



NAMBTS
donate life

The 13th Namibian Haemovigilance Report

2026 Financial Year

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Executive Summary

The 13th Namibian Haemovigilance Report presents an overview of blood donation, blood component production, utilization, safety, and haemovigilance activities during the 2026 financial year (1 April 2025 – 31 March 2026).

A total of 32,479 donors contributed to the national blood supply, with regular donors accounting for 53% of the donor population. During the reporting period, NamBTS collected 50,756 donations, comprising 44,134 whole blood donations, 4,976 plasmapheresis procedures, 696 plateletpheresis procedures, and 950 erythrocytapheresis procedures. Namibia maintained a whole blood donation rate of approximately 14.5 donations per 1,000 population, exceeding WHO benchmarks for many low- and middle-income countries.

Temporary donor deferrals accounted for 10.6 of donor presentations, comparable to regional benchmarks. Low haemoglobin remained the leading cause of donor deferral, accounting for 45.9% of all temporary deferrals,

A total of 508 donations tested positive for one or more transfusion-transmissible infections, resulting in an overall TTI prevalence of 1.0%, which remained below the NamBTS target of 1.2%. Hepatitis B virus remained the most prevalent infection. New donors accounted for the majority of TTI-positive donations, while regular donors continued to represent the lowest-risk donor group.

Plasmapheresis activity expanded during the year, increasing by 23.6% and yielding approximately 3,677 litres of source plasma. The Rabies Hyperimmune Plasmapheresis Programme demonstrated substantial growth, with hyperimmune plasma donations increasing by 103% compared with the previous year. Platelet production increased by 12% to 3,146 units.

Blood component wastage improved during 2026. The whole blood and RCC discard rate excluding short bleeds decreased from 5.0% in 2025 to 3.3% in 2026, largely due to a significant reduction in expiry-related losses. Platelet wastage also improved, declining to 10.0%. These improvements reflect enhanced inventory management and the ongoing benefits of platelet sterility testing and extended platelet shelf life.

A total of 57,655 blood and blood component units were issued to healthcare facilities nationwide. Red Cell Concentrates remained the most utilised component, accounting for 45,749 units, with approximately 81% issued to the public healthcare sector. Group O RCC continued to account for the majority of red cell usage.

Recipient haemovigilance data recorded 136 transfusion reactions associated with blood and blood component transfusions during the reporting period. Allergic reactions (47%) and febrile non-haemolytic transfusion reactions (32%) remained the most frequently reported adverse events. RCCs were implicated in 58% of all reported reactions, predominantly FNHTRs, while FFPs accounted for 37% of reactions, the majority of which were allergic or anaphylactoid in nature.

Overall, the 2026 financial year was characterised by a stable blood supply, low TTI prevalence, expansion of plasma collection programmes, improved inventory management, and reduced blood component wastage. Continued investment in donor health, haemovigilance systems, Patient Blood Management (PBM), and stakeholder education will be essential to further strengthen the safety, quality, availability, and appropriate utilization of blood and blood components in Namibia.

Introduction

The Namibian Blood Transfusion Service (NamBTS) has published haemovigilance reports annually or biennially since 2009 as part of its commitment to improving the safety, quality, and effectiveness of blood transfusion services in Namibia. This 13th Haemovigilance Report provides a comprehensive overview of blood donation, component production, utilization, and transfusion-related outcomes for the 2026 financial year (1 April 2025 – 31 March 2026).

Haemovigilance is the surveillance of the entire transfusion chain, from donor recruitment and retention and blood collection to component preparation, laboratory testing, clinical transfusion practice, and the monitoring of donor and recipient adverse events. This “vein-to-vein” approach enables early risk identification, trend monitoring, and the implementation of corrective and preventive actions to enhance transfusion safety.

Blood and blood components remain essential therapies for the management of trauma, surgery, obstetric haemorrhage, haematological disorders, oncology, and paediatric conditions. The public healthcare sector continues to account for the majority of blood component utilization in Namibia, supported through substantial investment by the Ministry of Health and Social Services (MoHSS) to ensure equitable access to safe blood and transfusion services nationwide.

This report presents key haemovigilance indicators, including donor demographics, donor deferrals, blood collection and utilization trends, blood safety indicators, blood component wastage, donor adverse events, transfusion reactions, and near-miss incidents. The primary aim is to provide feedback to stakeholders across the transfusion chain and support evidence-based interventions that strengthen the quality, safety, availability, and appropriate use of blood and blood components in Namibia.

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Sustained commitment to accurate, timely, and comprehensive reporting is essential for identifying and mitigating transfusion-associated risks. Such efforts inform evidence-based interventions and strengthen the overall safety, quality, and effectiveness of transfusion services in Namibia.



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30 June 2026

Section 1 – Collection & Preparation of Blood and Blood Components

1.1 Blood Donors

1.1.1 Blood Donor Categories

NamBTS collects blood and blood components exclusively from voluntary non-remunerated donors (VNRDs), in accordance with World Health Organization (WHO) recommendations. The donor population reported in this section includes all donors who donated during the financial year, including both whole blood and apheresis donations.

During the 2026 financial year, a total of 32,479 donors donated whole blood or blood components, representing a marginal 0.4% increase from 32,354 donors in 2025. This follows a period of substantial growth between 2021 and 2023, during which donor numbers increased from 23,114 to 30,779, before stabilizing in 2024 and 2025. Over the six-year period, an average annual growth rate of approximately 4.2% was observed, as illustrated in Figure 1.1.

Of the donors recorded in 2026, 17,056 (53%) were regular donors, 8,017 (25%) were new donors, and 7,406 (23%) were lapsed donors (Figure 1.2). When considering only whole-blood donors, the total donor population was 30,764, comprising 15,587 (51%) regular donors, 8,016 (26%) new donors, and 7,161

(23%) lapsed donors. The difference of 1,715 donors (5%) between the total donor population and the whole blood donor population reflects donors who participated in apheresis collections.

Regular donors remain the cornerstone of the national blood supply and have shown a gradual increase in both absolute numbers and proportional contribution. On average, each regular donor donates about twice per year. New donors accounted for one-quarter of the donor base, while lapsed donors remained relatively stable at about one-quarter of all donors.

The continued growth in the number of regular donors is encouraging and reflects the success of NamBTS donor retention initiatives. However, approximately 1% of the Namibian population currently donates blood, indicating that population growth continues to outpace donor recruitment. Sustained investment in donor recruitment, retention, and reactivation programmes therefore, remains essential to ensure a resilient and sustainable blood supply capable of meeting future transfusion demands.

Figure 1.1: NamBTS Donor Base Variation for 2021 to 2026 Financial Years:

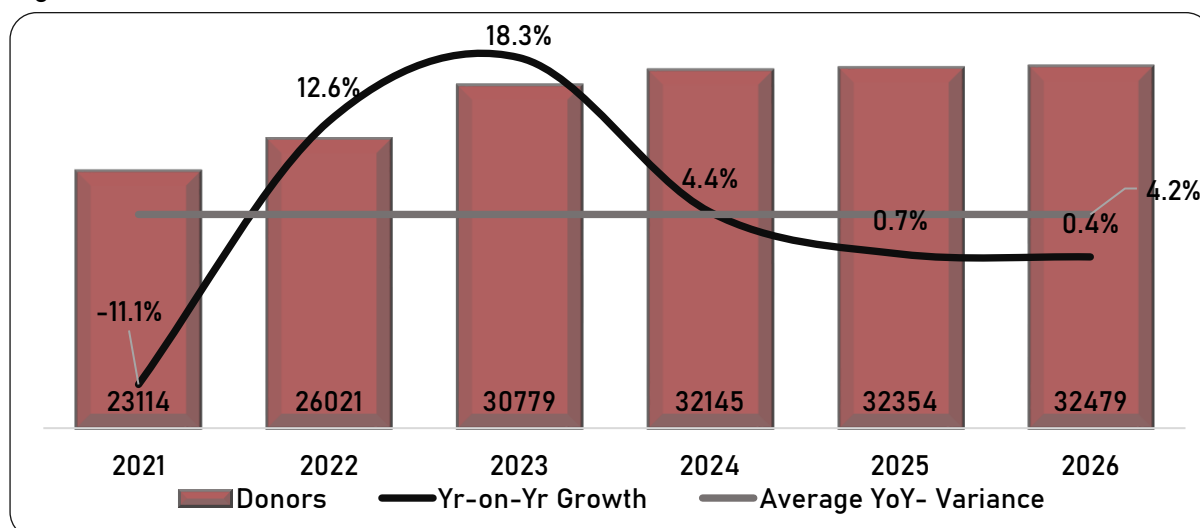
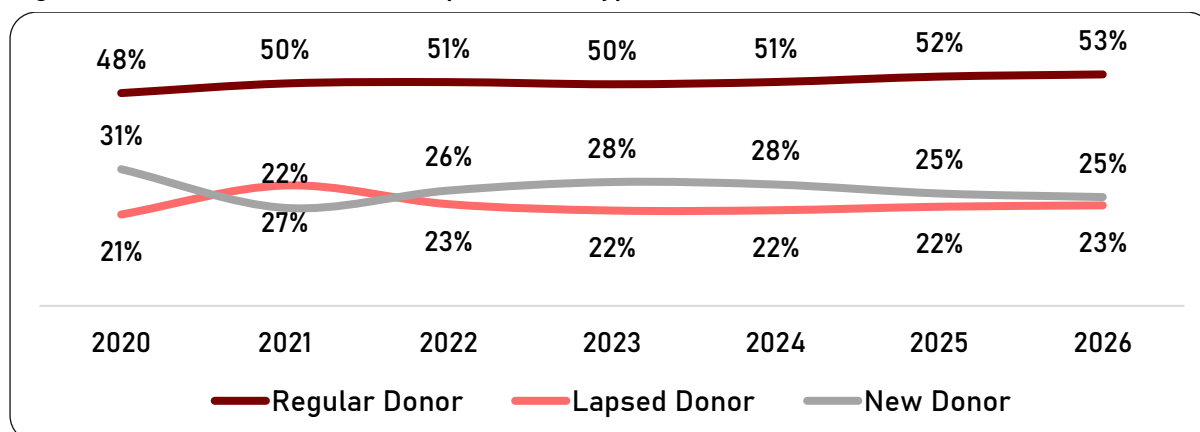


Figure 1.2: Distribution of Donors per Donor Type for 2020- 2026 Financial Years:



1.1.2 Blood Donor Demographics

Female donors continued to constitute the majority of the donor population, accounting for 58% of all donors, compared with 42% for male donors. This distribution remained unchanged from the previous financial year and continues to exceed the proportion of females in the general Namibian population.

The distribution of donations by age category is shown in Figure 1.3. Donors aged 25–44 years remained the largest contributor to the blood supply, accounting for 48.1% of all donations in 2026. Donors aged 20–24 years contributed 21.0% of donations, while those aged 45–64 years accounted for 18.0%, indicating sustained participation among both younger and older adult donors.

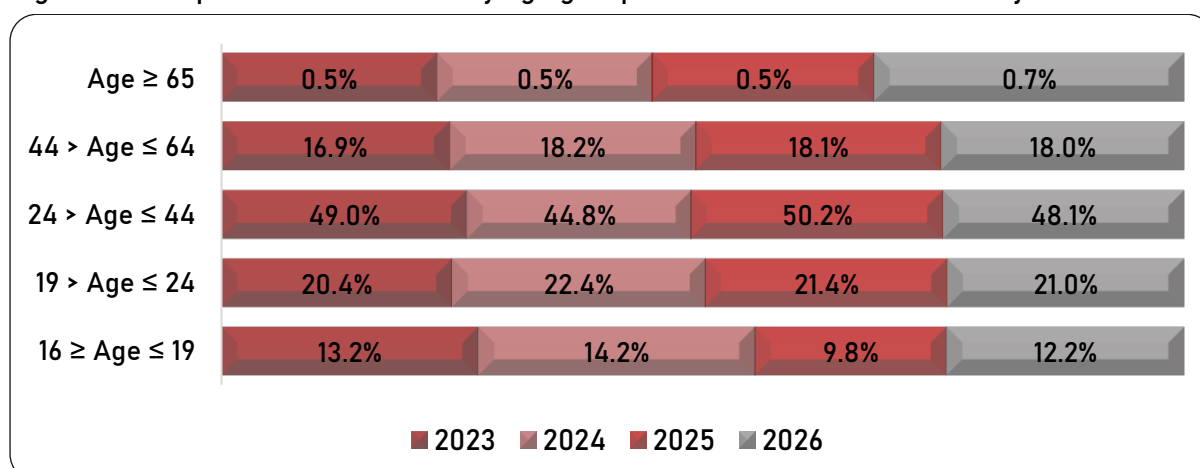
Encouragingly, the proportion of donations from 16–19-year-old donors increased from 9.8% in 2025 to 12.2% in 2026, returning to

levels seen in previous years and approaching the four-year average of 12.4%. This improvement is important because younger donors represent the future donor pool and contribute to long-term donor sustainability.

Donors aged 65 and older remained the smallest group of contributors, accounting for 0.7% of donations, reflecting age-related eligibility criteria and health considerations.

Overall, the age distribution of donors remained stable during the year under review, with approximately 69% of donations coming from individuals aged 20 to 44. This highlights the continued reliance of the Namibian blood supply on young and middle-aged adults and underscores the importance of maintaining recruitment and retention initiatives targeting these key donor groups.

Figure 1.3: Proportion of donations by age group for the 2023 -2026 financial years:



1.1.3 Donor Deferrals

Donors who do not meet blood donation eligibility criteria are deferred either temporarily or permanently to protect the safety of both recipients and donors. Donor deferrals serve as an important indicator of donor health and directly influence blood availability.

During the review period, 11.3% of donor presentations resulted in a temporary deferral, a proportion that has remained relatively stable over the past four financial years (11.5% in 2023, 11.2% in 2024, 11.5% in 2025 and 11.3% in 2026). However, this figure includes the category "Not to be Called", which accounted for 7.2% of all temporary deferrals. As this category reflects donor communication preferences, scheduling constraints, or other non-medical reasons rather than failure to meet donor eligibility criteria. **Excluding this category reduces the overall temporary deferral rate from 11.3% to 10.6%**, bringing Namibia closer to the WHO African Region average donor deferral rate of 8.8%, while remaining below the SADC regional average of 12.3% reported in the WHO African Region Status Report on Blood Availability, Safety and Quality (2022).

As shown in Table 1.1, low haemoglobin (anaemia) remained the leading cause of donor deferral during the 2026 financial year, accounting for 3,009 deferrals (45.9%). Furthermore, analysis of donor presentation outcomes demonstrated that 5.2% of all donor presentations resulted in deferral due to low haemoglobin, highlighting anaemia as the single greatest barrier to successful blood donation in Namibia. Although ferritin testing has improved the identification of donors with iron deficiency and iron overload, haemoglobin remains the primary screening test performed before donation. Consequently, donors deferred due to low haemoglobin do not routinely proceed to ferritin testing, and the contribution of iron deficiency to donor ineligibility is likely underestimated.

The second most common cause of deferral was illness, medication use, or recent medical treatment, accounting for 755 deferrals (11.5%), followed by hypotension or hypertension with 645 deferrals (9.8%). In combination with bradycardia, tachycardia, and irregular pulse (189 deferrals; 2.9%), abnormal cardiovascular screening parameters accounted for a substantial proportion of donor losses and continue to represent an important contributor to donor ineligibility.

Iron-related abnormalities beyond anaemia also remained prominent. A total of 304 donors (4.6%) were deferred due to abnormal serum ferritin levels, including both low and high serum ferritin levels (haemochromatosis), while a further 76 donors (1.2%) were deferred because of elevated haemoglobin or polycythaemia. The increasing identification of these conditions reflects the ongoing implementation of ferritin monitoring and highlights the importance of donor health surveillance programmes aimed at protecting both donor wellbeing and long-term donor retention.

Other notable causes of temporary deferral included operation or medical procedures (269; 4.1%), acupuncture, body piercing, tattoos, or permanent make-up (141; 2.2%), high-risk behaviour (104; 1.6%), age above 65 years (77; 1.2%), and pregnancy or breastfeeding (55; 0.8%).

Overall, the donor deferral profile observed during the 2026 financial year remained consistent with previous years, with anaemia-related deferrals continuing to dominate. This underscores the importance of continued donor health initiatives, nutritional education, ferritin monitoring, and targeted donor wellness programmes to reduce preventable donor deferrals, protect donor health, and support the sustainability of Namibia's blood supply.

Table 1.1: Temporary Donor Deferrals by Deferral Reason and Donor Type, 2026 Financial Year:

Deferral reason	Lapsed Donor	New Donor	Repeat Donor	Grand Total	Percentage
Abnormal Antibodies	1	1	4	6	0.1%
Accidental Exposure To Blood	0	0	3	3	0.0%
Acupuncture/Body Piercing/ Tattoo/ Permanent Make-Up	19	15	107	141	2.2%
Age (Over 65)	5	1	71	77	1.2%
Animal/Human/Insect Bite	3	0	12	15	0.2%
Biological False Positive/Counselled	55	221	91	367	5.6%
Blood Transfusion	1	0	5	6	0.1%
Bradycardia/ Tachycardia/ Irregular Pulse	18	16	155	189	2.9%
Non-Sexually Transmitted Hepatitis/Hepatitis Contact	1	0	4	5	0.1%
Not To Be Called	46	18	406	470	7.2%
High Risk Behaviour (Incl. New Sexual Partner)	25	14	65	104	1.6%
Hypotension/Hypertension	42	23	580	645	9.8%
Immunization / Vaccination	0	2	25	27	0.4%
Low Hb (Anaemia)	319	221	2469	3009	45.9%
High Hb (Polycythaemia)	4	3	69	76	1.2%
Low/High Serum Ferritin (Haemochromatosis)	55	49	200	304	4.6%
Occupational Exposure/Hazzard	0	1	1	2	0.0%
Sick/Illness/On Medication	79	37	639	755	11.5%
Operation/Medical Procedure/Scope	24	6	239	269	4.1%
Pregnant/ Breast Feeding	10	1	44	55	0.8%
Underweight	7	3	17	27	0.4%
TOTAL	714	632	5206	6552	100%

1.2 Blood Donations

NamBTS utilizes four donation modalities: whole blood donation, plasmapheresis, plateletpheresis, and erythrocytapheresis.

Whole blood donations remain the most common form of donation, while apheresis procedures allow for the selective collection

of specific components to meet specific clinical needs. Together, these collection modalities are integral to Namibia's blood supply system, ensuring the availability of safe, appropriate blood components to meet the healthcare sector's evolving needs.

1.2.1 Whole Blood Donations

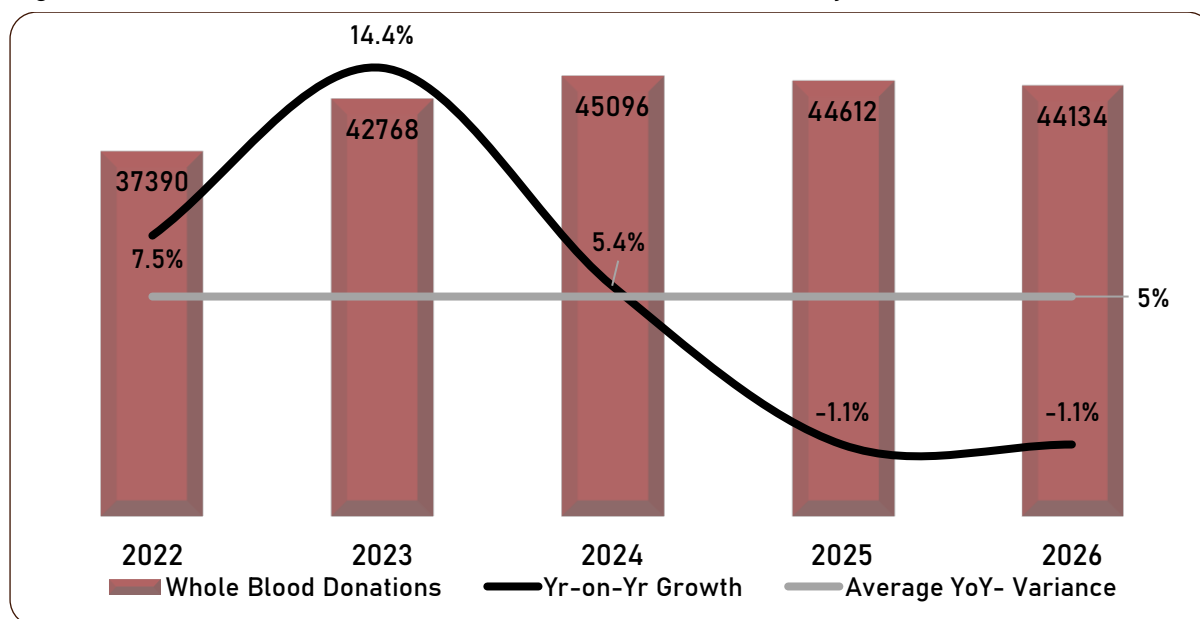
According to the World Health Organization (WHO), the median blood donation rate in low- and lower-middle-income countries ranges from 5.0 to 6.6 units per 1,000 population. In comparison, Namibia achieved a whole blood donation rate of 14.6 units per 1,000 population during the 2026 financial year, based on a total collection of 44,134 units and a population of approximately 3.02 million.

As illustrated in Figure 1.3, whole blood collections demonstrated a strong recovery and expansion following the COVID-19

period, increasing from 37,390 donations in 2022 to 42,768 in 2023, representing the highest year-on-year growth (14.4%). Growth continued in 2024, reaching a peak of 45,096 donations (+5.4%). Thereafter, collections stabilized, with only marginal declines observed in 2025 (44,612; -1.1%) and 2026 (44,134; -1.1%).

The average year-on-year growth over the five-year period was 5%, with the exceptional post-pandemic expansion in 2023 and 2024 offsetting the modest declines in 2025 and 2026.

Figure 1.4. Whole Blood collections for the 2022-2026 financial years:



Analysis of donation sites indicates that fixed donation sites remained the primary source of whole blood collections in 2026, contributing 31% of total donations. Worksite collections accounted for 20%, followed by long-distance mobile clinics (13%), schools (12%), and shopping centres (11%). Smaller contributions were observed from tertiary institutions (7%), short-distance mobile clinics (6%), and community-based drives (1%). This distribution highlights the continued importance of fixed sites and mobile outreach programmes in sustaining national blood collection.

Blood group distribution analysis demonstrates that group O remains the predominant blood group collected, accounting for 56% of total donations in 2026. The contribution of group O donors varied by collection site, with the highest proportions observed at fixed sites (68%) and long-

distance mobile clinics (56%). In contrast, community and school-based collections showed lower proportions of group O donors (46%). The overall dominance of group O collections underscores its critical role in maintaining an adequate supply of universally compatible blood products.

Despite Namibia's strong performance in blood collection relative to international benchmarks, the gradual decline in collections warrants close monitoring. This is particularly important in light of the anticipated increase in demand driven by population growth and the continued expansion of healthcare services. Sustained attention must therefore be directed toward donor recruitment, optimization of collection strategies, and demand forecasting to mitigate the risk of a supply-demand disequilibrium and to ensure the long-term sustainability of the national blood supply.

1.2.2 Plasmapheresis Donations

Plasmapheresis is an apheresis procedure in which plasma is selectively collected while the remaining blood components are returned to the donor. The collected source plasma is used either for direct transfusion or exported to the National Bioproducts

Institute (NBI) for fractionation into plasma-derived medicinal products (PDMPs).

During the 2026 financial year, as illustrated in Table 1.2, a total of 4,976 plasmapheresis procedures were performed, representing a 23.6% increase from 2025. These procedures

yielded approximately 3,677 L of source plasma, compared to 2,955 L collected in 2025, representing a 24.4% increase in volume. This growth reflects the continued expansion of the plasmapheresis programme and contributed significantly to national plasma availability.

A total of approximately 1,789 L of plasma was issued for transfusion during the

reporting period, compared to 1,717 L in 2025. Transfusion requirements remained relatively stable between the two financial years, however, plasma collection increased substantially. As a result, a smaller proportion of the total plasma collected was required for transfusion in 2026 compared to 2025.

Table 1.2: Plasmapheresis Donations and Source Plasma Collection Volumes Trends, 2023–2026 Financial Years

Plasmapheresis	2023	2024	2025	2026
Donations	3,664	4,640	4,026	4,976
Collected Volume (L)	2,656	3,364	2,955	3,677
Transfused Volume (L)	1,276	1,422	1,717	1,789
Surplus Volume (L)	1,380	1,942	1,238	1,888
<i>Note: Surplus volume is exported for the purpose of manufacturing PDMPs</i>				

As shown in Table 1.2, plasmapheresis activity increased substantially over the period 2023–2026. The number of plasmapheresis procedures increased from 3,664 in 2023 to 4,976 in 2026, representing a 35.8% increase, while source plasma collection volumes increased from 2,656 L to 3,677 L. Despite a temporary decline in 2025, a strong recovery was observed during 2026, resulting in the highest number of plasmapheresis donations and largest plasma collection volume recorded during the reporting period. This growth has strengthened national plasma availability for both transfusion and fractionation purposes.

The Rabies Hyperimmune Plasma Programme also demonstrated substantial

growth during the reporting period. A total of 134 hyperimmune plasmapheresis donations were collected in 2026 compared to 66 donations in 2025, representing a 103% increase. Hyperimmune donations accounted for 2.7% of all plasmapheresis procedures, the highest proportion recorded since programme inception. Despite this improvement, the programme achieved only 67% of its annual target of 200 donations, indicating ongoing opportunities for expansion. Continued donor recruitment, retention and vaccination of eligible donors will be essential to support local production of rabies immunoglobulin and strengthen national self-sufficiency in hyperimmune plasma products.

1.2.3 Plateletpheresis Donations

NamBTS has supplied platelet concentrates through apheresis collections since 2007. In 2016, pooled platelets were introduced following a comprehensive risk assessment which showed significantly reduced TTI risk due to implementation of individual donation nucleic acid testing (ID-NAT), which

enhanced product safety and expanded platelet production capacity.

A total of 683 plateletpheresis procedures were performed during the 2026 financial year, yielding 1,458 apheresis platelet units. This represents an average split rate of 113%, substantially exceeding both the programme target split rate of 85% and the rates

achieved in previous years (50% in 2022, 93% in 2023, 91% in 2024, and 77% in 2025). The improved split rate indicates a higher proportion of collections achieving sufficient platelet yields to produce two adult therapeutic doses from a single donation.

In addition to apheresis-derived platelets, 1,688 pooled platelet units were produced from whole blood donations, resulting in a total platelet production of 3,146 adult platelet units during the year under review. This represents an increase of 12% when compared to the 2,814 units produced in 2025

and reflects the combined impact of improved apheresis collection yields and continued production of pooled platelet concentrates.

The marked improvement in the apheresis split rate observed in 2026 suggests enhanced donor selection and collection efficiency. This improvement contributed substantially to overall platelet availability and supports ongoing efforts to maximize platelet production at the lowest cost possible while maintaining a sustainable apheresis platelet donor base.

1.2.4 Erythrocytapheresis Donations

Erythrocytapheresis is a procedure that selectively collects red blood cells (RCC) while returning plasma and other cellular components to the donor. The procedure enables the collection of approximately two adult leucodepleted RCC units from a single donation or can subsequently be processed into up to six paediatric leucodepleted RCC units, making erythrocytapheresis a highly efficient method of producing red cell components for both adult and paediatric transfusion support.

Since its introduction in March 2023, the programme has expanded rapidly. The number of erythrocytapheresis procedures increased from 37 procedures in 2023 to 559 procedures in 2024, representing a 1,411% increase. Collections increased further to 1,061 procedures in 2025 (90% increase), reflecting the successful integration of erythrocytapheresis into routine blood collection activities.

During the 2026 financial year, a total of 950 procedures were performed, representing a 10% decrease compared to 2025. This reduction was primarily attributable to the temporary suspension of the programme at the end of February 2026 following the

unavailability of collection sets from the supplier. Despite this interruption, the programme continued to contribute substantially to the national blood supply, producing 1900 adult leucodepleted RCC units during the year under review.

This programme remains particularly valuable because it produces leucodepleted RCC units, which are preferentially used in paediatric transfusion practice, especially for neonates, premature infants, and other vulnerable patient groups. It is important to note that 47% of RCC from this programme were issued for paediatric patient transfusion. In addition to improving component yield per donor, the programme supports patient blood safety by reducing donor exposure through the availability of multiple paediatric units derived from a single donation.

Despite the temporary interruption during this review period, erythrocytapheresis continued to make a substantial contribution to the national red cell supply. Efforts are ongoing to ensure a stable supply of collection consumables and to support the continued expansion and sustainability of the programme.

Section 2 – Transfusion Transmissible Infections (TTI's) of donated blood

All blood and blood components collected by the NamBTS are routinely screened for the major transfusion-transmissible infections (TTIs), namely human immunodeficiency virus (HIV-1 and HIV-2), hepatitis B virus (HBV), hepatitis C virus (HCV), and syphilis, in accordance with WHO recommendations and national blood safety standards.

Each donation undergoes a comprehensive testing incorporating both serological assays and individual donation nucleic acid testing (ID-NAT) to maximize the detection of acute and chronic infections. Donations with

reactive or discordant screening results undergo additional confirmatory and supplementary testing in accordance with established NamBTS protocols.

The final interpretation of screening and confirmatory test results determines the suitability of the donation and any associated blood components for clinical use, guides donor notification, counselling, deferral, and follow-up management. These processes form a critical component of blood safety in Namibia.

2.1 TTI Results and Prevalence

During the 2026 financial year, 508 donations were confirmed positive for one or more infectious markers, resulting in **an overall TTI prevalence of 1.00%** (Table 2.1). Although this represents an increase from the 0.87% in 2025, the overall prevalence remained below the NamBTS target threshold of 1.20% and substantially lower than levels observed prior to 2021 (Figure 2.1).

HBV remained the most prevalent infection, accounting for 240 positive donations and a prevalence of 0.47%, followed by HIV (0.22%), syphilis (0.17%), and HCV (0.15%). Compared with 2025, increases were observed in HBV, HIV, and HCV prevalence, while syphilis prevalence remained relatively stable.

New donors continued to account for the majority of positive donations, contributing 352 cases (69%) and demonstrating the highest prevalence (0.69%). In contrast, regular donors accounted for 137 positive donations (27%), with a prevalence of 0.27%,

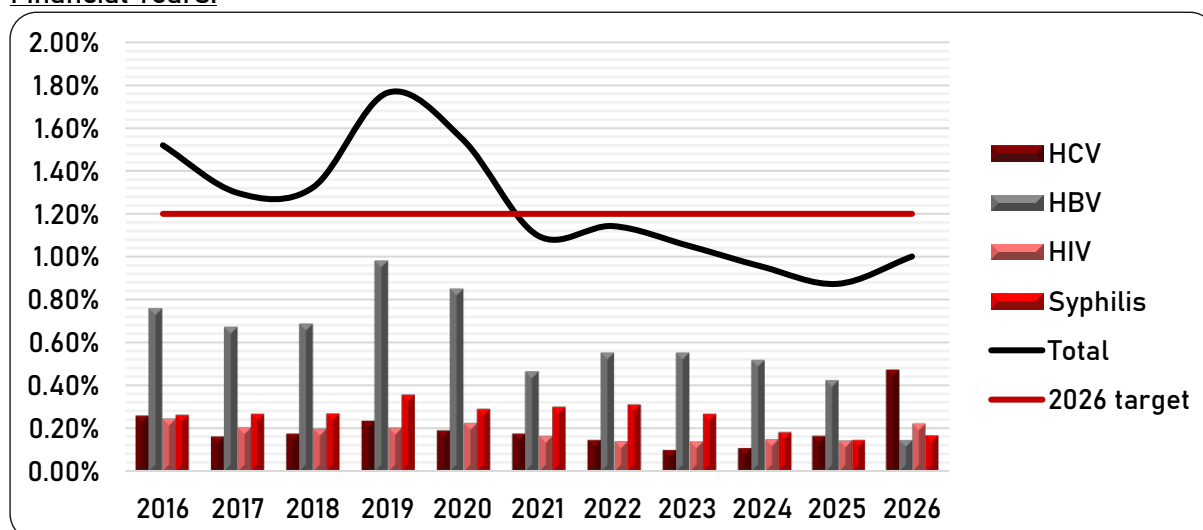
while lapsed donors (donors who donated at least once previously, but did not donate in the past 12 months) contributed only 19 positive donations (4%), corresponding to a prevalence of 0.04%. These findings reinforce the well-established observation that regular repeat donors constitute the lowest-risk donor population and remain fundamental to maintaining a safe blood supply.

Longitudinal analysis, as illustrated in Figure 2.1, demonstrates a substantial reduction in TTI prevalence over the past decade, declining from 1.77% in 2019 to 1.00% in 2026. While the increase observed in the current period under review warrants continued surveillance, particularly regarding HBV and HIV infections, the overall trend reflects the effectiveness of donor selection, donor education, and screening strategies in reducing TTI risk within the Namibian donor population.

Table 2.1: Positive donations and TTI prevalence for 2026 Financial Year

	HBV	HCV	HIV	Syphilis	Total TTI	Prevalence
Lapsed donors	5	3	5	6	19	0.04%
New donors	211	58	40	43	352	0.69%
Regular donors	24	13	65	35	137	0.27%
Total	240	74	110	84	508	1.00%
Prevalence	0.47%	0.15%	0.22%	0.17%	1.00%	

Figure 2.1: Annual TTI prevalence and individual infection prevalence trends, 2016–2026 Financial Years:



Section 3 – Blood wastage

3.1 Whole blood & RCC wastage at NamBTS

Table 3.1 provides an overview of whole blood and RCC discard trends at NamBTS from 2021 to 2026. During this period, the total discard rate ranged from 4.31% to 6.65%, with the highest rate recorded in 2025 (6.65%).

During the 2026 financial year, NamBTS collected 44,134 whole blood donations, of which 2,270 units were discarded, resulting in a total discard rate of 5.14%. When short-bleeds are excluded, this rate decreased to 3.33%, a substantial improvement compared to 5.00% in 2025. The most significant contributor to this improvement was a marked reduction in expiry-related discards, which declined from 2.32% in 2025 to 0.96% in 2026. This improvement likely reflects enhanced inventory management and better alignment between collection activities and clinical demand.

Short-bleeds accounted for 1.82% of discards. Unlike TTI-positive donations, short bleeds are largely avoidable. TTI-positive donations remained the largest unavoidable cause of discard, accounting for 1.36% of collections, a figure that has remained relatively stable over the six-year reporting period,

Other discard reasons accounted for 0.49%, clotted units accounted for 0.39%, while laboratory breakages represented only 0.12% of total whole blood collection, the lowest proportion recorded since 2021.

Overall, the 2026 data reflect improved operational efficiency, particularly in reducing expiry-related losses, bringing the discard rate below both recent years and the historical average.

Table 3.1 NamBTS Whole blood & RCC discards (2021-2026):

Year	2021	2022	2023	2024	2025	2026
Total Whole Blood Units	34773	37390	42768	45096	44612	44134
Total Units Discarded	1012	1190	1543	2121	2232	2270
Total Discards Rate	4.32%	4.31%	4.92%	6.27%	6.65%	5.14%
Discards (excl shortbleeds)	2.76%	3.08%	3.39%	4.65%	5.00%	3.33%
TTI Positive	1.32%	1.41%	1.33%	1.32%	1.31%	1.36%
Broken in The Laboratory	0.44%	0.57%	0.18%	0.16%	0.18%	0.12%
Clotted	0.33%	0.23%	0.30%	0.36%	0.45%	0.39%
Expired	0.37%	0.52%	1.17%	2.34%	2.32%	0.96%
Shortbleeds	1.56%	1.23%	1.53%	1.62%	1.65%	1.82%
Other Discard Reasons	0.31%	0.35%	0.41%	0.48%	0.74%	0.49%

NOTE: 'Other reasons' included the following: Donor related: abnormal antibodies in donor blood, donors on medication, overbleeds, temperature out of range, unsuitable for transfusion (coded donors, lipaemic blood), and below required weight.

3.2 Platelet wastage at NamBTS

Platelet products remain one of the most challenging blood components to manage due to their short shelf life and variable clinical demand.

As illustrated in Figure 3.2, the total platelet discard rate at NamBTS declined to 10.0% during the 2026 financial year, compared to 13.8% in 2025, enabling NamBTS to achieve its organizational target discard rate of $\leq 10\%$. This improvement occurred despite an increase in platelet production from 2,814 units in 2025 to 3,146 units in 2026, demonstrating a more efficient utilization of platelet products. Correspondingly, the total number of discarded units decreased from 388 units in 2025 to 316 units in 2026.

Expiry remained the leading cause of platelet discards throughout the review period. However, expiry-related losses decreased substantially from 9.5% to 7.6% in 2026, representing the lowest expiry rate recorded since 2021. Discards resulting from TTI-positive donations accounted for 1.2% of platelet production during 2026, compared with 1.0% in 2025. While slightly increased, this remains within the range observed historically and reflects the continued effectiveness of donor screening and testing processes. Similarly, losses due to low-yield

collections decreased from 1.6% in 2025 to 0.1% in 2026, indicating improvements in donor selection, collection efficiency, and achievement of target platelet yields. Other causes of platelet wastage, including processing losses and quality-related discards, also declined from 1.7% to 1.2% over the same period.

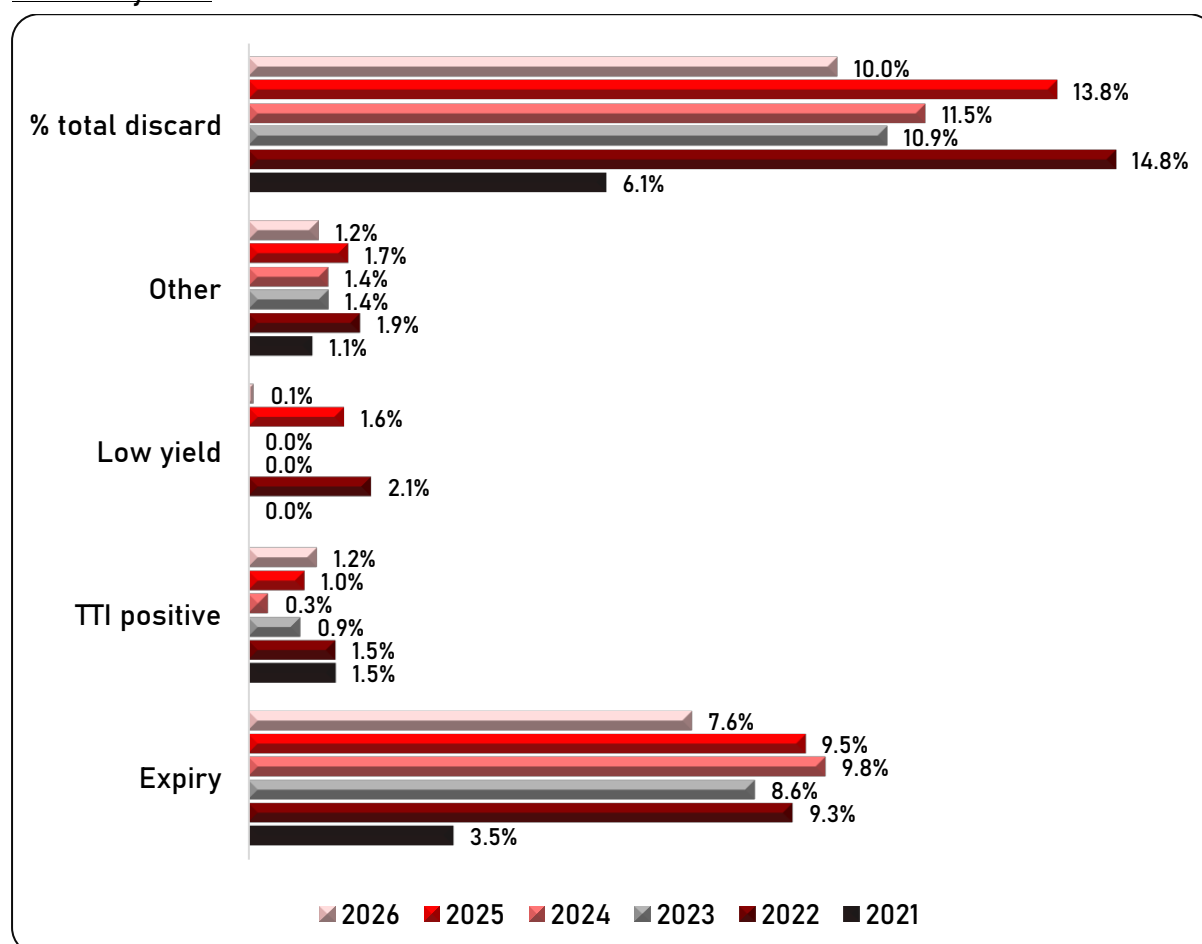
The importance of platelet sterility testing and extended platelet storage is evident when evaluating the impact on expiry-related losses. Since the introduction of platelet sterility testing in 2022, NamBTS has extended platelet shelf life from 5 to 7 days, thereby improving inventory flexibility and reducing wastage. Based on utilization modelling, the 2026 expiry rate would have increased from 7.6% to approximately 16.0% without shelf-life extension, resulting in a projected total discard rate of approximately 17.0%.

This would have exceeded both the organizational target and the discard rates observed during recent years. The findings therefore demonstrate that platelet sterility testing remains one of the most effective interventions implemented by NamBTS to reduce platelet wastage and maximize product availability for patient care.

Overall, the data presented in Figure 3.2 indicate a significant improvement in platelet utilization during the 2026 financial year. Nevertheless, expiry remains the principal contributor to platelet wastage. Continued efforts to optimize demand forecasting,

inventory management, inter-centre redistribution, and communication between blood banks and major platelet users will be essential to sustain these gains and further improve platelet utilization efficiency.

Figure 3.2: Causes of platelet discard and total platelet discard rates at NamBTS, 2021–2026 financial years:



3.3 Blood wastage in hospitals

Hospital blood wastage refers to blood and blood components discarded within healthcare facilities rather than transfused to patients. Currently, Namibia does not have a formal system in place to monitor blood wastage at the hospital level.

Blood wastage may occur due to various factors, including improper storage, expiry of blood products, or failure to utilize issued units. The absence of a structured

monitoring system limits the ability to accurately quantify wastage and identify underlying causes.

Establishing a framework for monitoring blood wastage would enable NamBTS to identify gaps in blood utilization practices and provide targeted interventions and training. This would help minimize waste, optimize resource utilization, and ensure a sustainable and efficient blood supply.

Section 4 – Blood and Blood Component Usage

During the 2026 financial year, NamBTS issued a total of **57,655 units** of blood and blood components, representing a decrease of approximately 3% compared to 2025. Table 4.1 presents the number of units issued per product for each financial year. Over the past four financial years, total blood and blood component usage has grown at an average rate of approximately 2%, indicating a generally upward trend in transfusion demand. It is important to note that utilization is captured upon processing of requisition forms, which may occur in a different financial year from collection or issue of the component. In addition, blood components may be carried over between reporting periods as part of routine inventory management.

Red Cell Concentrate (RCC) remained the dominant component, with 45,749 units issued in 2026. Adult RCC accounted for 42,128 units (73% of total usage), reaffirming

its role as the primary driver of transfusion in Namibia. RCC usage increased from 39,530 units in 2023 to 43,319 units in 2025, before declining slightly by 2.7% in 2026.

Paediatric RCC usage remained stable (3,621 units), while Fresh Frozen Plasma (FFP) decreased to 9,008 units, with adult source plasma remaining the main contributor. Platelet usage increased marginally to 2,860 units, driven by higher adult apheresis platelet utilization, while pooled and paediatric platelets declined. Whole blood usage remained minimal, reflecting continued reliance on component therapy.

Overall, as illustrated in Table 4.1, blood utilization in Namibia remains heavily dominated by RCC. Although total usage declined slightly in 2026, sustained demand for RCC underscores the need to maintain a stable, adequate supply, supported by ongoing monitoring and demand forecasting.

Table 4.1: Blood & Blood Components Issued during the 2023 – 2026 Financial Year:

Blood and blood component	2023	2024	2025	2026
Red Cell Concentrate (RCC)	42,236	44,572	47,067	45,749
Adult	39,530	42,551	43,319	42,128
Paediatric	2,706	2,021	3,748	3,621
Fresh Frozen Plasma (FFP)	8,794	7,974	9,617	9,008
Adult FFP	2,657	1,265	1,085	548
Adult source plasma (SP)	4,951	5,341	7,193	7,259
Adult apheresis FFP	465	671	538	693
Paediatric source plasma (SP)	536	474	450	256
Paediatric apheresis FFP	185	223	351	252
Platelet concentrate	2,941	2,909	2,815	2,860
Adult apheresis Platelets	1,257	1,210	1,128	1,331
Pooled platelets	1,298	1,332	1,293	1,257
Paediatric apheresis Platelets	386	367	394	272
Whole Blood (WB)	128	141	44	38
TOTAL Units	54,099	55,596	59,543	57,655

4.1 Usage of Red Cell Concentrate (RCC):

A total of 45,749 Red Cell Concentrate (RCC) units were issued to healthcare facilities in Namibia during the 2026 financial year. The majority were Adult RCC units (including standard and apheresis RCC), accounting for 42,128 units (92%), while paediatric RCC

accounted for 3,621 units (8%). As illustrated in Figure 4.1, RCC utilization was predominantly within the public healthcare sector, which accounted for approximately 81% of total RCC issued, compared to 19% in the private sector. Among public healthcare

facilities, the highest utilization was observed in Katutura Intermediate Hospital (KIH) (12%), Oshakati Intermediate Hospital (IHO) (12%), and Windhoek Central Hospital (WCH) (9%). These facilities represent the largest tertiary and referral centres in the country and therefore account for a substantial proportion of national transfusion activity. Collectively, “Other Public Hospitals” contributed the largest share (31%), reflecting the cumulative utilization across multiple smaller facilities.

Compared with the 2025 financial year, Adult RCC usage declined by approximately 2.7% in 2026. However, within the public healthcare sector, the year-on-year (YoY) variance is approximately -7%, indicating a significant decrease in demand across government facilities. At the individual hospital level, IHO recorded a slight reduction in RCC utilization (-5%), while WCH and KIH showed more notable decreases (-17% and -14%, respectively). The private healthcare sector demonstrated an increase in usage (+12% YoY).

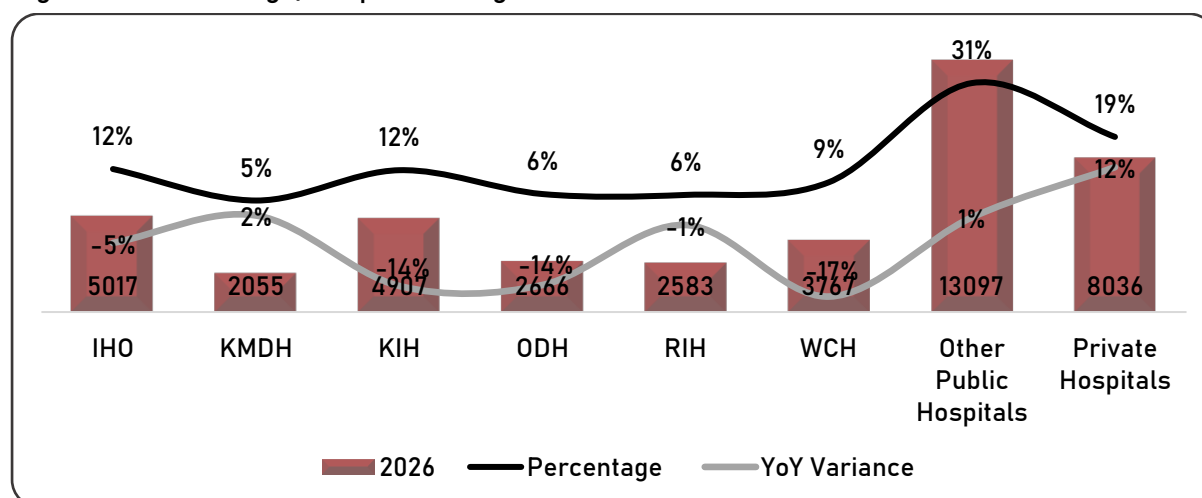
Blood group distribution patterns indicate that group O remains the predominant RCC type used nationally, accounting for 57% of total RCC usage. As shown in Figure 4.2, facility-level utilization of group O RCC

differs across the major referral hospitals. KIH recorded group O utilization of 51%, WCH 50%, and IHO 47%. These proportions indicate that group O RCC constitutes approximately half of all RCC issued at these facilities, with KIH and WCH showing a slightly higher reliance on group O blood than IHO.

While the use of group O RCC is clinically appropriate in emergency settings, disproportionate reliance on this blood group can place significant strain on national blood inventories and compromise the sustainability of the blood supply. These findings highlight the need for continued strengthening of transfusion practices, particularly at high-volume facilities, through targeted training, reinforcement of crossmatching protocols, and optimization of blood group-specific utilization.

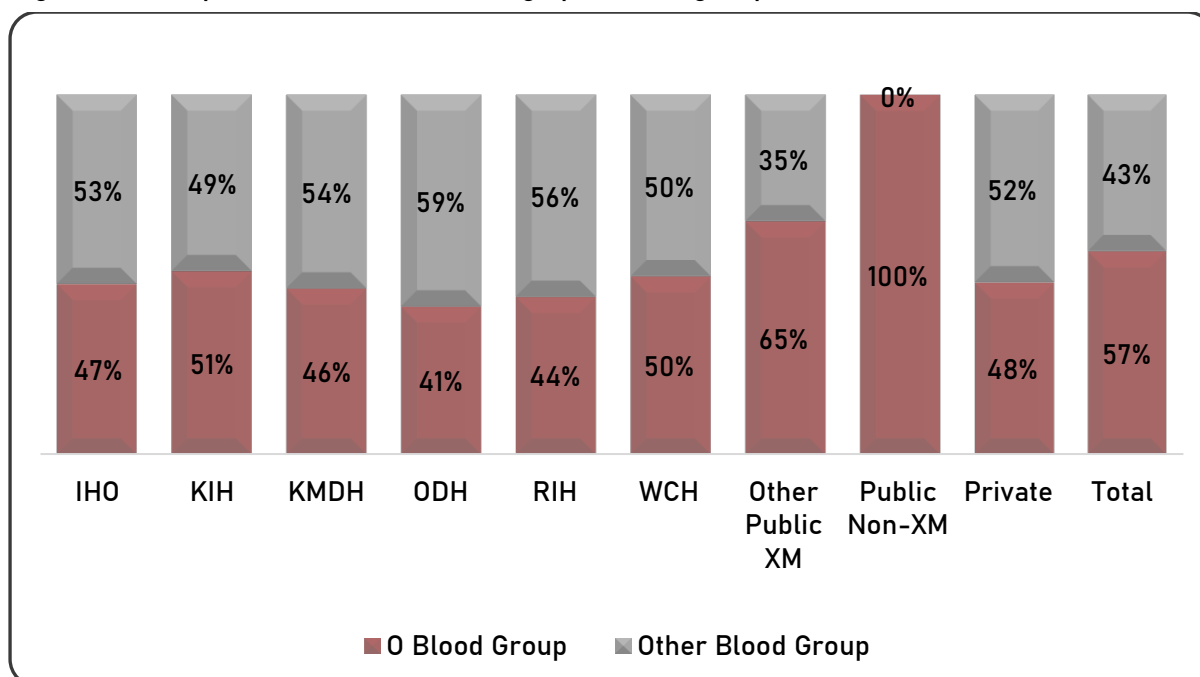
Overall, RCC utilization patterns in 2026 reaffirm its central role in transfusion practice in Namibia while highlighting shifts in demand across healthcare sectors. Strengthening Patient Blood Management (PBM), particularly at high-volume facilities, remains essential. Additionally, reinforcing appropriate crossmatching practices is critical to reducing reliance on group O RCC and ensuring the sustainable use of blood resources.

Figure 4.1: RCC Usage/Hospital during the 2026 Financial Year:



*Oshakati Intermediate Hospital (IHO), Katima Mulilo District Hospital (KMDH), Katutura Intermediate Hospital (KIH), Onandjokwe District Hospital (ODH), Rundu Intermediate Hospital (RIH), & Windhoek Central Hospital (WCH).

Figure 4.2: Proportion of adult RCC usage per blood group in the 2026 Financial Year:



*Oshakati Intermediate Hospital (IHO), Katima Mulilo District Hospital (KMDH), Katutura Intermediate Hospital (KIH), Onandjokwe District Hospital (ODH), Rundu Intermediate Hospital (RIH), & Windhoek Central Hospital (WCH).

4.1.1 Adult RCC Usage

A substantial proportion of adult RCC units issued continued to lack a recorded clinical diagnosis. A total of 20,631 units (49%) were classified as “null,” indicating missing or incomplete clinical information, while a further 2,269 units (5%) had no diagnosis recorded. Although the proportion of cases with no diagnosis decreased by 33% compared to 2025, incomplete diagnostic data still accounted for 54% of all adult RCC issued.

Excluding cases with missing or unspecified diagnoses, analysis of adult RCC utilization by clinical category shows that Internal Medicine remained the largest user, accounting for 9,515 units, a 2% increase over 2025. This was followed by Obstetrics and Gynaecology with 3,938 units, reflecting a 6% decrease, and Oncology with 2,561 units, which remained stable.

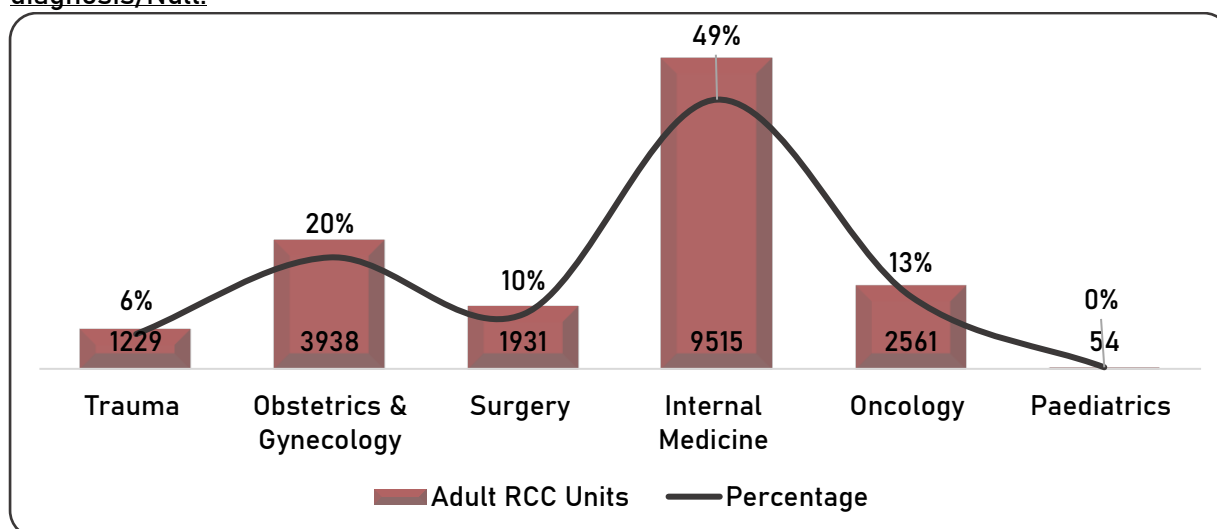
Surgical utilization increased by 6% to 1,931 units, while Trauma-related usage declined

by 11% to 1,229 units. Paediatric utilization of adult RCC remained minimal at 54 units, representing a 34% decrease compared to the previous financial year.

It is important to note that utilization within the Internal Medicine category may be overestimated, as cases with non-specific or incomplete information are often classified under this category based on clinical presentation (e.g., gastrointestinal bleeding), which may also have surgical or other underlying causes.

Overall, while utilization across diagnostic categories remains relatively stable, the persistently high proportion of missing diagnostic data continues to limit accurate interpretation of transfusion practices. Accurate completion of blood request forms is therefore critical for improving haemovigilance, data quality, and evidence-based transfusion management.

Figure 4.3: Adult RCC usage per diagnostic category in the 2026 financial year, excluding No diagnosis/Null:



4.1.1.1 Internal Medicine Adult RCC Usage

During the 2026 financial year, Internal Medicine remained the primary user of adult RCC, with **9,515 units (49%)** issued under this category.

Haematological conditions were the primary driver of RCC usage within this category, accounting for 4,664 units (49%). The majority of these were anaemia-related conditions, which comprised approximately 90% (4,210 units) of all haematological cases. Within this subgroup, as illustrated in Figure 4.4, unspecified anaemia accounted for the largest proportion (39%), followed by anaemia of chronic disease (36%). Other included iron deficiency/microcytic anaemia (9%), aplastic anaemia (9%), and sickle cell anaemia (6%), while autoimmune haemolytic anaemia, megaloblastic anaemia, and ABO incompatibility anaemia were minimally represented. The high proportion of unspecified anaemia highlights ongoing limitations in diagnostic specificity and suggests the need for improved clinical classification and investigation of underlying causes.

The second largest contributor to RCC utilization within Internal Medicine was infectious and inflammatory conditions,

accounting for 1,826 units (19%). The leading indications within this group were septicaemia/sepsis/shock (710 units; 39%), malaria (606 units; 33%), and HIV/TB (178 units; 10%). Other conditions included pancreatitis (103 units; 6%), pneumonia/bronchopneumonia (85 units; 5%), and other infections (144 units; 8%). These findings underscore the significant burden of infectious diseases on transfusion demand and highlight the potential impact of improved prevention, early diagnosis, and management of infections in reducing RCC utilization.

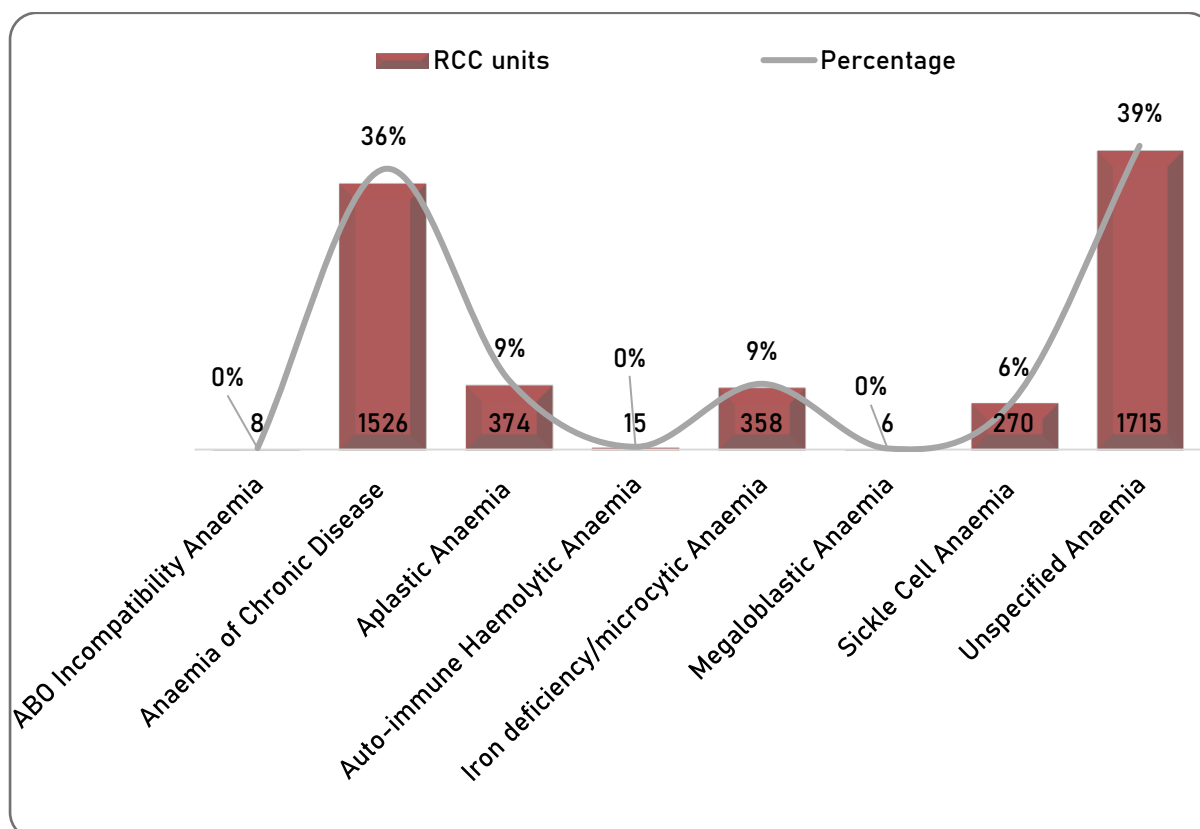
Gastrointestinal bleeding conditions constituted the third largest category, accounting for 1,810 units (19%). The majority of these were due to upper gastrointestinal bleeding (1,026 units; 57%), followed by lower gastrointestinal bleeding (344 units; 19%), unspecified gastrointestinal bleeding (260 units; 14%), and peptic/duodenal ulcers (180 units; 10%). This distribution reflects the clinical importance of acute and chronic gastrointestinal blood loss as a key driver of transfusion requirements within Internal Medicine.

Other categories contributed comparatively smaller proportions, including renal conditions (623 units; 7%), cardiovascular conditions (228 units; 2%), hepatic conditions (149 units; 2%), pulmonary conditions (112 units; 1%), and other miscellaneous conditions (103 units; 1%).

Overall, RCC utilization within Internal Medicine was predominantly driven by

haematological conditions, followed by infectious/inflammatory diseases and gastrointestinal bleeding. These patterns highlight the need for improved diagnostic specificity, management of chronic and infectious diseases, and enhanced implementation of Patient Blood Management strategies to optimize RCC use within this high-demand clinical category.

Figure 4.4: Anaemia-Related RCC Usage for Internal Medicine during the 2026 Financial Year



4.1.1.2 Obstetrics & Gynaecology Adult RCC Usage

Obstetrics and Gynaecology remained the second-highest user of Adult Red Cell Concentrate (RCC) during the 2026 financial year, with a total of **3,938 units (20%)** transfused. Of these, 2,129 units (54%) were attributed to obstetric-related diagnoses, while 1,809 units (46%) were associated with gynaecological conditions. This distribution is consistent with previous reporting periods and reflects the ongoing contribution of obstetric emergencies to transfusion demand within this specialty.

In obstetrics, postpartum haemorrhage (PPH) remained the leading indication for RCC transfusion, accounting for 876 units (41%) of all obstetric usage. Antepartum haemorrhage (APH), including abruptio placentae, placenta praevia, and uterine rupture, contributed 455 units (21%). Surgical-related transfusions, primarily associated with caesarean sections, accounted for 324 units (15%), while anaemia during pregnancy and the postpartum period accounted for 248 units (12%). Hypertensive disorders of pregnancy, including pre-

eclampsia, eclampsia, disseminated intravascular coagulation (DIC), and HELLP syndrome, contributed 162 units (8%). Other indications, including uterine sepsis, obstructed labour and intrauterine foetal demise accounted for a small proportion of usage.

Emergency presentations continued to predominate in gynaecology. Miscarriage (incomplete, complete, or septic) was the leading indication, accounting for 748 units (41%), followed by abnormal uterine bleeding (510 units; 28%) and ectopic pregnancy (456 units; 25%). Surgical-related indications, namely hysterectomy and pre-operative anaemia, accounted for 51 units (3%), while ovarian cysts and pelvic inflammatory disease contributed minimally.

These utilization patterns highlight the critical importance of implementing Patient Blood Management (PBM) strategies within obstetric and gynaecological care. In particular, early identification and treatment of anaemia during pregnancy and the postpartum period remain essential interventions to reduce transfusion need. Strengthening antenatal screening, ensuring

timely administration of iron supplementation and other haematinics, and improving follow-up care are key components of this approach.

The high burden of haemorrhage-related transfusions highlights the need for enhanced haemostatic management. The timely administration of tranexamic acid (TXA), in accordance with established clinical guidelines, has been shown to significantly reduce blood loss and transfusion requirements in obstetric haemorrhage. Incorporation of TXA into standard management protocols for postpartum haemorrhage, alongside active management of the third stage of labour and surgical blood conservation techniques, is critical to improving patient outcomes.

Overall, strengthening PBM practices, including optimization of maternal haemoglobin levels, early intervention for bleeding, and adherence to evidence-based haemostatic therapies, remains fundamental to reducing transfusion demand and enhancing the safety and efficiency of obstetric and gynaecological care in Namibia.

4.1.1.3 Oncology Adult RCC Usage

Oncology remained the third-highest user of adult red cell concentrate (RCC) during the 2026 financial year, with a total of **2,561 units transfused (13%)**.

Cervical cancer was the leading oncology diagnosis requiring RCC transfusion, accounting for 506 units (20%) of all cancer-related usage. This continues to reflect the significant burden of cervical malignancy in Namibia. Strengthening preventive strategies, including HPV vaccination and improved access to cervical cancer screening, is essential to reduce both disease burden and associated transfusion requirements.

Leukaemia was the second most frequent indication, accounting for 345 units (13%), followed by prostate cancer with 274 units

(11%). Kidney/renal cancer and unspecified or other tumours each accounted for 149 units (6%), highlighting the diversity of oncological conditions contributing to transfusion demand.

As demonstrated by Figure 4.5, when classified by system, haematological malignancies accounted for the largest proportion of RCC usage (666 units; 26%). Within this group, leukaemia was the predominant contributor (52%), followed by multiple myeloma (20%), lymphoma (14%), and myelodysplastic syndromes (12%), with myelofibrosis contributing a smaller proportion (3%). This highlights the high transfusion need associated with haematological malignancies.

Gynaecological malignancies accounted for 601 units (23%), with cervical carcinoma representing the majority (84%) and ovarian tumours contributing 16%. Urological malignancies accounted for 506 units (20%), primarily driven by prostate cancer (54%), followed by renal cancer (29%) and bladder cancer (16%).

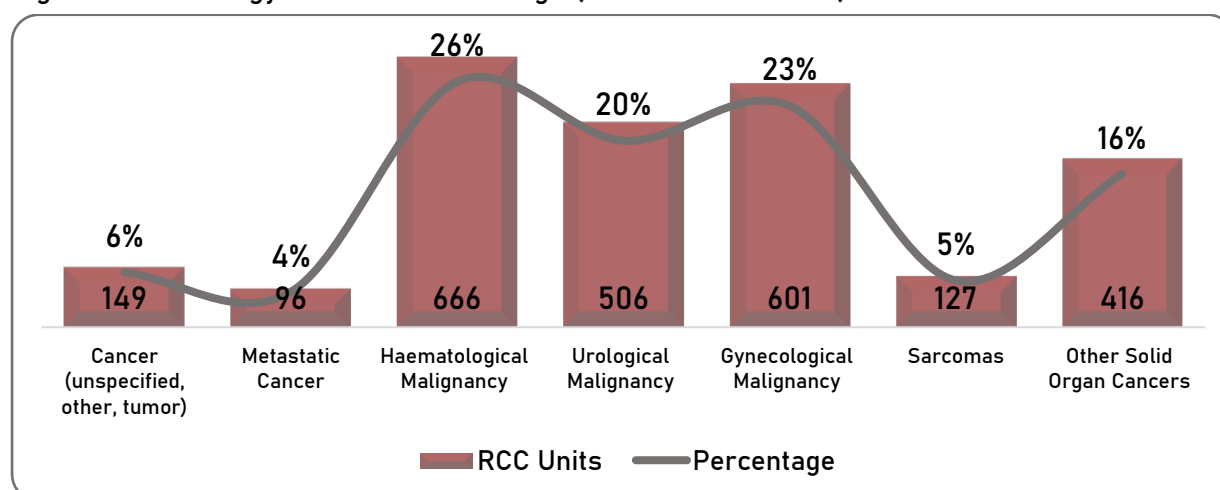
Other solid organ cancers contributed 416 units (16%), with breast cancer (31%) and colon cancer (29%) being the leading indications within this group. Additional contributors included pancreatic cancer (11%), oesophageal cancer (10%), and lung cancer (6%), with smaller contributions from other malignancies.

Sarcomas accounted for 127 units (5%) of RCC usage, with Kaposi sarcoma being the main driver (47%).

Metastatic cancers accounted for 96 units (4%), while unspecified or non-classified tumours contributed 149 units (6%), indicating ongoing challenges in diagnostic specificity and classification.

Overall, utilization of oncology-related RCC is substantial, with the highest demand observed in haematological and gynaecological malignancies. These patterns highlight the need for continued strengthening of cancer prevention and early detection, alongside optimization of transfusion practices to support effective management of oncology patients.

Figure 4.5: Oncology Adult RCC unit Usage (2026 Financial Year):



4.1.1.4 Surgery & Trauma Adult RCC Usage

During the 2026 financial year, a total of **1,931 Adult Red Cell Concentrate (RCC)** units were issued under the Surgery, representing approximately 10% of total adult RCC utilization and a 6% increase compared to the 2025 financial year (1,815 units). However, the reported utilization is likely underestimated, as surgical cases are frequently classified under other diagnostic categories, particularly Internal Medicine, depending on the clinical presentation and documentation.

Within the surgical category, general surgery remained the predominant consumer of RCC,

accounting for approximately 36% (659 units), followed by Orthopaedic Surgery at 22% (402 units) and Urology at 12% (224 units). The remaining 30% (646 units) were distributed across other surgical sub-specialties. This pattern is consistent with previous reporting periods and reflects the ongoing demand for transfusion support in the management of acute surgical conditions. The principal indications for transfusion within general surgery included acute abdomen requiring laparotomy (21%), bowel obstruction (18%), and the

management of intra-abdominal sepsis and abscesses (17%).

Trauma-related transfusion, reported as a separate category, accounted for 1,229 RCC units during the 2026 financial year, representing approximately 6% of total adult RCC utilization and a 11% decrease from 2025 (1,378 units). The majority of RCC use in trauma was associated with acute haemorrhage secondary to polytrauma (29%), road traffic accidents (20%), burn wounds (11%), interpersonal violence, and other forms of major injury requiring emergency resuscitation. Despite this reported decline, trauma-related transfusion is likely underestimated. In emergency settings, as uncrossmatched blood is frequently accessed directly from

emergency blood refrigerators, and completion of blood requisition forms is often delayed or omitted. As a result, a proportion of trauma-related transfusion events may not be captured within haemovigilance data systems.

In summary, while RCC utilization within surgery demonstrates an increase, both surgical and trauma-related transfusion burdens are likely underrepresented in the available data. These findings underscore the importance of improved documentation practices, particularly in emergency and perioperative settings, to ensure accurate data capture. Improved documentation is essential to support effective resource allocation and optimize transfusion practices.

4.1.2 Paediatric RCC Usage

During the 2026 financial year, a total of **3,621 paediatric Red Cell Concentrate (RCC) units** were issued. However, this figure may underestimate true paediatric utilization, as paediatric transfusion events may be recorded under adult diagnostic categories, particularly within Internal Medicine.

To address this limitation, NamBTS introduced a paediatric category on the blood requisition form. While this intervention is expected to improve the identification and tracking of paediatric transfusion practices, incomplete documentation by clinicians remains a challenge. Furthermore, paediatric patients may receive adult RCC units when volume requirements exceed those of standard paediatric units. Conversely, paediatric RCC units may be administered to adult patients when availability is limited or to prevent product wastage.

Of the total paediatric RCC units issued, 2,748 units (76%) were paediatric apheresis RCC, while 873 units (24%) were standard paediatric RCC, reflecting a continued preference for leucodepleted apheresis-derived products in paediatric care.

Analysis of utilization by diagnostic category indicates that paediatric RCC use was distributed across multiple clinical groups. General paediatrics accounted for 442 units (12%), while Internal Medicine accounted for 744 units (21%). However, a substantial proportion of paediatric RCC usage was classified as either “null” or recorded without a diagnosis as illustrated in Figure 4.6, highlighting persistent gaps in clinical documentation.

Among cases with defined diagnoses, haematological conditions accounted for 560 units (15%), with anaemia-related diagnoses comprising the majority (316 units; 56% of haematological cases). Infectious and inflammatory conditions accounted for 309 units (9%), predominantly including septicaemia, sepsis, and shock (75 units; 24%), neonatal sepsis (73 units; 24%), and malaria (61 units; 20%). Prematurity alone accounted for 235 units (17%), indicating a significant demand for transfusion support in preterm populations.

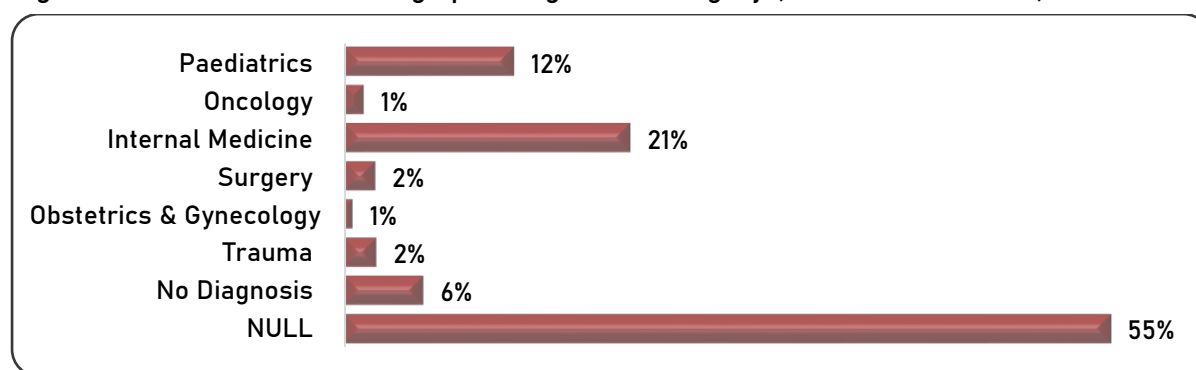
Facility-level analysis demonstrates that paediatric RCC utilization was highest at Windhoek Central Hospital (644 units; 18%),

reflecting its role as the primary national referral centre. This was followed by Katutura Intermediate Hospital (478 units; 13%), Rundu Intermediate Hospital (373 units; 10%), Oshakati Intermediate Hospital (307 units; 8%), and Onandjokwe District Hospital (273 units; 8%). Katima Mulilo District Hospital recorded the lowest utilization among major public facilities (135 units; 4%). Collectively, other public hospitals accounted for 1,186 units (33%), indicating a growing contribution from regional and district-level facilities.

Private healthcare facilities accounted for 225 units (6%) of paediatric RCC usage, underscoring the dominant role of the public healthcare sector in the provision of paediatric transfusion services in Namibia.

Overall, paediatric RCC utilization patterns highlight the increasing demand for specialized transfusion support in paediatric and neonatal populations, while also underscoring the need for improved diagnostic documentation to support accurate monitoring, evaluation, and planning of paediatric transfusion services.

Figure 4.6: Paediatric RCC Usage per Diagnostic Category (2026 Financial Year):



4.2 Usage of Whole Blood (WB)

During the 2026 financial year, a total of **38 units of whole blood** were issued across Namibia, reflecting the continued limited use of whole blood.

Facility-level analysis indicates that the highest utilization was recorded at Onandjokwe District Hospital and Windhoek Central Hospital, each accounting for 9 units (24%), followed by Katutura Intermediate Hospital with 8 units (21%), Oshakati Intermediate Hospital with 7 units (18%), and Rundu Intermediate Hospital with 4 units (11%). Cottage Hospital reported minimal utilization, with 1 unit (3%).

Whole-blood use was predominantly associated with neonatal conditions. A total of 30 units (79%) were issued for neonatal jaundice/exchange transfusion. Neonatal exchange transfusion is primarily indicated for severe neonatal jaundice in Namibia,

particularly when bilirubin levels reach risk thresholds despite intensive phototherapy. This pattern indicates that the use of whole blood remains appropriately targeted to specific neonatal clinical scenarios.

A further 6 units (16%) were classified as "null," reflecting missing or incomplete clinical information, while 2 units (5%) were issued with no diagnosis recorded. Incomplete documentation remains a concern and limits the ability to fully assess the appropriateness of use.

Overall, whole blood utilization in Namibia remains low and appropriately targeted, primarily towards neonatal indications. Continued emphasis on accurate documentation and adherence to transfusion guidelines is essential to support effective haemovigilance and optimal patient care.

4.3 Usage of Platelet Concentrate

A total of 2,860 platelet concentrate units were issued during the 2026 financial year, of which 2,588 units (90%) were transfused to adult patients and 272 units (10%) to paediatric patients.

The majority of platelet units were distributed to major public healthcare facilities, which accounted for 60% of total utilization, followed by the private healthcare sector at 26% and smaller public healthcare facilities at 13%. This distribution reflects the centralization of specialized clinical services within major referral institutions, where platelet support is frequently required to manage complex medical and surgical conditions.

At the facility level, Windhoek Central Hospital accounted for the highest proportion of platelet utilization, receiving 556 units (19%), followed by Katutura Intermediate Hospital with 351 units (12%) and Oshakati Intermediate Hospital with 331 units (12%). These facilities represent the primary tertiary and referral centres in Namibia and are therefore key drivers of platelet demand.

Overall, platelet utilization patterns in 2026 highlight a concentration of demand in major public hospitals, underscoring the importance of maintaining an adequate platelet supply and efficient distribution systems to support specialized clinical care.

4.3.1 Adult Platelet Concentrate (Apheresis & Pooled) Usage

Adult platelet utilization showed a declining trend from 2,555 units in 2023 to 2,542 units in 2024 (-1%) and 2,421 units in 2025 (-5%), followed by an **increase to 2,588 units in 2026 (+7%)**. This rise was primarily driven by increased use of adult apheresis platelets (1,331 units), while pooled platelet usage declined slightly (1,257 units).

In terms of product distribution, a shift towards greater utilization of apheresis-derived platelets was observed in 2026. Apheresis platelets accounted for 51% of adult platelet usage, compared to 47% in 2025, while pooled platelets decreased from 53% in 2025 to 49% in 2026. This change reflects a transition towards increased reliance on apheresis platelets.

During the review period, a substantial proportion of adult platelet transfusions lacked a recorded clinical diagnosis, with 722 units (28%) classified as "null" and 145 units (6%) recorded as "no diagnosis," representing approximately 34% of total adult platelet usage. Although cases with no

diagnosis decreased by 34% compared to 2025, the slight increase in "null" entries (+4%) indicates persistent deficiencies in clinical documentation.

The remaining 1,721 units were predominantly utilized by Internal Medicine (938 units; 55%) and Oncology (461 units; 27%), reflecting increases of 22% and 31%, respectively. Obstetrics and Gynaecology accounted for 140 units (8%), representing a 28% decrease, while surgical utilization was 107 units (6%), indicating a 9% increase from the 2025 financial year. Trauma-related usage declined to 58 units (3%), and paediatric utilization, although minimal, increased to 17 units (1%).

Overall, platelet utilization remains concentrated within Internal Medicine and Oncology. However, the persistently high proportion of incomplete data continues to limit accurate evaluation of transfusion practices, underscoring the need for strengthened documentation and adherence to requisition protocols.

4.3.1.1 Internal Medicine Adult Platelet Usage

Internal Medicine remained the largest consumer of adult platelet units, accounting for 938 units (55%) of all platelet use with a recorded diagnosis. The majority of these units were used for haematological conditions, representing 588 units (63%) of Internal Medicine platelet use, followed by infectious and inflammatory conditions at 199 units (21%) and gastrointestinal conditions at 95 units (10%). The remaining utilization was attributed to hepatic (29 units; 3%), renal (11 units; 1%), cardiovascular (10 units; 1%), and other conditions (6 units; 1%). This distribution is consistent with patterns observed in previous reporting periods.

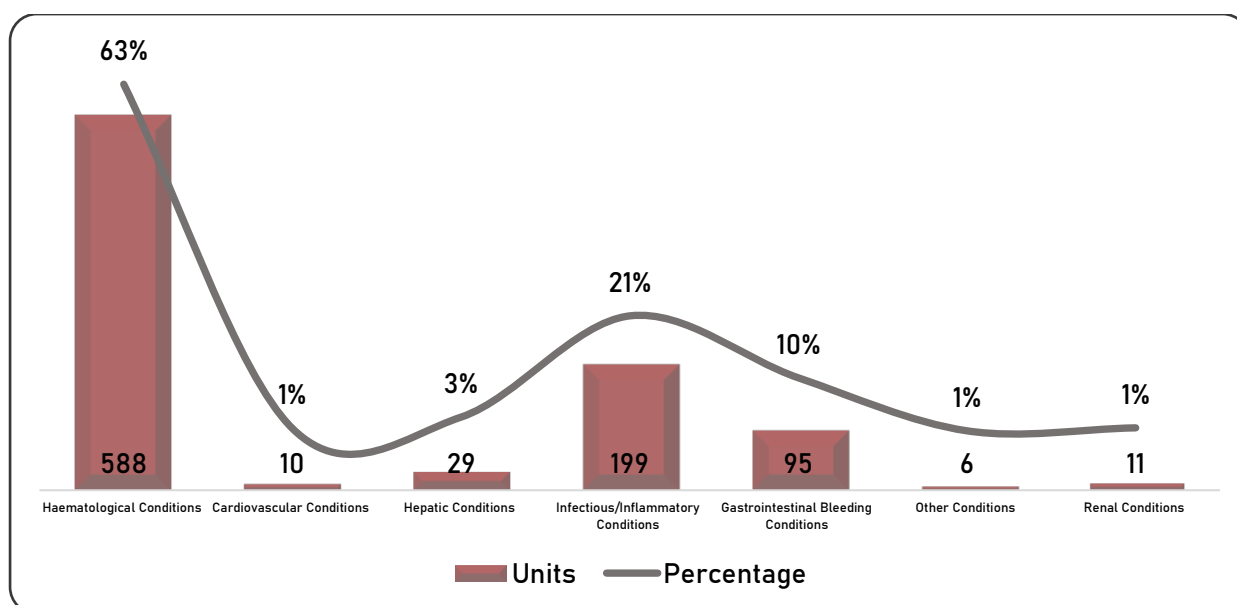
Haematological conditions accounted for the largest proportion of platelet usage within Internal Medicine. Of the 588 units, anaemia-related conditions formed a substantial component, particularly aplastic anaemia (191 units; 32%), unspecified anaemia (55 units; 9%), and anaemia of chronic disease (50 units; 9%). Additional contributors included immune thrombocytopenia (or ITP) (165 units; 28%), pancytopenia (98 units; 17%), DIC (18 units; 3%), and other haemolytic or bleeding disorders.

Infectious and inflammatory conditions accounted for 199 units (21%) of platelet usage within Internal Medicine. The main contributors were septicaemia, sepsis, or shock (78 units; 39%) and malaria (70 units; 35%), followed by HIV/TB- related conditions (14 units; 7%), pancreatitis (12 units; 6%), pneumonia (9 units; 5%), and other infections (16 units; 8%). These findings highlight the continued impact of infectious diseases on the need for platelet transfusions.

Gastrointestinal conditions accounted for 95 units (10%) of usage, mainly due to upper gastrointestinal bleeding (54 units; 57%), followed by lower gastrointestinal bleeding (26 units; 27%), unspecified gastrointestinal bleeding (9 units; 9%), and peptic or duodenal ulcer disease (6 units; 6%).

Overall, platelet utilization within Internal Medicine was driven primarily by haematological and infectious conditions. The observed distribution underscores the importance of accurate diagnostic classification to support meaningful interpretation of utilization patterns.

Figure 4.7: Internal Medicine Adult Platelet Usage per Clinical Diagnostic Category for the 2026 Financial Year:



4.3.1.2 Oncology Adult Platelet Usage

A total of **461 adult platelet units** were used to manage oncological conditions, representing a **31% increase** over the 2025 financial year (353 units).

Haematological malignancies, attributed for the majority of usage (333 units; 72%), thereby remaining the principal driver of platelet demand in oncology. Within this category, leukaemia constituted the largest proportion (260 units; 78%), followed by multiple myeloma (39 units; 12%), and lymphoma (24 units; 7%). This distribution is consistent with previous reporting periods, reaffirming the high transfusion requirements associated with haematological cancers.

Solid organ malignancies accounted for 34 units (7%), with breast cancer being the most common indication (17 units; 50%), followed

by colon cancer and neuroblastoma (each 12%). Urological malignancies contributed 39 units (8%), predominantly driven by renal cancer (51%) and prostate cancer (31%), while gynaecological malignancies accounted for a smaller proportion (10 units; 2%), largely due to ovarian malignancies. Sarcomas contributed 17 units (4%), with Kaposi sarcoma accounting for the majority (65%).

Overall, utilization in oncology was predominantly driven by haematological malignancies, particularly leukaemia, with comparatively lower demand observed for other cancer types. These findings are consistent with historical trends and underscore the continued importance of platelet support in the management of haematological cancers.

4.3.1.3 Obstetrics & Gynaecology Adult Platelet Usage

A total of **140 adult platelet units** were utilized for Obstetrics and Gynaecology-related indications. The majority of these were attributed to obstetric conditions (112 units; 80%), while gynaecological conditions accounted for 28 units (20%).

Within obstetrics, platelet utilization was primarily associated with hypertensive and coagulopathic complications of pregnancy, such as pre-eclampsia, eclampsia, DIC, and HELLP syndrome, accounting for 45 units (40%). This was followed by antepartum haemorrhage (APH) (26 units; 23%) and postpartum haemorrhage (PPH) (25 units; 22%), both of which represent major obstetric emergencies requiring haemostatic support. In gynaecology, usage

was mainly driven by acute bleeding, with miscarriage (incomplete, complete, or septic) accounting for the majority of cases (16 units; 57%). This was followed by ectopic pregnancy (5 units; 18%) and abnormal uterine bleeding (3 units; 11%). Smaller contributions were observed for surgical indications, pelvic inflammatory disease, and other conditions.

Overall, platelet utilization within this category was predominantly associated with haemorrhagic and coagulopathic conditions. This distribution reflects the critical role of platelet support in the management of emergencies and acute bleeding in obstetrics and gynaecology.

4.3.2 Paediatric Platelet Concentrate Usage

A total of **272 paediatric platelet units** were issued during the period under review, representing a **31% decrease** compared to 394 units in 2025. Utilization demonstrated year-on-year variability over a four-year

period, with 386 units issued in 2023, 367 in 2024 (-5%), 394 in 2025 (+7%), and 272 in 2026 (-31%), representing an overall decrease of 29.5% from 2023 to 2026.

Of the total units issued, 107 units (39%) lacked adequate clinical documentation, including 88 units (32%) recorded as “null” and 19 units (7%) with no diagnosis. Among documented cases, utilization was primarily attributed to Internal Medicine (81 units; 30%) and Paediatrics (55 units; 20%), followed by Oncology (17 units; 6%).

Analysis of clinical indications (excluding null and no diagnosis) indicates that paediatric platelet transfusions were predominantly used for haematological and infectious/inflammatory conditions. The main indications for platelet transfusions were thrombocytopenia, or ITP, (29 units; 18%), followed by septicaemia, sepsis (including neonatal sepsis), and shock (31 units; 19%), and other neonatal/paediatric conditions, including prematurity (12 units, 7%). Malaria (8 units; 5%) also represented a notable indication, reflecting the burden of

infectious diseases in the paediatric population.

Facility-level distribution shows that utilization was concentrated in major referral centres, with Windhoek Central Hospital accounting for 59 units (22%), followed by Katutura Intermediate Hospital (48 units; 18%), Oshakati Intermediate Hospital (32 units; 12%), and Rundu Intermediate Hospital (28 units; 10%). Smaller contributions were observed from other regional hospitals, including Katima Mulilo and Onandjokwe. This pattern reflects national referral pathways and the concentration of specialized paediatric care services.

Overall, paediatric platelet utilization was largely driven by haematological disorders, infectious conditions, and neonatal complications, consistent with the clinical profile of paediatric patients in Namibia.

4.4 Fresh Frozen Plasma, Source Plasma & Apheresis Plasma Usage

A total of **9,008 plasma units** were issued for transfusion purposes during the review period, representing a **6% decrease from 9,617 units in 2025**. Adult plasma accounted for the majority of usage, with 8,500 units (94%), while paediatric plasma contributed 508 units (6%).

Over the four-year period (2023–2026), plasma usage demonstrated moderate variability, declining from 8,794 units in 2023 to 7,974 units in 2024 (-9%), followed by a substantial increase to 9,617 units in 2025 (+21%), and a subsequent reduction in 2026 (-6%). Overall, this reflects a modest average annual growth rate of approximately 2%, indicating relatively stable demand over time.

4.4.1 Adult Plasma Usage

A total of 8,500 adult plasma units were issued for transfusion. The majority of these were issued to major referral hospitals, with Katutura Intermediate Hospital (KIH) (21%) and Windhoek Central Hospital (WCH) (21%)

The majority of plasma issued in 2026 was derived from apheresis collections. Adult source plasma (SP) constituted the largest proportion, accounting for 7,259 units (81%), followed by adult apheresis FFP (693 units; 8%) and adult FFP derived from whole blood (548 units; 6%). This distribution highlights the continued reliance on apheresis plasma collection to meet transfusion requirements.

Additionally, excess plasma not required for clinical use is exported to the National Bioproduct Institute (NBI) for fractionation into plasma-derived medicinal products, including Freeze-Dried Plasma (FDP).

Overall, plasma utilization in Namibia remains stable, with adult plasma constituting the primary component of use.

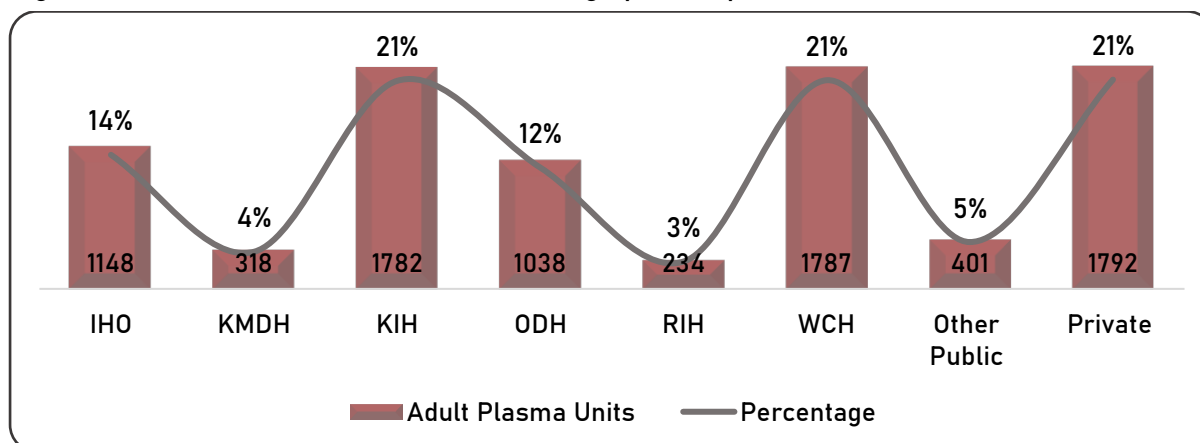
accounting for the largest proportion, followed by Intermediate Hospital Oshakati (IHO) (14%) and Onandjokwe District Hospital (ODH) (12%).

A large proportion of adult plasma usage lacked adequate clinical documentation: 2,289 units (27%) were recorded as “null,” and 820 units (10%) had no diagnosis indicated, collectively representing 37% of total plasma utilization.

Internal Medicine accounted for the largest proportion of plasma use (2,290 units; 42%)

for cases with a documented indication, followed by Obstetrics and Gynaecology (1,472 units; 27%) and Surgical disciplines (629 units; 12%). Trauma-related indications contributed 586 units (11%), while Oncology (6%) and Paediatrics (1%) accounted for smaller proportions.

Figure 4.8: Distribution of Adult Plasma Usage per Hospital (2026 Financial Year):



*Oshakati Intermediate Hospital (IHO), Katima Mulilo District Hospital (KMDH), Katutura Intermediate Hospital (KIH), Onandjokwe District Hospital (ODH), Rundu Intermediate Hospital (RIH), & Windhoek Central Hospital (WCH).

4.4.1.1 Internal Medicine Adult Plasma Usage

Internal Medicine accounted for the largest share of adult plasma utilization, with **2,290 units** issued. The majority of these units were used for haematological conditions (731 units; 32%), followed by gastrointestinal bleeding (634 units; 28%), and infectious or inflammatory conditions (554 units; 24%), while 181 units (8%) were issued for hepatic conditions.

Plasma utilization within the haematological category was primarily associated with anaemia and coagulation disorders. The major contributors included unspecified anaemia (20%), anaemia of chronic disease (18%), and ITP/thrombocytopenia (16%), followed by pancytopenia (10%) and DIC (9%). Additional contributions were observed from haemophilia (5%), aplastic anaemia (8%), and other less frequent conditions.

Gastrointestinal conditions accounted for 634 units, with upper gastrointestinal bleeding being the main indication (64%),

followed by lower gastrointestinal bleeding (22%), unspecified bleeding (9%), and peptic/duodenal ulcer disease (5%).

Infectious and inflammatory conditions contributed 554 units, largely driven by septicaemia, sepsis, and septic shock (64%), followed by malaria (11%) and pancreatitis (8%).

Within hepatic indications, plasma was primarily used for unspecified liver disease (62%), acute liver disease, namely hepatitis (25%), and chronic liver disease (13%), reflecting the role of plasma support in managing liver-related coagulopathies.

Overall, adult plasma utilization within Internal Medicine was predominantly driven by coagulopathies, major bleeding events, and severe systemic infections, consistent with the clinical indications for plasma transfusion in critically ill patients.

4.4.1.2 Obstetrics & Gynaecology Adult Plasma Usage

Obstetrics and Gynaecology, accounted for the utilization of **1,472 adult plasma units** during the 2026 financial year. Of these, 917 units (62%) were used for obstetric indications, while 555 units (38%) were attributed to gynaecological conditions.

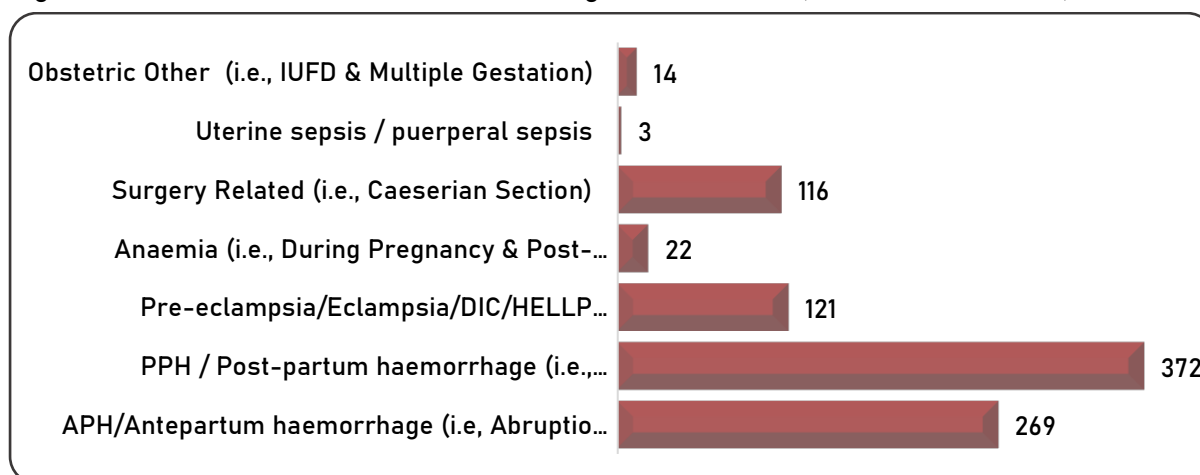
As illustrated in Figure 4.9, the leading indication for plasma transfusion within obstetrics was postpartum haemorrhage accounting for 41% of utilization, followed by antepartum haemorrhage (29%). Hypertensive-related disorders in pregnancy, including pre-eclampsia, eclampsia, DIC, and HELLP syndrome, contributed (13%), while surgical-related bleeding, primarily associated with caesarean sections, accounted for (13%).

In gynaecology, plasma utilization was largely driven by acute bleeding, with miscarriage (incomplete, complete, or

septic) accounting for 229 units (41%), followed closely by ectopic pregnancy (223 units; 40%). Abnormal uterine bleeding, including fibroids and menorrhagia, contributed 74 units (13%), while other indications, such as surgical procedures, ovarian cysts, and pelvic inflammatory disease, accounted for relatively small proportions.

Overall, plasma utilization within Obstetrics and Gynaecology was mainly associated with acute haemorrhages, particularly in obstetric emergencies and acute gynaecological conditions. These findings highlight the continued impact of bleeding-related conditions on plasma demand and underscore the importance of effective management strategies to optimize transfusion practices and maternal health outcomes.

Figure 4.9: Indications for Adult Plasma Usage in Obstetrics (2026 Financial Year):



4.4.1.3 Surgery Adult Plasma Usage

Surgical departments utilized a total of **629 adult plasma units**. This figure may underestimate true surgical demand, as several surgical-related conditions may be classified under other categories, such as Internal Medicine.

General Surgery accounted for the largest proportion of plasma utilisation (375 units; 60%), followed by ENT (79 units; 13%), Cardiothoracic Surgery (50 units; 8%),

Orthopaedic Surgery (38 units; 6%), Vascular Surgery (32 units; 5%), Neurological Surgery (24 units; 4%), and Urology (21 units; 3%).

Plasma transfusion was primarily associated with intra-abdominal and infectious surgical conditions within General Surgery, with the leading indications being bowel obstruction (105 units; 28%), abscess drainage (88 units; 23%), and acute abdomen/laparotomy (67 units; 18%). Other

notable indications were appendicitis (9%), cholecystectomy or cholelithiasis (5%), and gangrene (4%).

In ENT, plasma usage was driven by epistaxis (71 units; 90%). Orthopaedic Surgery plasma use was mainly associated with femur fractures (39%), fracture fixation procedures (18%), and knee replacements (18%).

Cardiothoracic Surgery utilization was predominantly for cardiac surgery (78%), with minimal plasma units issued for thoracotomy and lobectomy procedures. Plasma use in Vascular Surgery was largely

for aortic aneurysm repair (84%), whereas in Neurological Surgery, all plasma units were used for craniotomy procedures (100%). In Urology, plasma transfusion was primarily associated with nephrectomy (76%).

Overall, plasma usage within surgical disciplines was primarily driven by major operative procedures and acute surgical pathologies. This pattern is consistent with previous years and reflects the continued demand for plasma support in complex surgical care.

4.4.2 Paediatric Plasma Usage

A total of **508 paediatric plasma units** were issued, consisting of an equal distribution between paediatric apheresis FFP (252 units; 50%) and paediatric source plasma (256 units; 50%).

Facility-level distribution demonstrates that utilization was highly concentrated in major referral centres. Windhoek Central Hospital accounted for the largest share (269 units; 53%), followed by Katutura Intermediate Hospital (79 units; 16%) and Oshakati Intermediate Hospital (47 units; 9%). Other notable contributors included Intermediate Hospital Oshakati (IHO) (23%), Rundu Intermediate Hospital (9%), and Katima Mulilo District Hospital (10%), while private sector facilities collectively accounted for 56 units (11%).

A substantial proportion of paediatric plasma utilization lacked adequate clinical documentation, with 215 units (42%) recorded as “null” and an additional 64 units (13%) with no diagnosis. Among cases with

documented diagnoses, Internal Medicine (98 units; 19%) and Paediatrics (62 units; 12%) were the primary users, followed by Trauma (6%) and Surgical indications (5%), while Oncology (1%) and Obstetrics & Gynaecology (1%) contributed minimally.

Analysis of specific clinical indications shows that plasma transfusion in paediatric patients was predominantly associated with prematurity (22 units; 10%), neonatal sepsis (18 units; 8%), and neonatal jaundice requiring exchange transfusion (14 units; 6%). Additional contributors included haematological conditions such as thrombocytopenia (ITP) (4%) and coagulation disorders (4%), as well as infectious conditions, including sepsis (4%) and malaria (1%).

Overall, paediatric plasma utilization was characterized by a concentration in tertiary or referral hospitals, with a significant use in neonatal and critical care indications.

4.4.3 Freeze Dried Plasma (FDP) Usage

Freeze-Dried Plasma (FDP) is Fresh Frozen Plasma (FFP) that has undergone lyophilization, producing a stable, powder-based product that can be rapidly reconstituted for transfusion. This makes FDP particularly valuable in peripheral settings, where immediate access to

conventional FFP and cold chain infrastructure may be limited. While FDP is clinically comparable to FFP in coagulation properties, its use should be reserved for emergencies rather than routine substitution in facilities with adequate storage and supply systems.

Utilization patterns in 2026 indicate that FDP use remains substantial within Namibia's healthcare system. A total of 940 units were issued, with the public healthcare sector accounting for 756 units (80%) at a cost of NAD 1,615,798.80, and the private sector accounting for 184 units (20%) at a cost of NAD 372,224.50, resulting in a total expenditure of NAD 1,988,023.30. Although still high, this represents a 27% reduction in public sector usage compared to 2025 (1,033 units), following a sharp increase between 2023 (405 units) and 2024 (1,093 units; +170%). This decline suggests improved utilization control and more targeted application of FDP.

FDP usage in 2026 was concentrated in specific facilities. The highest utilization in the public sector was observed at Engela Hospital (103 units), followed by Katima Mulilo District Hospital (85 units), St Mary's Hospital Rehoboth (83 units), and Otjiwarongo Hospital (70 units). Additional contributors of FDP usage included Grootfontein Hospital (52 units), Outapi District Hospital (47 units), and Eenhana Hospital (44 units).

Within the private sector, Lady Pohamba Private Hospital (77 units) and Roman Catholic Hospital (75 units) recorded the highest FDP utilization. Notably, these facilities are located in close proximity to established blood banks where conventional plasma products are readily available. Therefore, the elevated FDP usage at these sites is unlikely to be driven by access limitations, but rather reflects service delivery demands, particularly the provision of specialized care such as cardiothoracic surgery, where rapid access to plasma products may be clinically required.

Despite the observed reduction in 2026, FDP utilization remains associated with considerable financial cost and should continue to be closely monitored. Strengthening appropriate-use criteria, clinical governance, and the alignment of product selection with facility capabilities will be essential to ensure that FDP is prioritized in settings where its logistical advantages provide the greatest clinical benefit.

Section 5 – Donor & Recipient Adverse Events related to the collection & transfusion of Blood and Blood Products

5.1 Recipient Adverse Events:

5.1.1 Transfusion Reactions:

A transfusion-related adverse event is any unintended and undesirable occurrence associated with the administration of blood or blood components, occurring before, during, or after transfusion. During the 2026 reporting period, 136 transfusion reactions were reported to NamBTS in association with the 57,655 blood and blood component units issued during the financial year.

As illustrated in Table 5.1, allergic transfusion reactions remained the most frequently reported reaction category,

accounting for 47% of all reported reactions in 2026, compared with 50% in 2025, 41% in 2024, and 46% in 2023. Febrile non-haemolytic transfusion reactions (FNHTRs) accounted for 32% of reactions, consistent with 2025 but lower than the proportions reported in 2023 and 2024, likely reflecting the continued benefits of universal leucodepletion.

Anaphylactoid reactions accounted for 4% of reported reactions, while acute haemolytic transfusion reactions (AHTRs) remained

rare, with only one case reported during the reporting period. No delayed haemolytic transfusion reactions (DHTRs) were reported.

Notably, increased recognition of less common reaction types was observed in 2026, including transfusion-related acute lung injury (TRALI) (3%), transfusion-associated circulatory overload (TACO) (2%), and transfusion-associated dyspnoea (TAD) (3%). In addition, reactions classified as “Other” increased to 7%, consisting predominantly of hypotensive transfusion reactions. These findings may reflect improved clinical recognition, investigation, and classification of transfusion-related adverse events.

Red Cell Concentrates (RCCs) were the blood component most frequently implicated in transfusion reactions, accounting for 58% of all reported reactions. Among RCC-associated reactions, 43% were FNHTRs, 32% allergic or anaphylactoid reactions, 11% TRALI, TACO, or TAD, and 4% hypotensive transfusion reactions.

Fresh Frozen Plasma (FFP) accounted for 37.4% of reported reactions, of which 86% were allergic or anaphylactoid reactions and 14% were FNHTRs. Platelet components

were implicated in only 4.5% of reported reactions, the majority (83%) being allergic reactions.

Analysis by reporting facility demonstrated that transfusion reactions were predominantly reported from high-volume transfusing hospitals. Oshakati Intermediate Hospital reported the highest proportion of reactions (18%), followed by Katutura Intermediate Hospital (15%), Onandjokwe District Hospital (13%), Windhoek Central Hospital (11%), and Rundu Intermediate Hospital (11%). Collectively, these facilities accounted for the majority of reported reactions and reflect their higher utilization of blood and blood components.

Overall, the proportional distribution of major reaction categories has remained relatively stable over the past four years. However, the increased reporting of TRALI, TACO, TAD, and hypotensive transfusion reactions during 2026 suggests improved haemovigilance awareness and clinical recognition of less common transfusion complications. Continued strengthening of haemovigilance systems, clinician education, and reporting practices remains essential to ensure timely identification and investigation of transfusion-related adverse events.

Table 5.1: Transfusion Reactions to Blood and Blood Components Recipients (2023–2026)

Year	Allergic Reaction	Anaphylactoid Reaction	FNHTR	AHTR	DHTR	TRALI	TACO	TAD	Other	Total
2023	68	12	63	5	0	0	0	0	1	149
	46%	8%	42%	3%	0%	0%	0%	0%	1%	
2024	38	8	41	2	0	1	1	2	0	93
	41%	9%	44%	2%	0%	1%	1%	2%	0%	
2025	49	6	31	2	0	0	0	5	5	98
	50%	6%	32%	2%	0%	0%	0%	5%	5%	
2026	64	6	44	1	0	4	3	4	10	136
	47%	4%	32%	1%	0%	3%	2%	3%	7%	

5.1.2 Wrong Blood to Patient (WBTP) Incidents:

Wrong Blood to Patient (WBTP) incidents occur when blood intended for one patient is transfused to another. These events

represent serious breaches in transfusion safety and are entirely preventable through strict adherence to established procedures,

particularly patient identification and pre-transfusion verification.

During the reporting period, five (5) WBTP incidents were documented. Of these, three (60%) involved transfusions of ABO-incompatible red cell units, while two (40%) involved ABO-compatible transfusions. Notably, one incident resulted in an acute haemolytic transfusion reaction (AHTR), highlighting the life-threatening consequences of such errors.

The investigations found that the majority of WBTP incidents were attributable to failures in positive patient identification at the bedside before transfusion. Contributing factors included reliance on incomplete identifiers (e.g., surnames only), failure to

perform the final identity check by two qualified staff members, and deviations from established transfusion procedures and protocols. In addition, system-related factors, such as incorrect delivery of blood units to clinical areas and patient-specimen mismatches in the laboratory, were observed.

Although not all cases resulted in adverse clinical outcomes, these incidents represent significant safety risks. The findings underscore the critical importance of strict compliance with patient identification procedures and continuous training of healthcare personnel to prevent recurrence of such events.

5.1.3 Wrong Blood in Tube Incidents:

Wrong Blood in Tube (WBIT) incidents occur due to incorrect labelling or patient-specimen mismatches and pose significant transfusion risks.

During the reporting period, one WBIT-related WBTP incident was identified: sample mislabelling in the laboratory resulted in incorrect blood grouping and the issuance of an ABO-incompatible unit.

The incident was attributed to non-compliance with the Routine Screen Crossmatch Procedure (SOP/LAB/020). Although no haemolytic transfusion reaction was confirmed, it represents a critical laboratory error.

This highlights the importance of strict specimen identification, accurate labelling, and ongoing competency-based training of laboratory personnel.

5.2 Donor Adverse Events/Reactions:

Donor health and safety remain a fundamental priority for NamBTS and are essential for sustaining a safe and adequate blood supply through voluntary, non-remunerated donations. Since 2019, all donor adverse reactions (DARs), irrespective of severity, have been reported.

During the review period, a total of 252 donor adverse reactions were recorded from 50,756 donations, corresponding to an overall reaction rate of 0.5%. This represents an increase over 2025 (144 reactions) and 2024 (130 reactions), but remains slightly below the level observed in 2023 (254 reactions).

As shown in Table 5.2, mild vasovagal reactions (VVRs) remained the most common type of donor adverse event, accounting for 56% of all reactions in 2026. Moderate VVRs contributed 22%, while severe VVRs were infrequent (2%). Haematomas accounted for 17% of reactions. Less common events included citrate reactions (2%), with two reported nerve injuries (1%) and only a single case classified as "other."

Analysis by donation type showed that the majority of DARs occurred during whole-blood donations (87%), with a smaller

proportion occurring during apheresis procedures (13%).

In terms of donor characteristics, females accounted for 72% of all reactions, while males accounted for 28%. Donor category analysis showed that first-time donors contributed the largest proportion of reactions (42%), followed by regular donors (33%), second-time donors (12%), lapsed donors (8%), and repeat donors (5%).

The predominance of vasovagal reactions, particularly among first-time and female donors, is consistent with international

haemovigilance data. The increase in overall DARs observed in 2026 may reflect improved reporting compliance rather than a true increase in incidence.

Overall, the findings presented in Table 5.2 highlight the continued importance of donor education, appropriate donor selection, and staff training in phlebotomy and donor care practices. Strengthening these measures remains essential to minimize adverse donor events and ensure donor safety and retention.

Table 5.2: Donor Adverse Reactions (2023 – 2026):

Year	Mild VVR	Moderate VVR	Severe VVR	Haematoma	Nerve Injury	Citrate	Other	Total
2023	161 63%	52 20%	8 3%	28 11%	1 0%	3 1%	1 0%	254
2024	72 55%	39 30%	6 5%	11 8%	1 1%	1 1%	0 0%	130
2025	84 58%	41 28%	5 3%	12 8%	1 1%	1 1%	0 0%	144
2026	140 56%	56 22%	4 2%	43 17%	2 1%	6 2%	1 0%	252

5.3 Near Misses:

A total of 10 laboratory- and blood bank-related incidents were reported during the review period, most of which were classified as near-miss events.

Standard operating procedure (SOP) deviations and pre-transfusion process errors accounted for approximately 30% of incidents, primarily involving failures in specimen requisition verification and communication lapses. Blood group and serological discrepancies comprised 20% of cases and were detected prior to transfusion, preventing incompatible transfusions.

A further 30% of incidents involved non-conforming or expired blood components, including a case in which an expired FFP unit was issued to a healthcare facility, indicating deficiencies in inventory control and final

product verification. The remaining 20% were associated with communication failures.

Additional process-related incidents were identified within the donor division, primarily involving data-entry errors and incomplete donor medical assessments. While these incidents did not directly affect recipients, they represent upstream risks to traceability and overall system integrity.

Overall, the predominance of near-miss events reflects the effectiveness of existing safety barriers within the transfusion system; the occurrence of SOP deviations, specimen identification errors, and the issuance of expired blood components indicate critical areas requiring enhanced staff competency and stricter adherence to established protocols across the transfusion chain.

5.4 Mortalities associated with Blood Transfusion:

During the current reporting period, no transfusion-associated mortalities were reported.

While this finding is encouraging, it should be interpreted with caution. Continuous vigilance remains essential, as factors such as underreporting and limited post-mortem investigations may obscure the true

incidence of transfusion-related fatalities. Strengthening clinical documentation, ensuring timely and accurate reporting, and enhancing capacity for follow-up investigations—including autopsies where appropriate—are critical to supporting accurate mortality attribution and maintaining patient safety within the transfusion system.

Section 6 – Lookback Programme

Lookback investigations constitute a critical component of haemovigilance and are undertaken by the Blood Service in instances of suspected TTIs. These investigations may be initiated either by the donor (donor-triggered) or the recipient (recipient-triggered), with the objective of identifying, assessing, and mitigating potential risks associated with blood transfusion.

During the period under review, no lookback investigations were initiated, as no suspected cases of transfusion-transmitted infections were reported.

This absence of lookback investigations may reflect effective donor screening, rigorous laboratory testing, and adherence to established transfusion safety protocols. Nonetheless, continuous vigilance, comprehensive documentation, and prompt reporting remain essential to ensure that any potential risks are identified and addressed in a timely manner, thereby maintaining the safety and integrity of the transfusion chain.

Section 7 – Recommendations

Based on the findings of the 2026 Financial Year Haemovigilance Report, the following recommendations are proposed to strengthen the safety, availability, quality, and appropriate utilization of blood and blood components in Namibia.

Donor Recruitment & Retention

- Strengthen donor recruitment initiatives targeting schools, tertiary institutions, workplaces, and community organizations to increase the proportion of the Namibian population participating in blood donation.
- Expand donor retention and reactivation programmes to maintain the growth observed among regular donors and reduce the proportion of lapsed donors.
- Develop targeted recruitment strategies for younger donors (16–24 years) to ensure long-term sustainability of the national donor pool.
- Continue expanding apheresis donor recruitment programmes to support increasing demand for platelets, plasma, and specialized blood components.

Donor Health & Eligibility	▪ Strengthen donor education programmes focusing on nutrition, iron intake, and healthy lifestyles to reduce haemoglobin-related deferrals. ▪ Continue ferritin monitoring and donor iron management initiatives to identify donors at risk of iron depletion and provide appropriate interventions. ▪ Review donor health screening data regularly to identify emerging trends related to hypertension, abnormal pulse rates, and other physiological causes of deferral.
Blood Safety & TTIs	▪ Maintain strict donor selection criteria and comprehensive serological and ID-NAT screening to sustain the low prevalence of TTIs within the donor population. ▪ Continue targeted donor education and behavioural risk reduction programmes, particularly among first-time donors who continue to demonstrate the highest TTI prevalence. ▪ Strengthen donor counselling, referral, and follow-up systems for donors with confirmed positive or inconclusive screening results.
Blood Component Collection & Availability	▪ Continue expanding plasmapheresis collections to support both transfusion requirements and the manufacture of plasma-derived medicinal products. ▪ Strengthen recruitment and retention of hyperimmune plasma donors to achieve annual collection targets and support local production of rabies immunoglobulin. ▪ Initiate a vaccination programme to increase the rabies hyperimmune plasma donor pool and consider booster vaccination of donors who fail eligibility due to low antibody titer levels. ▪ Ensure sustainable procurement and availability of consumables required for erythrocytapheresis and other specialized apheresis programmes to prevent interruptions in service delivery.
Blood & Component Wastage	▪ Continue implementation of inventory management strategies that contributed to the reduction in RCC and platelet discard rates during 2026. ▪ Maintain platelet sterility testing and extended platelet shelf-life practices, which have demonstrated significant reductions in platelet wastage and improved product availability. ▪ Develop and implement a national hospital blood wastage monitoring system to quantify wastage occurring after issue and identify opportunities for improvement at healthcare facility level. ▪ Strengthen communication between hospitals and blood banks regarding anticipated demand, stock levels, and emergency requirements to minimize expiry-related losses.
Appropriate Clinical Use of Blood	▪ Strengthen Patient Blood Management (PBM) programmes across both public and private healthcare sectors to promote evidence-based transfusion practices and optimize blood utilisation. ▪ Continue clinician education on appropriate blood component selection, transfusion thresholds, and blood group-specific

Haemovigilance & Data Quality	utilization to reduce unnecessary demand on group O blood supplies. ▪ Promote adherence to transfusion guidelines and improve utilization review processes at high-volume transfusing facilities. ▪ Improve completeness of clinical information recorded on blood request forms, particularly diagnostic information, to support more accurate utilisation analyses and haemovigilance reporting. ▪ Strengthen reporting of donor adverse events, transfusion reactions, near misses, and transfusion incidents through ongoing training and awareness programmes. ▪ Continue annual haemovigilance reporting and trend analysis to support evidence-based decision-making and continuous quality improvement within the National Blood Programme.
Strategic Priority	▪ Maintain collaborative engagement between NamBTS, the Ministry of Health and Social Services, healthcare facilities, donors, and other stakeholders to ensure a safe, sustainable, and equitable blood supply for Namibia.

The 2026 haemovigilance findings demonstrate continued improvement in blood safety, component utilization, and wastage management. Priority should now focus on strengthening donor recruitment and retention, reducing haemoglobin-related donor deferrals, expanding specialized donation programmes, improving hospital haemovigilance, and advancing Patient Blood Management practices to ensure long-term sustainability of the national blood supply.

