blood is provided and – as a result – Rh-incompatible blood may be transfused in an emergency.

As can be seen in the graph on page 33, there has been an increase in the number of recorded Rh-incompatible units transfused since 2023. This is possibly due to the increased awareness of blood bank staff, who may detect EWSB Rh discrepancy in two different ways: either during an administrative update or during crossmatching. When the ward or hospital requests EWSB, they send in an EWSB sheet, which provides details of the patient who used the previous EWSB. While capturing these details in the blood bank system, the blood bank supervisor may find the patient's name in the system with a different Rh type.

In three cases, on crossmatching, staff found a mixed field and inquired from medical staff about prior use of EWSB. In ten cases, the blood bank supervisor detected Rh discrepancy when reviewing the EWSB order sheet compared to crossmatched orders on the blood bank system.

A further question is whether the EWSB system is over-used because, logistically, it is more convenient. This is difficult to judge on paperwork alone, but frequently a patient receives one unit of EWSB while waiting for blood on emergency crossmatch or standard crossmatch. Rural hospitals rely heavily on EWSB, and sometimes Rh-incompatible blood is knowingly used, such as in the case of a patient with a rare blood group who had a post-partum haemorrhage and stillbirth. She was given five units of group O-positive EWSB at a country hospital before being transported to a centre where two crossmatched units of group O-negative were transfused while additional blood was requested from the rare blood group file.

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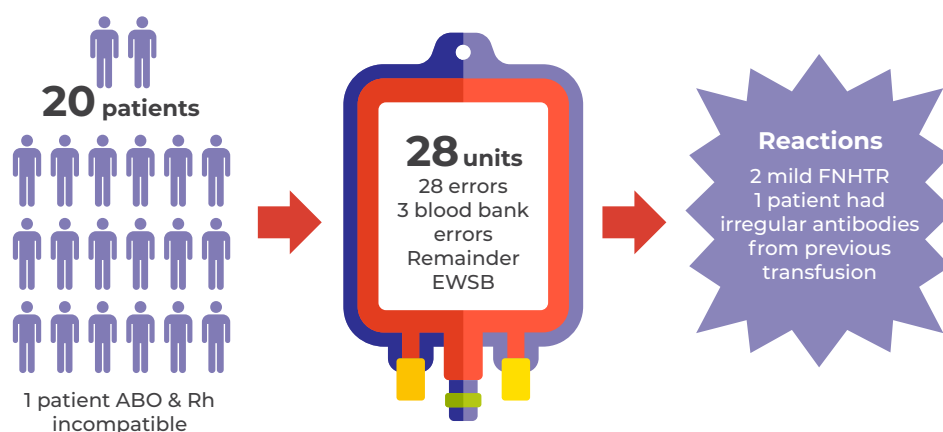
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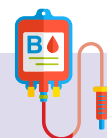
Many of the patients using EWSB are acutely ill, as in the case of two patients in the period under review who demised from underlying pathology while being transfused with EWSB. On balance of the information, most cases appear legitimate, but additional investigation into the increasing numbers is advised as the circumstances of the hospital could have changed and a crossmatch service or additional training on the use of the Rh kit may need to be considered in some places.

Three patients received Rh-incompatible transfusions due to blood bank staff errors, in two cases due to a transcription error and the third due to a crossmatch error.



KEY LEARNINGS The use of EWSB in a life-threatening situation is vital, even when Rh-incompatible blood is the only option. The long-term effects of Rh incompatibility do, however, have to be taken into account.

GOOD PRACTICE GOAL Include use of EWSB in hospital-staff training to increase awareness of the need to check expiry dates, Rh blood group and valid indications for EWSB use.



Serologically incompatible transfusion (n=3)

There were three cases of serological incompatibility due to blood bank staff errors. All three involved an error while crossmatching and one case was further compounded by a linking error.

Case 1: Crossmatch error

A patient was found to be positive in the direct antiglobulin test (DAT), but the positive indirect antiglobulin test (IAT) was missed pre transfusion. Fortunately, this was picked up post transfusion and the patient only had a mild FNHTR. On further investigation by the Red Cell Serology laboratory, no clinically significant antibodies were found.

Case 2: Crossmatch & linking error

During the crossmatch procedure, a patient screened (2+) positive with anti-A1 and A2; four group O were selected for crossmatching and two units were found to be compatible. The technician uploaded the results manually, resulting in a linking error, so an incompatible unit was issued.

Case 3: Crossmatch error

The patient had a severe reaction after transfusion of 100 ml of RCC. He developed haematuria, hypertension and a temperature. On investigation, a crossmatch error was detected and further investigation by the Red Cell Serology laboratory identified Lewis blood group antibodies.

Other/unclassified adverse events (n=3)

All three of the following cases involved the use of EWSB, which did not comply with the *Clinical Guidelines for the Use of Blood and Blood Products in South Africa* (6th ed. 2023.)⁷. Fortunately, none of the patients showed any acute ill effects.

Case 1 A premature neonate, with anaemia of prematurity and on a ventilator, was transfused with EWSB. The unit was >20 days old, which does not comply with the *Clinical Guidelines for the Use of Blood and Blood Products*⁷. The guidelines advise neonates to be transfused with RCC <5 days old and leucodepleted.

Case 2 A five-day-old neonate was transfused with RCC from an EWSB unit which did not meet the criteria of <5 days old and leucodepleted.

Case 3 A patient with a cervical tear lost approximately 800 ml of blood and, during acute management, a unit of expired group O-negative blood was transfused. No reaction was noted and the patient was discharged well, after further management with tranexamic acid and vagina packs. This is a double error as the hospital is responsible for stock control and removal of expired units and the healthcare worker is required to check the expiry date before transfusing the unit.

Near Miss Event Reporting

A near miss (NM) event is when an error is detected before the transfusion takes place. Both transfusion services in South Africa have made a concerted effort, using different strategies, to increase the awareness and reporting of NM events involving blood bank and hospital staff. WCBS reported 30/35 WBIT (wrong patient, right label) as a result of the service introducing the requirement for a second pre-transfusion sample. The success of this programme has had a significant impact on NM reporting and has increased awareness of the importance of a patient identification check at each stage of transfusion.

Monitoring and reporting on NM events is an evolving process, and an increase in numbers reported therefore represents an improved awareness and expansion of the programme. The increase has been gradual over the past three years, starting with eight officially reported cases in 2023, 50 cases in 2024 and 61 in 2025. In the UK, NM events continue to be the largest category reported in the *SHOT Report*⁶, with more than half of NM events detected during pre-administration of transfusion checks.

Encouragingly, there have been a few hospital staff who have noted misdirected units being transfused, traced second and third units and returned units for investigation. This may reflect an increase in trust and understanding of the haemovigilance voluntary reporting system.

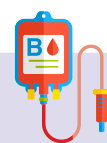
Near Misses Reported 2025

Service Provider Responsible for Near Misses 2025	Type of Error	No. of Near Misses
Hospital error	Wrong blood in the tube (right patient, wrong label)	3
	Wrong blood in the tube (wrong patient, right label)	35
	Misdirected unit detected at the time of administering product	4
	Blood collection issue	1
Blood bank	Transcription/labelling error	10
	Incorrect interpretation of results	3
	Dispatch error	5



Monitoring and reporting on NM events is an evolving process, and an increase in numbers reported therefore represents an improved awareness and expansion of the programme.





KEY LEARNINGS Pre-transfusion patient identification checks are the last chance to detect an upstream error.

LEARNING FROM NMs Reporting and investigating NMs helps identify and control risks before actual harm results, thus providing valuable opportunities to improve transfusion safety.

GOOD PRACTICE GOAL Make patient identification a transfusion focus for the year ahead.

Transfusion-Associated Mortalities

There were 50 transfusion-associated patient mortalities reported to the South African Haemovigilance Programme in 2025. It is important to note that these cases were reported due to a temporal association between the patient's death and a blood product transfusion, which was not necessarily causative.

Once the Adverse Event Report form, the report from the treating clinician, the post mortem (PM) report (if available) and any significant laboratory reports (if available) have been gathered and the post-transfusion investigation has been completed, the NHVC assesses the imputability of the transfusion to the mortality, according to the ISBT Working Party definitions¹.

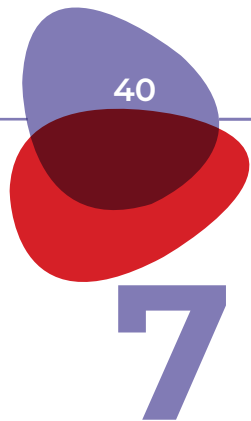
Only six PMs were requested and just one verbal PM report obtained. This reflects challenges such as:

- Family refusing permission for PM
- A lack of pathologists to do PMs
- Confidentiality and privacy laws preventing the BTS having access to PM reports
- A lack of timeous notification of death and lack of documents

Imputability Assigned to Reported Cases of Transfusion-Associated Mortality by the NHVC 2025

Imputability Category	Number of Cases	Percentage
Definite (certain)	0	0%
Probable (likely)	6	12%
Possible	5	10%
Unlikely (doubtful)	22	44%
Not assessible	12	24%
Excluded	5	10%
Total	50	100%

In summary, little has changed. Lack of clinical data, post-transfusion vitals often not documented, and post-transfusion specimens most often not taken all result in the majority of cases regrettably falling into the imputability categories of uncertainty on either ends of the spectrum.



Transfusion-Transmitted Infections & the Lookback Programme



There have been no reported cases of transfusion-related bacterial infections or confirmed related fatalities in the past six years in South Africa.



Transfusion-transmitted infections (TTIs) may be bacterial, viral or parasitic. They will be documented as such when the recipient of a blood product has evidence of infection following a transfusion, with no clinical or laboratory evidence of infection prior to transfusion.

The blood transfusion services (BTS) follow a stepwise approach to mitigate the risk of TTIs by:

- a) following recommended best practice by questioning the donor for symptoms of possible infection;
- b) disinfecting the donor arm prior to donation using validated disinfectants;
- c) diverting the first 30 ml of blood into the pouch. This significantly decreases contamination with skin flora;
- d) using the 30 ml in the diversion pouch to take samples for screening for human immunodeficiency virus (HIV), hepatitis B virus (HBV) and hepatitis C virus (HCV);
- e) monitoring the rates of infection in donors to sustain a safe supply of blood components;
- f) testing for bacterial contamination in at least 1% of platelet products produced; and
- g) performing environmental bacterial screening in areas of high risk for contamination.

Transfusion-Transmitted Bacterial Infection

There have been no reported cases of transfusion-related bacterial infections or confirmed related fatalities in the past six years in South Africa.

Product screening to detect bacterial contamination

In South Africa, there is no routine bacterial surveillance of red cell products. This is because platelet products are stored at room temperature and are therefore a more sensitive indicator of potential bacterial contamination.

There is a variation in the country's surveillance and notification procedure due to geographical locations and logistics. The South African National Blood Service (SANBS) has multiple apheresis and processing centres whereas the Western Cape Blood Service (WCBS) only has one apheresis centre and one processing centre.

SANBS has a greater number of samples to test so it makes economic sense for them to use their own microbiology laboratory to run sampling within 24 hours of collection. The prescribing doctor of any issued platelet product is notified if, at any

time during the seven-day incubation period, the culture becomes positive. Because WCBS has only one apheresis and one processing site and far fewer surveillance samples, they outsource this function but alert the prescribing doctor as soon as they are notified by the laboratory of a positive culture.

Bacterial Surveillance of Platelet Products 2025

	WCBS		SANBS	
	Pooled Platelets	Apheresis Platelets	Pooled Platelets	Apheresis Platelets
No. products tested	1 095	92	1 707	5 538
% of product tested	32.6%	2.2%	3.8%	14.6%
Positive cultures	0	0	4 Gram-positive 1 Gram-negative	13 Gram-positive 1 Gram-negative
Compliance score	100%	100%	99.78%	99.68%

“An impressive 99% sterility score has been maintained year on year, which is indicative of good manufacturing practice (GMP).”

SANBS bacterial surveillance extends to other products which are produced in small quantities, such as eye serum and stem cell collection, where compliance scores are 100% and 99.33% respectively.

As in previous years, the majority of organisms cultured from platelet products at SANBS were Gram-positive cocci – 17/26 (65.3%) – and 2/26 (7.6%) Gram-negative bacterial pathogens. The remaining positive cultures had either no growth or were for non-platelet products. WCBS had zero organisms cultured in their bacterial surveillance samples.

An impressive 99% sterility score has been maintained year on year, which is indicative of good manufacturing practice (GMP).



Transfusion-Transmitted Viral Infections

The risk of viral infection transmission depends on factors such as the burden of disease in the country (which reflects in the viral prevalence in the donor population), the level of donor screening and the technology used to detect specific viruses.

Viral prevalence in the donor population

All South African blood donations are screened through a combination of serological and molecular tests for HIV, HBV, HCV and syphilis. Testing for viral infections using the individual donation nucleic acid amplification test (ID-NAT) was implemented in the South African BTS in 2005.

During the 12-month period under review, 4 498 of the 1 164 978 donations collected and tested for HIV, HBV and HCV yielded a reactive result for one of the TTI viruses. In comparison to 2024 (when, due to a decrease in demand for blood products, there was a decrease of approximately 100 000 donations), the prevalence of the TTI markers reflected little change, except a marginal increase of 0.03% in HIV prevalence. Notably, there were no co-infections of HIV/HCV or HIV/HBV.

Viral-Positive Blood Donors 2025

Virus	No. of Positive Donors	Prevalence
HIV	3 252	0.30
HBV	961	0.09
HCV	285	0.03
Total donations	1 164 978	

The table below shows the trend within the donor population of an increase in the prevalence of HIV, notably over the past two years. During this time, contributions to the blood supply from first-time donors have accounted for just over 16% of total blood collections. This has been a result of a deliberate attempt to expand the overall donor panel and support long-term sustainability, and it is accepted that prevalence of all TTI viral markers is higher in first-time donors.

The HBV prevalence has steadily reverted back to a 2020-comparable level – suggesting the hepatitis vaccine programme, introduced post 1994, continues to have a positive impact – while HCV prevalence has had a slight uptick in the past three years.

These marginal changes in prevalence rates reflect the BTS's success in actively recruiting more donors to provide an adequate blood supply for a population which is undergoing year-on-year growth of approximately 1.23%³.

National Viral Prevalence in Blood Donors 2020–2025

Virus	2020	2021	2022	2023	2024	2025
HIV	0.19	0.15	0.17	0.21	0.27	0.3
HBV	0.08	0.06	0.06	0.07	0.09	0.09
HCV	0.01	0.01	0.01	0.02	0.02	0.03



... there have been no confirmed cases of viral TTIs in South Africa in the past ten years.



A noteworthy finding was that there was no known viral TTI event reported in 2025, which means that there have been no confirmed cases of viral TTIs in South Africa in the past ten years.

The Lookback Programme

The TTI Lookback Programme was established in 1986. It has been incorporated into the Haemovigilance Programme since 2005.

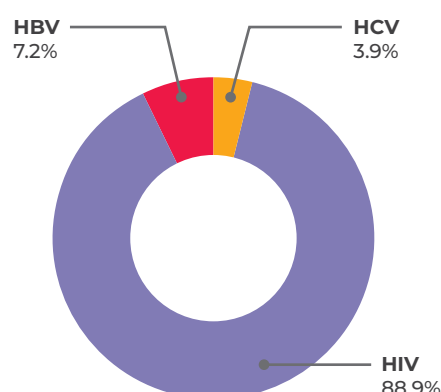
Donor-triggered lookback investigations

The Lookback Programme aims to trace all patients who are identified as recipients of blood from donors who test positive for a TTI on a subsequent donation, where the previous negative unit may possibly have been donated in a window period.

Of the 558 repeat donors who triggered a lookback in 2025, 88.9% were HIV-positive, 7.2% HBV-positive and 3.9% HCV-positive. This is reflective of the viral prevalence in the community, but at a significantly lower level due to the BTS screening and testing policies and procedures.

Number of Donor-Triggered Lookbacks 2025

Virus	No. of Donor-Triggered Lookbacks
HIV	496
HBV	40
HCV	22
Total	558

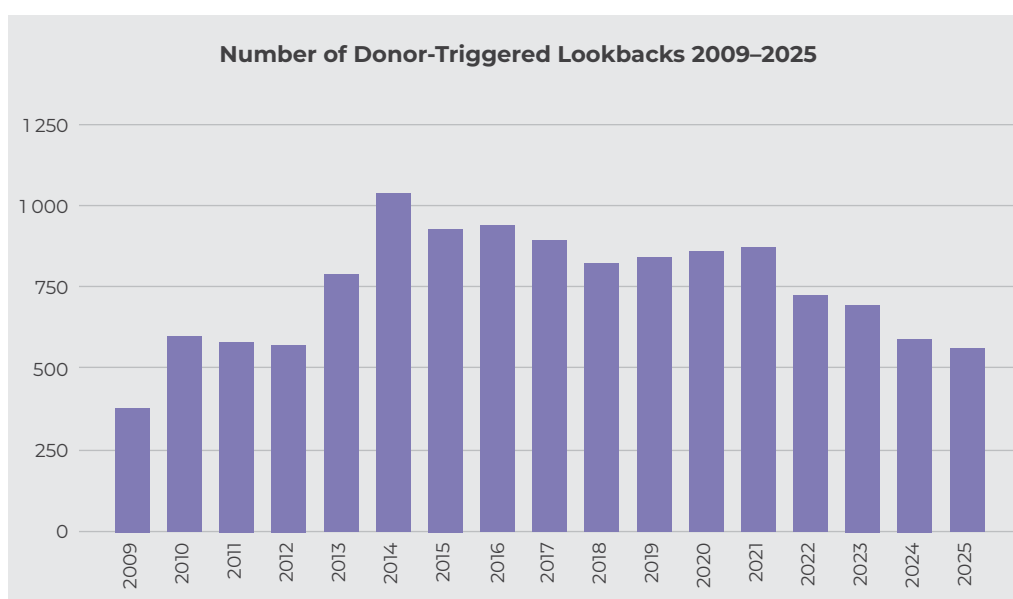


The table below highlights the challenge of tracing patients to provide a final, confident outcome. These challenges are understandable as there may be a considerable time period between the transfusion to the recipient and when the donor tests positive for a viral marker when they return for further blood donations.

Donor-Triggered Investigation Outcomes 2025

Outcome	No. of Patients
True closure: Recipient positive prior to transfusion or retested negative	139
Phylogenetic analysis for potential HIV TTI	0
Recipient died between transfusion & initiation of look back	96
Unresolved (awaiting feedback from clinician)	143
Untraceable patient	180
Total	558

Over the years, the number of donor-triggered lookbacks (DTLBs) has varied due to the influence of health factors outside the control of the BTS such as the HIV epidemic, introduction of antiretroviral drugs (ARVs), success of the HBV vaccine programme and overall improvement in education of blood donors. The graph below highlights the pleasing decrease year on year in the past four years of the number of DTLBs, due to the successful roll-out of the ARV programme resulting in lower infectivity in the population.



In the *2024 Haemovigilance Report*, the 401 DTLB cases reported for the year were considered an underestimate, due to a glitch in the new Blood Electronic Computer System. Happily, during 2025, all outstanding affected 2024 cases (598) were retrieved, investigated and reported.



A noteworthy fact is that there were no TTIs reported in 2025.



Recipient-triggered lookback investigations

There were only two recipient-triggered lookbacks during the period under review and both cases involved patients who had tested positive for HIV. Fortunately, both cases were resolved as the donors were investigated and found to be negative for HIV.

The National Haemovigilance Committee (NHVC) notes the need to improve the true closure rate of lookbacks by improving the communication with clinicians to encourage the retesting of patients for TTIs. However, with the knowledge at hand, the lack of TTIs for the past ten years (with the exception of a malaria TTI in 2023) and the low numbers of recipient-triggered lookback investigations provide reassurance of the safety of the South African blood supply. This is the result of the effective policies and procedures in place to reduce TTIs.

A noteworthy fact is that there were no TTIs reported in 2025.

The residual risk of HIV, HBV & HCV

The chance or residual risk of a potentially infectious HIV or HBV window-period donation not being detected on testing in South Africa is estimated by modelling. The Busch method⁸ is used, using the ID-NAT yields as incident infections. The calculations for residual risk and the window period of HIV and HBV are presented annually at the National Blood Safety meeting. While the residual risk of HCV is not routinely calculated as it is so low, it was agreed last year to do the calculations for 2025, but unfortunately the information is not available for this report.

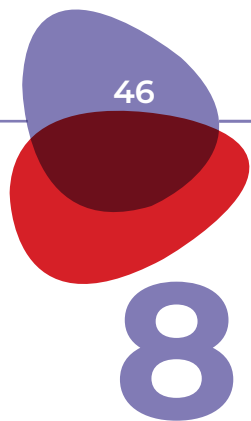
The window period is the time very early in the course of infection when the tests in use cannot yet detect the virus, but there may still be a sufficient amount for transmission. Using ID-NAT Ultrio Elite[®], the window period for detection is 4.6 days for HIV, 13.1 days for HBV and 2.8 days for HCV.

Estimated Residual Risk That a Unit Entering the South African Blood Supply is Potentially Infectious (based on WP NAT yields – Busch Model)⁹

Year	HIV	HBV
2025	1 in 133 520 donations	1 in 46 204 donations
5-year estimate (2021–2025)	1 in 114 946 donations	1 in 37 931 donations

The main purpose of calculating residual risk is to show the trend. In practice, however, we see far fewer TTIs because modelling tends to overestimate the risk and present a worst-case scenario.

It is important that all healthcare professionals prescribing, consenting and administering blood and blood products to patients have up-to-date knowledge of blood donation testing, and of the small but potential risk of a window-period transmission (when recent infection in the donor is not detected by routine testing).



Donor Haemovigilance

Blood donors are an essential first link at the beginning of the value chain that is required to support safe transfusion of patients. Although donation is generally safe, an unintended response in a donor may occur during or after the collection process of blood or blood components.

Appropriate donor care includes giving donors information about the risks of blood donation and encouraging them to speak up if they are not feeling well during the donation. Staff need to be trained to recognise warning signs of an impending donor adverse event (DAE), implement measures to minimise risk and provide appropriate first-line management thereof.

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A total of 3 563 DAEs were reported for the year, which translates to a rate of 30.6/100 000 donations.

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Historically, DAE and serious donor adverse event (SDAE) rates have been calculated on whole blood donations and not on all donations. As all donors may experience adverse events, the approach has changed as of 2025 to include other donations as well as whole blood.

A total of 1 402 891 voluntary non-remunerated blood donors presented at donor centres and mobile clinics around South Africa in 2025, resulting in 1 164 978 donations. A total of 3 563 DAEs were reported for the year, which translates to a rate of 30.6/100 000 donations.

In line with international DAE trends and previous years, vasovagal reactions (commonly known as faints) account for the majority of all DAEs (72%) and haematoma is the second most common at 17.4% of all DAEs. The problematic ‘painful arm’ makes up only 7% of the DAEs but is one of the more challenging for the blood transfusion services (BTS) to manage.

Donor Adverse Events per 100 000 Donations 2020–2025

Donations & Donor Adverse Events	2021	2022	2023	2024	2025
Total no. of whole blood donations	881 366	934 777	1 146 063	1 119 726	1 164 978*
DAEs per 100 000 donations	37.2	38.7	41.7	28.4**	30.6

* Note: All donations, not only whole blood donations.

**Under-reported in 2024 due to technical issues associated with a new computer system at the South African National Blood Service (SANBS).

Although the donor base has been expanded to be more inclusive, the significant decrease in DAE rates in 2024 and 2025 plus the discrepancy in reporting between the two BTS requires further investigation.

Serious Donor Adverse Events

An SDAE is an unintended response in a donor, associated with the collection of blood or blood components, that is fatal, life threatening, disabling or incapacitating, or which results in hospitalisation.

In order to collect such data, the BTS have further defined SDAEs as any event as a result of which the donor requires referral to Casualty/Emergency or additional medical oversight for further observations and/or management. The quality of the data collection has improved considerably over recent years, but there may have been some under-reporting due to lack of human resources during the year. In total, only eight SDAEs were recorded during 2025 compared to 21 in 2024. The SDAE rate for all donations in the calendar year of 2025 was 0.69 per 100 000 donations.

In comparison to the UK, the BTS in South Africa refer more donors to Casualty or a general practitioner (GP) for management and observation of vasovagal events (faints). This is most likely due to our mobile clinics and donor fixed sites often being vast distances from the blood transfusion doctor on call and because, in some areas, paramedical emergency services may be limited.

Serious Adverse Events of Donation 2025

Category	Detail of Cases	No. of Cases
Problems relating to insertion of needle requiring hospital/ intervention: tendon or nerve injury		0
Problems relating to insertion of needle requiring hospital/ intervention: vascular	Immediately post donation, the donor complained of a painful arm which then became swollen. The donor was referred to a GP & had several follow-up visits with no improvement. She was referred to a surgeon who on ultrasound diagnosed a brachial artery deep vein thrombosis. Donor was hospitalised for six days & was managed on anticoagulants for three months	1
	Two days post donation, a donor's fingerprick finger became painful & swollen. Oral antibiotics were started one week post donation. A further five days later, intravenous antibiotics were started & debridement of necrotic tissue was required	1
Injury resulting in a fracture		0
Vasovagal (within donor centre/mobile collection clinics)		0
Delayed vasovagal (beyond donor area)	Required intravenous infusion (IVI) fluids & observation in Casualty/Emergency	2
	Required IVI fluids, suture of laceration & observation in Casualty	1
	Required IVI fluids, suture of laceration, computer tomography (CT) scan & admission for observation overnight	1
	Required IVI fluids, CT scan & admission >24 hours for observation	2
Cardiovascular accident/ transient ischaemic attack		0

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... there were fewer critical injuries such as cardiovascular accidents or fractured bones. This is a positive indication that ongoing training in early recognition of potential DAEs improves donor care ...

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- 75% (6/8) of SDAEs occurred at mobile collection clinics
- 75% (6/8) of SDAEs were triggered by a delayed faint occurring >30 minutes after donation
- 25% (2/8) of SDAEs required only intravenous fluids and observation

In comparison to 2024, there were fewer critical injuries such as cardiovascular accidents or fractured bones. This is a positive indication that ongoing training in early recognition of potential DAEs improves donor care and helps to ensure an excellent donor experience.



9

Changes in Strategy & Procedure to Improve Safety

The blood transfusion services (BTS) have implemented a number of measures aimed at preventing harm to patients and protecting donors from adverse events. These measures encompass the entire value chain from clinic attendance, through specimen collection and processing, to issuing and transfusion of blood or blood products.

To minimise harm to patients and preserve the donor pool, the following interventions have been made in the areas of patient safety and donor care.

Patient Safety

Incorrect blood component transfused

The Western Cape Blood Service (WCBS) continues to closely monitor wrong-blood-in-tube (WBIT) events, which occur when a blood sample is labelled with the details of an incorrect patient. WBIT remains a significant transfusion safety risk and is typically identified only when a previous blood group record is available for comparison. Encouragingly, the WBIT rate decreased from 1.06 per 3 000 samples in 2024 to 0.88 per 3 000 samples in 2025, reflecting continued improvements in specimen collection practices and targeted staff training, and increased awareness among healthcare professionals regarding patient identification procedures.

WCBS continued to strengthen transfusion safety in 2025 through the implementation and expansion of its Second Sample Crossmatch Policy (SSCP). This policy applies to transfusion-naïve patients, who account for approximately 30% of all blood product requests. Where no historical blood group record exists, a second, independently collected sample is required to confirm the patient's blood group before transfusion. The SSCP is designed to reduce the risk of patient misidentification and prevent ABO-incompatible transfusions by ensuring that blood group determination is based on two separate samples.

During 2025, the policy was further extended to hospitals without on-site blood banks. Following receipt of the initial crossmatch sample, blood bank staff contact the requesting facility if no previous blood group record is available, prompting the collection of a second sample that is submitted alongside the original specimen. During the second half of 2025, the SSCP compliance rate averaged 47% among transfusion-naïve patients, representing an improvement compared with previous reporting periods and demonstrating increasing adoption of this important safety intervention.

The South African National Blood Service (SANBS) has similarly implemented processing reforms for sample testing and product issuance, and these entail system integration and process automation. In an effort to limit transcription errors in the blood bank, a batch-grouping interface between Meditech and the blood bank instrumentation has been successfully implemented. This eliminates the need for operators to capture results manually into Meditech. The sample testing process has also been reviewed and streamlined, with changes aimed at eliminating manual testing and digitising as many processes as possible. Education and training continue on an ongoing basis.

Platelet availability

Improvements to the platelet strategy involve three elements, comprising (a) devolution of access to platelets to platelet hubs, (b) reaching the split-rate target of 1.6, resulting in more platelets being available, and (c) promoting the use of filtered pooled platelets to increase preferential use thereof.

National surveillance

SANBS and WCBS, together with the National Institute for Communicable Diseases (NICD), participate in an emerging-infections surveillance committee. The committee looks for emerging pathogens which may threaten the safety of donated blood components, to ensure that appropriate actions are taken to mitigate any identified risk.

Donor Care

Donor safety remains a key strategic priority for WCBS. Routine ferritin testing continues to be performed at every donation to identify donors at risk of iron depletion. Donors with ferritin levels below 6 µg/L are deferred from donation for six months to allow recovery of iron stores. In addition, iron replacement therapy is offered to all donors following successful donation. Uptake of iron supplementation increased substantially during 2025, reaching approximately 30% of donors by year-end. This improvement is expected to contribute to better maintenance of donor iron stores, reduced rates of iron deficiency and enhanced long-term donor health and retention.

SANBS has also focused its efforts on sustainable donor management. Having recognised that repeat donors remain the cornerstone of the blood supply, and having excluded the COVID-related decline, SANBS have observed a pleasing consistent increase in the number of repeat donors.

However, over the past two years, contributions from first-time donors have accounted for more than 16% of total donor collections. This is a result of a deliberate attempt by SANBS to expand the overall donor panel and support long-term sustainability. The aim is to create, over time, the flexibility to extend donation intervals for donor groups at higher risk of low iron levels. This reduction in donation

frequency is enabled by implementing a donor ferritin-management algorithm, which identifies donors with low ferritin levels, extends their inter-donation intervals and – where indicated – offers iron supplementation to support iron store recovery and donor wellbeing.

The noticeable increase in repeat donors enables the BTS to continue to build on this growth to support the gradual implementation of improved iron-management policies.

The expansion of the donor pool was achieved by donor recruitment campaigns targeting the youth and Black donors. This has resulted in a much younger donor panel, with donors aged 16–30 years comprising 46.27%, and an appreciable increase in Black donors, whose share of the donor pool was 56.92% in 2025. Even though the donor eligibility criteria have been relaxed, both these donor demographic groups have higher deferral rates, therefore continual recruiting of new donors is required to maintain sustainability of the blood supply.

For a comprehensive response, donor pool expansion must be complemented by an effective, sustainable donor care programme to ensure the retention of repeat donors.



Conclusion

When compared to the previous reporting period, it is heartening to see improvement in the indicators used to assess the capability of the national blood transfusion services (BTS). However, the changes are slight and the sustainability of the system remains at risk should there be even a marginal increase in demand.

To be welcomed is the uptick in the transfusion rate, as it implies that more indications for blood transfusion are being met or that more patients requiring transfusion are in fact being transfused.

Plasma-product use is varied, but the decline in the use of pooled platelets is disappointing and presents another opportunity for education of the end users, especially as the data now show a sustained decrease since 2022.

Blood transfusion, while relatively safe, is not without complications. This report notes a 7% increase in the overall incidence of transfusion-related adverse events (TRAEs) compared to 2024. Of particular concern is the appreciable increase in serious adverse events (SAEs) to 19.9/100 000 transfusions, up from the 13.1/100 000 reported in the previous year. Caution is advised though, as not only did the year under review coincide with revisions to the applicable definitions of adverse events but, with better coordination between the BTS, there were also changes to collection of data.

A notable finding is the high rate of incorrect blood component transfusion (IBCT), implying a need for intensive education of all staff and strict adherence to transfusion protocols.

Mortalities reported on suspicion of being related to transfusion increased in absolute terms to 50, from a low of 34 in the previous year. Of significance is that only five of these were assessed as being possibly causally linked, but – worryingly – a large majority were deemed not assessable due to poor or insufficient information. Education strategies targeting ward staff, especially clinicians, should be an area of focus in the year ahead.

The absence of any reports of transfusion-transmitted infections (TTIs) continues a trend stretching six years for bacterial infections and more than ten years for viral infections. The latter is especially noteworthy because it was achieved notwithstanding a marginal increase in human immunodeficiency virus (HIV) prevalence over the past two years. The BTS must be commended on what are undoubtedly robust screening and effective bacterial surveillance programmes.

Whereas we report a slight increase in the incidence of donor adverse events (DAEs), it is pleasing to see that there were fewer serious donor adverse events (SDAEs) compared to 2024. This is likely the result of focused and ongoing training of donor staff, and effective patient education on precautions to be followed post transfusion.

Overall, this report represents a welcome improvement on the performance of the South African BTS in 2025 compared to 2024.

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This report notes a 7% increase in the overall incidence of transfusion-related adverse events (TRAEs) compared to 2024.

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THE HAEMOVIGILANCE PROCESS

DONOR



BLOOD DONATION

Good practice related to collection of blood products
• Criteria for donation • Health check



BLOOD PRODUCT DONORS

Potential donors
% of candidates excluded
Actual donors



VIROLOGICAL SCREENING

• ID NAT testing + Serological testing



BLOOD GROUP SCREENING

ABO and Rh blood groups



DONOR REGISTRY

Traceability

PROCESSING



BLOOD PROCESSING

Good practice related to blood processing and storage



SEPARATION INTO COMPONENTS

Removal of buffy coat
Selected products filtered
Selected products irradiated
Extended phenotyping



PRODUCT QUALITY CHECKS

Platelets – Bacterial surveillance
Filtered products – White cell count



STORAGE OF PRODUCTS

Freezing of plasma
Room temperature for platelets
1–6 °C for red cells

RECIPIENT



HOSPITAL TRACEABILITY

Good practice related to patient and product traceability



DISTRIBUTION TO CROSSMATCH LABORATORIES



HOSPITAL TRANSFUSION

Patient identification



RECIPIENT FOLLOW-UP

Adverse events
Lookbacks



RECIPIENT REGISTRY



NHVC

NATIONAL
HAEMOVIGILANCE
COMMITTEE

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